Southend Airport Joint Area Action Plan

Transport Assessment

December 2009

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Document History

JOB NUMBER: 5085732			DOCUMENT REF: Southend Draft TARev4.docx			
D	Final	KH	HN	JB	HN	11DEC09
C	Final Draft	KH	HN	HN	HN	04DEC09
B	Draft	KH	HN			23NOV09
Revision	Purpose Description	Originated	Checked	Reviewed	Authorised	Date

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1. Introduction

Atkins has been commissioned by Southend-on-Sea Council to progress a Transport Assessment (TA) to support the Joint Area Action Plan (JAAP) for London Southend Airport and Environs.

A Transport Assessment was originally prepared in September 2008 as a supporting document to the JAAP; however in review and through the public consultation process it was noted that there were a number of deficiencies with the document. In addition the current proposals put forward by the Preferred Options paper differ from the proposals assessed by the 2008 Transport Assessment. As a result of these issues, Atkins has been commissioned to review and progress the TA and to address the deficiencies in the previous document, in particular to include the study an assessment of all transport modes, as required by the Department for Transport (DfT) guidance:

> *'A TA is a comprehensive and systematic process that sets out transport issues relating to a proposed development. It identifies what measures will be taken to deal with the anticipated transport impacts of the scheme and to improve accessibility and safety for all modes of travel, particularly for alternatives to the car such as walking, cycling and public transport'. (Department for Transport, Guidance on Transport Assessment, March 2007).*

From this definition the requirement for considering all modes of travel is clear.

1.1 Proposed Development

Southend-on-Sea is located in Essex on the northern side of the Thames Estuary, approximately 40 miles east of London. London Southend Airport is located on the northern outskirts of the town and whilst Southend-on-Sea is the nearest large town, the majority of the airport itself lies within the administrative boundaries of Rochford District Council. There exists good public transport links into London via London Liverpool Street, plus good road links to the strategic network via the A127 and the A13 linking to the M25. The site location is shown on Figure 1.1.

1.1.1 London Southend Airport

2008 data from the Civil Aviation Authority shows that the airport terminal handled 44,075 passengers and 37,227 flights comprising charter flights, freight movements and private light aircraft. The runway is 1,605m long and can accommodate flights for passenger aircraft with up to 110 seats.

The expansion plans for the airport include the extension of the runway by 300m to enable aircraft of up to 160 seats to use the airport, with an associated increase in passenger numbers to 2 million per annum. In addition to the runway extension the following works would be required to enable the airport to successfully cater for these additional flights and passengers:

- A new railway station adjacent to the airport (*Currently under construction at the time of the publication of this report*);
- A new terminal building;
- Additional secure parking for passengers;
- A new control tower;
- A new hotel; and
- An aviation skills centre.

An application for planning permission has recently been made to Southend on Sea Borough Council to extend the runway by 300m to the south west, including the diversion of Eastwoodbury Lane (09/01960/FULM) and is under consideration.

London Southend Airport is the regional airport for South East Essex and around 1300 people are employed at the airport. The airport includes facilities for chartered flights for passengers and freight, air taxis that operate on request, helicopter flights, private aircraft parking and storage and cargo storage facilities for freight including a 60,000 sq ft warehouse and trailer park and flying lessons.

1.1.2 Business Parks

If the JAAP is realised in full then an additional 124,000sq.m of office, light industrial and general industrial premises will be created adjacent to the airport. The new premises will be accommodated on a site to the north of Aviation Way, with a second smaller site located to the north west corner of the junction of B1013 Nestuda Way and A127 Prince Avenue. 15,000sq.m of additional floorspace will be accommodated through the intensification of the existing Aviation Way Business Park. It is intended that the development of the business parks surrounding the airport occur in conjunction with the expansion of the airport.

1.2 Planning Framework

The potential for expansion of London Southend Airport has been identified in both local and regional planning documents, namely:

- East of England Plan
- Southend-on-Sea Council Local Development Framework Core Strategy; and,
- Rochford District Council Local Plan
- Rochford District Council Development Framework Core Strategy Submission Document.

In addition, the Government gave support to the development of small regional airports in their 2003 Aviation White Paper.

To assist in achieving appropriate development a planning framework is being prepared, which takes the form of an Area Action Plan (AAP). The airport itself falls within the administrative boundary of Rochford District Council (RDC). However, the administrative boundary between RDC and Southend-on-Sea Borough Council (SoSBC) lies almost immediately to the south of the airport. Therefore, the AAP is being prepared jointly between the two authorities, and is therefore referred to as a Joint Area Action Plan (JAAP).

In 2008 the two authorities published the *London Southend Airport & Environs Joint Area Action Plan: Issues & Options Paper* which set out the vision and objectives of the airport development and sought the opinions of interested parties on a number of development scenarios. Consultation on this document closed in August 2008. Following a review of the comments received from the consultation a document entitled *London Southend Airport and Environs Joint Area Action Plan: Preferred Options* was published for consultation, which ended in May 2009.

Following consultation on the preferred option, a final JAAP will be published, taken through an Inquiry in Public, and finally adopted by both Councils as the planning framework for the airport and the surrounding area.

1.3 Transport Assessment Scope

The report has been prepared in accordance with the Department for Transport (DfT) *Guidance on Transport Assessment* (March 2007) and the Essex County Council Transport Assessment

Guidelines (August 2003). The report provides an assessment of the impact of the proposed airport expansion and business park development, and is intended to cover all modes of travel.

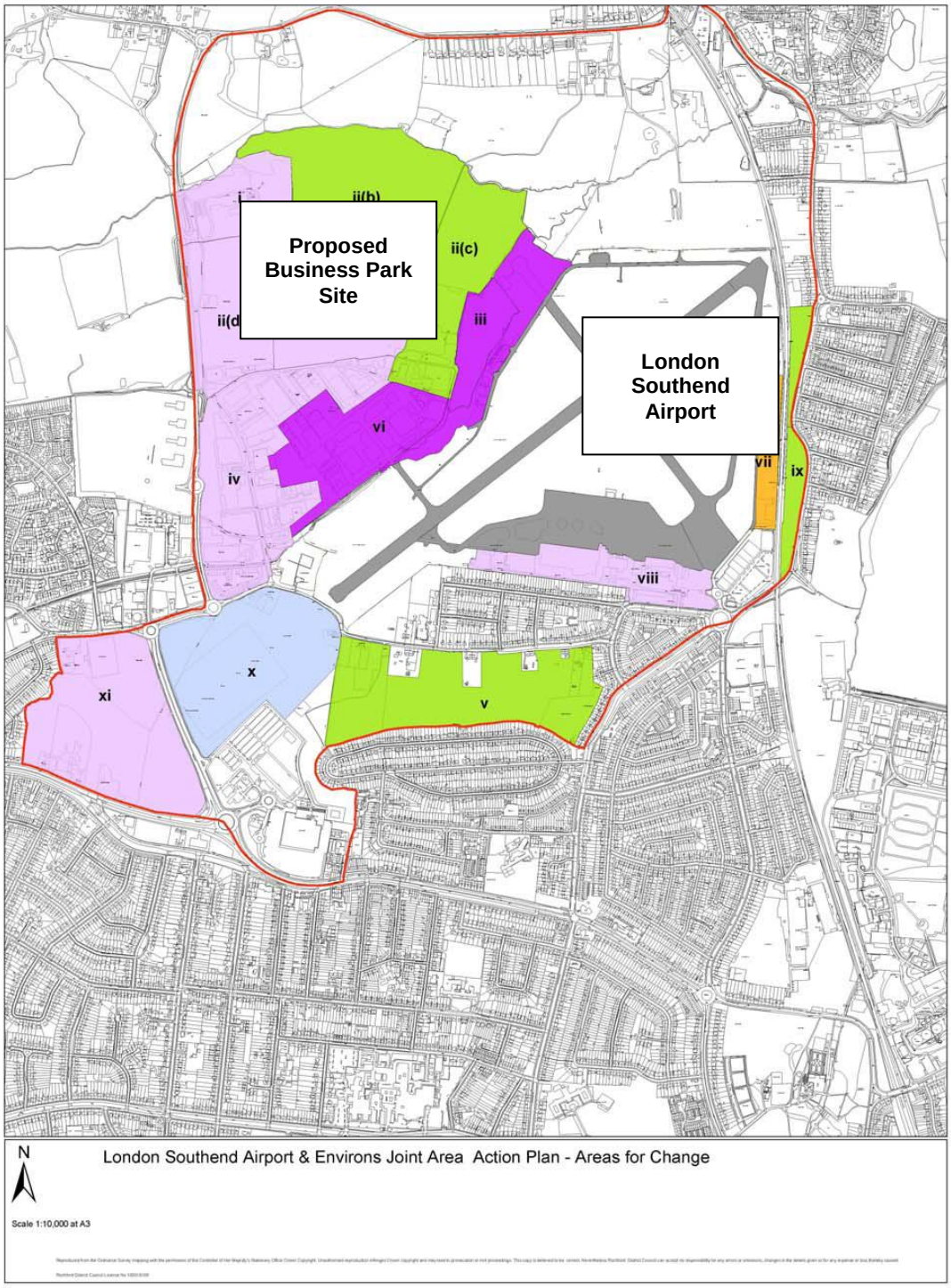
The purpose of this report is to inform the planning framework for the JAAP, and as such is a strategic level document and not intended to be a detailed Transport Assessment of either the airport expansion or the business parks.

1.3.1 Structure of the Report

The remainder of the report is structured as follows:

- Section 2 summarises the planning policy relating to the proposed development;
- Section 3 describes the existing site conditions;
- Section 4 describes the preferred development options;
- Section 5 details the trip generation for the business park sites;
- Section 6 details the trip generation for the airport and Maintenance, Repair and Overhaul (MRO) facilities;
- Section 7 considers the impacts of the proposed development on the study area;
- Section 8 sets out a series of potential mitigation measures; and
- Section 9 provides a summary and concludes the study.

Figure 1.1 – Site Layout Plan



2. Planning Policy Review

2.1 National Planning Policy

2.1.1 Future of Air Transport White Paper (December 2003).

Air travel has expanded five-fold over the last 30 years with the aviation industry making an important contribution to the economy. At the time of publication, predictions estimated an increase of 2-3 times existing demand by 2030. The White Paper set out a strategic framework for the expansion and development of airports and air travel over the coming three decades. Failure to provide for the anticipated growth would reduce the UKs competitiveness in the international market and could limit economic growth.

The report recognised the need to make best use of existing airport capacity rather than constructing new airports and indicated that growth at regional airports will be encouraged, including, where necessary, new runway, terminal and supporting facilities. The report stated that this would help support regional economic development, provide a greater choice for passengers, reduce pressures on over-crowded airports, and would reduce the need for long-distance travel to access major airports.

Chapter 11 of the report dealt specifically with the South East region, where it identified the pressures on existing airport provision is most severe, demand is greatest and high land costs means the impact of airports on residential areas and the green belt is often greater. Some of the most relevant conclusions of the white paper for the South East were as follows:

- There is urgent need for additional runway capacity in the region;
- The first priority is to make best use of the existing runways;
- Further development of Heathrow is supported;
- If required a new runway may be considered after 2019 if a further runway at Heathrow cannot be delivered;
- A new runway should be delivered at Stansted;
- Development of a second runway at Luton is not supported, nor is a new airport at Cliffe;
- There is scope for smaller South East airports to help meet local demand and their development is supported in principle subject to relevant environmental considerations.

Small airports were identified as having an important role to play in the future provision of airport capacity in the South East. The paper stated that there was support from wide range of stakeholders that these smaller airports should be allowed to cater for as much demand as they could attract. To help small airports achieve their development aspirations the white paper stated that regional and local planning frameworks should take account of the benefits expansion would bring, and should include policies to facilitate delivery of any proposals.

There is a specific mention of London Southend Airport within the White Paper:

> *'The operators of Southend, Lydd and Manston argue that their airports could grow substantially and each has plans for development. The potential of other airports, including, Shoreham, and Biggin Hill, should also not be overlooked. We consider that all these airports could play a valuable role in meeting local demand and could contribute to regional economic development. In principle, we would support their development, subject to relevant environmental considerations.'*

2.1.2 Planning Policy Guidance 13 (March 2001)

The overall objective of PPG13 is to fully integrate planning and transport from a national to local level to:

- Promote more sustainable transport choices;
- Improve accessibility to employment, education and services by public transport, walking or cycling; and
- To reduce the need to travel.

To achieve these objectives local authorities should consider the following when preparing development plans and when considering planning applications:

- Managing urban growth, focussing major generators in cities and towns near to public transport interchanges and phase major development with proposed infrastructure improvements;
- Developing facilities which need to be near their clients in locations where they are accessible by walking and cycling;
- Placing new housing within existing urban areas which are highly accessible by sustainable transport modes;
- Ensuring that developments offer realistic alternative transport choices;
- Putting forward strategies which are complementary and that there is a close link between development plans and investment in transport schemes;
- Using parking policies, in combination with other measures to discourage car use;
- Giving priority to people, providing more space for pedestrians, cyclists and public transport;
- Identify the needs of disabled people and ensure these are taken into account in planning policies and when implementing transport schemes; and
- Actively protect sites which may be required to develop infrastructure.

PPG13 also sets the requirement for the preparation of Transport Assessments as part of the planning process for developments likely to have a significant transport impact.

2.1.3 Department for Transport Guidance on Transport Assessment (March 2007)

PPG13 sets out the requirement for Transport Assessments to be submitted with planning applications, if the proposed development is likely to have significant transport implications. The guidance prepared by the DfT is intended to inform when an assessment is required and what the scope of the assessment should be. In preparing a transport assessment the following considerations will therefore be relevant:

- Encouraging Environmental Sustainability
  - Reducing the need to travel, especially reducing single occupancy journeys by car;
  - Reducing the environmental impact of travel by promoting sustainable transport choices;
  - The accessibility of the location, especially by non car modes; and
  - Measures which may assist in influencing travel behaviour, such as car sharing/pooling, High Occupancy Vehicle lanes and parking control.
- Managing the Existing Network

- Making best possible use of existing transport infrastructure, such as intelligent transport systems and public transport priority measures; and
- Managing access to the highway network.

- Mitigating Residual Impacts
  - Introducing demand management to regulate flows;
  - Making improvements to public transport, walking and cycling facilities;
  - If necessary, through minor physical improvements to existing roads and junctions; and
  - Only where other measures are insufficient through provision of new or expanded roads or junction upgrades.

2.2 Regional Planning Policy

2.2.1 East of England Plan 2001-2021

This is the current Regional Spatial Strategy for the area and was published in May 2008. The overall aim of the strategy is that:

> *'By 2021 the East of England will be realising its economic potential and providing a high quality of life for its people, including by meeting their housing needs in sustainable inclusive communities. At the same time it will reduce its impact on climate change and the environment, including through savings in energy and water use and by strengthening its stock of environmental assets.'*

To deliver this aim the Plan has identified five overall objectives. These are:

- To reduce the impact on, and exposure to the effects of climate change;
- To address housing shortages in the region;
- To realise the economic potential of the region;
- To improve the quality of life for the people who live in the East of England; and
- To improve and conserve the region's environment.

Of these objectives the first and third are of most relevance to this study. To achieve these two objectives the plan suggests a number of measures which are summarised in Table 2.1.

Table 2.1 – East of England Plan Objectives and Measures

Objective	Measure
To reduce the impact on, and exposure to the effects of climate change.	Locate development so as to reduce the need to travel; Effect a shift in travel behaviour from car use towards public transport, walking and cycling; Maximise energy efficiency; Reduce the risk and adverse impact of flooding.
To realise the economic potential of the region;	Providing the development needed to support business, improving skills and widening opportunities; Providing for employment growth aligned with growth in housing provision; Maintaining and strengthening inter-regional connections; Ensuring adequate and sustainable transport infrastructure.

The objectives set out a clear ambition for the Plan which is to provide for additional housing and economic development in a sustainable way. This is recognised by the *Policy SS1: Achieving Sustainable Development*.

Section 4 of the Plan deals specifically with economic development within the region, stating that

> *'To ensure the East of England contributes fully to national, regional and local prosperity and improves the quality of life of all who live and work in the region the RSS aims to ensure that the region's economy continues to grow and encourages greater investment'.*

Policy SS3: Key Centres for Development and Change, identifies Southend-on-Sea as a potential location where new development should be concentrated to enable developments to maximise the use of existing infrastructure and any proposed improvements. *Policy ETG5: Employment Generating Development* sets a target of 13,000 jobs for Southend and 3,000 for Rochford.

The plan highlights the importance of the region's tourist industry and *Policy E6: Tourism*, seeks to enhance the region's current tourist provision, which would be helped by an expanded airport which offers a wider number of domestic and foreign routes. *Policy E7: The Region's Airports*, refers to the 2003 White Paper, also giving support to the expansion of London Southend Airport.

Section 7 of the East of England Plan describes the transport strategy for the region. The objectives and desired outcomes of the transport strategy are summarised in Table 2.2.

Table 2.2 – Objectives and Desired Outcome of East of England Plan Transport Strategy

Objective	Outcome
To manage travel behaviour and the demand for transport to reduce the growth of road traffic and greenhouse gas emissions	Improved journey time reliability due to reduced levels of congestion
To encourage efficient use of existing transport infrastructure	Increased use of public transport, walking and cycling
To enable to provision of infrastructure and services required to support existing communities and proposed development	Sustainable access to areas of new development and regeneration
To improve access to jobs, education and services	Safe, efficient and sustainable movement between homes and key destinations and to/from the region's international gateways
	Increased movement of freight by rail
	Economic growth without a corresponding growth in travel
	Improved air quality and reduced greenhouse gas emissions

Within the transport strategy are 15 transport policies which provide additional detail on how specific measures will be used to achieve the objectives and outcomes above. These policies relate to topics such as parking, public transport, walking, cycling and inter-urban transport.

Essex Thames Gateway, which includes Southend-on-Sea and Rochford, is identified as a key area for economic development and regeneration. The strategy for development in this area aims, amongst other things, to create new jobs and to increase the value of the sub-regional economy. *Policy ETG4: Southend on Sea Key Centre for Development and Change*, states that local development documents for Southend-on-Sea should:

- Foster physical, economic and social regeneration;

- Achieve regeneration of the town centre;
- Improve strategic and local public transport accessibility; and
- **Improve surface access to London Southend Airport and support employment uses which would benefit from a location adjacent to an airport.**

2.2.2 Essex County Council Local Transport Plan 2006-2011

Essex County Council has a vision to:

> *"create safe, healthy, diverse and sustainable communities that are open and welcoming to all; where people want to live, work and visit; where people and communities take charge of their lives through active citizenship; where heritage is valued and innovation thrives; where people can travel easily, both locally and through making the most of excellent access to London, the rest of England and Europe"*

The transport vision is:

> *"We can travel safely, sustainably and on time, and where things can be done without the need to travel far."*

The Council recognises that an approach to transport is required which balances demand management and provision of new infrastructure. To achieve this balance, the plan identifies a series of objectives and themes, which are summarised in Table 2.3.

Table 2.3 – Essex Transport Strategy Objectives

Objective	Theme
Reducing the incidence of congestion and its effects on residents and businesses	Demand management – regulation of the use of the network through schemes such as road pricing, car park levies and cycling/walking initiatives.
Enhancing accessibility to education, employment, healthcare and retail facilities	Reducing the need to travel – changing people's travel behaviour through travel planning, awareness campaigns and marketing of sustainable travel.
Improve road safety and promote a safer travelling environment	Traffic Management Act – make best possible use of new and existing infrastructure to manage congestion and prioritise public transport
To improve air quality	Information provision – disseminate travel information
To maintain highways and public rights of way to an appropriate standard	Infrastructure –, e.g. cycle tracks, bus priority measures, and if required new carriageway especially to better serve ports and airports
Improving quality of life, through improved environment, healthier lifestyle, reduced noise and pollution.	Land use – influence the pattern of development to reduce the need to travel, implementing parking standards, raising Section 106 contributions to minimise impact of development and provide funding.
Encouraging economy and growth by providing a transport system able to provide easy access for customers, employees and for the movement of goods.	

The strategy divides Essex into five strategy areas which reflect established transport corridors, and the differences in the characteristics of each area. London Southend Airport and surrounding areas fall within the Basildon and Thames Gateway sub-area and is part of the wider Thames Gateway South Essex (TGSE) development area. The level of development put forward for the area will place additional strain on an already congested road network. Growth and development in this area will need to be underpinned by provision of appropriate sustainable infrastructure.

2.3 Local Planning Policy

The airport site falls within Rochford Borough Council, with Southend-on-Sea Council directly to the south, through which access is gained. The Joint Area Action Plan has been prepared by both Local Planning Authorities. Therefore, for the purpose of reviewing local planning policy it is relevant to consider documents prepared by both Authorities.

2.3.1 Southend-on-Sea Council

2.3.1.1 Core Strategy (Development Plan Document 1) Adopted December 2007

The Core Strategy is the key development document within the Local Development Framework portfolio. The document sets out the vision, objectives and strategy for development within the authority area and the key policies against which all planning applications must be assessed. The document was adopted on 13 December 2007 and covers the period to 2021. The Core Strategy will be supported by a number of other Development Plan Documents, including the Joint Area Action Plan for London Southend Airport and Environs (DPD5).

The overall aim of the Core Strategy is as follows:

> *"To secure a major refocus of function and the long term sustainability of Southend as a significant urban area which serves local people and the Thames Gateway."*

To achieve this, the Council have identified 19 strategic objectives which seek to improve economic prosperity, transport infrastructure and the quality of life of residents, whilst safeguarding and enhancing the town's amenities and the quality of the natural and built environment. Whilst all the strategic objectives are in some way relevant, as they underpin planning policy, the following are most relevant to this study:

- **SO1:** Deliver employment led regeneration, wealth creation and growth across Essex Thames Gateway sub-region.
- **SO5**: Provide for not less than 13,000 net additional jobs in the period 2001 to 2021;
- **SO9**: Secure a 'step change' in the provision of transport infrastructure as an essential concomitant to new development.
- **SO10**: Maximise the effectiveness and integration of key transport corridors and interchanges as a principal focus for development in the urban area.
- **SO11: Secure the regeneration of London Southend Airport to enable it to reach its potential to function as a local regional airport providing for significant new employment opportunities and improved surface access.**

The expansion of the airport and the development of the surrounding area for employment is in itself a strategic objective identified by the Council and is therefore a key scheme the Council is keen to deliver. The opportunity which the proposed development brings for the creation of new jobs, plus the necessary transport infrastructure improvements means that the development can easily contribute towards achieving other strategic objectives.

The aim and the 19 strategic objectives have been distilled into three over-arching key policies. The first key policy (KP1) seeks to achieve "*spatial sustainability"* by concentrating development in the most appropriate areas, including London Southend Airport and adjoining employment areas.

The second, KP2, makes a commitment to creating high quality, distinct and safe urban environments which have been designed in such as way to minimise the use of natural resources and which promotes renewable energy, to avoid or reduce the risk of flooding or pollution, reduce crime and the fear of crime, whilst at the same time providing enhanced environment and amenity value. The Core Strategy cites ways in which this can be achieved including:

- Reducing the need to travel;
- Ensuring good accessibility to local services and the transport network;
- Facilitate modes of transport other than the private car;
- Promote sustainable transport modes; and
- Secure improvements to transport networks, infrastructure and facilities.

Lastly the third policy, KP3 relates to how the strategic objectives can be successfully delivered, including:

- Preparation of Area Action Plans for key areas to ensure appropriate development, one of these areas being London Southend Airport;
- To enter into planning obligations and funding agreements with developers to ensure delivery of transport measures required as a consequence of development; and
- To require all development to have regard to the Local Transport Plan and revisions.

These three key policies in turn inform nine core policies, those of which are directly applicable to this study are detailed in Table 2.4.

Table 2.4 – Relevant Core Policies: Southend-on-Sea Core Strategy

Policy	
CP1: Employment Generating Development	Economic regeneration requires the maximisation of existing employment areas, as well as developing new opportunities. Southend Airport is cited as an area where potential for development should be supported.
CP3: Transport and Accessibility	Improved transport infrastructure is vital to support sustainable delivery of new homes and new jobs. New developments will be required to contribute to the implementation of transport improvements Section 106 Agreements.

Policy CP3 provides a list of transport infrastructure schemes which will help to achieve the required improvements. The key points are:

- Improving the road and rail network to deliver accessibility improvements, improve traffic flow, enhance travel choice and enable better freight distribution. In particular this can be achieved by:
  - Improving the A127/A1159 strategic transport corridor;
  - Improving accessibility to key opportunity sites to support the potential for future growth, including London Southend Airport;
  - Develop high quality transport interchanges;
- Widening sustainable travel choices, including the development of bus priority corridors and cycle routes;

- Provide a more efficient transport system using intelligent transport management systems and communications.

Southend-on-Sea Council is committed to the development of the airport as one of their strategic objectives. The development of the airport would bring additional jobs and investment to the area, which can be used as a catalyst to deliver an improved transport infrastructure and additional housing.

2.3.1.2 Local Transport Plan 2006-2011 (LTP2)

Efficient transport links are seen as critical to achieving the LTP2 vision and in providing in a sustainable way for the 13,000 additional jobs and 6,000 new dwellings identified by the Core Strategy to be provided. Increasing congestion and lack of accessibility to education, employment and health facilities form barriers to the movement of people and goods through the borough, but also to strategic locations such as the airport. The vision of the LTP2 is as follows:

> *"Secure a 'step change' in transport provision and service to deliver quality integrated facilities, improved accessibility and the long term sustainability of Southend necessary to achieving the town's potential for regeneration and growth to provide for a vibrant and prosperous coastal town and a regional centre of cultural and intellectual excellence."*

This LTP2 builds on the success of the previous plan and identifies transport policies and schemes the Council believe are vital to achieve the regeneration of the town and the wider Thames Gateway, for the period to 2011. In particular, the Council is seeking to ensure that:

- there is a reduction in the average vehicle delay experienced by travellers;
- increasing proportions of car trips involve more than one occupant;
- more people are travelling within the Borough and to the town centre by sustainable means;
- bus punctuality and reliability improve, leading to a sustained increase in bus patronage;
- rail services continues to provide a convenient and sustainable means of access travel;
- key destinations are more accessible, including London Southend Airport;
- the transport environment is more accessible to people with limited mobility;
- a minimum of 40% reduction in the number killed or seriously injured in 2010, compared to between 1994 and 1998; and,
- roads and footways are maintained to an appropriate standard.

2.3.2 Rochford District Council

2.3.2.1 Replacement Local Plan, June 2006

The Replacement Local Plan was adopted in June 2006 and contained the policies against which planning decisions in the district would be decided. Under the provision of the Planning and Compulsory Purchase Act (2004), Local Plans are being gradually replaced by Local Development Frameworks and Core Strategy documents. The Replacement Local Plan expired in June 2009, though because the Core Strategy is yet to be adopted policies from the Local Plan which were 'saved' remain planning policy for the district until the Core Strategy is adopted.

The council's vision is:

> *"To make Rochford the place of choice in the Country to live, work and visit."*

To achieve this vision RDC have set a list of six principal aims, which are:

- To provide quality, cost effective services;

- Work towards creating a safer and more caring environment;
- Promote a green and sustainable environment;
- Encourage a thriving local economy;
- Take action to improve the quality of life of the people in the district; and
- Maintain and enhance local heritage.

These have been translated into a series of nine strategic planning objectives, the ones most relevant to the development of London Southend Airport being as follows:

- **I4:** To ensure the availability of land for housing, commercial and industrial uses.
- **I6:** To make provision for transportation improvements to effect the most environmentally sustainable, efficient, convenient movement of goods and people.
- **I8:** To enable the existing business community to function as efficiently as possible and to support economic and regeneration development throughout the district.

In turn these strategic objectives have been translated into a series of core strategies. Those strategies which are of specific relevance to this study are summarised in Table 2.5, though as the core strategies underpin more detailed policies, all bear some relevance to the proposals.

Table 2.5 – Rochford District Council Local Plan Core Strategies

Core Strategy	Detail
CS1: Moving towards sustainable development	Aims to promote only development which balances economic development, social progress and environmental protection.
CS3: Reducing the need to travel	Management of new development to reduce the need to travel, reduce the length of journeys and encourage the use of sustainable transport.
CS5: Encouraging economic regeneration	To encouraging a diverse range of new businesses to a wide variety of locations including business parks and major logistics centres.
CS10: Energy and Water Consumption	The reduction in use of natural resources for the benefit of the local and global environment, and to help tackle climate change. Reducing the need to travel and encouraging energy efficient transport can contribute to this.

With regard to the economy the general strategy is to:

> *"maintain and increase appropriate levels of employment and economic activity in the District commensurate with environmental considerations and the capacity of the infrastructure"*

The council will seek to ensure that a range of business premises are provided from small start-up units to large scale office developments and business parks. Aviation Way and Purdeys industrial estates are cited in the document as land allocated for employment and therefore economic development. Applications for B1, B2 or B8 land uses will be allowed within these employment areas as long as they meet relevant criteria, including the appropriate determination of on-site and offsite traffic generation (Policy EB1).

The Local Plan contains 11 planning objectives within the transport section (Chapter 5). Those most relevant to the expansion of the airport are as follows:

- T1: to reduce the need to travel, in particular reducing reliance on cars and developing sustainable transport alternatives;
- T3: to improve accessibility to services, rather than improving mobility;
- T4: to improve the existing highway network if necessary to facilitate the better movement of people and goods;
- T5: to retain a good bus network and extend into developing rural areas;
- T6: to retain and improve all aspects of rail services;
- T7: to improve transport interchange facilities;
- T8: to implement traffic management schemes to ease vehicle flow, deal with environmental issues and highway congestion;
- T10: to support the development of London Southend Airport as a regional air transport and aircraft maintenance facility;
- T11: to promote walking and cycling as the preferred modes of travel wherever possible.

There are site specific policies within the document relating to London Southend Airport. The council recognises the importance of the airport for local business and employment, therefore plans to expand and maximise the potential of the airport are supported by the council. Planning permission has been granted for a new terminal and rail station to enable an increase in passenger flights. Policy TP9 London Southend Airport states that:

> *"Planning permission will be granted for development that will support the operation of London Southend Airport as a regional air transport and aircraft maintenance facility, including the full realisation of its potential for increases in passenger and freight traffic, subject to:*
>
> *i. There being no serious detriment to the local environment or nature conservation interests;*
>
> *ii. It being shown that there are adequate access arrangements in place or proposed.*
>
> *iii. Plans for future expansion and development will be required to include a satisfactory Surface Access Strategy."*

2.3.2.2 Core Strategy Submission Document, September 2009

The Core Strategy Submission Document was published in September 2009 and is the emerging planning policy for Rochford District Council. The document will go through the Examination in Public process in 2010, prior to being adopted. As emerging planning policy it is an important document to consider, but may be subject to change. The vision of the Council is as follows:

> *'To make Rochford District a place which provides opportunities for the best possible quality of life for all who live, work and visit here'*

To support this, the Council has four main corporate objectives. These are:

- Making a difference to our people;
- Making a difference to our community;
- Making a difference to our environment; and
- Making a difference to our local economy.

In the discussion chapter about economy and employment, London Southend Airport is noted as a potential focus for economic development within the District. This refers not just to the

development of the airport, but also as a catalyst for attracting wider employment which would benefit from the airport expansion.

Car ownership and the dependency on car travel are noted by the submission document. The main settlements are well linked by rail and public transport, though the more rural areas are poorly connected and it is in these areas car travel is high. Cycle facilities are noted as being limited and there being scope for improvement. The Council have identified eight strategic transport objectives which are as follows:

- To ensure that developments reduce reliance on the private car, and that they are accessible by public transport;
- To provide necessary improvements to the road network;
- To identify locations which suffer from poor highway connectivity and congestion, then work with the Highways Authority to identify solutions;
- To support the implementation of the South Essex Rapid Transit system, ensuring that it successfully connects residential and employment areas;
- To ensure that all new developments implement travel plans to reduce the reliance on the private car;
- To ensure that a safe, accessible and convenient network of cycle and pedestrian routes is provided;
- To aid the delivery of greenways identified in the Thames Gateway Green Grid Strategy, alongside Essex County Council and neighbouring authorities; and
- To enforce appropriate car parking provision for new development, balancing the needs of motorists but also ensuring parking does not take up excessive amounts of developable land or discourage alternatives to car use.

These strategic objectives have been translated into eight transport policies, all of which will bear some relevance to the proposed development. The most significant are as follows:

- **Policy T1 – Highways:** this policy states that development will be required to be located and designed in a way to reduce reliance on private car travel. Where impact on the highway is unavoidable the Council will work with developers to implement improvements, with contributions from developers where necessary.
- **Policy T3 – Public Transport:** this policy states that development must be well located relative to public transport provision to ensure there are realistic alternatives to travel by private car. Policy T4 relates solely to the development and support of the SERT scheme.
- **Policy T5 – Travel Plans:** states that all development will require a travel plan;
- **Policy T6 – Cycling and Walking:** this sets out the Council's support to developing cycling and walking facilities across the District, with developers contributing where their proposals create a need for such facilities;
- **Policy T8 – Parking:** states the Council will apply minimum parking standards, with developers required to prove parking provision and servicing arrangements are adequate.

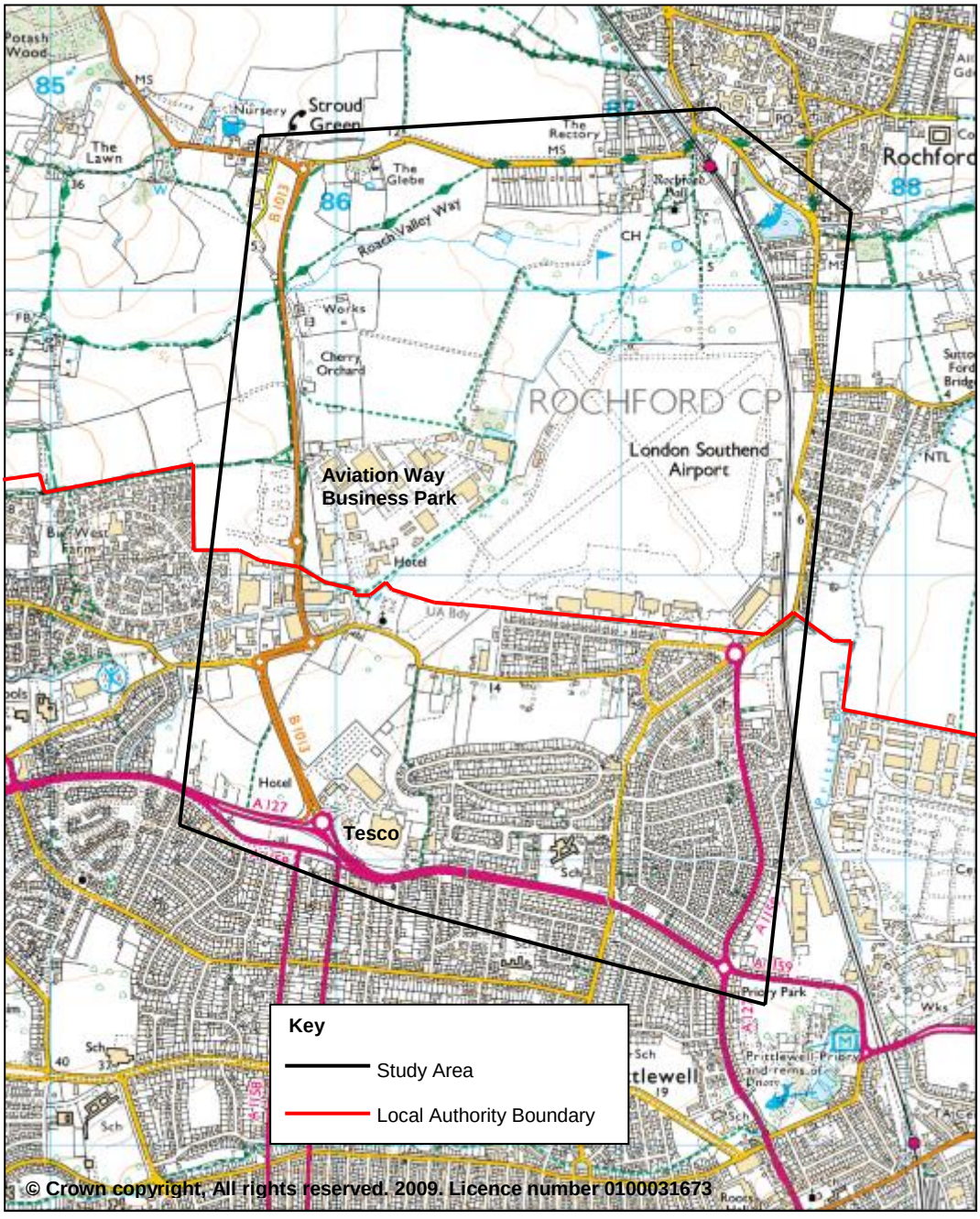
Policy T2 identifies a number of priority highway improvement schemes, two of which are the B1013 and surface access to the airport. Economic policies are designed to facilitate the delivery of 3,000 additional jobs through the plan period. Again London Southend Airport is identified as a focus for employment growth. Policy ED2 specifically sets out the Council's support and aspiration for the development of the airport, including preparation of the JAAP, development of an aviation skills academy and development of business parks to the north of the airport for non-aviation industries.

3. Existing Site Conditions

3.1 Site Location

The site lies either side the administrative boundary between Rochford District Council and Southend-On-Sea Borough Council and forms part of the Thames Gateway area. The centre of Southend is located approximately 1km to the south east of the site and the town of Rochford is situated to the north east corner of the site.

Figure 3.1 – Study Area Location Plan



3.2 London Southend Airport

The airport is located on the northern fringes of Southend-on-Sea in Essex, approximately 40 miles from central London. Approximately 2 million people live within an hour's drive of London Southend Airport. The airport location is shown on Figure 3.1.

The site is bounded to the south by Eastwoodbury Crescent and Wells Avenue both of which are residential; with open space immediately at the end of the runway. To the east is Southend Road, which is also largely residential with Purdeys Industrial Estate and open countryside beyond. Immediately to the north is the town of Rochford, the Rochford Hundred Golf Course, and beyond that open agricultural land. To the west is the Aviation Business Park, the residential areas of Rayleigh and Eastwood, and the open countryside of Cherry Orchard Country Park.

For passengers the main access to the airport is via a priority T-junction from Eastwoodbury Lane, as shown by Figure 3.2. The access carriageway is 7.3m wide with 4.5m wide footways on both sides. A secondary access is provided from the retail park access to the east.

Figure 3.2 – Passenger Access

These access points provide direct vehicle access to the car parks and the terminal building, plus small private flying clubs, which are based at the airport. For freight there is a separate access 140m to the west of the passenger access. This is also a priority T-junction with a carriageway 7.2m wide, though there are no pedestrian footways. The access is shown in Figure 3.3.

Figure 3.3 – Cargo Access

Aviation Way employment area and the Airport Maintenance, Repair and Overhaul (MRO) Northside are existing areas of employment to the south west of the site. Access to individual units is taken from Aviation Way which is accessed via a mini-roundabout from Eastwoodbury Lane, as shown on Figure 3.4.

Figure 3.4 – Roundabout access to Aviation Way Business Park

3.3 Local Road Network

The study area is bounded by A127/Prince Avenue to the south, Southend Road to the east, Hall Road to the north and Cherry Orchard Way to the west (Figure 3.1). Eastwoodbury Lane runs east to west along the southern boundary of the airport. Roads within the vicinity of the site consist of a mixture of A roads, B roads and residential roads. The main highway features for individual roads are detailed below.

3.3.1 A127 Prince Avenue

The A127 is the major route into Southend-on-Sea from the west, linking to the strategic road network via the A130, the A13 and the M25. The A127 through the study area is referred to as Prince Avenue. The A127 forms the southern boundary of the study area and links the B1013 Nestuda Way/Tesco roundabout in the west to the Prince Avenue/Manners Way/Priory Crescent/Victoria Avenue roundabout in the east. The A127 continues as Victoria Avenue into Southend-on-Sea town centre.

From the Tesco Roundabout to the Rochford Road/Hobleythick Lane/A127 Prince Avenue signalised crossroads, the A127 is a dual carriageway with a 40mph speed restriction and no stopping permitted. Street lighting is located in the centre of the road and there is a speed camera adjacent to Midhurst Avenue on the eastbound carriageway. There is a sign for a speed camera on the western carriageway, but no actual camera was seen. Residential properties line both sides of the carriageway and there are several minor residential roads leading off it.

From the Rochford Road/Hobleythick Lane/A127 Prince Avenue signalised crossroads to the Prince Avenue/Manners Way/Priory Crescent/Victoria Avenue roundabout the road is an dual carriageway, urban clearway, with no stopping Monday to Friday 0730-1030 and 1430-1900, as shown on Figure 3.5. There are double yellow lines on both sides of the road.

Figure 3.5 – A127 Prince Avenue looking east from Rochford Road junction

The carriageway is largely bordered by residential properties; however there are some small commercial units around the Rochford Road junction. There is a lay-by on the northern side of the carriageway, just to the east of Rochford Road which serve the commercial units. Parking restrictions are enforced Monday-Saturday 0900-1800 with a maximum stay of 1 hour with no return permitted within 4 hours. There is no parking charge. There are also some commercial properties at the Prince Avenue/Manners Way/Priory Crescent/Victoria Avenue.

The A1158, which is also referred to as Prince Avenue runs parallel to the A127 Prince Avenue from Queen Anne's Drive to Somerton Avenue with a speed restriction of 30mph. It provides a link from the A127 to Southbourne Grove and Westbourne Grove and would have originally formed the A127 prior to the construction of the B1013 Nestuda Way/Tesco roundabout. For westbound traffic there is a one-way slip road from the A127 to the A1158. The A1158 meets the A127 west of Somerton Avenue at a signalised junction, where there is no access to the eastbound A127.

3.3.2 B1013 Nestuda Way

Nestuda Way is a dual carriageway B road, that links A127 Prince Avenue to the B1013 Cherry Orchard Way and Eastwoodbury Lane. On both sides of Nestuda Way are open fields and sports pitches. Nestuda Way has street lighting on both sides of the road and the traffic heading northbound and southbound is split by a barrier on the central reservation. There are no stopping at any time restrictions on both carriageways and a speed limit of 40mph, as shown by Figure 3.6.

Figure 3.6 – B1013 Nestuda Way southbound carriageway

From the A127 Prince Avenue/B1013 Nestuda Way roundabout there is access to the Tesco superstore and the Royal Bank of Scotland (RBS) offices. There is a secondary access to the RBS car park via a left in, left out priority junction from the Nestuda Way southbound carriageway. Access to the car park is barrier controlled.

3.3.3 B1013 Cherry Orchard Way

The B1013 Cherry Orchard Way is situated between Nestuda Way and Eastwoodbury Lane to the south and Hall Road to the north. Approximately 350m north of the roundabout with Eastwoodbury Lane, there is a roundabout providing access to car retail showrooms.

South of this roundabout, Cherry Orchard Way is a dual carriageway subject to a 40mph speed limit with a no stopping restriction and a central reservation. The carriageway is bordered on both sides by industrial land uses. To the north of the roundabout, Cherry Orchard Way narrows to a single carriageway with a national speed limit restriction, and the road is surrounded by fields and recreational land.

3.3.4 Hall Road

Hall Road runs east/west and provides the northern boundary of the study area. At the eastern end of Hall Road is the town of Rochford, where Hall Road meets Ashingdon Road/West Street at a mini-roundabout. The B1013 Cherry Orchard Way meets Hall Road at a roundabout, and then continues as the B1013 north west towards Hawkwell and Hockley. The eastern section of Hall Road is residential in nature with large detached residential dwellings set back from the road and Rochford Hundred Golf Club. Along the western section of Hall Road the land use is mainly open fields or recreational on both sides of the road.

Hall Road is a single carriageway, subject to a 40mph speed limit, until the residential areas where the speed limit falls to 30mph (Figure 3.7). A red strip is painted across the road to indicate the change in speed. There is also a speed camera on the eastbound side of the road just past Oak Road. On Hall Road there is a weight restriction of 7.5T and a width restriction of 6'6", except for access.

Figure 3.7 – Speed limit change on Hall Lane

At the eastern end of Hall Lane the road passes underneath the London-Southend railway line. There is a height restriction of 4.1m (13-6") underneath the railway bridge.

Ashingdon Road is lined with houses on one side and on the other is a day nursery and Rochford primary school, and hospital. It is an Urban Clearway from Monday – Saturday from 0800-0900 and 1630-1830.

3.3.5 West Street/Bradley Way

West Street runs from the junction with Hall Road south, meeting Bradley Way at another mini roundabout. Along with Bradley Way and Southend Road, West Street forms the eastern boundary of the study area. West Street is a single carriageway with single yellow lines along both sides. The road is subject to a 30mph speed limit with a no waiting restriction in force Monday to Saturday between 0800 and 1800. Access to Rochford Station car park is taken from West Street.

West Street meets Bradley Way at a 3-arm mini-roundabout. The third arm, also called West Street which leads into the town centre and is lined by commercial uses. There is a zebra crossing on the northern arm of the roundabout.

Bradley Way continues south from West Street to another mini roundabout where it meets Southend Road. On the western side of the carriageway there is parkland then the railway line. On the eastern side there is a wedding venue and other large commercial buildings. The road is lit and subject to a 30mph speed limit. There are no waiting restrictions on the highway, but there is a speed camera sign near to the mini roundabout with Southend Road on the northbound side. There are no buses or cycle routes along this stretch of road. The Bradley Way/Southend Road roundabout is a three arm roundabout, with the third arm being South Street. There are two lanes on the approaches from Bradley Way and Southend Road, with ahead and turning lanes marked. There is a one lane approach from South Street.

3.3.6 Southend Road

Southend Road continues south to the junction with Manners Way/Rochford Road/Eastwoodbury Lane, which is referred to as the Harp House roundabout. To the west is a mixture of open space and residential properties, with the railway line beyond. To the east of there are residential dwellings, but also a fire station, pub, garden centre and other commercial uses. The Roach Valley Way and Bridleway 38 cross Southend Road to the north. On the site visit during the daytime it was noted that there was a steady stream of traffic travelling along both sides of the road, making it difficult to cross at times.

As South End Road continues southwards it meets Sutton Road at a mini roundabout with a turning off to Sutton Road. The approaches from the north and south are flared two lane approaches with ahead and turning lanes marked. Sutton Road is a single lane approach providing access to Purdeys Industrial Estate. There is a zebra crossing on the southern arm of the roundabout.

South of the junction with Sutton Road, Southend Road is bordered by open land to the west, with the railway line and airport beyond. To the eastern side are residential dwellings. There is a speed camera on the southbound carriageway. Double yellow lines begin on both sides of the road from the railway bridge and continue southwards to Harp House Roundabout. Between Leicester Avenue and Queen Elizabeth Chase there is a parade of small shops with a parking bay provided in front. Parking restrictions are in place between 0800 and 1800 with a maximum stay of 30 minutes with no return within 1 hour.

3.3.7 A1159 Manners Way

The A1159 links the Harp House Roundabout at the northern end to the A127 Prince Avenue/Victoria Avenue/Priory Crescent roundabout to the south. It is a single carriageway with a 40mph speed limit and a mixture of no restrictions, single and double yellow line restrictions, with a no waiting restriction in force Monday to Saturday between 0800 and 1800 associated with the single yellow lines. Double yellow lines are found mainly approaching junctions or bus stops.

The land use alongside Manners Way is largely residential, though there are allotments to the eastern side close to the Harp House Roundabout. The residential properties take access across the footways on both sides of the carriageway. There are some small shops on Manners Way by the junction with Oaken Grange Drive. In front of the shops a parking bay is provided which can accommodate approximately 7 cars (Figure 3.8). Parking is restricted between 0900 and 1800 to 1 hour only with no return within 1 hour.

Figure 3.8 – Parking Bay on Manners Way

The A1159 Manners Way is the signposted route to London Southend Airport.

3.3.8 Eastwoodbury Crescent

Eastwoodbury Crescent runs between the Harp House Roundabout and Rochford Road. At the junction with Wells Avenue the road bends 90 degrees then runs north-south to Rochford Road. London Southend Airport takes access from the north side of Eastwoodbury Crescent. To the south are residential properties with an access road separated from the main carriageway.

The road is a single carriageway subject to a speed limit of 30mph and a 7.5T weight restriction (except for access). There are double yellow lines along both sides of the carriageway between the Harp House Roundabout and the junction of Eastwoodbury Crescent and Wells Avenue. This is an uncontrolled parking zone despite proximity to the airport, indicating parking at the airport is not significant at present.

Between the junctions with Wells Avenue and the mini-roundabout with Eastwoodbury Lane there is a small parade of shops. Adjacent to the shops there is a parking bay along the eastern side of Eastwoodbury Crescent. The parking bay covers 72m of the kerb, but 6.5m of this is taken up by driveways to the forecourt outside the shops. Parking restrictions are enforced between 0800 and 1800, limited to a maximum stay of 1 hour with no return within 4 hours. A 3-arm mini roundabout links Eastwoodbury Crescent to Eastwoodbury Lane.

3.3.9 Eastwoodbury Lane and Aviation Way

Eastwoodbury Lane links Eastwoodbury Crescent with the B1013 Nestuda Way and Cherry Orchard Way. The eastern section of Eastwoodbury Lane is residential in nature, with accesses to properties taken across the footway. Avro Road, Bristol Road and Vickers Road provide access to the residential areas to the north of Eastwoodbury Lane via T junctions. To the south of Eastwoodbury Lane is open space.

The runway for London Southend Airport runs north-east to south-west, with the south-west end of the runway just 30m from Eastwoodbury Lane. There are two sets of barriers across the road, which go down when a large plane is taking off or landing. There is a 7.5T restriction and double yellow lines on both sides of the road between and around the barriers. On the remainder of the road there are no further restrictions. Both sets of barriers are operated by traffic lights, as shown by Figure 3.9.

Figure 3.9 – Barriers on Eastwoodbury Lane

To the west of the runway barriers Eastwoodbury Lane meets Aviation Way at a three arm mini roundabout. Aviation Way is bordered by industrial land uses and the airport. There is no central divide or restrictions along the road. Cars are parked alongside much of the roadside and on verges. West of Aviation Way Eastwoodbury Lane continues as a single carriageway road with a 30mph speed restriction, before meeting the B1013 Cherry Orchard Way at another, larger roundabout.

3.3.10 Rochford Road

Rochford Road links the A127 Prince Avenue to Southend Road to the north, and is bordered on both sides by residential dwellings. It is a single carriageway with a 30mph speed restriction. On street restrictions are a mixture of double yellow line restrictions around junctions, bus stops and pedestrian crossings, single yellow lines and areas where there are no restrictions. There is a 7.5T weight restriction for all of the side roads off Rochford Road. There is a speed camera sign on the southern side of the road, but no fixed speed camera present.

There is a small parade of shops, including a Somerfield store, at the junction of Rochford Road/Feeches Road, with a zebra crossing outside (Figure 3.10). There are four marked parking bays south of the Somerfield zebra crossing, with a parking restriction operational between 0900 and 1800 with no return within 4 hours. Despite being a more direct route from the A127 to London Southend Airport this is not the signposted route.

Figure 3.10 – Zebra crossing opposite Somerfield

3.3.11 Main Junctions and Roundabouts

Details of the main junctions are listed below:

A127 Prince Avenue/B1013 Nestuda Way/Thanet Grange roundabout

- 2 lane approaches on all arms;
- 2 lane exit to A127 Prince Avenue eastbound, 1 lane exit to other arms;
- Left turn filter lane from A127 Prince Avenue eastbound to B1013 Nestuda Way; and
- Straight through lane on the A127 Prince Avenue westbound.

A127 Prince Avenue/Rochford Road/Hobleythick Lane signalised crossroads

- Two lane approaches eastbound and westbound on A127 Prince Avenue; and
- Two lane approaches from Rochford Road and Hobleythick Lane.

Cuckoo Corner Roundabout (Prince Avenue/Manners Way/Priory Crescent/Victoria Avenue roundabout)

- 3 lane approaches on A1159 Manners Way and A127 Victoria Avenue;
- 2 lane approach from Prince Avenue and Priory Crescent;
- 1 lane exit to A1159 Manners Way and Priory Crescent;
- 2 lane exits to A127 Prince Avenue and Victoria Avenue; and
- Left turn filter lane from A127 Victoria Avenue to A127 Prince Avenue.

Nestuda Way/Eastwoodbury Lane westbound/Comet Road/Eastwoodbury Lane eastbound roundabout

- 3 lane wide circulatory carriageway, unmarked and likely to operate as 2 lanes
- 3 lane approach on B1013 Nestuda Way northbound;
- 2 lane approach on B1013 Nestuda Way westbound;

- 2 lane flared approach on Eastwoodbury Lane eastbound;
- 1 lane approach on Comet Way;
- 2 lane exit to B1013 Nestuda Way and to Nestuda Way eastbound arm; and
- 1 lane exit to westbound arm and Comet Way.

B1039 Eastwoodbury Lane/Cherry Orchard Way/ Eastwoodbury Lane

- 2 lane approaches from Eastwoodbury Lane eastbound arm and Cherry Orchard Way;
- 2 lane flared approach on Eastwoodbury Lane westbound arm;
- 2 lane exits to Cherry Orchard Way and Nestuda Way;
- 1 lane exit to Eastwoodbury Lane;
- 2 lane circulatory carriageway reduced to one lane by hatching.

3.4 Walking

In general footways within the vicinity of the site are of good quality and the key sites within the study area are accessible by foot.

The footways on the major roads within the study are generally of good quality, especially along the A roads. On the A127 Prince Avenue, B1013 Nestuda Way, B1013 Eastwoodbury Lane, West Street, Rochford Road, Eastwoodbury Crescent and A1159 Manners Way the footpaths are around 2-3m wide with a verge. Figure 3.11 shows a good quality shared use footway on B1013 Nestuda Way.

Figure 3.11 – Good quality footpath along Nestuda Way

On the more minor roads the footways are of a poorer quality. On Eastwoodbury Lane the standard of the footpath was variable, with an uneven surface and narrow in sections. Along much of the southern side of Eastwoodbury Lane there was no footway, forcing bus users to stand on a verge to board the bus. On Hall Road, which would become the main pedestrian routes from Rochford railway station to Business Park, there are not always footpaths on both sides of the road. The quality of the footway varies from narrow cracked footways along much of the eastbound carriageway, to a good quality shared use footway on the westbound carriageway.

On Southend Road the footways were noted to be particularly narrow and poor quality, this is illustrated in Figure 3.12 below.

Figure 3.12 – Narrow footway on South End Road

Along the northern section of Cherry Orchard Way there are no footways adjacent to the carriageway. However, Bridleway 47 and Bridleway 48 run alongside Cherry Orchard Way segregated from the carriageway by a fence, and along Cherry Orchard Lane. The bridleways are described in more detail under Section 3.5.1. Crossing at the roundabouts on B1013 Nestuda Way and Cherry Orchard Way was noted as being particularly difficult due to the volume of traffic.

Almost all the crossings within the study occur at the junctions or the roundabouts and uncontrolled crossings. Some uncontrolled crossings have tactile paving and dropped kerbs, whilst others do not. There are a number of zebra crossings within the study area, signal controlled crossings at the junction of A127 Prince Avenue/Rochford Road/Hobleythick Lane, a signal controlled crossing on the A127 Prince Avenue arm of the Cuckoo Corner roundabout, a toucan crossing adjacent to the Tesco superstore and two footbridges which are both located on Prince Avenue.

3.4.1 Public Rights of Way and Bridleways

There are a number of bridleways and public rights of way, which transect the study area. These are shown on Figure 3.13 below which is an extract from the Ordnance Survey 1:25,000 map for the area, and illustrated further on Figure 3.14 and Figure 3.15 -. It is evident from the figures that the paths vary greatly in quality.

Where the footways and bridleways cross B1013 Cherry Orchard Way at the northern limit of the Aviation Way Business Park there is a pedestrian subway. There is a second crossing point further north however this is uncontrolled and it can be difficult to cross in busy times.

Figure 3.13 – Public Rights of Way and Bridleways

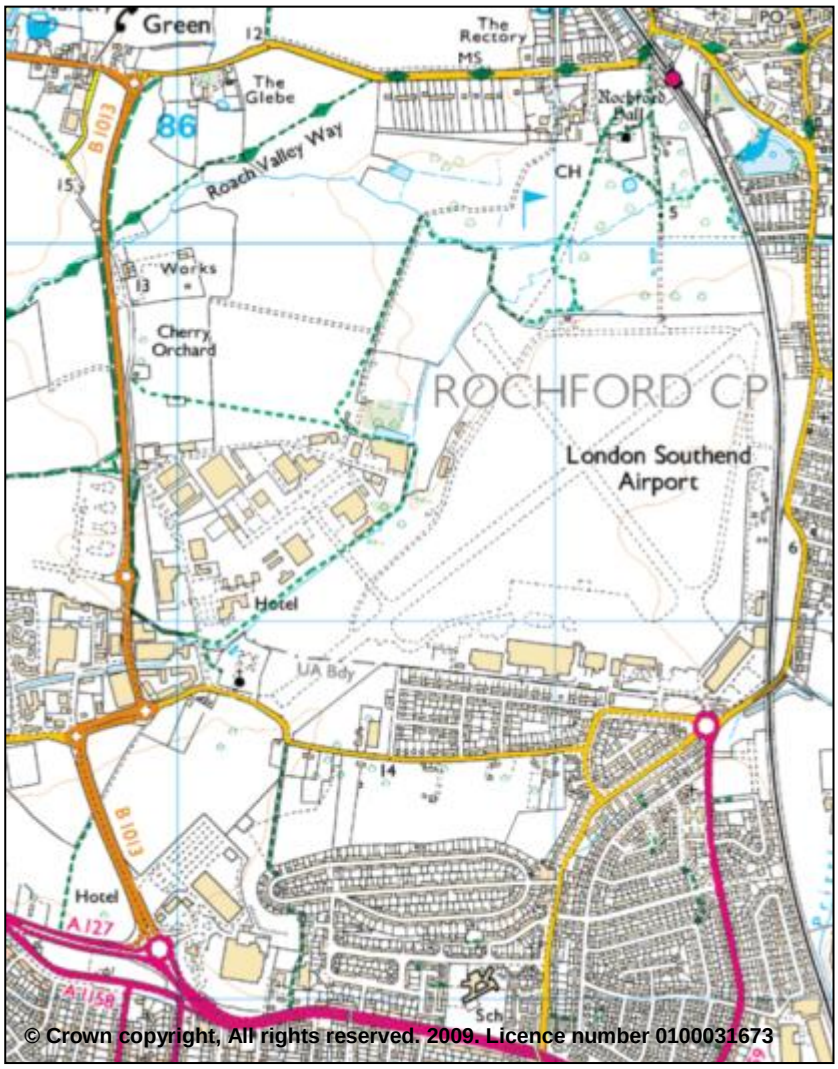


Figure 3.14 – Footpath off Eastwoodbury Lane

Figure 3.15 - Roach Valley Way, from Cherry Orchard Road towards Hall Road

3.5 Cycling

There are no on road cycle routes within the study area, However there are a number of shared use off road cycle routes. Shared use pathways are found along parts of the A127 Prince Avenue, along both sides of the B1013 Nestuda Way, along the majority of the B1013 Cherry Orchard Way, and on both sides of Hall Road. Figure 3.11 above shows a shared use footpath on B1013 Nestuda Way.

Cycle crossings include the toucan crossing just east of Westbourne Grove (Figure 3.16) on A127 Prince Avenue, on Hall Road opposite Rochford station and via a footbridge over the A127 at Richmond Drive.

Figure 3.16 – Toucan Crossing East of Westbourne Grove

3.6 Buses

Figure 3.17 shows the bus routes which operate within the study area. The closest bus stops to the main airport access are between the two airport accesses on Eastwoodbury Crescent and a 1 minute walk along a good quality footway. The closest bus stops to the business parks are on Eastwoodbury Lane, though there are temporary bus stops on B1013 Cherry Orchard Way.

Table 3.1 to Table 3.5 lists the bus services stopping within the vicinity of the site, split according to major roads. The most bus services stop on Prince Avenue, which is located to the south of the site.

Table 3.1 – Bus Services stopping on A127/Prince Street

Service number	Route	Monday – Saturday daytime	Monday – Saturday evening
15 and 15a	Southend – Eastwood - Rayleigh	Mon – Fri rush hour only	None
15b	Southend – Eastwood – Rayleigh – Thundersley - Hayleigh	2 journeys Mon – Fri, rush hour AM	None
15c	Lower Hockley – Rayleigh – Eastwood - Southend	1 journey Mon – Fri AM rush hour	None
16	Southend – Eastwood – Rayleigh – Thundersley - Canvey	1 journey Mon – Fri rush hour	None
17	Southend – Westcliff – Prince Avenue – Tesco	5 journeys Tuesday only	None
X30	Southend – Eastwood – Rayleigh – Chelmsford – Stansted Airport	Every 60 minutes	Every 60 minutes

Table 3.2 – Bus Services Stopping on A1158/Prince Avenue

Service number	Route	Monday – Saturday daytime	Monday – Saturday evening
25	Southend – Eastwood – Rayleigh – Wickford – Basildon	Every 30 minutes	None

Table 3.3 – Bus Services Stopping on Southend Road

Service number	Route	Monday – Saturday daytime	Monday – Saturday evening
7 and 8	Shoeburyness – Thorpe Bay – Southend – Rochford – Golden Cross – Hockley – Rayleigh	Every 10-15 minutes	Every 30 - 60 minutes
60	Southend – Temple Farm – Rochford – Great Stambridge – Canewdon - Paglesham	4 –5 journeys a day	None
61	Southend – Fossett's Park, one journey extends to Rochford	Every 30 minutes	3-5 journeys

Figure 3.17 – Bus Route Map

Table 3.4 – Bus Services Stopping on Cherry Tree Way

Service number	Route	Monday – Saturday daytime	Monday – Saturday evening
18	Belfairs - Hawkwell - Hockley - Ashingdon (Circular)	4 services on a Friday	None

Table 3.5 – Bus Services Stopping on Eastwoodbury Lane and Eastwoodbury Crescent

Service number	Route	Monday – Saturday daytime	Monday – Saturday evening
9	Shoeburyness – Thorpe Bay – Southend – Eastwood - Rayleigh	Every 12 minutes	Every 30 – 60 minutes

The facilities at the bus stops within the study area are mixed. Many bus stops on minor routes do not have a shelter or any seating and consist of just a post with no proper crossing to reach the bus stop. Some of the bus stops within the study area, particularly along Southend Road were found to not have a timetable or service number attached to the post. Other stops are of good quality with shelter, seating, lighting and timetable information. These tended to be found on the busier bus routes. Figure 3.18 shows one of the poor bus stops on Southend Road.

Figure 3.18 – Bus stop on Southend Road

3.7 Trains

Rochford is the closest railway station to the airport and is a 2.3km or 28 minute walk to the airport and 1.5km or 19 minute walk to the current Aviation Way business park. It is located to the north east corner of the study area in the town of Rochford. Prittlewell railway station is to the south of the study area to the south east. Employees accessing the Business Park are most likely to alight at Rochford Station as it will be the closest station to the employment area. The airport will have a dedicated station which is currently under construction and due to open in Spring 2010 as part of the Southend Airport developments.

Rochford station is managed by a single operator, National Express East Anglia. The station is on the line from Southend Victoria to London Liverpool Street, providing a regular service into London which takes approximately 50 minutes. Table 3.6 lists the train frequencies for services from Rochford.

Table 3.6 – Train services from Rochester station

Route	Mon-Sat	Evenings	Sundays
London Liverpool Street – Southend Victoria	Every 20 minutes	Every10- 20 minutes	Every 30 minutes
Southend Victoria – London Liverpool Street	Every 20 minutes	Every 15-20 minutes	Every 30 minutes

3.7.1 Rochford Station facilities

Rochford station has two platforms, one for trains to Southend and one for trains to London. CCTV is in operation covering the station, car park and cycle parking.

The station is staffed Monday to Friday from 06:00-17:00, on Saturday from 07:30-14:20 and on Sunday from 09:00-15:00 and the ticket office is open during these times. There is also a self service ticket machine, from which pre-booked tickets can be collected. There are live departure and arrival screens. There is a waiting room and are benches located along both platforms and toilets are provided.

There are two partly sheltered cycle storage areas in the car park providing a total of 19 Sheffield stands or 38 cycle parking spaces. There are a further 10 uncovered Sheffield stands directly outside the station (Figure 3.19).

Figure 3.19 - Cycle parking outside station and access to platform 2

The station car park provides 204 parking spaces, with 4 disabled spaces. The car parking charges are £5 per day during peak times, £3 per day off peak, £20.50 weekly, £79.00 monthly and £820.00 annually. There is a reduced parking tariff after 16:00 Monday to Friday and on Saturdays and Sundays.

There is a taxi rank outside the station, but the closest bus stop is a 5 minute walk away on West Street. Platform 1 serves trains towards Southend Victoria and access to this platform is from

street level, through the ticket office or a gate which leads to the station car park. Platform 2 serves trains to London Liverpool Street and accessed via a footbridge from Platform 1, or from Hall Road via a ramped walkway and an alternative stepped access. Figure 3.20 shows the access to the car park from Platform 1 as well as the footbridge to Platform 2.

Figure 3.20 – Access to the car park on platform 1

4. Proposed Development

4.1 Airport Expansion

Within the original *London Southend Airport and Environs Joint Area Action Plan Issues and Options Report* four development scenarios for the airport were put forward for consultation. These are summarised in Table 4.1.

Table 4.1 – Proposed Airport Expansion Scenarios

Scenario	Airport Development
1 – Low Growth (Do Minimum)	Current airport operation sustained with minimal growth of aircraft maintenance through increased use of currently underutilised space. Passenger traffic would remain marginal to maintenance activity. The approved hotel would become less financially viable.
2(a) – Medium Growth	Current operation maintained as per Scenario 1.
2(b) – Medium Growth with Aviation Cluster	Airport becomes a 'driver' for development. Passenger numbers would be grown to 2 million per annum by 2030 with associated railway, hotel and terminal infrastructure but runway length maintained as existing. Maintenance operations would also be expanded through intensification and also new allocation of 4.05ha to the north of the airport. 2 million passengers per annum equates to approx 1,500 arrivals and 1,500 departures or 66,000 flights per year and 40 flights per day.
3 – High Growth	Extension to the runway to 1,799m to accommodate larger planes with up to 160 seats. Passenger numbers would grow to 2 million per annum which would be realistically achievable considering the investment. Expansion would include new terminal, new rail station, hotel, control tower and ancillary facilities. Maintenance operations would expand with operators based at the airport with increased provision up to 4.05ha. Forecasts of 2 million passengers per annum and up to 85,500 aircraft movements comprising daily flights of around 40 passenger, 2-3 maintenance and 5-6 business flights, equating to 3 flights per hour.

In terms of the objectives set by the JAAP, the final scenario has the closest fit with the airport becoming a driver for other employment development in the area. It is recognised that the extension to the runway is vital in achieving the increase in passenger flights to 2 million passengers per annum. The key elements of the airport expansion are as follows:

- A new railway station to provide quick, direct links into London and Southend;
- A new terminal building to handle passengers with greater speed, efficiency and comfort;
- Additional secure car parking spaces for people using the airport;
- A new control tower;
- Extension of the current runway, to attract new airlines to the airport and operate additional passenger services, particularly to Europe; and
- A new hotel.

4.2 Business Parks

The development of the airport is intended to occur in tandem with the development of employment land around the airport fringes, focussing on the Aviation Way Business Park. Intensification of existing uses and new development to provide B1 Office and Light Industrial uses is proposed. With each scenario for airport expansion there are corresponding proposals for increase in employment as described in Table 4.2.

Table 4.2 – Proposed Employment Land development scenarios

Scenario	Business Development
1 – Low Growth (Do Minimum)	Improvement/intensification of Aviation Way Business Park within existing park boundaries. Could potentially provide 750 additional jobs and 15,000sq.m of new office/light industrial floorspace.
2(a) – Medium Growth	Intensification of existing employment areas plus provision of new employment areas to the north of Aviation Way, able to accommodate 64,000sq.m of additional employment floorspace and 3,200 new jobs.
2(b) – Medium Growth with Aviation Cluster	Employment growth will be associated with the expanded airport and maintenance activity, plus a new allocation of 7ha for 49,000 sq.m of new aviation related business park development accommodating 2,500 new jobs. With the intensification of Aviation Way new floorspace of up to 64,000sq.m accommodating 3,200 new jobs could be provided.
3 – High Growth	Airport employment would rise to 2,100 jobs. Additionally intensification of Aviation Way and new allocation of 21ha to the north of Aviation Way. New development would accommodate 94,000dq.m of floorspace with B1 use and support 3,900 new jobs.

In total 6,000 new jobs could be provided under the high growth scenario, with a reasonable proportion of these related to airport expansion. Clearly the provision of any new development will have some impact on transport and require transport-related infrastructure improvements. Table 4.3 identifies from the JAAP Issues and Options Report what the implications on transport may be.

Table 4.3 – Implications of Scenarios for Transport Provision

Scenario	Transport Improvements and Issues
1 – Low Growth (Do Minimum)	Minimal transport infrastructure improvements to support growth of Aviation Business Park. No additional airport related infrastructure. Eastwoodbury Lane would continue to operate with barriers and delays may increase marginally, as may road noise from intensified Aviation Way Business Park. LTP2 infrastructure improvements required irrespective of development.
2(a) – Medium Growth	No additional airport related infrastructure. Improvements would be required, in addition to LTP2 schemes, to facilitate employment growth including a new roundabout access to Aviation Way from Cherry Orchard Way, upgrading of Aviation Way and Cherry Orchard Way. Eastwoodbury Lane would continue to operate with barriers and delays may increase marginally, as may road noise from intensified Aviation Way Business Park. Public transport initiatives would be implemented to encourage modal shift.
2(b) – Medium Growth with Aviation Cluster	Growth in air traffic and road traffic would impact on noise levels. Increased aircraft movements would require Eastwoodbury Lane to be closed more regularly and by the end of the plan period a revised route would be required. Improvements as per Scenario 2(a) would be required to accommodate business park growth, in addition to LTP2 schemes. New rail station would improve sustainable access.

Scenario	Transport Improvements and Issues
3 – High Growth	With the extension of the airport, Eastwoodbury Lane would need to be closed and diverted. Infrastructure improvements in accordance with LTP2 would need to be supplemented by additional infrastructure to support business park growth. Additional traffic and aircraft movements would have a impact on noise levels and controls may be required through planning conditions or agreements with operators.

To accommodate the growth of the Aviation Way business park the following highway improvements were anticipated as being required by the JAAP Issues and Options document:

- Dualling the remainder of Cherry Orchard Way from the car retailers roundabout to Hall Road;
- Two new access points via roundabouts to Aviation Way direct from Cherry Orchard Way linking to internal road network through new business park;
- Junction improvements at the roundabout of Nestuda Way/Cherry Orchard Way/White House Road
- Upgrading of the existing mini-roundabout at the junction of Aviation Way and Eastwoodbury Road; and
- The extension of the runway would require the diversion of Eastwoodbury Lane to the south of the safety zone, linking to Nestuda Way to the north of the RBS office development.

4.3 Preferred Option

Responses following the public consultation on the *London Southend Airport and Environs Joint Area Action Plan Issues and Options Report* were used to determine a preferred option for expansion of the airport and development of the surrounding area. The *London Southend Airport and Environs Joint Area Action Plan Preferred Options Report* sets out the preferred option for development.

4.3.1 Airport Expansion

The preferred option for the airport proposes the extension of the runway to an overall length of 1,799m, with associated passenger infrastructure including a new terminal and rail station. The improved facilities are anticipated to attract up to three fixed base operators to the airport, who would operate flights to UK and European destinations up to a capped maximum of 2 million passengers per annum. By extending the runway the airport would be able to handle larger aircraft of up to 150 seats.

The expansion of the passenger function of the airport will be accompanied by an expansion and intensification of the maintenance, repair and overhaul (MRO) activity. The preferred options report states that ”considered desirable for the airport to handle significant volumes of freight due to its location and the pressure this would place on the local highway network” (p20).

4.3.2 Business Parks

The preferred option for employment is to pursue a high scale employment growth scenario. This will be a mixture of aviation-related industry plus high-tech industries and offices (B1 and B2 uses). It is proposed that employment land be allocated which is sufficient to accommodate a total of 109,000sq.m of new floorspace and 5,450 new jobs in the period to 2021. In addition 15,000sq.m of floorspace will become available following redevelopment within the Aviation Way Business Park which together with the new employment allocation to the north will provide a total

of 6,200 new jobs. This excludes new employment created as a result of airport expansion. The breakdown of employment locations are provided in Table 4.4

Table 4.4 – Employment Allocation Breakdown

Location	Sub-Area	Use Class	Floorspace (sq.m)	Jobs
Saxon Business Park	Area 1a	B1	20,000	1,000
	Area 1b	B1 and B2	49,000	2,450
	Area 2	B1	30,000	1,500
Aviation Way Business Park	-	B1 and B2	15,000	750
Nestuda Way	-	B1 and B2	10,000	500
		Total	**124,000**	**6,200**

Area 1a would be developed first with a new junction providing direct access onto B1013 Cherry Orchard Way and a new internal road network as required to serve the development. Area 1b may be developed in parallel if a need is demonstrated, with an associated extension to the internal road network. Area 2 will be reserved for development post 2021, unless a need arises sooner.

The report prepared by Halcrow to support the Issues and Options paper assumed a 60% B1 office use and a 40% B1 Light Industrial use. There was no reference at that stage to a B2 use.

4.3.3 Transport Infrastructure

To deliver the preferred development options it is recognised that an appropriate and sustainable transport strategy is required. The following strategy was proposed by the Preferred Option report:

- A new link road from Eastwoodbury Lane to Nestuda Way to allow runway extension;
- A safeguarded route from Nestuda Way to Warners Bridge to improve east-west connectivity;
- Upgrading single lane sections of Cherry Orchard Way to dual standard;
- New layout for Aviation Way/Eastwoodbury Lane junction, plus improved cycling and walking provision;
- Park and Ride facility to the west of Nestuda Way following construction of diverted Eastwoodbury Lane;
- Contribution to establishment of an appropriate bus service, including the South Essex Rapid Transit (SERT) system to meet the need of new employees; and
- New walking and cycling routes, specifically:
  - Routes for walking and cycling which link from the site to Hall Road;
  - Improved cycle and walking linkages; and
  - Enhancements to walking and cycling to the airport from the north and south.

4.4 Parking

4.4.1 Business Parks

Southend-on-Sea Council is currently preparing a new Development Plan Document which will update the existing parking standards for the Borough. For B1 and B2 uses the preferred new standard remains the same as the previous published standard. Rochford District Council

published their parking standards within the 2006 Local Plan as policy TP8. For B1 and B2 land uses the relevant parking standards for both authorities are the same. Therefore the standards being applied for this study are:

- B1 use – 1 space per 30sq.m
- B2 use – 1 space per 50sq.m

Where mixed B1 and B2 uses are proposed it has been assumed there would be provided a range of spaces has been provided. Taking the employment allocations outlined in Table 5.4, the parking spaces which would be required are detailed in Table 5.5.

Table 4.5 – Parking Space Requirements

Location	Sub-Area	Use Class	Floorspace (sq.m)	Parking Spaces
Saxon Business Park	Area 1a	B1	20,000	667
	Area 1b	B1 and B2	49,000	980-1,633
	Area 2	B1	30,000	1,000
Aviation Way Business Park	-	B1 and B2	15,000	300-500
Nestuda Way	-	B1 and B2	10,000	200-333
		Total	**124,000**	**3,147 – 4,133**

Parking requirements for the business parks is substantial and consideration should be given to a parking strategy.

4.4.2 Airport Expansion

The parking requirement for the airport will be dependent on how the airport operates. There will be a need for staff parking, but also for long stay parking if the airport offers European flights. In addition some parking may be provided off site. As airport parking requirements are more complicated there are no published standards to refer to. Parking will need to be agreed on a more bespoke basis.

4.5 Access Arrangements

The following access points have been proposed by the Preferred Options document:

- Areas 1a and 1b will be accessible from Cherry Orchard Way via a new junction, approximately at the location of the former brickworks access.
- If constructed, Area 2 will also be accessed from this junction.
- Nestuda Way Business Park will be accessed via a new junction from Nestuda Way, approximately at the point of access to RBS car parks. A Park and Ride would share this access point.
- Aviation Way will continue to be accessed as present, with an upgraded junction to replace the current arrangements.
- MRO operations on the north side of the airport will be accessed via the new junction serving Saxon Business Park;

- MRO operations on the south side of the airport will be accessed via the existing vehicle access for the airport from Eastwoodbury Crescent;
- Car parking for the airport would be accessible from the Retail Park access off Harp House roundabout.

4.5.1 Saxon Way Business Park

Based on the vehicle generation assessment a new junction to serve Saxon Way Business Park would need to accommodate 1,063 AM Peak Hour arrivals and 197 departures, in addition to the current two-way flows already on Cherry Orchard Way. In the PM flows are slightly lower with 140 vehicle arrivals and 841 departures.

The new junction may also provide access to the MRO operations to the north of the airport boundary, though this may also be accessible via the Aviation Way Business Park. This would generate another 100 two-way movements through the new access junction during peak periods.

4.5.2 Nestuda Way Business Park

This small business park would be accessed from Nestuda Way via a new junction at approximately the same place as the current access to RBS offices. Based on the trip generation exercise this park would generate 100 arrivals in the AM peak hour and 19 departures, with 14 arrivals and 85 departures in the PM peak hour. These would all essentially be new vehicles on the network as the site is currently green field land.

On the proposals plan there is a Park and Ride site allocated to the north of the business park, with access from the same junction. This could significantly raise vehicle movements at this junction depending on the patronage of the service.

4.5.3 Aviation Way Business Park

Aviation Way Business Park will continue to be accessed as existing. However with the diversion of Eastwoodbury Lane the current mini-roundabout will be reconfigured as a T-junction to allow continued access to the St Laurence and All Saints Church. Aviation Way would form the major road. An alternative may be to provide access from the roundabout at Rochford Business Park. Once the additional 15,000sq.m of development at the existing business park is realised, the total vehicle movements (including existing movements) would be 149 arrivals and 29 departures during the AM peak hour, with 21 arrivals and 128 departures during the PM peak hour.

4.5.4 Southside Maintenance Repair and Overhaul

MRO Operations on the southern side of the airport would take access via the existing access points for passengers and cargo, from Eastwoodbury Crescent. Depending on the split of operations between the north side and south side areas, this could equate to about 100 two-way movements in the peak periods. However, because this is already access for the airport the net change in vehicle movements may only be minor.

4.5.5 Airport Terminal and Car Park

Access to the improved airport facilities will be via the Harp House roundabout, which also provides access to the retail park. There will be some reassignment from Eastwoodbury Crescent due to current staff no longer accessing the airport from the existing accesses, however this is likely to be offset by MRO activities developed on the current terminal site.

Expansion of the airport will generate a worst case scenario of 620 arrivals and an equal number of departures during the peak periods.

5. Business Park Trip Generation

The preferred option is to provide an additional 124,000sq.m of employment floorspace of B1 Office, B1 Light Industrial and B2 General Industrial uses, as shown in Table 6.1.

Table 5.1 – Business Park Development Proposals

Location	Sub-Area	Use Class	Floorspace (sq.m)	Jobs
Saxon Business Park	Area 1a	B1	20,000	1,000
	Area 1b	B1 and B2	49,000	2,450
	Area 2	B1	30,000	1,500
Aviation Way Business Park	-	B1 and B2	15,000	750
Nestuda Way	-	B1 and B2	10,000	500
		Total	**124,000**	**6,200**

The previous Transport Assessment prepared by Halcrow assumed that 60% of the allocation would be B1 Office and 40% would be B1 Light Industrial. No reference is made to B2 land uses within the Issue and Options Report document, or within the transport assessment. However the Preferred Development Option identified proposed B2 land use in Table 6.1. In the text of the Preferred Options report there is a statement that B2 uses are

> *'expected to complement the expected role of the new employment land as a high quality business park…'*

Taking account of this, it has been assumed that a share of 20% B2 use can be expected in areas where B1 and B2 uses are proposed. A greater proportion of B2 use is considered to be a significant land use, rather than one which is intended to be complementary to the B1 uses. The remaining 80% has been divided between Office and Light Industrial as per the Halcrow assumptions.

The resulting areas for each land use are shown in Table 5.2.

Table 5.2 – Land Use Breakdown

Location	Sub-Area	Total Floorspace (sq.m)	B1a	B1c	B2
Saxon Business Park	Area 1a	20,000	12,000	8,000	0
	Area 1b	49,000	23,520	15,680	9,800
	Area 2	30,000	18,000	12,000	0
Aviation Way Business Park	-	15,000	7,200	4,800	3,000
Nestuda Way	-	10,000	4,800	3,200	2,000
Total		**124,000**	65,520	43,680	14,800

5.1 Trip Rates

The previous Transport Assessment utilised the 2008(a) version of the TRICS database to calculate vehicle trip rates for B1(a) Office and B1(c) Light Industrial land uses. Since publication

of the previous Transport Assessment more recent versions of TRICS have been released, up to the current 2009(b) v6.4.2, which was released in September 2009. The new database contains more sites and more detail than previous versions, therefore the trip rates have been revised accordingly.

The database contains sites for which there is a Ground Floor Area 'not in use' classification which refers to sites/buildings where parts are not occupied, for example a floor of a large office block. Sites where there are some parts which are unoccupied have been excluded as this can falsely reduce the trip rates calculated.

5.1.1 B1(a) Office Land Use

To be consistent with the Halcrow study, the 02/B 'business park' land use category in TRICS has been utilised, which is defined as 'a collection of office buildings hosting separate organisations'. It is still considered that this classification is most relevant to the proposal for the JAAP.

The newer version of the TRICS database contains 57 business park sites across the UK surveyed from 1988 to 2008. To generate representative trip rates the following filters have been applied:

- Only sites surveyed after 2000 have been included;
- Only sites in locations at the edge of town and free standing (out of town) have been used;
- One site in Ireland was excluded (DL 02 B 01).

Sites were not discounted based on public transport provision as the surface strategy for the development sites will seek to develop a very good network of public transport. In all cases the sites were close to good road links, as is the case for the proposed site.

In total 17 sites were selected, all of which are in edge of town locations. The resulting trip rates for B1 (a) business parks are as shown in Table 5.3.

Table 5.3 – Business Park B1(a) Trip Rates

Per 100sqm	AM Peak (0800-0900	PM Peak (1700-1800)	Daily Total
Arrivals	1.557	0.19	5.514
Departures	0.248	1.242	5.371

These proposed trip rates are marginally higher than the Halcrow trip rates, which is due to sites closer to town centres having been discounted for this study. It is considered that the sites chosen are more representative of the location characteristics of the proposed business parks.

5.1.2 B1(c) Light Industrial and B2 General Industrial Land Use

The previous study by Halcrow stated that the proposed employment allocation would be a mix of B1(a) and B1(c) land uses, whereas the preferred option is for a mix of B1(a), B1(c) and B2 land uses.

As with the Halcrow report, the classification representing the industrial estate is considered most relevant. In the 2009 version of TRICS there are 126 industrial estate sites within the database with surveys dating from 1980 to 2008. The sites contain a mix of light industrial and general industrial uses. To generate representative trip rates the same filters were applied to the sites, as were used for the business park sites. In addition, the following sites were discounted:

- CB 02 D03: Industrial Estate, Brampton and WS 02 D 04: Industrial Estate near Pulborough were discounted as neither had any public transport provision;
- DL 02 D 01 and DL 02 D 02, both industrial estates in Dublin were discounted; and

- LC 02 D 04: Industrial Estate, Garstang was discounted due to 32% of land use being B8 Warehousing which is not proposed for the JAAP.

Once the filters had been applied there were 17 sites remaining, comprising 14 edge of town and 3 free-standing sites, some of which are specified as B1 or B2 land uses and others are unspecified. The resulting trip rates are provided in Table 6.2.

Table 5.4 – Industrial (B1(c) and B2) land uses trip rates

Use Class	Number of Sites	AM Peak (0800-0900		PM Peak (1700-1800)		Daily Total	
		Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
All	17	0.595	0.229	0.14	0.514	4.148	4.165
B2	6	0.378	0.138	0.098	0.328	2.473	2.585
B1	4	0.542	0.141	0.083	0.60	3.161	3.322
Unknown	7	1.146	0.505	0.275	0.897	7.868	7.974

Table 5.4 clearly demonstrates that sites within the TRICS database with a stated B1 industrial land use have a much higher vehicle generation than those with a stated B2 land use. The trip rates for sites with an unspecified use class display trip rates are far higher than those with a specified use class. To determine the most realistic trip generation the B1 and B2 trip rates have been used.

5.1.3 Vehicle Generation

Table 5.5 predicts the vehicle generation as a result of all the development proposed for the JAAP area. Tables 5.6 to 5.10 present the predicted vehicle generation associated with each of the development areas.

Table 5.5 – Total Development Vehicle Generation

Land Use	Proposed Area (sq.m)	AM		PM	
		Arrivals	Departures	Arrivals	Departures
B1a	65,520	1,020	162	124	814
B1c	43,680	237	62	36	262
B2	14,800	56	20	15	49
Total	**124,000**	**1,313**	**245**	**175**	**1,124**

Table 5.6 – Saxon Business Park: Area 1a Vehicle Generation

Land Use	Proposed Area (sq.m)	AM		PM	
		Arrivals	Departures	Arrivals	Departures
B1a	12,000	187	30	23	149
B1c	8,000	43	11	7	48
Total	**20,000**	**230**	**41**	**29**	**197**

Table 5.7 – Saxon Business Park: Area 1b Vehicle Generation

Land Use	Proposed Area (sq.m)	AM		PM	
		Arrivals	Departures	Arrivals	Departures
B1a	23,520	366	58	45	292
B1c	15,680	85	22	13	94
B2	9,800	37	14	10	32
Total	**49,000**	**488**	**94**	**67**	**418**

Table 5.8 – Saxon Business Park: Area 2 Vehicle Generation

Land Use	Proposed Area (sq.m)	AM		PM	
		Arrivals	Departures	Arrivals	Departures
B1a	18,000	280	45	34	224
B1c	12,000	65	17	10	72
Total	**30,000**	**345**	**62**	**44**	**296**

Table 5.9 – Aviation Way Business Park: additional vehicle generation

Land Use	Proposed Area (sq.m)	AM		PM	
		Arrivals	Departures	Arrivals	Departures
B1a	7,200	112	18	14	89
B1c	4,800	26	7	4	29
B2	3,000	11	4	3	10
Total	**15,000**	**149**	**29**	**21**	**128**

Table 5.10 – Nestuda Way Business Park: Vehicle Generation

Land Use	Proposed Area (sq.m)	AM		PM	
		Arrivals	Departures	Arrivals	Departures
B1a	4,800	75	12	9	60
B1c	3,200	17	5	3	19
B2	2,000	8	3	2	7
Total	**10,000**	**100**	**19**	**14**	**85**

These are all additional vehicles on the network as the Saxon Way and Nestuda Way Business Parks are new development on previously undeveloped sites. The floorspace provided within Aviation Way Business Park is in addition to the existing provision, therefore vehicles associated with this floorspace are also additional vehicles on the network. The Preferred Options Report states that Area 2 of Saxon Business Park may not be developed until after 2021. Not developing this area before that date would, in the interim, reduce the total floor space to 94,000sq.m and

reduce the AM vehicle generation by 407 vehicles and the PM generation by 340 vehicles. Excluding Area 2, the total vehicle generation is shown in Table 5.11.

Table 5.11 – Total Vehicle Generation, excluding Area 2

Land Use	Proposed Area (sq.m)	AM		PM	
		Arrivals	Departures	Arrivals	Departures
B1a	47,520	740	118	90	590
B1c	31,680	172	45	26	190
B2	14,800	56	20	15	49
Total	**94,000**	968	183	131	829

For the purpose of this assessment it is considered prudent to assume that the full development outlined in the Preferred Options report will be realised. Therefore the full vehicle generation in Table 5.5 has been taken forward for the remainder of the assessment.

5.2 Mode Share

The Department for Transport Guidance on Transport Assessments places emphasis on assessment of all modes, not just vehicles. Therefore, 2001 Census data has been used to determine a likely mode share for employees at the new business parks. Table 5.12 shows the 2001 Census data for journeys to work in Essex as a whole, Rochford and Southend-on-Sea.

Table 5.12 – 2001 Census Mode Share Data – Travel to Work

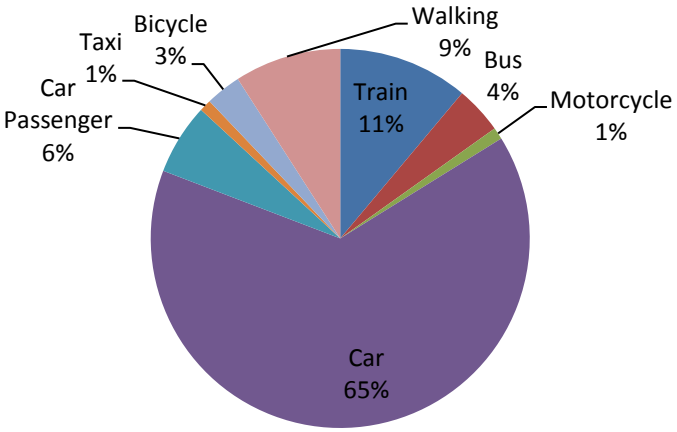
Mode of Transport	Essex	Rochford	Southend-on-Sea
All people	625,189	37,777	70,184
Work mainly at or from home	9%	9%	8%
Underground, metro, light rail, tram	2%	0%	0%
Train	10%	15%	13%
Bus, minibus, coach	3%	4%	6%
Motor cycle, scooter or moped	1%	1%	1%
Driving a car or van	57%	59%	51%
Passenger in a car or van	6%	5%	5%
Taxi or minicab	1%	0%	1%
Bicycle	3%	1%	3%
On foot	8%	5%	11%
Other	0%	0%	0%

Rochford is a rural district with the main urban areas located in the west, close to the boundary with Southend-on-Sea, Rochford, Hockley and Rayleigh all served by the rail line from Southend to London Victoria, making the train a convenient mode of travel. As a result train mode shares are higher than in Essex as a whole and within Southend-on-Sea. However because of the more rural nature of the district, walking and cycling shares are lower, and car shares higher as a result.

Southend-on-Sea is a more urban borough with the main urban areas being Southend itself, Leigh on Sea and Shoebury to the east. Because of the more urban nature of the borough, bus and train mode shares are higher than the Essex data, as are cycling and walking mode shares. The consequence of higher sustainable modes is a lower mode share for car drivers. Train shares are slightly lower than those for Rochford as more people will live and work within Southend making bus and walking modes more convenient.

The business parks are intended to be a regionally important employment area meaning it is likely that people will travel some distance to access employment there. Therefore, the mode share used for this assessment will be the Essex wide mode share, adjusted to remove the 'Underground' and 'Work from Home' mode shares as these are not relevant to the study. Reassigning the Underground and Work from Home mode shares results in the adjusted mode shares as shown in Figure 5.1.

Figure 5.1 – Mode Share



The vehicle trip rates calculated by TRICS include cars, motorcycles and taxis. Therefore the vehicle generation calculated in Section 5.1.3 represents 66% of the total person trips to and from the business parks. Therefore it is possible to calculate the number of trips to and from the site for other modes, as shown in Table 5.13.

Table 5.13 – Multi-modal generation for the proposed business parks

Transport Mode	AM (08:00-09:00)		PM (17:00-18:00)	
	Arrivals	Departures	Arrivals	Departures
Train	224	42	30	192
Bus	78	14	10	66
Vehicles (car, motorcycle, taxi)	1,313	244	175	1,124
Passenger	125	23	17	107
Bicycle	56	10	7	48
Walking	183	34	24	157
Other	9	2	1	8
Total People	1,988	370	265	1,702

6. Airport Trip Generation

There are two different aspects to the expansion of London Southend Airport. The first relates to the expansion of passenger activity to a capped 2 million passengers per annum. The second relates to the expansion of maintenance, repair and overhaul (MRO) industries in areas adjacent to the airport. The JAAP Issues and Options document sets out the following flight scenario for the high growth, which is analogous to what is being taken forward as the preferred option. The forecasts are as follows:

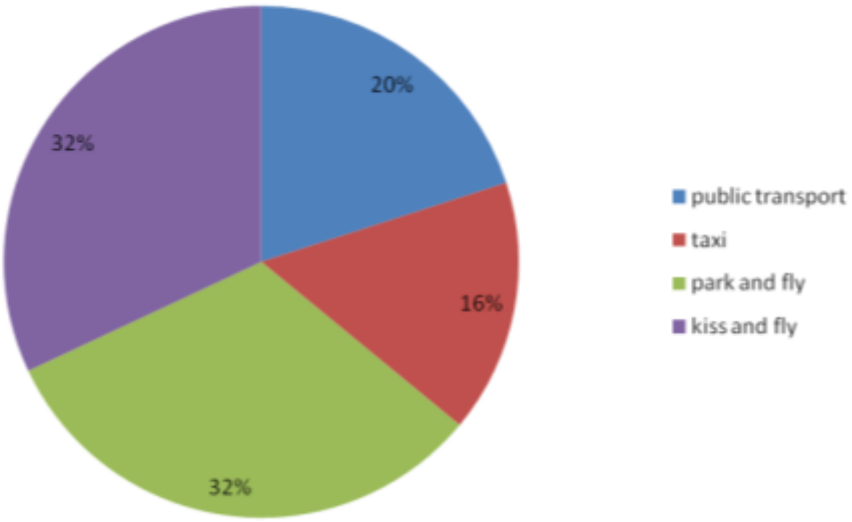
- 2 million passengers per annum;
- Passenger flights restricted to 06:30 to 23:00 Monday to Saturday and 07:00-23:00 on Sunday;
- 1,500 passenger arrivals and 1,500 passenger departures on a daily basis;
- 40 daily passenger flights;
- 5-6 daily business flights;
- 2-3 maintenance, repair and overhaul flights; and
- 3 passenger flights per hour.

Based on these figures a worst case scenario would be three fully laden aircraft arriving and three departing carrying a maximum of 150 passengers per flight. This equates to 900 passenger movements in an hour (450 arrivals and 450 departures).

6.1 Passenger Travel

The Halcrow report makes a comparison between the operation of London Southend, following expansion, and the operation of Southampton Airport. For passengers a mode share as shown in Figure 6.1 has been used.

Figure 6.1 – Predicted Mode Share for Airport Passengers



In the absence of alternative information this is considered suitable to use, and is not an unreasonable mode share for the proposed airport. Considering the investment in a new rail station and therefore the increased ability of passengers to travel by rail from nearby towns, but also from London, a 20% public transport share is acceptable. Assuming 900 passenger movements per hour this results in the following:

- 180 passengers travelling by Public Transport;
- 144 passengers travelling by Taxi;
- 288 passengers travelling by car and parking at the airport; and
- 288 passengers travelling by car and being picked up/dropped off (kiss and fly).

6.1.1 Vehicle Generation

The Halcrow report uses a vehicle occupancy rate of two for cars and taxis. In considering a scenario whereby the highest passenger generation will result from large commercial operator flights, using aircraft up to 150 seats, then this assumption seems valid. Passengers for these flights are most likely to be leisure travellers and therefore likely to travel in groups of two or more. While there may be some single business travellers, there may also be families or larger groups.

Table 6.1 summarises the vehicle generation associated with the airport passengers. Further explanation is provided in the sections following the table.

Table 6.1 – Airport Passenger vehicle generation

Mode	Arrivals	Departures
Taxi	72	72
Cars – parking on site	144	144
Cars – kiss and fly	288	288
Total	**504**	**504**

6.1.1.1 Taxis

The taxi mode share accounts for 16% of passenger movements to and from the airport, or 72 passenger arrivals and 72 passenger departures. The occupancy of each taxi is assumed to be two passengers; therefore 36 taxis will be required to accommodate the predicted passenger movements. However, unless a taxi rank is provided on site, or taxis entering the airport to drop off passengers then collect passengers arriving at the airport, a taxi arriving at the airport to drop off passengers will depart empty and vice versa. This means that actual taxi flows could be double, at 72 arrivals and 72 departures.

6.1.1.2 Cars parking at the airport

This mode share accounts for a predicted 32% of passenger movements, or 288 passenger arrivals and 288 passenger departures. The occupancy of each vehicle is assumed to be two passengers, therefore 144 vehicles will arrive at the airport, and 144 will depart. Since these vehicles are either staying on site, or are already on site, there is no opposing movement.

6.1.1.3 Kiss and Fly

As with car parking, this mode share accounts for a predicted 32% of passenger movements, or 288 passenger arrivals and 288 passenger departures. The occupancy of each vehicle is assumed to be 2 passengers, therefore 144 vehicles will arrive at the airport, and 144 will depart. However, as with the taxis these are pick-up and drop-off trips so vehicles will either depart empty or arrive empty, essentially doubling the number of vehicle movements. A total of 288 arrivals and departures will enter and exit the airport.

The method used to derive these vehicle movements is simplistic, but is considered to provide a reasonable worst case scenario in the absence of more robust data on how the airport would

operate. In reality, there are a number of factors which will reduce the vehicle movements associated with airport passengers during the peak hours. These are:

- Passengers will arrive for a flight at least 30 minutes before departure;
- Passengers will not depart the terminal immediately after landing;
- It is unlikely three commercial flights will depart in any hour;
- Taxis may pick up arriving passengers after dropping off departing passengers.

6.2 Airport Staff

Expansion of the airport will create additional jobs at the airport. These will be in roles such as cabin crew, security, customs officials, hospitality, retail and airport operations staff. The Issues and Options report predicts a rise in airport staff of 1,180 from a current level of approximately 1,000 staff. Following expansion it is predicted there will be a total of 910 air-based staff and 1,200 staff engaged in the maintenance, repair and overhaul activities.

6.2.1 Airport Staff

With the proposed expansion of the airport, the number of air-based staff is predicted to rise to 910. The strategic nature of this assessment means that at present the existing operation of the airport is not known. To provide a robust assessment, the vehicle generation has been predicted based on the 910 staff, without existing staff being accounted for.

The 2008 Halcrow report provides an indication of how the shift patterns for staff are likely to work, based on experience from other airports. Only 70% of staff will be present on an average weekday, with only 25% reporting during the peak periods. Flights are proposed to operate between 06:30 and 23:30, therefore staff will be arriving and departing over a range of time periods.

Using the assumptions from the Halcrow report, of the 910 staff employed by the passenger airport activity, 70%, or 637 staff, will report for work on an average weekday. Of these 637 staff, 25%, or 159 staff, will arrive in the peak hours. It has been assumed, without more detailed information on operation, that the number of staff arrivals will equal departures as a total change of shift occurs. It is considered that this represents an over-estimation of staff movements.

The same 2001 Census 'Journey to Work' data, as used for the assessment of business park vehicle generation (Figure 6.1), has been used as an appropriate mode share for staff arriving at the airport for work. The resulting staff trips, per transport mode, are provided in Table 6.2.

Table 6.2 - Airport Staff arrivals and departures by Transport Mode

Transport Mode	Mode Share	Staff Movements
Train	11%	18
Bus	4%	6
Motorcycle	1%	2
Driving a car or van	64%	102
Passenger in a car or van	6%	10
Taxi	1%	2
Bicycle	3%	5
Walking	9%	14

It has been assumed that the number of arrivals and departures are equal, and that the AM and PM peak hours are also equal. This is considered robust and providing an over-estimation of staff movements within the peak hours. A more detailed assessment to support a planning application would be required.

6.2.2 Maintenance Repair and Overhaul Staff

With the proposed expansion of the MRO activities surrounding the airport, the number of staff will rise to 1,200. The strategic nature of this assessment means that at present it is not known how this will vary from the existing operation of the airport. To provide a robust assessment, the vehicle generation has been predicted based on the 1,200 staff, without existing staff being excluded.

The TRICS 2009 database has been interrogated to determine a vehicle trip rate for the MRO staff. The Preferred Options document does not provide a figure for an increase in floor area, only a final target of 1,200 employees. As a consequence the database has been used to determine a trip rate per employee, rather than per 100sq.m as was done for the business parks. It is considered that the TRICS classification 02/C Industrial Unit (GDO use class B1 or B2) is most appropriate for the MRO sites. The definition of use 02/C is as follows:

> *'02/C – Industrial Unit (GDO use class B1 or B2)*
> *Single industrial building, used by one organisation. May be light or general industry. If predominantly warehousing include as 02/E or 02/F. If predominantly office then include as 02/A. Trip rates are calculated by Gross Floor Area, Employees, or Parking Spaces.'*

This is considered most appropriate because all units will undertake the same operation. The database contains a total of 34 industrial unit sites. The same filters were applied to this assessment as for the business park assessment:

- Only sites surveyed after 2000 have been included; and
- Only sites in locations at the edge of town and free standing (out of town) have been used.

Three sites were excluded from the assessment due to having no public transport provision. A fourth site was excluded because it was located in Ireland. The four sites were as follows:

- EB-02-C-01: Brewery, Edinburgh;
- ER-02-C-02: Dyeworks, Newton Means;
- WY-02-C-01: Animal feeds, near Sherburn-in-Elemet; and
- WA-02-C-01: Foods company, Waterford.

For the remaining 14 sites, the average trip rates **per employee** for the peak hours are provided in Table 6.3.

Table 6.3 – Industrial Unit Trip Rates (per employee)

Use	Number of Sites	AM (08:00-09:00)		PM(17:00-18:00)		Daily Total	
		Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
B1/B2	14	0.163	0.035	0.027	0.172	0.835	0.955

Assuming 1,200 employees on the MRO sites, the trip rates in Table 7.3 will yield vehicle movements as detailed in Table 6.4.

Table 6.4 – Vehicle generation associated with MRO activity

Employees	AM (08:00-09:00)		PM(17:00-18:00)		Daily Total	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
1,200	196	42	32	206	1002	1146

The vehicle generation calculated by TRICS includes cars, motorcycles and taxis, therefore based on the 2001 Census 'Journey to Work' data (Figure 6.1), the vehicle generation calculated in Table 6.4 represents 66% of the total trips to and from the site. Extrapolating from the vehicle trip generation and the Census data it is possible to determine generation for other modes of transport, as shown in Table 6.5.

Table 6.5 – Multi-modal assessment for MRO staff

Transport Mode	AM (08:00-09:00)		PM (17:00-18:00)	
	Arrivals	Departures	Arrivals	Departures
Train	34	7	5	35
Bus	12	2	2	12
Vehicles (car, motorcycle, taxi)	196	42	32	206
Passenger	19	4	3	20
Bicycle	8	2	1	9
Walking	27	6	4	29
Other	1	0	0	1
Total	**297**	**64**	**48**	**312**

As with the air-based staff this assessment uses the projected staff figures, without accounting for the staff which are already employed on the site.

7. Impact Assessment

7.1 Local Highway Network

The proposed employment and airport expansion will generate a significant number of additional vehicles on the local road network.

7.1.1 Business Park Trip Distribution

Southend-on-Sea and Rochford are located on a peninsula between the Thames Estuary and the River Crouch. To the north and east of the study area the land use is predominantly rural with small isolated settlements. Ashingdon, Hockley and Rochford are the only settlements of significant size. Given that there is limited settlement it is anticipated that few trips to/from the proposed development will originate from the north.

To the south of the site is an urban area which comprises Southend-on-Sea and Shoeburyness, with Leigh-on-Sea to the south west. The major routes from Southend towards the north are the A127 and the A1158, with a more minor route via Priory Crescent. From both routes vehicles would eventually approach the site northbound on B1013 Nestuda Way/Cherry Orchard Way.

The majority of settlements are to the west of Southend, with the A127 being the only major route into the study area from the west. People travelling to the business parks from other towns, such as Basildon, Brentwood or Chelmsford or via the M25 would arrive from this direction.

Based on this pattern of settlement and the main road network it is anticipated that the majority of vehicles will approach the site via the westbound A127, and then travel north on B1013 Nestuda Way and Cherry Orchard Way.

7.1.2 Airport Trip Distribution

A reasonable proportion of the airport's staff and passengers will travel to the airport from Southend-on-Sea. It is likely that these vehicles would approach via Rochford Road or Manners Way. A small proportion may travel south from Rochford, Ashingdon or Hockley.

It is likely that passengers in particular may travel from further afield to access the airport. These are likely to arrive in Southend-on-Sea via the westbound A127 and follow signs for the airport, which at present would lead them up A1159 Manners Way. With the diversion of Eastwoodbury Lane this may become a more appropriate route.

7.1.3 Impact Assessment

Based on the trip generation exercise in Section 5 and 6 the total vehicle generation would be as shown in Table 7.1. It should be noted that vehicle generations for airport passengers and staff are based on general assumptions.

Table 7.1 – Total Vehicle generation

Development	AM		PM	
	Arrivals	Departures	Arrivals	Departures
Business Parks	1,313	245	175	1,124
Airport Passengers	504	504	504	504
Airport Staff	114	114	114	114
MRO Staff	196	42	32	206

Development	AM		PM	
	Arrivals	Departures	Arrivals	Departures
Total	**2,127**	**905**	**825**	**1,948**

Based on the pattern of local settlement and the local road network it is anticipated that the majority of vehicles accessing the business parks will approach from the westbound A127 then travel north on B1013 Nestuda Way and Cherry Orchard Way. Based on Table 7.1 this could equate to additional flows in the region of 1,000 vehicles in the AM and PM peak hours. During the site visit it was noted that there were already capacity issues at the B1013 Nestuda Way/Eastwoodbury Lane/B1013 Cherry Orchard Way double roundabouts, as shown by Figure 7.1.

Figure 7.1 – Congestion in the evening peak at Nestuda Way/Eastwoodbury Lane junction

Any congestion points along the A127, B1013 Nestuda Way and B1013 Cherry Orchard Way will be exacerbated by the proposed development as it is significant in size and will generate a significant number of vehicles.

For the airport and MRO based traffic, vehicle movements on A127 Prince Avenue, A1159 Manners Way and Rochford Road are expected to increase, with the majority of vehicles approaching on A1159 Manners Way. During the site visit congestion was observed on the A127 on the approaches to both the Rochford Road junction and the A127 Prince Avenue/Manners Way/Victoria Avenue/Priory Crescent roundabout. Additional vehicle movements are anticipated to be in the region of 500 vehicles in both the AM and PM peak hours, which will have an impact on these junctions.

7.1.4 Junction Capacity Assessments

The 2008 Transport Assessment prepared by Halcrow contained capacity assessments for the following junctions:

- Proposed access junctions;
- B1013 Nestuda Way/Eastwoodbury Lane roundabout;
- A127 Prince Avenue/B1013 Nestuda Way/Thanet Grange roundabout;

- A127 Prince Avenue/Rochford Road/Hobleythick Lane signalised junction;
- A127 Prince Avenue/A1159 Manners Way/A1159 Priory Crescent/A157 Victoria Avenue; and
- A1159 Manners Way/Rochford Road/Eastwoodbury Crescent roundabout.

The junction assessment considers the impact of the four development scenarios as were put forward by the Issues and Options paper. Assessments were undertaken for the AM peak period only, for the year 2021 with base flows taken from a SATURN model.

Since preparation of the 2008 assessment, and with publication of the preferred option the proposed development has changed, with an increase in floor area for the business parks. Additionally refinement of the trip rates has been done, with greater consideration of the location of the sites relative to Southend, plus a newer version of the software. Both these factors mean that the vehicle generation identified in the previous assessment have been superseded.

7.2 Pedestrian network

2001 Census data indicates that approximately 9% of people will commute to work on foot. It is not anticipated that passengers will travel to the airport on foot, unless they live very close to the airport. Pedestrian generation figures are provided in Table 7.2. It should be noted that vehicle generations for airport staff are based on general assumptions.

Table 7.2 – Total Pedestrian generation

Development	AM		PM	
	Arrivals	Departures	Arrivals	Departures
Business Parks	183	34	24	157
Airport Passengers	-	-	-	-
Airport Staff	14	14	14	14
MRO Staff	27	6	4	29
Total	**224**	**54**	**42**	**200**

There is a reasonable pedestrian network around the site, with good footways. Crossing points in some locations are poorer than other locations. Given the number of additional pedestrians it is not anticipated that there will be any detrimental impact. There are residential areas in all directions from the site therefore pedestrians are likely to be reasonably dispersed.

7.3 Cycle Network

Cycle use is expected to be limited, with just a 2% mode share. It is not anticipated that airport passengers will use cycles to access the airport. Cycle generation figures are provided in Table 7.3. It should be noted that vehicle generations for airport passengers and staff are based on general assumptions.

Table 7.3 – Total Cycle generation

Development	AM		PM	
	Arrivals	Departures	Arrivals	Departures
Business Parks	56	10	7	48
Airport Passengers	-	-	-	-

Development	AM		PM	
	Arrivals	Departures	Arrivals	Departures
Airport Staff	5	5	5	5
MRO Staff	8	2	1	9
Total	**69**	**17**	**13**	**62**

The provision of dedicated cycle facilities around the study area is reasonably limited, especially crossings points on busy roads. The figures in Table 8.3 are likely to be a considerable increase over existing levels of cycling in the area, but are not expected to have a detrimental effect. As with pedestrians there are residential areas on all sides of the study area, therefore cyclists are likely to be reasonably dispersed onto the network.

7.4 Public Transport Network

Rail and bus passengers are expected to account for 11% and 4% of the total person generation. Bus and train generation figures are provided in Tables 7.4 and 7.5. It should be noted that vehicle generations for airport passengers and staff are based on general assumptions. In addition it has been assumed that for airport passengers, train travel is the most realistic public transport mode, especially with the provision of a railway station on the site.

Table 7.4 – Total Train generation

Development	AM		PM	
	Arrivals	Departures	Arrivals	Departures
Business Parks	224	42	30	192
Airport Passengers	180	180	180	180
Airport Staff	18	18	18	18
MRO Staff	34	7	5	35
Total	**456**	**247**	**233**	**425**

Table 7.5 – Total bus generation

Development	AM		PM	
	Arrivals	Departures	Arrivals	Departures
Business Parks	78	14	10	66
Airport Passengers	-	-	-	-
Airport Staff	6	6	6	6
MRO Staff	12	2	2	12
Total	**96**	**22**	**18**	**84**

After vehicles, the train mode share is the greatest and therefore train patronage is expected to be high. For access to the business parks by train people would alight at Rochford then either walk or use a shuttle bus to access the site. At the airport there will be a dedicated station. Based on the

generation figures in Table 7.4 it is considered that there could be potential issues with crowding on services during the peak hours, if capacity isn't increased.

A single deck bus can accommodate 72 people, including those standing. To accommodate peak period bus demand would require two buses. It is considered likely that bus services which operate past the airport would be able to accommodate the additional demand without a detrimental impact. However, for passengers travelling to/from the business parks there is only a limited service and demand figures indicate that without additional capacity there may be a detrimental impact on quality of service.

8. Mitigation Strategy

The previous chapter has identified the potential for adverse impacts arising from additional vehicles, train passengers and bus passengers accessing the business parks and airport. National, regional and local planning policy seeks to encourage a shift away from vehicles to sustainable modes. This chapter sets out a series of measures to offset the impact of the development, as well as some which can be implemented to encourage sustainable travel.

8.1 Trains

8.1.1 Employment Expansion

The proposed employment areas are predicted to generate 224 person arrivals and 42 person departures in the AM peak hour, with 30 person arrivals and 192 person departures in the PM peak hour.

The closest railway station to the proposed employment area is Rochford, which is located between Hall Road and West Street to the north east of the site. Public transport access from Rochford station to the employment area is currently poor. The nearest bus stop to the station is on West Street, but there is no direct bus from here to the employment area. The distance between the station and the proposed employment site is approximately 1.5km.

8.1.2 Expansion of Airport

The expansion of the airport and the associated MRO facilities is expected to generate 232 person arrivals and 205 person departures in the AM peak hour, with 203 person arrivals and 233 person departures in the PM peak hour.

London Southend Airport is situated between Rochford station to the north and Prittlewell station to the south. A new railway station will open at the airport in the future, which will serve the airport passengers and staff.

8.1.3 Proposed measures

The proposed airport railway station will encourage people to use trains to access the airport and is a mitigation measure in itself. Travelling to the business parks by train is likely to be less attractive due to the distance between the site and the railway station. The lack of existing connection between the station and the business park site must be addressed to maximise train use.

It is anticipated that without increases in train capacity there could potentially be an issue with overcrowding on peak hour services. In addition, if measures are not put in place to encourage train travel and make it a viable alternative, then car trips will increase as a result.

The following measures are proposed to mitigate the impact of additional passengers and to encourage train use:

- Shuttle bus between the railway stations and the proposed employment areas, potentially a free service or subsidised by the businesses on site;
- Increased secure, sheltered cycle parking to encourage cycling from the railway station to the proposed employment area (see section 8.4.3 for measures to improve cycling facilities);
- Improved facilities at Rochford Station to include parking space for shuttle bus to/from the proposed employment areas; and

- Businesses and the airport operators to offer season ticket loans for staff so they can take advantage of travel savings, as part of a wider travel planning initiative.

8.2 Buses

8.2.1 Employment Expansion

The proposed employment areas are predicted to generate 78 person arrivals and 14 person departures by bus in the AM peak hour. In the PM peak hour the person generation would be 10 arrivals and 66 departures.

There is only one bus service (number 18) which operates along Cherry Orchard Way, with the closest bus stops being temporary stops at the car retail park. This service is very poor with only four services on a Friday. Bus services within the vicinity of the site are infrequent, with only bus service number 9 having a frequency of more than one bus per 30 minutes. However, with the diversion of Eastwoodbury Lane to accommodate the increased runway length, this service will no longer operate close to the business park site.

8.2.2 Expansion of Airport

The expansion of the airport and the MRO facilities is predicted to generate 18 person arrivals and 8 person departures in the AM peak hour, with 8 person arrivals and 18 person departures in the PM peak hour.

Bus service number 9 stops outside the airport entrance on Eastwoodbury Crescent and runs every 12 minutes. The route covers some of the main residential areas in Southend, including Shoeburyness, Thorpe Bay, Southend-on-sea, Eastwood and Rayleigh. Services 7 and 8 run close to the site as well along Rochford Road and Southend Road. Facilities close to the site are generally poor quality, especially those on Southend Road where most of the bus stops are indicated with just a post and not all of the bus stops have timetables. The additional passengers generated by the airport and MRO activity is unlikely to impact significantly on the existing bus services and mitigation is not considered necessary. Improvements to the service however, could encourage greater bus use.

8.2.3 Proposed measures

Measures should be implemented to improve bus services to the proposed business park site, as existing provision is poor. Without intervention buses are unlikely to be a realistic way to travel to the site. The airport is already well served by bus routes; however improvement to the services and facilities could encourage greater use.

The following measures are proposed to mitigate the impact of additional passengers and to encourage bus use:

- The South Essex Rapid Transit (SERT) has already been proposed within the Joint Area Action Plan. The route of SERT services could be amended to serve and integrate with the airport and business park;
- A public transport hub within the employment area providing a focal point for bus services and timetable information;
- Introduction of new bus routes from major catchment areas ideally into the employment area;
- Increased frequency of buses and expansion of services into evenings and weekends;
- Improved facilities at bus stops;
- Ticket discounts for major employers within the business park and airport operators;

- Real time bus information within the main employment buildings and the airport terminal; and
- Park and Ride facility on the west side of Nestuda Way.

It is suggested that a transport hub on the site of the proposed employment site that will provide a central turn-around area for buses should be provided. This will allow public buses to be diverted onto site and to accommodate the shuttle bus. It is suggested that real time information for buses and trains should be displayed here as well as notice boards showing walking and cycle routes to the site.

Bus priority measures could be implemented on Cherry Orchard Way and Nestuda Way to improve bus journey times and encourage use. This should be investigated at a design and application stage.

8.3 Walking

8.3.1 Employment Expansion

The proposed employment area is predicted to generate 183 person arrivals and 34 person departures on foot in the AM peak hour. In the PM peak hour the number of person trips on foot is predicted to be 24 arrivals and 157 departures.

Walking is not expected to be a significant trip generator to the employment area given the regional nature of the employment area, but it is important to facilitate walking for the workforce who live within a reasonable walk distance (approx 2 kms). The main walking routes to the employment area will be from Rochford train station along Hall Road and B1013 Cherry Orchard Way and also from the nearby residential areas to the south and west. The quality of footpaths and bridleways leading to the site are varied and crossing points on Hall Road and Cherry Orchard Way are indicated by just dropped kerbs. There is a pedestrian subway linking to footpaths from residential areas to the west.

8.3.2 Expansion of Airport

It is considered likely that walking trips to and from the airport will be related to airport staff and MRO staff rather than passengers. It is predicted that there will be 41 person arrivals and 20 person departures on foot in the AM peak hour, with 18 person arrivals and 43 person departures in the PM peak hour.

Passengers travelling to the airport are unlikely to walk, but for staff who work at the airport and live close by walking may be more feasible. The main walking routes to the airport will be from the train station or nearby residential areas. Most people will chose to walk from Rochford train station as it is a shorter distance. The footways on Eastwoodbury Lane and Southend Road are poor. Eastwoodbury Lane would be diverted to accommodate the increased runway, therefore increasing walking routes from some areas, but allowing scope to improve footway provision.

8.3.3 Mitigation measures

General improvements should be made to footways in the area, in accordance with the Essex Walking Strategy. This would include:

- Making sure routes are maintained to a high standard;
- Develop a network of routes that are in line with the 5 C's (Convenient, Convivial, Comfortable, Conspicuous and Connected);
- Providing as far as possible a safe and pleasant environment for those on foot, including adequate street lighting and sense of security;
- Signing of key pedestrian routes and maps at information points,

- A minimum footway width of 1.8m in the vicinity of the site;
- Controls on footway parking; and
- To provide for people with sensory and mobility impairment.

The following sections detail more specific improvements that could be to be made to encourage walking to the two sites.

8.3.3.1 Employment Areas

- Upgrade Bridleways 47 and 48 along Cherry Orchard Way and Cherry Orchard Lane so that they become attractive routes to the employment site with suitable crossing facilities provided across Cherry Orchard Way;
- Improve the pedestrian subway underneath Cherry Orchard Way to make it more attractive to use;
- Improve all key corridors to the site identified by Figure 8.1
- Upgrade of current crossing points:
  - On Hall Road opposite Rochford train station;
  - On Hall Road where Roach Valley Way crossed from one side of the road to the other;
  - On Cherry Orchard Way at the roundabouts with Nestuda Way and Eastwoodbury Lane to follow desire lines to the employment entrance;
  - On Nestuda Way at the Tesco roundabout.

Figure 8.1 illustrates these potential improvements. The Proposals Map for the JAAP shows a pedestrian/cycle route across the open fields from Hall Road into the business park from the north. To encourage use of this link it should be street lit, be well maintained and monitored to ensure it is safe to use, especially in the winter.

8.3.3.2 Expansion of Airport

- Improve all key corridors to the site identified by Figure 8.2;
- Provide a pedestrian route from Southend Road, via the new station to the terminal building;
- Improve pedestrian crossing facilities at the A127 Prince Avenue/A157 Victoria Avenue/Priory Crescent roundabout;
- Improve pedestrian crossing facilities at the Manners Way/Eastwoodbury Crescent/Rochford Road roundabout.

Figure 8.2 illustrates these potential improvements.

8.4 Cycling

Southend has recently become a cycling demonstration town, receiving funding from Cycle for England. The programme has three main aims:

- Promoting cycling to schools and work places
- Improving the cycling infrastructure of the town
- Getting the wider community involved in cycling through training and education

From 2008 to 2011 the programme aims to double the levels of cycling to work, which currently stands at 3%. *(Cycling City and Towns Programme Overview, May 2009, Cycling England).*

8.4.1 Employment Expansion

Cycling is predicted to account for just 2% of journeys from the business park, based on 2001 Census data. This equates to 56 cycle arrivals and 10 cycle departures in the AM peak hour, with 7 cycle arrivals and 48 cycle departures in the PM peak hour.

There are no on road cycle routes leading to the site, but there are shared use cycle routes on B1013/Nestuda Way, B1013/Eastwoodbury Lane, Hall Road and part of Cherry Orchard Way. Crossings for cyclists are limited and the only formal cycle crossings within the vicinity of the site are on Prince Avenue adjacent to Tesco, and on Hall Road opposite Rochford Station.

8.4.2 Expansion of Airport

It is considered unlikely that airport passengers would travel to the airport by cycle, therefore cycle journeys to the airport will relate to staff. In the AM peak hour this equates to 13 cycle arrivals and 7 cycle departures, whilst in the PM peak hour 6 cycle arrivals and 14 cycle departures.

South of the airport, from the centre of Southend-on-Sea there is an off road cycle lane on Victoria Avenue, however this does not continue north along Manners Way or Southend Road. Cycle facilities adjacent to the airport are limited.

8.4.3 Mitigation measures

The additional cycles generated by the proposed development are unlikely to have a detrimental impact and require mitigation. However, improvements to the local cycle network, as detailed below, could encourage more employees to cycle rather than use a car.

- Develop a network of routes that are in line with the 5 C's (Convenient, Convivial, Comfortable, Conspicuous and Connected);
- Improve all key corridors to the site for cyclists identified by Figures 8.1 and 8.2, potentially introducing on street cycle lanes or more shared use paths;
- New/improved cycling crossing at access points and at junctions;
- Clear cycle route signage and marking; and
- Secure/safe cycle parking on site.

8.5 Highway Network

Vehicles will account for the majority of total person trips to and from the proposed business parks and the airport. Given the size of the proposed development the vehicle numbers are substantial.

8.5.1 Employment Expansion

The proposed business parks are predicted to generate 1,313 vehicle arrivals and 245 vehicle departures in the AM peak hour, with 175 vehicle arrivals and 1,124 vehicle departures in the PM peak period.

The majority of these vehicles will approach the site from the south. It was noted during the site visit that there are already congestion issues at some of the junctions on the A127 and the B1013. Additional vehicles on these routes will increase congestion if appropriate mitigation is not implemented.

8.5.2 Expansion of Airport

The airport and expanded MRO operations are expected to generate 814 vehicle arrivals and 660 vehicle departures in the AM peak period. In the PM peak period it is expected to be 650 vehicle arrivals and 824 vehicle departures.

Access to the airport will be from the Manners Way/Eastwoodbury Crescent/Rochford Road roundabout. The majority of vehicles will approach from the south via Manners Way, Eastwoodbury Crescent and Rochford Road. Airport staff and taxi drivers will be aware of local routes whereas people travelling from further afield may follow the sign posted routes.

8.5.3 Mitigation measures

Measures to mitigate the impact of the additional vehicles will be a mixture of engineering measures to increase capacity, as well as the measures listed in previous sections to encourage sustainable modes. Appropriate land use planning within the business park could help to reduce car journeys, for example providing places where staff can buy lunch so they do not have to travel off site at lunchtime.

The JAAP documents list a number of highway improvement schemes which would need to be implemented to accommodate the proposed developments:

- Dualling the remainder of Cherry Orchard Way from the car retailers roundabout to Hall Road;
- Two new access points via roundabouts to Aviation Way direct from Cherry Orchard Way linking to internal road network through new business park;
- Junction improvements at the roundabout of Nestuda Way/Cherry Orchard Way/White House Road;
- Upgrading of the existing mini-roundabout at the junction of Aviation Way and Eastwoodbury Road;
- The extension of the runway would require the diversion of Eastwoodbury Lane to the south of the safety zone, linking to Nestuda Way to the north of the RBS office development;
- Park and Ride facility to the west of Nestuda Way following construction of diverted Eastwoodbury Lane; and
- Improvements to Southend Road to reduce northbound congestion in the PM peak hour.

As well as providing infrastructure improvements, influencing the travel habits of staff and passengers to and from the airport, and staff at the employment area will be an important to support the improvements listed above. A Framework Travel Plan should be produced to minimise less sustainable travel habits and car use to the sites. It is suggested that this will be supported by an Information Strategy which should detail the travel choices available to the sites and a marketing strategy to support the delivery of the Framework Travel Plan.

8.6 Framework Travel Plan

A Framework Travel Plan is likely be required at the planning application stage for the business park and airport development. This will need to include measures to reduce car travel with specific targets to be achieved. The Framework Travel Plan should cover the business park as a whole. Subsequent to any planning permission and development, individual companies will need to develop their own detailed travel plans for their employees.

Figure 8.1 - Potential Walking and Cycling Measures for the Proposed Business Parks

Figure 8.2 – Potential Walking and Cycling Measures for the proposed Airport Expansion

9. Summary and Conclusions

This document has been prepared to support the Joint Area Action Plan (JAAP) for London Southend Airport and Environs. It follows on from, and builds on, a previous report prepared in 2008 by Halcrow. The preferred option, set out in the *London Southend Airport and Environs Joint Area Action Plan Preferred Options Report* is as follows:

- 124,000 sq.m of business park development (B1 and B2 land uses);
- Expansion of London Southend Airport to accommodate 2 million passengers per annum; and
- Expansion of the airports maintenance, operation and repair facilities.

National, regional and local planning policy supports the expansion of the airport, and the provision of additional employment would be beneficial to the area. Given the size of the development, it is expected to be of regional significance attracting staff and passengers from a wide area.

A trip generation exercise has been undertaken for the proposed developments, with the resulting vehicle generation summarised in Table 9.1 below.

Table 9.1 – Total vehicle generation.

Development	AM		PM	
	Arrivals	Departures	Arrivals	Departures
Business Parks	1,313	245	175	1,124
Airport Passengers	504	504	504	504
Airport Staff	114	114	114	114
MRO Staff	196	42	32	206
Total	**2,127**	**905**	**825**	**1,948**

Based on 2001 Census data, it was determined that vehicle generation would account for 66% of the total person trips to and from the site. 11% of trips would be made by train, 4% by bus, 9% by bicycle and 3% on foot. A review of the surrounding area shows that most settlements are to the west of the study area, accessed via the A127. Based on this it has been concluded that the vast majority of vehicles will approach via the A127, using the B1013 Nestuda Way to access the business parks. Access to the airport would be via Eastwoodbury Lane, Rochford Road or A1159 Manners Way, which is the existing signposted route.

Traffic modelling has not been undertaken for this study, however given the vehicle generation figures in Table 9.1, and the likely distribution of vehicles, it can be considered likely that without mitigation, there will be adverse impacts on the road network. A site visit observed congestion in some locations during the AM and PM peak hours. In addition, there would be a substantial increase in train passengers which may require mitigation.

Chapter 8 sets out measures which could be employed to reduce the impact of the proposed development. These include improvements to bus services, including SERT, highway improvement works and cycle and pedestrian improvements. Encouraging the use of sustainable modes, and ensuring these are realistic alternatives to car travel, will be vital in reducing the impact of the proposed developments. More detailed assessment of these measures will be required at a later stage. A full Transport Assessment will be required to support any planning application for the business park.