

**London Southend Airport &
Environs
Preferred Options
(February 2009)**

Sustainability appraisal

June 2009

Contents

- 1 Introduction
- 2 The method of sustainability appraisal
- 3 Familiarisation and review of the SA to date
- 4 Sustainability appraisal: general matters
- 5 Sustainability impacts: economic
- 6 Sustainability impacts: environment
- 7 Sustainability impacts: social
- 8 Implementation and delivery
- 9 Summary

Appendix 1: Supplementary information for JAAP SA scoping

Appendix 2: Sustainability framework – tracked changes

Appendix 3: Sustainability appraisal of JAAP policy topics

1 Introduction

- 1.1 This is the sustainability appraisal (SA) incorporating strategic environmental assessment (SEA) of the London Southend Airport & Environs Joint Area Action Plan (JAAP) preferred options version. The SA is being prepared on behalf of Southend-on-Sea Borough and Rochford District Councils, by consultants Baker Associates. It is intended to provide an examination of whether the preferred options document, as it is currently written, would help deliver development at the airport site and its environs that is compatible with sustainable development. This report follows an earlier SA report of the Issues and Options version of the JAAP and sustainability appraisal scoping report, prepared by the Halcrow consultants.
- 1.2 This report is an internal working document that aims to help identify the sustainability implications of the preferred options JAAP. The report also makes recommendations on how any identified gaps or shortcomings of the JAAP could be addressed. The purpose is to make sure the Council team preparing the JAAP are informed by the principles of sustainable development in preparation of the submission version JAAP. It is hoped that the SA will help create a more sustainable plan.
- 1.3 This SA not looks at the coverage of issues in the JAAP related to sustainable development; identifying matters that could be addressed in greater detail to improve performance. It also considers whether the approach taken in the JAAP is likely to be successfully implemented, and therefore actually achieve the anticipated benefits.
- 1.4 Plans have a positive role in making better places. Good planning can help make sure that growth and change are managed in a way to secure benefits for the environment and communities, wherever possible. The SA has a role in this in helping point out to plan makers what impact the proposed plan could have on achieving more sustainable development. It is not the role of the SA to make judgements about the suitability of development, but rather to set out in a clear way what the sustainability implications might be of pursuing different types, scales and locations of development.

The Joint Area Action Plan

- 1.5 The intention of the JAAP is to help deliver development at the London Southend Airport site that is as compatible as possible with sustainable development.
- 1.6 There may be inevitable adverse sustainability impacts from promoting airport expansion, and therefore encouraging more air travel in the UK. These impacts relate to climate change, and release of greenhouse gases into the atmosphere by aircraft. The climate change impacts of this are not compatible with environmental sustainability. However, the SA also acknowledges that it will be important for the two local authorities to have the JAAP in place so as to direct an immanent planning application to

maximise benefits and minimise harm to sustainable development where it is possible. This can be through securing local benefits, such as access to employment and new jobs, and making sure any new buildings are of a high standard contributing to the sustainable use of materials and resources, and encourage local sustainable travel.

- 1.7 The JAAP also provides the opportunity to bring more stringent control measures into operation at the airport. This will help reduce the impact of aircraft movements and ground testing on the local population, including the potential to limit operational hours and reduce night flights.
- 1.8 Therefore, this SA concentrates on these factors of the JAAP, whilst not forgetting that increasing air travel is unlikely to ever be compatible with truly sustainable development.

The SA to date

- 1.9 This report follows an earlier SA report of the Issues and Options for the JAAP, and a SA scoping.
- 1.10 The SA of the Issues and Options was available for consultation alongside that document. However, this SA of the preferred options follows consultation on this document. Therefore, there will be no opportunity for the public to be consulted specially on this SA.
- 1.11 The next public consultation stage will not be until the pre-submission consultation version of the JAAP.

2 The method of sustainability appraisal

- 2.1 Sustainability appraisal (SA) is required of the emerging London Southend Airport Joint Area Action Plan (JAAP) under the regulations of the Planning and Compulsory Purchase Act 2004. Strategic Environmental Assessment (SEA) of certain plans and programmes and also required by the European Directive EC/2001/42. The approach taken to the SA in this case is to ensure that there is a thorough investigation of the sustainability implications of implementing the JAAP to inform its preparation. The aim of which is to meet the SEA and SA requirements through a common process with common reporting – jointly known as an SA.
- 2.2 This pragmatic and combined approach does not mean that the SA and findings will be compromised. The appraisal approach remains thorough and robust, based on the particular needs and characteristics of the area and the JAAP.
- 2.3 This SA is being undertaken independently from the JAAP preparation by consultants. This is essential in providing a proper test of the planning document. It is only through being removed from the process of preparation that it is possible to give a full critical analysis of the approach followed, and the identification of possible weakness or gaps. However, there have been

discussions between those undertaking the SA and those preparing the JAAP to allow sustainability matters to be incorporated into the SPD through more informal feedback of ideas.

- 2.4 Sustainability Appraisal is an integral part of good plan making and should not be seen as a separate activity. Its purpose is to promote sustainable development by integrating sustainability considerations into plans. By testing the emerging content of the JAAP it is possible to identify any likely significant effects of the plan, and give opportunities for improving the social, environmental and economic conditions by implementing the plan.
- 2.5 Sustainability Appraisal should consider several criteria:
- the long-term view of how the area covered by the plan is expected to develop
 - a mechanism for ensuring that sustainability objectives are translated into sustainable policies
 - reflect global, national, regional and local concerns;
 - form an integral part of all stages of plan preparation
 - incorporate the requirements of the SEA Directive.
- 2.6 The method of sustainability appraisal uses the framework of sustainability objectives (section 3) as the basis for assessment of the JAAP. Using these objectives, as a general description of sustainability considerations relevant to the airport and associated employment development, it is possible to assess whether the JAAP is helping to make a contribution to more sustainable development. The appraisal is based on an issue by issue appraisal of the preferred options document, considering the relevance of policies and possible scope for changes.
- 2.7 More detail on the derivation of these sustainable objectives is available in the SA scoping report, and section 3. Appendix 2 contains the track change amendments to the sustainability framework.

Continuing the SA

- 2.8 This SA process was begun by a different consultant team. This is SA stage 1, a continuation from this work already completed. This SA builds on the work already completed, including:
- Familiarisation with the baseline evidence gathered at scoping
 - Understanding the relative sustainability implications of pursuing the policy options, presented in the issues and options report.

3 Familiarisation and review of the SA to date

Baseline information and objectives

- 3.1 One of the first tasks to complete on undertaking the SA was to review the information and stages of SA that have already been completed. This review has included a check of the 'Scoping Report' of the JAAP, published in January 2008. The purpose is identify where there may be information gaps in the report that could be filled to help provide background to the appraisal of the JAAP policies and proposals.
- 3.2 Reviewing this information revealed some gaps in coverage. Therefore, this note provides some additional information on the baseline environmental and sustainability conditions for the SA. Most notably on noise, the economy and the contribution to atmospheric greenhouse gases and a warming climate from aviation. Appendix 1 contains some additional material to help fill these gaps.
- 3.3 As with the previous stages of SA the quantity and detail of the information has been kept suitable to the appraisal of the JAAP. Therefore, it does not include any specific primary information gathered for the assessment and only seeks to compile the information that is already available. More detailed assessment will be needed when a planning application is submitted to the Council.
- 3.4 The form of this document is to shown, in Appendix 1, as track changes version of sections of the London Southend Airport & Environs Study Sustainability Appraisal (January 2008) that have been updated. This process is focused on adding additional information and therefore is not a validation of the existing information.
- 3.5 This additional information has identified the following sustainability issues.
- 3.6 **Noise:**
- The noise contours prepared of the baseline and future scenarios for airport expansion show that planes that currently use the site may be more noisy than modern planes that would also need a longer runway.
 - The noise contour of the airport may reduce if all planes using the new runway are newer and quieter models.
 - There are sensitive noise receptors in proximity to the runway and within or adjacent to the noise corridor, including homes, school and a hospital
 - Despite quieter aircraft using the extended runway there will be an inevitable increase in the number of flights.
 - Ground MRO will continue and has noise impacts, data is not yet available.

3.7 **Employment:**

- The East of England Plan sets an indicative need for 13,000 net new jobs in Southend and at least 3000 in Rochford, between 2001 and 2021.
- There is an intention for growth of 'aviation/airport and associate industries' in Southend, in line with the Regional Economic Strategy.
- The airport currently provides 1000 jobs in aircraft Maintenance and Repair and Overhaul (MRO) and these need to be retained as well-paid skilled jobs in the area.
- There is little vacant employment land in Rochford District.
- Other areas of Southend may provide competing locations to development at the airport, potentially in more sustainable locations, such as the town centre. Highlighting the need to identify an appropriate mix of employment types at the airport to support the Southend and Rochford as a whole.

3.8 **Greenhouse gas emissions:**

- The majority of flights from Southend are likely to be domestic and short-haul, Defra conversion statistics put CO₂ emissions at 175.3 gCO₂ per person km for domestic flights, and 98.3 gCO₂/pkm for short-haul flights
- Increasing flights up to 2 million passengers would see a large increase in carbon emission from the airport.
- For all of the aircraft growth scenarios modelled by the IPPC the net warming factor by aircraft (excluding that from changes in cirrus clouds) is a factor of 2 to 4 larger simply from carbon dioxide emissions alone. This is quite a lot higher than the overall warming factor for the sum of all human activities, which is estimated to be at most a factor of 1.5 larger than that of carbon dioxide alone. This means aircraft may be contributing proportionally more to warming than equivalent carbon emission elsewhere, for example car travel.

3.9 **Data gaps:** In understanding the real implications of the airport expansion in terms of noise, emissions and quantities of airport related business and passengers. It is understood the Council and airport owners are preparing necessary information, including:

- aircraft movements and frequency of flights
- fleet mix

3.10 Data is also being prepared on how to mitigate some of the impacts of increased aircraft movements. This includes control measure, operating hours, cargo, helicopters, noise control routes.

3.11 **Sustainability framework:** The review has also resulted in some adjustments to the sustainability framework that will be used as the core of the appraisal. These changes are mainly minor with the same topics

remaining covered by the objectives. However, changes have been necessary in some instances either to reflect the additional baseline information identified or to add clarity to the objectives and 'key questions'.

- 3.12 There have also been some deletions of parts of the framework. The primary reason for this is to make sure the framework is tailored to the needs of the JAAP SA, removing statements that the JAAP could not hope to address.
- 3.13 The indicators have also been adjusted to reflect that these are examples only, and it may be that the final set established at later stages of SA are made to fit with the overall monitoring arrangements for the JAAP, and are much fewer.
- 3.14 The main changes to the framework are:
- The way 'Population and Local Economy' is referred to has been changed, to simply refer to 'Local Economy'. This simplification relates to one of the main aims of the JAAP being economic growth and that it has little relevance to 'population', access and communities are covered elsewhere in the framework.
 - The previous version of the SA framework had a single objective on 'climate change and flooding'. These have been separated into the 'impacts of climate change' to cover resilience and resistance to a change climate and, separately, flooding. This is to raise the profile of flooding in the appraisal.
 - The 'Energy' topic and elements of the former 'climate change' objective, which relates to climate change mitigation, have been combined. This reduces duplication and makes the individual topics more clear. Several additional indicators, and an additional key question, have been added in relation to aircraft greenhouse gas emissions.
 - New objectives have been prepared for 'material assets' and 'waste' as the previous one was not very relevant to the topic, additional key question have been added for 'material assets'.
 - For 'air' and 'noise' topics a wording change to the objective has been made to reflect impacts others than to 'residents and users' from these sources.
 - Several additional indicators have been added for noise.
 - Safety/health and risk topic has been widened to more explicitly relate to health and wellbeing issues, and the importance of creating a healthy place.
- 3.15 A tracked changes version of the framework is included as Appendix 2, and the final version is shown here as table 3.1.

Table 3.1: Sustainability objectives

Topic	Objective
Economic	
Local economy	To improve the vitality and viability of the airport, and to achieve sustainable levels of prosperity and economic growth
Employment and Wealth Creation	To maximise economic benefits of the thriving airport, enhance wealth creation factors and emphasise local strengths and qualities to attract investment.
Environment	
Biodiversity	To maintain and enhance areas of importance for wildlife and nature conservation including species diversity, as an integral part of economic and social development.
Water	To maintain and enhance the quality of ground water and sustain good quality water resources, wherever possible
Impacts of climate change	To reduce the effects of climate change
Flooding	To reduce the risk of flooding on and off-site
Material assets	To improve the quality of development through use of local sourced, recycled and efficient building materials
Soil	To protect greenfield land as well as enhance quality of soils, wherever possible.
Air	To ensure high quality environment for local communities and other sensitive receptors
Noise	
Waste	To reduce the use of primary resources and the quantity of waste going to final disposal
Energy and climate change mitigation	To increase opportunities for renewable energy generation.
Accessibility and accessibility to key services	To enable people to have similar and sufficient levels of access to services and promote sustainable transport measures
Transport	
Landscape and Townscape	To maintain the quality and setting of landscapes and townscapes
Social	
Safety/ Health and Risk	To improve overall levels of health, create safe environments by creating healthy places to live and by reducing crime/fear of crime
Education and skills	To improve the education and to assist people to gain skills and fulfil their potential and increase their contribution to the community.
Community (cross cutting theme linked to accessibility to services)	To nurture a sense of belonging in a cohesive community where people live and work
Housing	To provide opportunity for people to meet their housing needs

SA of the Issues and Options SA

- 3.16 The Draft Sustainability Appraisal of the London Southend Airport & Environs Study JAAP was completed and consulted on in June 2008. This report documented the findings of the SA, based around the five growth scenarios set out in the Issues and Options consultation document. These alternatives were:
- Scenario 1: Low growth scenario – maintaining the status quo
 - Scenario 2 (a): Medium growth - incremental growth of the MRO, employment intensification in the airport, Aviation Way Business Park and Laurence Industrial Park and the retail park to the east, with limited expansion of Aviation Way for new employment.
 - Scenario 2 (b): Medium Growth aviation cluster – to transform London Southend Airport as a key driver tot the sub-regional economy and shaping the future focus of the JAAP.
 - Scenario 3: High Growth – prepare a JAAP to take a positive role in both airport development and the wider need for employment land in the two local authority areas.
- 3.17 These scenarios represent lowest to highest levels of growth, and this was used as the basis of assessing the relative sustainability impacts of development.
- 3.18 The potential impacts identified are:
- on the water environment with the existing poor water quality in Rayleigh and Eastwood Brooks and lack of reference to surface water management there is a risk that new development could worsen this
 - loss of greenfield land – although the quality of the land for biodiversity and landscape significance is unknown, with higher growth levels having greater impacts
 - increasing surface transport to serve 2 million passengers per year and employees accessing new and more intensively used existing employment sites – with the potential for adverse congestion, air quality and CO₂ emissions
 - inevitable noise and air impacts from HGV traffic travelling through Southend to the new employment sites
 - positive benefits for the economy and access to local employment – although to maximise benefits there needs to be some mechanism for skills (training) as part of development. In addition, under all options that do not include runway expansion, and therefore more modern planes, the long-term potential for economic growth is questioned
 - improvements to leisure facilities through medium and above growth options

- a need to protect topsoil as higher grade agricultural land is likely to be lost through development
- risk that overexpansion of employment growth having adverse impacts on economic growth in the remainder of Southend on Sea Borough, for instance detracting development from the town centre
- greatest opportunities for economic growth and the successful long-term operation of the airport will require the runway expansion to allow for more modern aircraft to use the airport.

3.19 The SA of Issues and Options highlights a range of further studies that should be required of development prior to any permission being granted, and therefore set out as policy in the JAAP. These include:

- Requirements for sustainable water management through attenuation, sustainable drainage and swales to avoid adverse pollution impacts on water courses
- Helping to make sure new employment growth also delivers skills training
- Detailed ecological impact and management studies to find ways for compensating for loss of greenfield land, and in particular the risk of impacts on the Roach Estuary Special Protection Area
- Making sure high grade agricultural topsoils are not lost to development
- More investigation of the landscape significance of the airport environs and how to protect the integrity of settlements, including preparation of a landscape plan and management strategy
- Setting design guidance for the size, mass, height and building materials of all new buildings, in order to reduce the overall impact of new built development
- Travel and transport management plans and strategies [these should look at the wider Essex Thames Gateway impacts]
- To avoid inequitable location of new business to the airport at the expense of other parts of the two districts, especially Southend town centre, the JAAP policies will need to be specific on the use class of business suitable at the airport and environs.
- Other considerations include: designing out crime, renewable energy generation on-site, waste handling, setting policies for buildings to meet Code for Sustainable Homes or BREEAM standards, distribution of warehouse and storage spaces to make sure HGV flow into the area is kept a minimum.

3.20 More information on these matters is provided in the Issues and Options SA report.

3.21 In terms of increasing the number of flights there are other impacts that have not been considered fully in the Issues and Options SA and JAAP. These

issues are mainly environmental, such as noise and air pollution, as well as increases in CO2 emissions and climate change. These are fully explored within section 4 of this report.

- 3.22 The preferred options version shows that the chosen approach for the JAAP is to pursue the 'high growth' (option 3) provided for the highest amount of development, including an extension to the runway providing for 2 million people per annum and employment area providing 94,000 sq m.

4 Sustainability appraisal – general matters

Assumptions for the appraisal

- 4.1 To allow appraisal of the JAAP several assumptions have to be made on how the JAAP will influence development on the site and the environs. These assumptions relate to the operating capacity of the airport and the number of commercial passengers it will serve in the future, as well as the number and type of plans that use it.
- 4.2 Currently the owners of the airport want to increase its use and the number of passengers per annum and the operators already have permission for this. However, currently the runway length means that more modern medium sized passenger planes cannot use the airport. Therefore, the likelihood of the owners successfully attracting an operator to increase flights up to 2 million would be low.
- 4.3 Therefore it is assumed without a runway extension passengers at the airport will not rise to 2 million passengers per annum.
- 4.4 It is not possible to predict precisely what type of planes would be using the airport in the future and information on this is not yet available. However, it is assumed that a longer runway would be able to accommodate more modern planes, these are more likely to be quieter and more fuel efficient, although in the short to medium term the existing type of planes will also use the runway.
- 4.5 A planning application for a runway extension will provide the opportunity for new controls to be set on the operation of airport, including night flight controls and operating hours. Therefore, the JAAP has the potential to deliver more rigorous environmental standards for airport operation.
- 4.6 It is also assumed that if passengers increased to 2 million per annum then this would largely be an increase in overall air travel from London airports and not simply a redistribution of existing air travel. Therefore, few of the impacts are simply a displacement of impacts elsewhere, such as climate change and surface travel.

General matters

- 4.7 The SA contains a brief review of policy topics, shown in Appendix 3. These appraisals are based on the sustainability framework in Appendix 2 and table 3.1.
- 4.8 The appraisal matrices take each of the main themes of the JAAP and consider the impacts on sustainable development, using the sustainable objectives as a guide. The appraisal contains comments and recommendations on enhancing sustainability performance of the JAAP, as well as identifying where the potential for significant impacts may arise.
- 4.9 The SA identifies that the JAAP is encouraging airport expansion by including a policy that gives in agreement in principle to runway extension. This is based on the assumption that the airport would not increase to 2 million passengers per annum without the extension. This is also a relatively local decision as this growth has not been identified in either the Air Transport White Paper (ATWP) or the East of England Plan.
- 4.10 The expansion of the airport is in conflict with sustainability objectives relating to 'accessibility' and 'transport' that seek to '*promote more sustainable transport measures*'. There is an inevitable adverse relationship between this objective and the purpose of the JAAP, as air travel is very unlikely ever to be a 'sustainable transport' option. Therefore, the appraisal has to score the JAAP negatively in relation to these objectives overall, while still looking for instances where the JAAP does encourage more sustainable surface travel to and from the airport, as well as commuting to new jobs provided on sites allocated through the JAAP.
- 4.11 Similarly, the JAAP does not perform well in terms of objectives for energy and climate change, as the purpose of the airport is to increase travel by this carbon intensive, form of travel. Thereby, increasing greenhouse gas emissions will be inevitable. However, the SA will also seek to identify if the JAAP is seeking to set policy to reduce the associated greenhouse gas emissions from associated development and travel to and from the terminal building and proposed employment areas.

5 Sustainability impacts: Economic

- 5.1 The document provides a positive outcome for economic growth compared against a do-nothing scenario. It brings immediate and long-term employment opportunities for both aviation and other jobs. This will attract new businesses and benefit the local economy.
- 5.2 However, the East of England Regional Assembly state in their response to the Issues and Options document that a third of business surveyed were deterred from locating in the area because of the proximity of the airport.

Therefore, increasing the number of flights could have an impact on attracting certain types of employment to such close proximity to the airport.

- 5.3 Despite this there is also the risk that the airport associated business parks could become the favoured location for new employment in Rochford and Southend. This could create an imbalance on the overall regeneration and sustainable location of businesses in the area. For example, having an adverse impact on the Southend town centre regeneration initiatives as businesses choose to locate in peripheral greenfield business parks.
- 5.4 The risk of a bias toward the airport environs as the focus for employment may result in negative impacts related to accessibility to work. Figures in the JAAP show the total number of jobs supported by the preferred option is estimated to be 7380, half in each local authority. This means that, for Rochford, the implementation of the JAAP would exceed the 3,000 target of the East of England Plan. Therefore, all new jobs could be at the airport.
- 5.5 It therefore may be necessary for the JAAP to set out policies, proposals and implementation plans to help counter this. Measures the JAAP could include are:
- use classes should be specified for business parks
 - phasing needs to managed to ensure that other business location in potential more sustainable areas are prioritised, such as town centre.
- 5.6 The other risk of this strategy is the current economic downturn shows how vulnerable airlines are to changes in peoples' travel behaviour. Basing a large part of the local economy of Southend and Rochford on the airport runs the risk of this not being sustainable in the long-term. As fuel prices increase there may be an inevitable drop-off in air travel, putting associated businesses at risk.
- 5.7 In order for the existing residents of the two local authorities to benefit from the new employment it may be beneficial for the implementation plan to contain requirements for local employment or funding of local training programmes.

6 Sustainability impacts: Environment

General comments

- 6.1 The JAAP identifies the issue of balancing development with environmental enhancements and provides six policies related to the environment. The issues relate to environmental impact (noise and air quality) due to the result of the increased aircraft movements and traffic in the area. The JAAP also provides policies relating to opportunities for new public open space.

- 6.2 However, the JAAP lacks precise detail on how aircraft movements will be subject to environmental controls and measures relating to environmental mitigation are not detailed in the preferred option either.
- 6.3 There are many issues not covered in the JAAP that were originally highlighted within the SA Scoping Report and Evidence Report. The preferred option score poorly against many environmental issues identified in the scoping report. The impacts of the preferred options relating to these issues are outlined in the section below. These issues include:
- air quality
 - noise
 - water quality and quantity
 - urban fringe/Green Belt
- 6.4 There is an absence of any of these issues mentioned in the preferred options documents. Even where these issues are covered in the Core Strategy, the JAAP should outline the area specific issues and provide appropriate protection or mitigation policies.
- 6.5 There are other things missing from the preferred options document:
- cultural heritage
 - biodiversity / Green infrastructure
 - climate change (CO₂ emissions)
 - sustainable construction
 - waste
- 6.6 Flood risk is covered in scoping report and is sustainability objective in the sustainability framework, but there is no mention of **flood risk** in the JAAP.
- 6.7 The SA recognises the importance of not duplicating national, regional or local policy through the JAAP policy. However, JAAP policy can cover similar policy topics but tailoring these to the specifics of the site, for example making reference to specific water bodies, buildings and setting area specific targets and thresholds for development. In addition, the JAAP may need to fill gaps in local and regional policy. For instance the Core Strategy for Southend is not very up-to-date, there is no Core Strategy for Rochford and the East of England regional policy is at risk. The SA therefore makes suggestions on all relevant policy aspects, even if these could also be covered by a higher tier of policy.

Air quality

- 6.8 Air pollution will increase from the rising number of flights and travel made to the airport and proposed new employment areas.

- 6.9 The impacts will be on the local population and sensitive receptors, including homes, schools, residential care homes and possibly some habitats. Issues relating to CO2 emissions is outlined in paragraphs 6.45 to 6.51.
- 6.10 Air pollution could potentially impact on designated sites to the south-west: Benfleet and Southend Marshes Site (SSSI, SPA and Ramsar); Crouch and Roach Estuaries SSSI, SPA and Ramsar); and Essex Estuaries SAC.
- 6.11 Designated sites Great Wood and Dodd's Grove SSSI (south-west) and Hockley Woods SSSI (north-west) could also be affected by air pollution and particle deposition from increased air traffic. Air quality impact analysis to assess potential impacts should include detailed current baseline (including specific aircraft types) with project changes.
- 6.12 Policies that seek a modal shift away from car use may help reduce the overall impact air quality changes. However, the JAAP is promoting expansion of the airport and of employment in this areas, therefore adverse air quality impacts may be inevitable. Attempts should be made to reduce the impacts on sensitive receptors wherever possible, this is not only through maximising a mode shift from car use, but also directing more polluting traffic away from sensitive areas. For example, new warehousing and distribution employment should be located to minimise travel through sensitive areas, and MRO operations that will include ground testing would be located far from residential receptors.

Lighting

- 6.13 New development will require new lighting for safety and security and to allow night time operation of the airport and outdoor MRO. Policies in the JAAP should set the standards for this lighting, including lighting levels, low level lighting and possible total switch off times late at night in employment areas, and minimal airport lighting necessary for safety at night.

Noise

- 6.14 Air related and surface transport related noise is already a disturbance to the local community. The proposals will provide increased flights and people travelling to the airport and to the new employment areas, which will increase the frequency and noise levels.
- 6.15 There are a number of receptors in the area including residential properties which are in close proximity, schools, a hospital and historic buildings and areas which may be impacted by vibrations. Specific residential receptors include housing developments in the south east of the study area, properties along Wells Avenue to the south, properties off Southend Road, Manners Way, Prince Avenue and Cherry Orchard Lane and properties in the north eastern corner of the site at The Ridings and Rochford Hall Close.
- 6.16 Noise also have the potential to impact on designated environmental sites to the south-west: Benfleet and Southend Marshes Site (SSSI, SPA and

Ramsar); Crouch and Roach Estuaries SSSI, SPA and Ramsar); and Essex Estuaries SAC.

- 6.17 Development of the preferred policy is being based on a yet to be agreed baseline noise assessment. The Government's preferred assessment of noise nuisance is the 57 decibels levels. Individual noise events and the number of such events are also important.
- 6.18 The noise of aircraft taking-off and landing at the airport is likely to increase in frequency to serve up to 1 mppa by 2012 and 2 mppa by 2031, even if individual aircraft get quieter. This will be an inevitable impact of airport expansion and there is little policies can do to prevent this, besides limiting night time flying so that sleep is not disturbed. Night flights should be kept to an absolute minimum especially of planes above a threshold decibel level.
- 6.19 Other noisy impacts of the airport and associated employment could be controlled through JAAP policy. This includes the design of new employment development to limit HGV movements in residential streets and only granting permission for MRO operations in areas where noise will be baffled by buildings or other sound insulation, or away from sensitive receptors.

Water quality and quantity

- 6.20 Water resources and water quality are omitted from the plan. The JAAP preferred option will place additional pressures upon water resources, waste water treatment and disposal and surface water run-off. Parts of the areas being developed have the potential to be contaminated, which could also have an impact on water quality.
- 6.21 Large scale development offers opportunities for initiatives for water harvesting and water recycling systems which should be part of the overall drainage and water management strategy.
- 6.22 Water quality could also have an impact on environmental designated sites which are in close proximity of the JAAP area. This is discussed more within the biodiversity section of this report. However, more emphasis should be put on putting in soakaways and swales to manage water run-off from all new areas of hardstanding, including new roads and the runway.

Flood risk

- 6.23 Environment Agency assessments and mapping show that much of the proposed JAAP area is either within Flood Zones 2 (medium risk) and 3 (high risk).
- 6.24 The JAAP proposes to provide an extended runway, intensification of employment areas, new employment areas and reduction in greenfield land area. All these factors could potentially contribute to increased risk of flooding to the site and surrounding areas.

- 6.25 There is no mention of flood risk in the JAAP preferred option document. There is no direction to employment growth to the least flood risk areas and it does not provide any mitigation measures that could be put in place to reduce the risk of flooding.
- 6.26 Policies in the JAAP could include those seeking runoff rates to be at, or lower than, greenfield run-off. Development should make use of sustainable drainage systems, including attenuation ponds and water recycling.

Urban fringe/Green Belt

- 6.27 The JAAP proposes development in the green belt for employment use. This will result in the loss of green space and green belt land which separates Southend on Sea and Rochford.
- 6.28 Links between the built up areas and surrounding countryside are not clearly articulated at this stage. The plan should provide more detail on the design principles to be followed to ensure the principles of the green belt
- 6.29 Use of the Green Belt for employment should be in 'exceptional circumstances'. The East of England Plan refers to the retention and more positive use of the green belt; policy ETG4 does not identify the need for reviewing the green belt, but does support employment uses that benefit from an airport location
- 6.30 The review of the green belt, if this preferred option is followed, will need to be linked to the overall implementation. However, Green Belt land is not an environmental quality designation, and only protects open land. However, to replace lost land new open space should aim to make a positive contribution to the natural environment, with suitable landscaping, public access and biodiversity enhancement to be a positive benefit to the urban fringe.

Cultural heritage

- 6.31 The JAAP area contains several features listed for their historic importance. These include the listed grade I building, St Laurence and All Saints Church, Grade II listed Cherry Orchard house and a Grade II listed milestone. There are no clear references to any of these features in the JAAP preferred option document.
- 6.32 The Evidence Report and Sustainability Appraisal Scoping Report outlines the potential impacts on cultural heritage, including the church and Rochford Conservation Area. The Evidence Report states, 'The presence and settings of the listed buildings within the site may be a potential constraint to future designs. The presence of Rochford Conservation Area, which abuts the site, could also be a potential constraint'.
- 6.33 However, the JAAP in its overview of balancing development with environmental enhancements omits to mention the existence of any cultural heritage, including the church and Rochford Conservation Area.

- 6.34 As mentioned in the noise section above, there will also be an impact from noise. An assessment of noise impacts (ground and air noise) should be provided for the church and other heritage, including Rochford Conservation Area.
- 6.35 Policy and proposals of the JAAP need to address these issues as Cherry Orchard house is within the Area 2 employment allocation, and proposed area of road widening. The listed church is directly adjacent to the proposed runway extension, and despite not being very high may be a safety hazard in the area and need to be demolished, the JAAP will need to be clear if this is the case.
- 6.36 Where opportunities and design solutions can be used to bring development away from the church should be explored by the JAAP, to help retain the use and setting of the listed building. There should be an assessment of impacts that might affect the setting or viability of the church such as development in the vicinity, vibration levels, lighting or access. Managing and mitigating the impacts of the JAAP on cultural assets should be provided within the JAAP.
- 6.37 Policies should also recognise the important of creating high quality new buildings at the airport and environs. The design of the terminal building in particular should be of a high quality design, incorporating sustainable construction, to create a landmark feature for Southend/Rochford and a gateway to the area for domestic and international travellers.

Biodiversity / Green infrastructure

- 6.38 As mentioned in the noise, water and air quality sections above the JAAP preferred options paper could have a significant impact on biodiversity in the JAAP area and also surrounding areas. This includes designated sites: Benfleet and Southend Marshes Site (SSSI, SPA and Ramsar); Crouch and Roach Estuaries SSSI, SPA and Ramsar); and Essex Estuaries SAC. There may also be an impact on the Essex Estuaries SAC which will need to be more fully considered.
- 6.39 Noise/pollution impacts on designated sites to the south-west also include Great Wood and Dodd's Grove SSSI and Hockley Woods SSSI.
- 6.40 As well as the amount of development that may impact on these sites, there are also greenfield sites which are proposed to be built upon in the JAAP document. Development in these location could have an impact on the local habitats and species, as outlined in the Biodiversity Action Plan.
- 6.41 The Issues and Options SA suggested a comprehensive ecological impact and management study to be commissioned to identify relevant issues for the site. This has not been undertaken. There has also been no screening for the Habitats Regulation Assessment and therefore the exact impacts on either local or designated sites can not be fully assessed at this point in time.

- 6.42 It is recommended that a screening for HRA is taken place, along side a preliminary ecological impact and management study to inform future policies in the JAAP, to ensure the protection of designated sites outside the JAAP area, as well as provide mitigation and enhancement for sites within the JAAP area. This should link into the Thames Gateway Grid Strategy, where appropriate.
- 6.43 Air quality impact analysis to assess potential impacts should include detailed current baseline (including specific aircraft types) with project changes.
- 6.44 JAAP policies should also set out how all new open space development that form part of the JAAP should be managed as multi-functional Green Infrastructure resources. This not only includes their use as publicly accessible open space but also their value for biodiversity and landscape.

Climate change (CO₂ emissions)

- 6.45 The amount of greenhouse gas CO₂ emissions will rise significantly with the increase of 2 million passengers per annum at London Southend Airport. CO₂ emissions will also increase with the increase in travel to and from the airport and to the proposed employment sites, as well as from ground testing.
- 6.46 By permitting runway extension the JAAP does allow for more modern fuel efficient planes to use the airport, however there is no obligation are proposed that would mitigate carbon emissions. Although aviation policy is a matter for national government, particularly how carbon emissions from airlines are to be monitored and traded, the East of England Plan (policy SS1) requires local development documents to help meet obligations on carbon emissions.
- 6.47 It is also noted that the Aviation White Paper does not necessarily see London Southend Airport a principle growth area. Therefore expansion is not led by national policy and decisions can be made on suitability for expansion at a more local level.
- 6.48 It is not clear whether the expansions of London Southend Airport to 2 million passengers would be a total increase or include an elements of redistribution of existing passenger levels from other London airports. However, it is probable that the majority of growth would be new passengers and over the long-term any capacity freed at other airports by Southend expansion would eventually be filled. For the sustainability appraisal it is assumed expansion would lead to a worse case scenario of 2 million extra passengers.
- 6.49 Therefore, there are inevitable greenhouse gas and associated climate change impacts of the JAAP proposals. Despite more efficient aircraft using the airport, it is not possible to mitigate against atmospheric warming impacts of aircraft carrying an addition 2 million passengers per annum.

- 6.50 There is some potential to limit the overall impacts of greenhouse gas emissions from airport and employment development on the ground. This includes the public transport policies to achieve a mode shift from car use. The JAAP could go further in promoting a model shift from car for all future employees as well as the 2 million passengers. The JAAP should include more on the proposed new rail station and how this will help links to the airport and local businesses.
- 6.51 The JAAP should also address the need to reduce carbon emissions from energy use on the airport and new employment. The JAAP should set an area specific target for delivering a significant proportion of energy demands on site from lower carbon sources, including renewable energy and more efficient energy generation and use. For an area of this size promoting the use of combined heat and power from an on-site plant could be an effective solution. This could include developing an energy from waste combined heat and power plant as part of economic development in the business parks. Policies should help ensure that new infrastructure delivery on site includes the ducting and power lines necessary to support this.

Sustainable construction

- 6.52 Sustainable construction is part of the core strategies, but owing to the specific large scale industrial designations more tailored policies should be considered. This could include a policy asking for BREEAM 'very good' (as a minimum) for commercial and industrial buildings and the terminal.
- 6.53 The policies should also address resource efficiency as covered in paragraph 6.51 on energy and 6.21 on water.
- 6.54 Policies could also address resource efficiency and use of sustainable materials.

Waste

- 6.55 The JAAP proposals relate to quite large scale development and there is high likelihood that new and expanded businesses on the site will give rise to a large quantity of waste. Therefore, there should be a common approach to waste from aviation-related industries. There is also no clear steer on waste issues during and after construction, for example the use of recycled demolition materials, minimize construction waste at design stage.

Transport infrastructure

- 6.56 The increased number of passengers of 2 mppa and number of people travelling to work in the AAP area will increase the number of people travelling. This will create congestion and there is currently insufficient bus and rail services to this area from the main built up areas of Southend and Rochford.

- 6.57 The JAAP preferred options paper does provide for a new railway station and the support the new SERT route, but it does not go further in encouraging a modal shift from cars to public transport and cycle.
- 6.58 The JAAP IOR recommends a transport strategy, and subsequently a transport assessment has been undertaken. However, the recommendations from the assessment were related to improvements to junctions mainly relating to the A127.
- 6.59 The SA of the JAAP IOR recommended a transport strategy which would encourage a modal shift to public transport, supported by the new train station and to bus route and frequency improvements. This should be reflected within the preferred options policies. This should be specific to the JAAP area and articulate the different approaches that may be required to encourage people to walk or cycle.
- 6.60 There is also the potential for London commuters to park at the station.
- 6.61 A critical aspect to the growth proposed in the JAAP is phasing and delivery of transport infrastructure.

7 Sustainability impacts: Social

- 7.1 There will be inevitable social impacts on local residents from the development proposed through the JAAP.

Access

- 7.2 New jobs will provide the opportunities for social benefits for people in Southend and Rochford. Policies propose improved access routes to the airport and associated employment areas by walking and cycling and the South Essex Rapid Transit bus network.
- 7.3 However, as addressed in the employment section there is the risk that new jobs in both the local authority areas will be prioritised at the JAAP area. This may lead to an imbalance in access to work favouring those living on good access to routes to the airport and limiting access to employment in other areas.

Southend Town Centre

- 7.4 Southend town centre is a focus for regeneration through the Core Strategy. Focus on the airport area for new employment may put regeneration at risk. Therefore, control over the type and phasing of employment development at the airport may be necessary to avoid adverse impacts on the town centre.
- 7.5 Similarly new development in Rochford centre may be put at risk from an airport focus. The JAAP may need to make it more clear how public transport, walking and cycling links will be improved to Rochford, as

currently all the focus is on access to the south side of the airport, favouring Southend.

Open space

- 7.6 The development proposals and policies include the creation of new open space as part of the development, to compensate for the loss of greenfield land. In the preferred options JAAP much of the emphasis of environmental mitigation relates to open space. This is positive in terms of access to this type of resource, but as covered in section 6 perhaps not comprehensive enough for environmental protection.
- 7.7 The role of open space in the South Essex Green Grid should be emphasised. Policies should make aim to create higher quality new open spaces and playing pitches than the ones lost, and to integrate these with other benefits for the environment, including biodiversity planting and landscaping to soften the urban fringe.
- 7.8 The proposed new playing pitches will not be as accessible as the current site, and therefore polices should allow for the creation of dedicated walking and cycling routes to reduce the distance people need to travel to access these resources. Therefore, current planned access off Cherry Orchard Way may not be suitable for those not travelling by car.
- 7.9 The area of public open space to the south of the airport will need to be carefully planned. This is to make sure the proposed new road through the site does not harm the quality, safety or attractiveness of the area to users. For instance speed on the road needs to kept low, frequent and safe crossing places designed in, and landscaping to integrate it into the park setting.

Local communities

- 7.10 There will be inevitable and unavoidable impacts to some of the local communities in Southend. This includes the health impacts from changes in air quality, noise, increased traffic and loss of open land. The JAAP plans to mitigate these impacts to as great as extent as possible. Any proposals should be accompanied by a Health Impact Assessment, considering not only the direct impacts related to changes in air quality but also seeking to protect and promote healthy lifestyle choices.
- 7.11 Care should also be taken in the design of new buildings and roads to improve safety and reduce opportunities for crime.
- 7.12 New and upgraded roads and junctions on principle routes should be designed with segregation of cyclists, pedestrians and cars for safety. Roads should also be designed that natural manage speed through design, planting, choice of surfaces and other good practice methods, and on less busy roads this could include shared surface principles.

- 7.13 Local communities will have be effected simply through the construction of new employment and airport buildings close to where they live. To help reduce the adverse impacts this development may have on community character and local peoples' wellbeing it will be important to make sure they are involved in the future planning of their area. Development also needs to sensitively designed so not to cause large changes in the character of areas, such as avoiding community severance, reducing traffic speeds, valuing features of local importance and landscaping and screening new development. However, it is unlikely all adverse impacts can successfully be mitigated against.

Airport users

- 7.14 The plan also does not address the potential conflicts of different users of the airport (flying club, MRO and passenger) are not fully described in the options, as well as the potential negative impact of increased flights have on attracting certain types of employment.

8 Implementation and delivery

Planning obligations and implementation

- 8.1 Providing funding from developments in the JAAP for infrastructure, such as open space improvements or transport infrastructure, will be important to the delivery of the plan. However, the JAAP preferred options document does not provide a clear steer in relation to what is expected when.
- 8.2 The JAAP currently provides some indication that there is an expectation of funding for the Westcliff Rugby Club and Country Park and walking and cycling enhancement. However, the expectations are not clear enough to ensure that these social/environmental benefits would be delivered.
- 8.3 Clear policies and an implementation framework will be necessary to ensure it is clear what infrastructure is being funded by which development, and also help make clear where there are gaps in identified funding.
- 8.4 A critical aspect to the growth is phasing and delivery of transport infrastructure.
- 8.5 The review of the green belt, if the high growth scenario is followed will need to be linked to the overall implementation. Phasing Greenfield – policies may need to resist expansion on Greenfield sites until a commitment or actual intensification has been undertaken. The intensification of the employment land will also need to be addressed and described in the implementation programme

9 Summary

- 9.1 This SA has been undertaken under the expectation that the current operators of the site are keen to submit a planning application for airport expansion and runway extension. Therefore, it is the role of the JAAP to provide the 'plan-led' approach to delivering this development so as to minimise impacts on the environment and on sustainable development, and maximise the benefits.
- 9.2 Therefore, there is the hope that the JAAP should cover all relevant policy issues relating to the airport and its environs that will help deliver a high quality of development. Topics that it should address are:
- Operational controls of the airport to reduce disturbance to local residents and other sensitive receptors
 - A strategy for delivering economic growth in the airport environs, meeting the needs of the resident workforce (and potential workforce)
 - Delivering a strategy that minimises transport impacts on communities in Southend and achieves a mode shift away from car use
 - Set measures to ensure the natural environmental environment is protected and enhanced wherever possible, despite the loss of greenfield land.
 - Makes sure new development makes more sustainable use of resources, including energy, water and materials.
- 9.3 The expansion of the airport will have inevitable impacts on the sustainability through encouraging air travel. There is nothing preventing the current intensification of use at the airport at the moment. However, without a runway expansion it is very unlikely that the airport use could expand to 2 million people per annum. Therefore, the JAAP is setting the an agreement in principle to expansion and more flights. The new runway can accommodate more fuel efficient and quieter planes, however, expansion will mean more flights and therefore overall a greater impact. The greatest risk for sustainable development from this are on:
- climate change from the greenhouse gas emission from aircraft and their associated contribution to warming
 - increased surface transport from addition passengers and employees of the airport and associated business parks
 - greater noise impacts on residents in Southend, even with quieter planes there will be an increase in the number of planes
 - possible vulnerabilities of the local economy on airport related activities, especially as fuel prices increase which is likely to result in a reduced demand for air travel (as evident from airline performance in the current economic downturn).

- 9.4 In addition, the SA identifies several ways in which the sustainability performance of airport expansion proposals could be enhanced. These matters should be addressed through new policies or policy criteria. Although it is important not to repeat other policies at a higher tier, for example the Core Strategy, regional and national policy, the JAAP policies can add local detail to these matters, as well as filling possible policy gaps as result of older or yet to be adopted Core Strategy policies and difficulties with the East of England Plan. Possible additions are:
- lighting, including requiring a lighting strategy for all new development and night time airport operation
 - flooding and the need for flood risk assessments in Flood zones 2 or 3, and the need for sustainable drainage
 - water quality and avoiding pollution impacts on the three brooks flowing through the site, as well as impacts on the River Roach
 - design of buildings to fit the surroundings to benefit the urban fringe area
 - creating a 'landmark' quality new terminal building
 - nature conservation protection and enhancement, including direct and indirect impacts, Habitats Regulations Assessment screening should be undertaken for the JAAP and then appropriate assessment if necessary
 - protection of heritage features, including listed buildings
 - sustainable construction and setting BREEAM standards for new employment development and terminal buildings
 - setting a JAAP wide renewable or low carbon energy target, this could include requiring combined heat and power on the site
 - links to South Essex Green Grid and creating new multifunctional green infrastructure, with benefits for biodiversity, access, healthy lifestyles and landscaping
 - requirements for airport expansion proposals to undertake a Health Impact Assessment, to look at the wider impacts on health from airport growth
 - carefully designed new roads and routes, to include measures to naturally slow traffic and segregated safe routes for cyclists and pedestrians.
- 9.5 The JAAP should contain a detailed implementation plan that sets out issues such as phasing and the funding streams for new infrastructure, including public transport, road and open space delivery.

Appendix 1

Supplementary information for JAAP SA scoping

Section 3.3 – ‘Noise’

Air related and surface transport related noise is found to be key sources to noise disturbance in the study area. In order to predict future baseline and other impacts with development in the future, data on the existing noise levels, and existing noise receptors at the airport site should be established. The Southend Airport Environs Study Report (2007) analyses qualitative and quantitative information as well as discussions with the Rochford District Council and Southend-on-Sea Borough Council. Although the councils could not recall any noise related complaints, the Southend Airport Masterplan lists 44 complaints from the residents in year 2004, from 44,000 aircraft movements.

Halcrow (2007) identified a number of on-site receptors across and around the site. Specific receptors include- the established residential developments in the south east of the study area, properties along Wells Avenue to the south, properties off Southend Road, Manners Way, Prince Avenue and Cherry Orchard Lane and properties in the north eastern corner of the site at The Ridings and Rochford Hall Close.

A Noise mapping exercise was carried out for the Airport area and is presented in the Southend Airport Strategic Noise Mapping (2006). Noise contour plans in this report do not attribute any specific predicted noise levels to individual properties, however it does identify that the highest aircraft noise levels are experienced in alignment with the main runway, extending to the southwest and northeast of the airport. Nevertheless, as discussed above, properties along the runway comprise major receptors to the noise pollution. In general many properties around the site are found to be subject to noise pollution from various sources in the current baseline conditions.

In 2007 Southend Airport had 39,881 aircraft movements and is licensed to operate 24 hours a day, although there are restrictions between midnight and 6am.

Bickerdike Allen Partners (BAP) were commissioned by London Southend Airport (LSA) to carry out a noise study to compare existing noise levels with the potential future scenarios, with and without an extended runway. The BAP study scenarios looked at future noise mapping of noise contours for 2007 and 2020, with the assessments for 2020 based on 2 million passengers per year and 2007 based on existing passenger numbers. The noise assessments are based on the assumption that more modern quieter aircraft will operate from the airport if an extension is built.

Noise maps were prepared for the BAP report, these are reproduced here as figures 3.1 to 3.4.

Figure 3.1 shows what the existing noise contours of the runway for a typical summer day. However, these can vary considerably depending on plane type, with occasional but very infrequent exceedingly noisy planes using the airport as part of maintenance and repair operations (MRO). A review of the BAP report by Hepworth Acoustics to inform the JAAP. This noted that some of the existing noisy operations

on the airport, which could continue, were not included in the BAP assessment. This includes ground operations that are part of the MRO with ground testing of planes.

Figure 3.1: London Southend Airport 2007 existing actual summer daytime – noise contours



Figure 3.2: London Southend Airport 2020 summer daytime forecast at current runway length and 2million passengers – noise contours



Figure 3.3: London Southend Airport 2020 summer daytime forecast at extended runway length and 2million passengers – noise contours



Figures 3.1 to 3.4 indicate that, as would be expected, with and without the runway extension there will be substantial noise impacts from an increase in flights to serve 2 million passengers. Although it is unclear whether the extra passengers to 2 million are possible without and extension to the runway and new airport terminal. A comparison between the noise contours in 2020 for a the current and extended runway lengths is shown in Figure 3.4. The Hepworth Report identifies that noise increases with and without the expansion could be at 7dB(A). There will also be a greater frequency of noise impacts with more aircraft movements.

Figure 3.4: London Southend Airport 2020 summer daytime noise contours at current and extended runway length

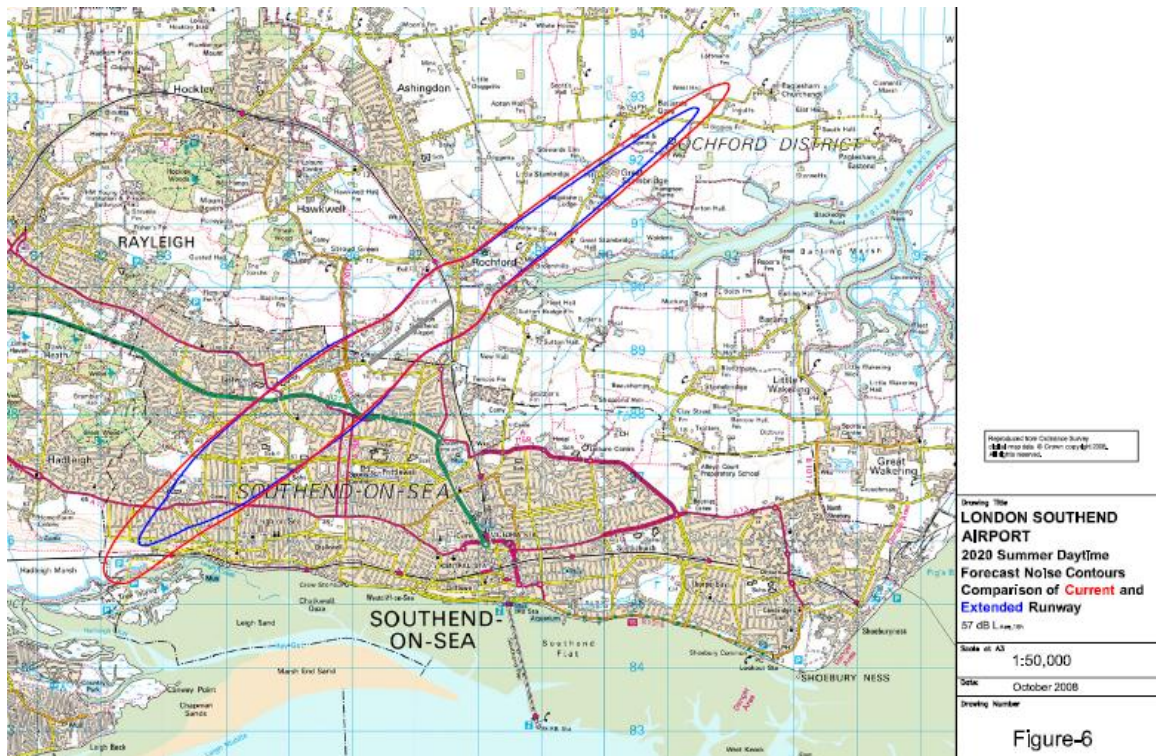


Figure 3.4 shows that the noise contour reduces in area if the runway is extended, due to the assumption that the aircraft mix changes to the Airbus A319 aircraft which is a quieter plane than the BAe RJ85, which is currently used. The Airbus is the preferred aircraft for cheap short-haul passenger airlines and can not use the shorter runway. Therefore, it is currently unclear if the airport would be attractive and used by these airlines if the runway was not extended.

This mapping does not present the impact on other sensitive receptors from the number of flights for all scenarios. It would be useful for the Council to set out all the sensitive receptors for each scenario, as well as identifying residential area. It will then be important to address noise mitigation measures in policies for the final option chosen in the JAAP.

Extra flights will also contribute towards more ground travel and therefore increase noise impacts from movements on the ground by private car, freight lorries and public transport.

Assuming the existing airport operations continue in the future, and an expansion of employment activity, there will be an increase in traffic, the noise pollution in the area with major impact on the surrounding area, although the level of increase unknown at this stage. However, with a change or expansion in the airport operations, noise and vibration levels will increase and its attenuation will be required (with associated costs).

Issues and opportunities

It is evident from the baseline that a number of receptors around the site are subject to noise and vibration related disturbance, *including residential areas, schools and a hospital. Preliminary studies show that extra flights, with or without the new runway, will have a major impact on noise levels and a negative impact on the surrounding residential areas and sensitive receptors. It is likely noise impacts will continue or increase in the future, assuming that no attenuation measures are put in place. The location of future airport facilities in relation to its receptors in the vicinity, predicted cumulative noise levels, and prevailing local, regional and national development policies may pose constraints to future development in the study area. However, current projects indicate that an extended runway may mean more modern quieter planes can use the airport.*

However, one of the core objectives of the JAAP is to ensure a high quality environment for the residents, including addressing noise pollution and the proposed development is considered to provide an opportunity to address this issue. In addition good layout design and positioning of some buildings as buffer between the origin and sensitive receptors, alignment of noise generating facilities against the wind direction with buffers, provision of low noise surfacing to all new highways, traffic calming measures for road traffic could be considered as opportunities and options to address the noise issue.

If the number of passengers is to increase to 2mppa by 2020 then giving permission for an extended runway would allow the Council's to set and enforce more stringent operational control measures to reduce noise impacts. The extended runway would also allow for quieter planes such as the Airbus A319 to operate from the airport. It will be important for the Council to gain an understanding, and if possible manage, the aircraft mix, number of night flights, noise controls, preferred routes and night flights to ensure the noise impacts of existing properties is minimised.

Insert new section 'employment land' before 3.7 'economic activity and unemployment' on page 19

The East of England Plan sets out sub-regional policy for the Essex Thames Gateway, with an indicative target of 55,000 net new jobs. An overall aim is to achieve a better alignment in the ratio of jobs to homes so that the proportion of people travelling to work outside the area is materially reduced. Policy ETG5 of the East of England Plan required the Southend Core Strategy to provide for at least 13,000 net new jobs and Rochford Core Strategy to provide for at least 3000 net new jobs between 2001 and 2021.

The draft Southend Employment Land Review (ELR) (May 2009) assesses both existing employment areas and identifies locations for possible new employment provision, for the plan period up to 2021. It identifies the airport area, town centre and A127 for the focus for employment locations. It states that there are insufficient employment opportunities to support the economically active population and that existing employment land should be protected.

The Economic Growth Aspirations for Southend on Sea (2006) identifies the 'aviation/airport and associate industries' as a growth area in Southend, which is in line with sectors identified in the Regional Economic Strategy. The Southend ELR goes on to confirm that the airport is responsible for over 1000 jobs are in aircraft Maintenance and Repair Operations (MRO) and it is vital that these jobs are retained, as many are highly skilled, well paid professions unique to the local area.

The ELR provides comments on the exact employment allocations proposed in the Joint Area Action Plan for the Airport. It proportions half the jobs to Southend and half to Rochford. The ELR states that the preferred option to pursue high employment growth will make a significant contribution to sub-regional aspirations, and this opportunity will give Southend the greatest chance of creating employment capacity. Basically the ELR fully supports the implementation of the JAAP proposals to support growth in the A127/Airport Corridor.

The Rochford Employment Land Study (October 2008) confirms that employment land supply is tight in Rochford District with very little available vacant land. The majority of the employment land supply results from sites with vacant buildings on them. The study recommends that the District adopts strong policies to protect existing employment land. There is a need for the allocation of additional 2 ha of employment land suitable for office use. On an overall strategic level we recommend that land to the West of the District is considered as viable to be developed as employment land. It is strategically best placed to house such uses due to its relatively good connectivity to Southend and London.

Issues and opportunities

There is a high demand for new employment land, but limited supply of land within Southend and Rochford. The airport is identified as a suitable location for a mix of employment uses. Therefore it will be important to protect existing employment land, and also intensify existing employment locations, such as Aviation Way, to increase employment density.

Where new employment allocations are identified, it will be important that the proposals are complementary with objectives for other locations in both Southend and Rochford. For example, too much office development at the airport may detract from the employment objectives of the town centre, which is a prime location for the majority of Southend's office development. This does not preclude office development at the airport, but highlights the need to identify an appropriate mix of employment types at the airport and how phasing should also be implemented to ensure the sustainable development of both the JAAP area, but also of employment within both Council areas.

Page 16 – ‘Climate change (energy)’ – include new section under ‘energy’

Greenhouse gas emissions

Aircraft emit gases and particles directly into the atmosphere and contribute to climate change. The principle emission of the greenhouse effect is carbon dioxide (CO₂).

Defra Company Reporting Guidelines (CRG), released in July 2007, reported CO₂ emission factors for estimating greenhouse gas emissions (the Defra HG Conversion Factors). These have been updated in 2008 to take into account other more detailed issues such as aircraft mix, increasing load capacity from 65% to 81% for short-haul flights and decreasing it for long-haul, and including freight which is carried on passenger flights. It is assumed that London Southend Airport will be predominantly used for domestic and short-haul flights, the revised conversion factors indicate that for domestic flights the average CO₂ emissions is 175.3 gCO₂/pkm and for short haul flights 98.3 gCO₂/pkm

At Southend Airport there is the potential for 2 million passengers per annum, with or without the runway. Assuming that the majority of these flights will be short-haul of an average of 400km, the total CO₂ emissions would be approximately 78,640 tonnes of CO₂ per annum for 2 million passengers. This is an indicative figure, and likely to be an underestimation, as at present information relating to the exact number of short haul or domestic flights, average flight lengths, aircraft movements, amount of freight on these flights etc are all unknown at the moment.

There will be other factors which will contribute to CO₂ emissions, and other air pollution, which can not be calculated at this scoping stage. These factors include emissions from travel to new employment area and extra air passengers travelling to the airport, as well as emissions from ground testing of aircraft during MRO.

The International Panel for Climate Change (IPCC) held a series of working groups looking the climate change related issues¹. One of these groups considered in detail the implication on aviation on the global atmosphere. This considered how aircraft movements in the upper atmosphere and emission may be leading to climate change, and the relative warming factors these create.

The IPCC (2001) findings showed that in 1992 carbon emissions from aircraft made up 13% of the total global carbon dioxide emissions from all transportation sources. Testing a range of future growth scenarios this identified that carbon dioxide from aircraft could increase from 0.14 Gt C/year in 1992 to 0.23 to 1.45 Gt C/year by 2050. In the next 50 years the parts per million volume of carbon dioxide from aviation is projected to increase to form 4% of all carbon dioxide emissions from human activities, based on mid-range emissions scenarios from the IPCC.

Other than carbon dioxide emission aircraft can also contribute to climate change in other ways. This includes higher levels of NO_x from aircraft emissions found at cruise altitudes in northern and mid-latitudes. NO_x emitted by aircraft in the upper troposphere are more likely to create ozone that are more effective in increased global warming than ozone at the same levels but at lower altitudes, NO_x levels are projected to rise by 13% at cruise altitudes by 2050. Other impacts on climate change caused by aircraft include water vapour emissions in the upper atmosphere, aircraft contrails and possibly increase in cirrus clouds.

Over the period from 1992 to 2050, the net warming factor by aircraft (excluding that from changes in cirrus clouds) for all of the aircraft growth scenarios modelled is a factor of 2 to 4 larger simply from carbon dioxide emissions. This is quite a lot higher than the overall warming factor for the sum of all human activities, which is estimated to be at most a factor of 1.5 larger than that of carbon dioxide alone.

Issues and opportunities

It is clear that the amount of greenhouse gas CO₂ emissions will rise significantly with the increase of 2 million passengers per annum at London Southend Airport. This has the potential to increase with or without the runway extension, although the shorter runway is unlikely to be able to successfully attract the right airlines to achieve an increase in passengers to 2 million people per annum. However, countering this is that an extended runway could operate more modern and fuel efficient planes.

It could be argued that the expansion of London Southend Airport to 2 million passengers would not necessarily be an total increase of 2 million (and associated aircraft movements), but instead a redistribution of passengers from other London airports. This redistribution therefore would not lead to increased carbon emissions.. However, this assumption should be treated with caution is redistribution of passengers may lead to valuable spaces opening up in other larger London airports that could be filled by larger planes, therefore, not achieving carbon savings.

¹ Penner, JE., Lister, DH., Griggs, DJ., Dokken, DJ., McFarland, M. (2001) International Panel for Climate Change Working Group Aviation and the Global Atmosphere, GRID-Arendal

Ground testing and extra travel by air passengers and travel to employment areas will also contribute to CO₂ emissions and climate change.

An air emissions management strategy is recommended to take into account the cumulative impact of the various development that are proposed within the AAP area. It will also be important to ensure emissions of CO₂ of limited wherever possible, but promoting a model shift from car to using public transport for both air passengers and local employees, using the most efficient aircraft, minimising ground testing and other controls. These controls should be set by the Council and supported by planning policies within the AAP, wherever possible.

Appendix 2

Sustainability framework – tracked changes

Sustainability framework – revised version

(Text in italics is extra information relating to exiting sustainability objectives, strikethrough show deletions)

Topic	Objective	Key question	Example indicators
Economic			
Population and Local economy	To improve the vitality and viability of the airport, and to achieve sustainable levels of prosperity and economic growth	<ul style="list-style-type: none"> • Does it promote mixed use and high density development? • Will it improve the vitality and viability of the study area? 	<ul style="list-style-type: none"> • actual population • population growth rate over 5 years • Infant mortality rates • Take up of allocated land, by type • Number of jobs created, by type • Business start-ups and closures (VAT registrations) • Comparative office and employment land rentals
Employment and Wealth Creation	To maximise economic benefits of the thriving airport, enhance wealth creation factors and emphasise local strengths and qualities to attract investment.	<ul style="list-style-type: none"> • Does it promote inward investment and attract public investment? • Does it secure more opportunities for residents to work in the area? 	<ul style="list-style-type: none"> • Business support price to income ratio • Average earnings • Indices of local deprivation • Economic activity rates by area, age group, gender and ethnicity • Rate of long term unemployment • Dependency of working – age people in workless households • % of children in households with below half average income
Environment			
Biodiversity	To maintain and enhance areas of <i>importance for wildlife and nature</i>	<ul style="list-style-type: none"> • Will it support the local/regional Biodiversity Action Plans? • Will it conserve and enhance 	<ul style="list-style-type: none"> • Area of semi-natural habitat lost to development • Area of new semi-natural habitat created

	conservation including species diversity, as an integral part of economic and social development.	<p>species diversity, and in particular avoid harm to protected species and priority species?</p> <ul style="list-style-type: none"> • Will it maintain and enhance sites designated for their nature conservation importance? • <i>Will it help protect habitat connectivity and avoid fragmentation?</i> • <i>Will it protect site of nature conservation importance from indirect pollution impacts?</i> 	<ul style="list-style-type: none"> • Loss/damage to designated wildlife site and protected species • Length of Hedgerows protected under the Hedgerow Regulation lost to development. • Number of designated sites within 1km radius from the site
Water	To maintain and enhance the quality of ground water and sustain good <i>quality water resources</i> , wherever possible	<ul style="list-style-type: none"> • Will the proposed plan maintain/enhance the quality of surface and ground water sources in the vicinity? • Will the proposed plan alter water quantity (surface and ground water) at the site? • Will the proposed plan encourage water efficiency and water conservation? 	<ul style="list-style-type: none"> • Quality of waters at site and its vicinity • Number and severity of pollution incidents to ground and surface water • Average water consumption in existing and proposed development • Proportion of water needs met by <i>on site local</i> water recycling • % if water lost to leakage • Proportion of development (existing and proposed development) which includes on-site provision for rainwater re-use • Margin between water supply and projected demand
Impacts of climate change Climate change and flooding	To reduce contributions to climate change as well as guard from the effects of	<ul style="list-style-type: none"> • <i>Will the plan help ensure new development that withstand the impacts of a changing climate,</i> 	<ul style="list-style-type: none"> • Design solutions which work with the environment, including: working with topography, wind direction and solar shade

	climate change	<p><i>including extreme storms, prolonged hot periods, and drier summers?</i></p> <ul style="list-style-type: none"> • 	to reduce impacts of climate change & microclimatic impacts
Flooding (<i>separated out from climate change</i>)	<i>To reduce the risk of flooding on and off-site</i>	<ul style="list-style-type: none"> • Is the plan area at a risk of flooding? • Will the plan increase risk of flooding <i>on and off-site through the use of sustainable drainage techniques?</i> 	<ul style="list-style-type: none"> • Total extent/ capacity of flood storage area • Number of properties at risk from flooding • Number of planning applications approved against EA advice • Proportion of runoff from new developments which is directed into SUDS • Performed a flood risk assessment? • Weather-related insurance claims
Material assets	<i>To improve the quality of development through use of local sourced, recycled and efficient building materials</i>	<ul style="list-style-type: none"> • Does the scheme promote use of locally sourced materials? • <i>Does the scheme promote the use of recycled resources</i> 	<ul style="list-style-type: none"> • % of construction material locally sourced e.g. wood from Forest Stewardship Council and recycled aggregate from demolition • Average distance over which building material are transported • Proportion of materials specified which can be derived from local sources • Proportion of buildings materials used from sustainable sources
Soil	To ensure preservation of <i>protect greenfield land as well as enhance quality of soils, wherever possible.</i>	<ul style="list-style-type: none"> • Will it maximise use of previously developed land? • Will it enhance quality of soil at the site? • Will it help the plan <i>make an efficient and effective use of the land?</i> 	<ul style="list-style-type: none"> • Net loss of greenfield land-soils to development • Net loss of undeveloped land and productive agricultural holdings to development • % new development on previously developed land

		<ul style="list-style-type: none"> • <i>Will it protect the continuation of agricultural businesses that currently use the site?</i> 	<ul style="list-style-type: none"> • <i>Area of contaminated land remediated through development.</i> • Receptors at risk due to contamination and levels of risk • Presence of remediation strategy, if required
Air	To ensure high quality environment for <i>local communities and other sensitive receptors</i> the residents and users	<ul style="list-style-type: none"> • Will the plan improve the air quality in the area? • Where possible, will the plan minimise air pollution? • Will the plan limit vehicle emissions in absolute terms, by promoting public transport? 	<ul style="list-style-type: none"> • Levels of key air pollutants within <i>and around</i> the JAAP area • Number of days when air pollution is reported as moderate or higher within <i>and near</i> the JAAP area • Air quality improvements measured against related illnesses • Pollutant levels for Benzene, 1, 3-Butadiene, CO₂, Lead, NO_x, PM₁₀, SO₂ • Emissions from public and private transport
Noise	To ensure high quality environment for <i>local communities and other sensitive receptors</i> the residents and users	<ul style="list-style-type: none"> • Will the plan minimise and where possible reduce noise pollution to ensure minimal disturbance to the residents and other <i>sensitive receptors</i> occupants in the area 	<ul style="list-style-type: none"> • • Number of noise and odour complaints received • <i>Annual noise contours of airport and sensitive receptors/number of people living within each contour</i> • <i>Number of flights per year / type of aircraft</i> • <i>Number of time night flight quotas are exceeded every period</i>
Waste	<i>To reduce the use of primary resources and the</i>	<ul style="list-style-type: none"> • Does the plan seek to reduce the waste produced on site? 	<ul style="list-style-type: none"> • % of the total tonnage of household and industrial/commercial waste that is

	<p><i>quantity of waste going to final disposal</i></p> <p>To ensure high quality environment for local communities and other sensitive receptors the residents and users</p>		<p>reduced, re-used recycled</p> <ul style="list-style-type: none"> • Initiative to promote more sustainable waste management <i>of waste arising on site</i> • Proportion of development which incorporates design measures to facilitate sustainable waste management
Energy (to be viewed with climate change theme)	<p>To increase opportunities for renewable energy generation, increase energy efficiency in all activities within the plan area.</p>	<ul style="list-style-type: none"> • Will the plan increase the proportion of energy generated from renewable sources? • Does the plan seek to increase energy efficiency in buildings? • Will the plan lead to reduction in GHG emissions, and incorporate energy efficiency in the development? • Does the plan encourage sustainable transport methods like cycling, public transport or reduce the number of private vehicles? • <i>Will the JAAP help reduce the greenhouse gas emissions from aircraft using London Southend Airport?</i> • Will the plan increase the proportion of energy generated from renewable sources? • Does the plan seek to increase 	<ul style="list-style-type: none"> • Proportion of electricity generated from renewable sources • Installed electricity generating capacity using renewable energy • Energy use per business • <i>Energy use in buildings exceeding Building Regulation requirements</i> • <i>Amount of annual CO₂ emissions generated by aircraft</i> • <i>Fuel efficiency of aircraft using London Southend Airport</i> • <i>Amount of annual CO₂ emissions generated by travel to the airport</i> • <i>Number of passengers flying per year (domestic and short haul flights)</i>

		energy efficiency from buildings and future users?	
Accessibility and accessibility to key services	To enable people to have similar and sufficient levels of access to services and promote sustainable transport measures	<ul style="list-style-type: none"> • Will the plan seek to encourage people to use alternatives modes of transport other than a car? • Will the plan increase the availability of sustainable transport modes? • Will the plan ensure the residents and other users have easy access to amenities like health clinics, supermarkets, leisure facilities and community facilities? • Does the plan encourage cyclists <i>and prioritise walkers</i> by providing appropriate infrastructure services? • Does the plan support access for <i>less able people</i>? 	<ul style="list-style-type: none"> • Modal share of private car • Modal shift to cycling and walking • Proportion of trips made by public transport/foot/ cycle, including school trips • Time lost to congestion • Amount of traffic on strategic links • Proportion of essential trips possible by public transport • Lighting levels (in Lux) of footpaths and cycle ways and levels of exposure to vehicular traffic • Quality of strategic pedestrian routes including safety, interest and amenity • Investment in public transport as a proportion of total transport investment • Proportion of road network benefiting from public transport priority measures • Public transport choice (in terms of routes and modes) • Access to local green space • Number of green travel plans • Length of cycle / footpath network • Perceived safety of cycle ways/<i>footpaths</i>?
Transport		<ul style="list-style-type: none"> • Will the plan lead to improvements in sustainable transport like public transport? • Will the plan improve transport facilities leading to better accessibility? • Will the plan lead to maintain/improve traffic volumes to the existing network? • Will the plan seek to encourage people to use alternative modes of transport other than a car? • Will the plan increase the 	

		availability of sustainable transport modes?	
Landscape and Townscape	To maintain the quality and setting of landscapes and townscapes	<ul style="list-style-type: none"> • Will the proposed action plan conserve and/or enhance the landscape character of the area? • Will the plan provide appropriate types of open space? • <i>Will the plan conserve and enhance high quality built environments, including protected buildings and areas?</i> 	<ul style="list-style-type: none"> • Number and amount of development which may affect designated sites and areas • Area of landscape or townscape affected by/lost to development
Social			
Safety/ Health and Risk	To improve overall levels of health, create safe environments <i>by creating healthy places to live</i> and by reducing crime/fear of crime	<ul style="list-style-type: none"> • Will the plan ensure an intervention in the causes of criminal events; reducing risk and potential seriousness? • Will the plan adversely affect the health <i>and wellbeing</i> of residents/other users in the area? • <i>Will new development protect existing residents from harmful pollution impacts that can adversely impact on physical health and mental wellbeing, including air quality, noise, light pollution and vibration impacts?</i> • <i>Will new development protected local parks and greenspaces important for</i> 	<ul style="list-style-type: none"> • Mortality rates (all causes/cancer/heart diseases/respiratory diseases/road traffic accidents) per 100,000 population • Proportion of public spaces and streets which are overlooked by development. • Proportion of public facilities which are multi-functional, catering for a range of uses over different periods of the day. • Proportion of development which is dormant/ unused after office hours • % of public places that have security lighting and cameras • <i>Number of road accidents</i> • <i>Respiratory medication use (adults)</i> • <i>Respiratory medication use (children)</i>

		<i>informal and formal recreation?</i>	<ul style="list-style-type: none"> • Respiratory hospital admissions • Noise complaints • Number of time night flight quotas are exceeded every period
Education and skills	To improve the education and to assist people to gain skills and fulfil their potential and increase their contribution to the community.	<ul style="list-style-type: none"> • Will the plan help improve the skills of the workforce? • Will the plan help address local skills shortages? 	<ul style="list-style-type: none"> • Qualifications of school leavers • Library floor space per 1000 population • Participation in training
Community (cross cutting theme linked to accessibility to services)	To nurture a sense of belonging in a cohesive community where people live and work	<ul style="list-style-type: none"> • Will the plan create opportunity for enhancing community amenities and facilities? • Does the plan provide opportunity for enhancing community identity and community participation? • Will the plan reduce levels of social deprivation and address these issues? 	<ul style="list-style-type: none"> • % of residents finding it easy to access key local services and community facilities • % of public and community buildings accessible to disabled people • Public transport affordable by the poorest • Measures to ensure that public transport is accessible to the mobility impaired – including dropped kerbs, low floor busses, etc. • Change in provision of outdoor play space (youth and adult) and urban green space
Housing	To provide opportunity for people to meet their housing needs	<ul style="list-style-type: none"> • Does the plan support housing needs of local residents 	<ul style="list-style-type: none"> • Proportion of housing unfit or lacking appropriate insulation, by area • Affordable housing completion figures • % of non-market housing provided of

			<p><i>total (affordable and special needs)</i></p> <ul style="list-style-type: none"> • % of housing units <i>built to lifetime homes standards accessible to disabled people</i> • % of unfit dwellings • Housing provided by dwelling type and size
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Appendix 3

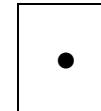
SA of the four policy topics of the JAAP

These matrices show an appraisal of the policy topic areas of the preferred options JAAP against the full set of sustainability objectives developed for the SA process.

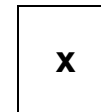
The appraisal of topics shows a simple symbol summary of the each policy's performance against the sustainability objectives.

Key to appraisal symbols

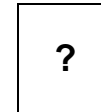
Likely to contribute to the achievement of greater sustainability according to the identified objective



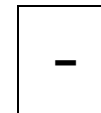
Likely to detract from the achievement of greater sustainability according to the identified objective



Likely effect but too unpredictable to specify, or multiple impacts potentially both positive and negative



No identifiable relationship between the topic covered in the policy and the sustainability concern



Employment allocations		
Issues		The policies of this section of the JAAP address matters associated with the allocation of employment land. This allocates land to accommodate up to 109,000 sq.m. of additional floorspace, including a major new business park, on greenfield Green Belt land.
Policy coverage		<p>E1: Sets policy to support growth of 7380 jobs, including those associated with the airport and not. It gives a 50:50 split to jobs in Southend and jobs in Rochford</p> <p>E2: This sets the policy for intensification of Aviation Way Industrial Estate, including the type of employment use class and contributions towards transport.</p> <p>E3: This policies set the floorspace and anticipated jobs on the new allocation, Saxon Business Park. The policy also sets the issues for which contributions will be sought.</p> <p>E4: Sets the phased delivery for employment development at Saxon Business Park.</p> <p>E5: The policy includes some detailed requirements for development at area 1A Saxon Business Park and new road junction</p> <p>E6: Extension of road access for new business parks</p> <p>E7: Requirements for funding of relocation of rugby club</p> <p>E8: Sets policy requirements for Nestuda Way Business Park including the quantity of floorspace and the need to deliver high quality buildings on the A127</p>
Local economy	?	<p>These policies could help deliver economic growth in this area and new jobs. However, all the land allocation policies needs to recognise the potential conflict of economic growth in this location needs to be balanced with employment growth needs of Southend and Rochford as a whole. It will be important to make sure putting new office use around the airport does not adversely impact on strategic planning objectives in Southend related to town centre focus and regeneration.</p> <p>Phasing delivery of new employment development, such as Saxon Business Park, should help to make sure development.</p> <p>To help local people access new jobs there may be a need for new employment to provide funding for skills training.</p>
Employment and wealth creation	•	These policies should help deliver new employment in the two local authority areas.

Biodiversity	?/x	<p>Employment land allocations are on greenfield land. This will result in inevitable impacts on the character of these areas. Policies need to be put in place to make sure overall biodiversity in the area is not adversely affected. This could include the need to create new high quality habitats and maintenance of green connections through the site.</p> <p>Impacts on the nearby internationally designated nature conservation areas need to be investigated as part of development proposals. Most significantly impacts on the Roach and Crouch Estuary SPA need to be considered due to possible water contamination from the site flowing directly into the Roach.</p> <p>Lighting on new employment development can also adversely impact on wildlife, especially on species that are nocturnal, such as bats.</p>
Water	?/x	<p>New employment allocations have the risk of impacts on the water quality. Water bodies flowing through the site, Eastwood Brook, Prittle Brook and Rayleigh Brook, flow to the River Roach, which is a protected nature conservation site. Water quality is fair to poor in these brooks. New development has the potential to make this worse and therefore there is a need for policies to be in place to control this.</p> <p>New buildings will also need to be designed to make more efficient use of water.</p> <p>The JAAP should include a policy to help avoid flood risk.</p>
Impacts of climate change	?/x	<p>New buildings will need to be designed to ensure they take into account the impacts of a changing climate. This will include helping adapt to hotter summers through natural ventilation and shading, make more efficient use of water and avoid 'heat island' impacts.</p>
Flooding	?/x	<p>Part of the allocated sites are at flood risk, this will need to be managed through suitable policies, avoiding vulnerable development in these locations. Flood Risk Assessment will be necessary to assess risks.</p> <p>New development will have to ensure that it does not increase the risk of flooding either on site or off-site. This should include delivery of sustainable drainage systems and reduced run-off rates. The JAAP should include a policy to help avoid flood risk.</p>
Material assets	-	No direct relationship.
Soil	?/x	<p>Development on greenfield land will need to avoid impacts on high grade agricultural soils. Where impacts are likely through being allocated every attempt needs to be made to preserve high quality topsoils.</p> <p>Some of the proposed development sites have the potential for contamination. Where necessary further investigation and remediation if applicable will be necessary prior to development.</p>
Air	?/x	<p>New employment is likely to lead to large increases in traffic movements in the area. New employment development is likely to require transport statements as part of planning applications. However, in locating new</p>

		uses on sites there should be aim to locate warehousing and distribution in places where new HGV movements will be cause least air quality impacts on nearby sensitive receptors. All new development will need to demonstrate how it will contribute to a mode shift from car use to more sustainable travel, especially walking and cycling.
Noise	?/x	Increased traffic movements from new development is likely to result in noise impacts. Policies could help make sure new development is located so as to reduce the overall impacts of this, for instance warehousing and distribution should only be permitted in places that avoid significant adverse impacts from HGV movements and noisier industrial development should be located away from sensitive receptors.
Waste	?	There will need to be policies in place to ensure operational and construction waste is sustainably managed. For all new buildings it may be suitable for the JAAP to set BREEAM standards that will have to be met, to ensure new buildings are built to high sustainability standards
Energy and climate mitigation	?	Meeting energy demands for new employment development should be planned for from the outset to make sure low carbon sources can be found. The JAAP should set policies to encourage a significant proportion of new energy demands to be met from on-site renewable sources. Ideally, the JAAP should require some combined heat and power for the employment allocations and the airport area buildings, ensuring heat ducting and local power lines are part of the overall infrastructure for the site. Reducing dependence on car use for new employment is essential in reducing climate change impacts of this new development. For all new buildings it may be suitable for the JAAP to set BREEAM standards that will have to be met, to ensure new buildings are built to high sustainability standards.
Accessibility/ transport	?	New employment is likely to lead to large increases in traffic movements in the area. New employment development is likely to require transport statements as part of planning applications. All new development will need to demonstrate how it will contribute to a mode shift from car use to more sustainable travel, especially walking and cycling. Policies setting financial contributions from new development need to be applied consistently to all new development, including the preparation of implementation plan and policies for the JAAP. New development will help access to jobs for people in Southend and Rochford who live on main public transport routes to the airport. However, this focus on the airport does risk employment growth in other areas, such as the town centre.
Landscape and townscape	?/x	New buildings should also be designed to reduce the overall impact on the landscape character, with buildings of a suitable massing, height and scale to fit with the surroundings, reducing adverse urban fringe impacts. New development may also result in the loss of historic heritage. Within the site there are three listed features, a

		Grade II listed milestone, 'Cherry Orchard' a Grade II listed house and the church of St Laurence All Saints Grade 1 listed. The 'Cherry Orchard' is within employment development zone 2 and it will be essential to protect the house and its setting from further harm.
Safety and health	?	New employment development needs to be designed to avoid increasing opportunities for crime or fear of crime. The relocation of the rugby club also needs to be secured and delivered prior to development on area 2 to ensure there is no loss of this community resource.
Education and skills	?	Part of the financial contributions from new employment development should include skills training for local people. This will be to help them gain the training necessary to work in newly created jobs.
Community	?	<p>Large new employment development has the potential to cause changes in local communities. This will include changes for those communities that will be near large new areas of built development. Local communities need to be involved in new plans for the airport and the environs, allowing them to have an input into proposals.</p> <p>Traffic movements will also have impacts on communities, raising the need for more employees travel by sustainable modes of transport and not by car.</p> <p>The relocation of the rugby club also needs to be secured and delivered prior to development on area 2 to ensure there is no loss of this community resource.</p>
Housing	?	Employment proposals are shown on an area of existing housing, it is not clear if this would be lost to development. However, even if it retained there is there risk that these homes would be adversely effected by employment development.
Other issues	<p>Contributions</p> <p>The allocations policies also cover some matters that will be sought through planning contributions for site development. The JAAP must ensure that these are uniformly applied, to all relevant policies. It may be clearer to set out contribution policies in a separate section on implementation. This should contain policies and supporting implementation tables on how transport, open spaces, sustainable drainage and other infrastructure will need to be funded, as least in part, through new development at specific sites.</p>	
Main impacts	<ul style="list-style-type: none"> • loss of greenfield land with possible impacts on biodiversity, landscape character, historic environment and soils • risk of focusing economic development on the airport location rather than other parts of the local authorities, in particular as part of Southend town centre regeneration • water quality impacts from new development • possible impacts on the Roach SPA 	

	<ul style="list-style-type: none"> • transport impacts – including noise and air and on communities. There is a to achieve a mode shift away from car use and avoid impacts of HGV travel on residential amenity • flooding impacts are possible and there is a need to ensure Flood Risk Assessment is undertaken to avoid adverse impacts.
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London Southend Airport	
Issues	<p>These policies cover four general topic areas. These are the general policies for the airport, a policy for the terminal, policies relating to the maintenance repair and overhaul (MRO) zones and the airport development zone A.</p> <p>The main theme of the policies is airport expansion including extension of the runway and new terminal buildings. The overall aim is to see 2 million passengers per annum by 2031 (1 million by 2012), with little increase in freight and expansion of MRO operations.</p> <p>NB The appraisal of these policies is based on the assumption that capacity will not increase to 2 mppa without airport expansion, including a new terminal and extended runway.</p>
Policy coverage	<p>LS1: This is the general policy setting the airport boundary and aims for passenger growth</p> <p>LS2: Sets the parameters for airport development including restrictions on noise impacts and new transport infrastructure</p> <p>LS3: Sets the need for an annual Noise Evaluation Statement</p> <p>LS4: Setting a requirement for a Surface Access Strategy to be submitted by operators</p> <p>LS5: Setting the policy for development in the Public Safety Zones in keeping with the government circular</p> <p>LS6: Sets the parameters for runway extension and funding for a link road</p> <p>LS7: Sets the conditions for operating of the new runway including restriction and noise quotas</p> <p>TF1: This policy relates to the terminal expansion, setting conditions for airport operation – similar to those in policy LS7</p> <p>MRO1: Sets general presumption in favour of use of MRO at the northern MRO site, and transport improvements necessary.</p> <p>MRO2: This sets the requirements for any expansion to the northern MRO site, including financial contributions for transport and public open space.</p> <p>MRO3: Sets out that applications for MRO use on the southern site will be permitted.</p> <p>ADZ1: Allowing applications for development that will contribute to airport expansion to be located in the existing terminal</p>

	area.	
Local economy	•	The policies should benefit the local economy contributing to local employment at the airport in a range of airport related businesses. To help local employment there may be a need to ensure skills training to help local people to access new jobs.
Employment and wealth creation	•	The policies should benefit the local economy contributing to local employment at the airport in a range of airport related businesses. This includes high quality skilled and well paid employment in the MRO industry.
Biodiversity	?	Some airport expansion may result in loss of greenfield land. Suitable ecological assessments and mitigation will be necessary to avoid adverse impacts. Impacts of increase flights on nearby internationally important bird assemblages may also need further investigation, for instance there may be an increased risk of bird strike. It will be important to demonstrate the airport is not having an adverse impact on the designated sites. Lighting on new airport development can also adversely impact on wildlife, especially on species that are nocturnal and feed at night, such as bats or birds.
Water	?	Water efficiency measures will need to be incorporated into new terminal buildings. For all new buildings it may be suitable for the JAAP to set BREEAM standards that will have to be met, to ensure new buildings are built to high sustainability standards.
Impacts of climate change	?	New buildings will need to be designed to withstand the impacts of climate change, including natural ventilation to help cope with increased summer temperatures.
Flooding	?	New development will have to ensure that it does not increase the risk of flooding either on site or off-site. This should include delivery of sustainable drainage systems and reduced run-off rates. The JAAP should include a policy to help avoid flood risk.
Material assets	?	For all new buildings it may be suitable for the JAAP to set BREEAM standards that will have to be met, to ensure new buildings are built to high sustainability standards.
Soil	?	Development on greenfield land will need to avoid impacts on high grade agricultural soils. Where impacts are likely through being allocated every attempt needs to be made to preserve high quality topsoils. Some of the proposed development sites have the potential for contamination. Where necessary further investigation and remediation if applicable will be necessary prior to development.
Air	X	New aircraft movements will have impacts on air quality (for greenhouse gas impacts see climate change). New

		transport associated with the 2 mppa travelling to the airport will also have adverse air quality impacts. The surface transport air quality impacts can be managed to some extent through improvements to public transport access, including a new train station and bus links, set out in the Surface Access Strategy. The impacts on air quality will be more difficult to manage and overall air quality impacts are likely to be a significant residual impact of airport expansion.
Noise	X	<p>Having the JAAP in place allows for new conditions to be put in place to manage the noise impacts of the airport. This includes restrictions for operation, including ground running and night flights. However, the criteria should be clearer and more consistent to ensure that if planning permission is granted operation is closely controlled, bringing improvements over the existing airport operation.</p> <p>Despite an extended runway allowing quieter planes to operate, the number of flights is likely to increase the overall impact of noise on nearby communities, particularly sensitive receptors in the area such as the school and homes. Noise impacts will be a residual significant impact of the extended airport.</p> <p>MRO operations can also be very noisy, although more intermittent than flights. The JAAP should set parameters for reducing these impacts, such as suitable locations (perhaps favouring the northern site for ground testing) and using noise baffles.</p> <p>The annual Noise Evaluation Statement will help to show compliance with noise conditions, but there is also a need for a thorough noise impact statement based on good quality predication on the type of aircraft and number of flights, and not simply a comparison to existing aircraft noise.</p>
Waste	?	<p>There will need to be policies in place to ensure operational and construction waste is sustainably managed.</p> <p>For all new buildings it may be suitable for the JAAP to set BREEAM standards that will have to be met, to ensure new buildings are built to high sustainability standards</p>
Energy and climate mitigation	x	<p>The operation of the airport building and associated new development will have an energy demand. The JAAP should set carbon reduction or renewable energy policies specifically for the airport site and environs to help reduce the impacts of this energy demand. This could include a requirement for combined heat and power generation on-site or in association with nearby employment expansion, including installation of new infrastructure for heat distribution.</p> <p>Increased surface transport to bring 2 mppa and employees to the site will result in increasing greenhouse gas emissions. Achieving a modal shift away from car use to more sustainable alternatives will help manage this, and the Surface Access Strategy should help show how impacts can be mitigate against.</p> <p>The main impact on energy and climate change will be through flights to and from the airport. The new runway will</p>

		allow more efficient medium sized planes to use the airport. However, the JAAP presumes in favour of airport expansion and will have inevitable adverse impacts on global air quality with adverse climate change impacts, that are unlikely to be achieved without runway expansion. These impacts cannot be mitigated against and are likely to be long-term in their importance.
Accessibility/transport	?/x	Increased surface transport to bring 2 mppa and employees to the site will result in increasing greenhouse gas emissions. Achieving a modal shift away from car use to more sustainable alternatives will help manage this, and the Surface Access Strategy should help show how impacts can be mitigate against. The SA objective also relates to promotion of sustainable transport measures and this does not include air travel. Therefore, these policies cannot score well against this objective.
Landscape and townscape	?	Policies should be in place to make sure new development is of a high quality and makes a positive contribution to the townscape of Southend. The JAAP should include more details of what is expected from a new terminal building in terms of design quality and creating a landmark feature in the Essex Thames Gateway, and as a possible gateway to England. The development will result in further impacts on the listed Church that is located to the north of the runway extension. There is a risk that the church tower may be within the public safety zone – it is not clear if there will be direct loss of the church or the churchyard, if there are this is a significant adverse impact.
Safety and health	?/x	Increasing flights at the airport does have a inherent safety risk. The policies include details of restrictions of development in the Public Safety Zones and this should help protect the population of direct adverse impacts of aircraft. However, there may be other health impacts related to poor air quality and noise impacts.
Education and skills	?	Part of the financial contributions from airport expansion should include skills training for local people. This will be to help them gain the training necessary to work in newly created jobs.
Community	?	The airport expansion could have an impact on local communities due to the 2 mppa visiting the airport site with traffic impacts have an effect on local road, with congestion having an adverse impact. Noise impacts could also have an adverse impact on communities. Access to new jobs could have a positive benefit for local people and having a local airport can improve cheap access to other parts of the county and other countries which could benefit local people. Local communities need to be involved in new plans for the airport and the environs, allowing them to have an input into proposals.
Housing	-	No direct relationship.
Other issues	Operating conditions	

	<p>It may be preferable for the operational conditions of the airport to be set out separately from extension or expansion policies, to clearly demonstrate what will be expected from new development.</p> <p>Contributions</p> <p>The allocations policies also cover some matters that will be sought through planning contributions for site development. The JAAP must ensure that these are uniformly applied, to all relevant policies. It may be clearer to set out contribution policies in a separate section on implementation. This should contain policies and supporting implementation tables on how transport, open spaces, sustainable drainage and other infrastructure will need to be funded, as least in part, through new development at specific sites.</p>
Main impacts	<p>Airport expansion including expansion of MRO is likely to have:</p> <ul style="list-style-type: none"> • significant impacts on noise impacts on local communities, this is from an increased frequency of take-off and landings as well as ground testing from increased MRO operations • significant air quality impacts • significant contributions to greenhouse gases and therefore climate change • there may also be impacts from increased surface traffic • possible significant adverse impacts on the Church of St Laurence All Saints Grade I listed • there are likely to be positive impacts on availability of local employment

Transport within the JAAP	
Issues	<p>The airport expansion and expansion of new businesses in the area will create a large amount of extra traffic on the roads. The capacity of existing road infrastructure needs to be increased to accommodate growth without adverse impacts of congestion. However, more importantly there needs to be the infrastructure and provision in place to achieve a modal shift away from car use to more sustainable modes. For new employees this can include cycling and walking routes and for new passengers new bus and train links will help reduce car use.</p>
Policy coverage	<p>Policies cover the road improvements as well as public transport access improvements.</p> <p>T1: A new link between Eastwoodbury Lane and Nestuda Way is necessary prior to runway extension as this will sever the existing route.</p> <p>T2: A route will be safeguarded for a new road linking Nestuda Way through to Warners Bridge to improve connections. However, this crosses green land and the JAAP policy makes clear the route is not yet agreed.</p> <p>T3: Upgrading Cherry Orchard Way so it become dual-carriageway along its entire route.</p>

		<p>T4: Junction improvement at Aviation Way / Eastwoodbury Lane and walking and cycling improvements on Eastwoodbury Lane.</p> <p>T5: Park and ride will be created on the replacement link created under policy T1.</p> <p>T6: All applications will need a Green Travel Plan for managing journey of staff</p> <p>T7: Development will make contributions to the South Essex Rapid Transport (SERT) for employee access to jobs.</p> <p>T8: Walking and cycling the policy gives specific locations where walking and cycling need to be improved (Eastwoodbury Lane is not mentioned here) new development will need to be make a contribution towards this.</p> <p>T9: New development is expected to make provision for the SERT.</p>
Local economy	?	The impacts of this policy could be positive, in terms of helping new employment to be linked into the highway network. New roads and upgrades could have positive benefits for reducing congestion in the area, at least in the short to medium term. However, there may be impacts of congestion on the A127 in the wider Southend and Essex Thames gateway, especially in association with other planned housing and employment development in the area.
Employment and wealth creation	•	The policy is likely to help in attracting businesses to the area. The new public transport, walking and cycling routes could also help local people access new jobs in the area, especially if the SERT routes are well integrated into development.
Biodiversity	?	Road improvements, especially those that require new land may have an adverse impact on biodiversity. This will be directly from the use of land, for instance in the dualling of Cherry Orchard Way, the new link road and most significantly from the safeguarded route parallel to Eastwoodbury Lane. There may also be indirect impacts through run-off from new roads effecting water courses. Lighting on new routes can also adversely impact on wildlife, especially on species that are nocturnal and feed at night, such as bats or birds.
Water	?	Run-off from new roads will need to be carefully managed to avoid impacts on the water environment. This will include creating new pollution traps and swales. Brooks crossing part of the site already experience only fair to poor water quality and this will need to be improved.
Impacts of climate change	-	No direct relationship.
Flooding	?	Care needs to be taken from all new hard infrastructure to prevent an increase in flood impacts. Therefore, new development needs to incorporate sustainable drainage systems to reduce run-off rates to greenfield levels.

Material assets	-	No direct relationship.
Soil	?	New road development may be on land that is identified as being a high agricultural grade. This will be lost to development, and therefore topsoils needs to be preserved for use elsewhere.
Air	?/x	<p>New road development and increasing capacity will inevitably lead to more road traffic with adverse impacts on air quality. There could be some local benefits from reducing local congestion, that can have more severe air quality impacts, however overall the impacts is likely to be negative.</p> <p>Increasing the availability of alternative modes of transport to the car may help reduce the overall air quality impacts. Policies on improving mode shift from car use should ensure that airport expansion also has plans in place to achieve a mode shift of passengers as well as employees away from car use, favouring access by the new rail station and bus links.</p>
Noise	?	New roads and increased traffic may have noise impacts, particularly related to increase HGV travel.
Waste	-	No direct relationship.
Energy and climate mitigation	x	<p>New road development and increasing capacity will inevitably lead to more road traffic with adverse impacts on green house gas emissions.</p> <p>Increasing the availability of alternative modes of transport to the car may help reduce the overall emission impacts, but there is likely to be residual negative impact. Policies on improving mode shift from car use should ensure that airport expansion also has plans in place to achieve a mode shift of passengers as well as employees away from car use.</p>
Accessibility/ transport	•	This policy is likely to help increase accessibility, walking and cycling improvements will help local people move around the area and access jobs and facilities. Other improvements will come from the SERT improvements and increased road capacity may help local access by car.
Landscape and townscape	?	<p>New roads have the potential for landscape and townscape impacts, in particular new road routes, such as the replacement link and proposed new route. Road and junction design will need to carefully planned to reduce overall impacts, such as careful use of lighting and planting.</p> <p>Making Cherry Orchard Way dual carriageway along its whole length may put the Grade II listed Cherry Tree Farm at risk, either from demolition of impacts on its setting. If development proceeds impacts are inevitable and demolition will clearly be irreversible and therefore significant.</p>
Safety and	?	Road improvements could help improve road safety. However, noise, air quality and potential community

health		severance could have adverse impacts on health and wellbeing.
Education and skills	?	No direct relationship.
Community	?	New roads have the potential to adversely impact on communities, for instance through community severance and the impacts of congestion. Roads need to be carefully planned to ensure the communities who live near or along them are not adversely effected by traffic and transport, including careful design to encourage safety, prioritising cyclists and walkers, and incorporating features to slow traffic.
Housing	-	No direct relationship.
Other issues	<p>Rail station</p> <p>A rail station has been granted permission at the airport site, the role of this station in achieving an overall shift from car use should be addressed through JAAP policy, including how it will also provide access for employees of the new employment areas, airport employees and passengers.</p>	
Main impacts	<p>The greatest impacts of these polices are likely to be on:</p> <ul style="list-style-type: none"> • Local air quality resulting from increased road capacity, inevitably leading to more car travel • Green house gas emissions increasing from increased road capacity, inevitably leading to more car travel • Loss of land may have impacts on biodiversity, soils, historic features and landscape/townscape • Public transport, walking and cycling improvements may help improve local accessibility and reduce the overall impacts of new development • There may also be some impacts on water, flooding, lighting, which will all need to be managed through appropriate design of development. • Widening the Cherry Orchard Way could have significant adverse impact on the Grade II listed 'Cherry Orchard' house or its setting. 	

Environment		
Issues	<p>These policies set out the environment improvements in the JAAP area relating predominantly to open space. Green Belt land and sports fields and pitches will be lost under the proposed development plans and therefore these policies seek to compensate for these losses by creating new resources elsewhere. The policies do not address wider environmental issues, such as biodiversity, landscape, water quality, and natural resource use.</p>	

Policy coverage	<p>The policies of this section are:</p> <p>ENV1: The Green Belt boundary is being amended for airport and MRO expansion</p> <p>ENV2: New public open space north of the airport, including the relocation of the rugby club, funded through the development of the business park and northern MRO.</p> <p>ENV3: New public open space south of the airport, however, this includes the possibility of new road running through the site.</p> <p>ENV4: Access will be improved to the Cherry Orchard Jubilee Country Park, with new development expected to contribute towards a new environment and visitor centre at the park.</p> <p>ENV5: The new access to the Saxon Business Park will be in a new green corridor, linking the rugby club and public open space.</p> <p>ENV6: A green buffer will be maintained on land east of the railway.</p>	
Local economy	-	No direct relationship.
Employment and wealth creation	-	No direct relationship.
Biodiversity	?	The new open space could have a benefit for biodiversity, however, the policies should more clearly show how these spaces should incorporate biodiversity enhancement, and replacement for any loss elsewhere. Specific biodiversity policies may also be necessary to ensure that new development does not harm local wildlife or have wider impacts on nearby internationally protected sites, as required by the Habitats Regulations.
Water	?	There is the potential for new development to have adverse impacts on water quality, policies should therefore be part of the JAAP setting out expectations for sustainable drainage, pollution control such as swales, as part of development.
Impacts of climate change	?	It may be suitable for the policies to include design criteria, including ensuring new development takes into account a changing climate, including more prolonged hot periods.
Flooding	?	New development has the potential to change the run-off rates from the site, with the potential to increase flood risk off site. Therefore, the JAAP could include policies on reducing run-off rates through sustainable drainage systems.

Material assets	?	It may be suitable for the JAAP to contain a policy on sustainable construction, this could include meeting BREEAM standards and sourcing local materials.
Soil	?	Soil protection policies are not directly covered in the JAAP. It may be suitable to have a policy criteria on protecting high quality agricultural soils as under current proposals new development is anticipated in areas where high quality soils have been identified.
Air	-	No direct relationship.
Noise	•	Protecting the buffer between existing houses and the railway line should help maintain the noise protection this provides.
Waste	?	It may be suitable for the JAAP to contain a policy on sustainable construction, this could include meeting BREEAM standards and therefore address sustainable handling of waste.
Energy and climate mitigation	?	As a large planned redevelopment and renewal area there is a need to more fully address energy use on the site. This should include setting an area specific target for carbon reduction on-site through the use of renewable energy and more efficient energy use. The site is well suited to combined heat and power for the whole site. The JAAP could contain policies to require a network of heat ducts and local power lines to be delivered on-site as part of the infrastructure, with a new power plant delivered as part of employment development, this could be an energy from waste gasification unit providing heat and power.
Accessibility/ transport	-	No direct relationship.
Landscape and townscape	?	JAAP policies could include more on the design of new buildings to help protect the landscape/townscape character of the area. This includes the design of the new airport terminal buildings to provide a landmark for Southend/Rochford and a gateway to the area. The design of new airport buildings should also be set out in policy to ensure that their scale, massing and height is suitable for the local area and design of the business parks contributes to the urban fringe area. The JAAP could also contain policies or policy criteria on protecting the historic environment.
Safety and health	-	No direct relationship.
Education and skills	-	No direct relationship.

Community	<ul style="list-style-type: none"> • 	<p>The policy includes the relocation of the rugby pitch, and it is assumed this also includes the tennis courts, this should help protect this resource for the community. The new links to the site are also essential to ensure people have good access to the site, especially by walking or cycling. It may be preferable for amore direct link, such as footpath, to be created linking Cherry Orchard Way with the new site, as the new site is further form the main urban areas of Southend.</p> <p>The public open space to the south could be adversely affected by the possible new road that might bisect it. More detail should be given as policy to make sure this road does not adversely impact on the amenity value of the park and is designed to ensure traffic travels slowly, with frequent safe crossings and high quality landscaping. It may be suitable to have this route as a dedicated walking, cycling and potential SERT corridor.</p>
Housing	-	No direct relationship.
Other issues		<p>There are other environmental issues that the JAAP should aim to address as part of a comprehensive policy guide for delivering new development at the airport and in the environs. These issues include:</p> <ul style="list-style-type: none"> • protecting water quality through use of SUDS and swales • avoiding exacerbating flood risk through ensuring new development maintains greenfield run-off rates • avoiding biodiversity impacts through suitable ecological surveying and protection and mitigation measures put in place where necessary • sustainable construction standards for new buildings to incorporate sustainable use of materials, water efficient, and energy efficiency • renewable energy targets specially for new airport and employment buildings, including the potential for combined heat and power for the whole JAAP area • policies to ensure new lighting takes into account impacts on the environment, including wildlife and the night landscape • policies on the design of new buildings, especially the terminal building, to provide a high quality structure that is a landmark feature for Southend/Rochford and a gateway to the area • protection of the historic heritage, including built features, landscape features and buried archaeology. <p>The policies should be wider in their scope to cover the multipurpose role of improved greenspace, including for landscaping, biodiversity and as the urban fringe area separating Rochford from Southend.</p> <p>In addition, the policy should include more details about implementation of the new public open space features, funded through developer contributions. This should be as a separate policy and detailed implementation plan.</p>

Main impacts	<ul style="list-style-type: none">• The lack of policies relating to environmental and natural resource protection, as noted in 'other issues', may lead to development not being delivered in a way that takes insufficient consideration of environment impacts. Possible impacts are on biodiversity, landscape, water, natural resource use and cultural heritage.• Many of the other impacts of the policy are likely to be positive in terms of provision of new public open space and relocation of the rugby club
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