

EAST OF ENGLAND PLAN
CONSULTATION:
OPERATIONAL ASSESSMENT
OF STRATEGIC HIGHWAY
NETWORK

HIGHWAYS AGENCY

May 2005

ANNEXE 2
REPORT ON PLANNING INPUTS

HIGHWAYS AGENCY

EAST OF ENGLAND PLAN CONSULTATION: OPERATIONAL ASSESSMENT
OF STRATEGIC HIGHWAY NETWORK

ANNEXE 2: REPORT ON PLANNING INPUTS

MAY 2005

Prepared by: Approved by:
Peter Handsley Associate Director Howard Blessington Director

Reviewed by:
Simon Shapiro Associate Director

Rev No	Comments	Approved / Reviewed	Date
1			

Job No: 34881T/908
Reference: PRH/SS/amor
Date created: May 2005

Telephone: 0160 366 4733
Fax: 0160 363 0228
Website: <http://www.fabermaunsell.com>

Sackville Place
44 Magdalen Street
Norwich NR3 1JU

TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	SCENARIOS TESTED	1
3.	MODEL REQUIREMENTS.....	2
4.	METHODOLOGY	2
5.	HOUSING DATA	3
6.	EMPLOYMENT DATA.....	4
7.	EXTERNAL ZONES	7
8.	AIRPORTS AND PORTS	9
9.	CONCLUSIONS	12

Annexe 2: Report on Planning Inputs

1. INTRODUCTION

This report provides information on the derivation and use of planning assumptions which underpinned the modelling of operational impacts on the highway network, both for continuation of current planning policy and for the Draft Plan proposals. It should be read in conjunction with the East of England Plan Consultation: Operational Assessment of Strategic Highway Network (Faber Maunsell) May 2005. This paper covers the following topics:

- Scenarios Tested;
- Model Requirements;
- Methodology;
- Housing Data;
- Employment Data;
- External Zones; and
- Airports and Ports.

2. SCENARIOS TESTED

The Draft Plan contains policies and proposals to guide development in the Region up to the year 2021. The Study focused on a limited number of planning scenarios:

- Base Year 2001; and
- Future Years 2016 and 2021
 - Scenario A3: continuation of current policies (RPG6/ RPG9 rolled forward)
 - Scenario F3: Draft East of England Plan.

In each case a different set of planning data, comprising predicted numbers of households and jobs, was required.

The sources of these planning data, together with networks tested for each scenario, are summarised in Table 1 below.

Table 1 Summary of Data source for each Scenario

Scenario	2016 and 2021	Network Assumptions	Base Year Data	Households Data Source	Jobs Data Source
A3	RPG6/9 rolled forward	Agreed Reference Case	2001 Census data for dwellings/ Experian BAU for jobs	Households from LA's extrapolation from previous RPG assumptions	Experian BAU Disaggregation below District level based on LA advice
F3	Draft Spatial Strategy (EoE Plan)	i. Ref. Case ii. 'Core' RTS iii. RTS	2001 Census data for dwellings/ Experian BAU for jobs	Policy H1 Disaggregation below District level based on LA advice	Policy E2 Disaggregation below District level based on LA advice

Further details of network scenarios are contained in the main report, whilst the following sections describe the planning data in greater detail.

3. MODEL REQUIREMENTS

The transport model used in the Study has been developed from an earlier version built for the London to South Midland Multi Modal Study (LSM) in 2001. The structure of the model is described in Chapter 3 of the Final Report and, in more detail, in Annexe 1 (Modelling Report).

The basis of estimating growth in trip ends in LSM and the East of England (EoE) model was the predicted increase by zone in housing and employment between base year and future year. The TEMPRO software (which predicts trip end forecasts from the National Trip End model) was used to calculate growth factors. Housing and employment forecasts are contained within TEMPRO but significant differences were apparent between these and the proposals in the Draft Plan (see Section 4 below). It was therefore felt necessary to input a more representative set of planning data to TEMPRO for the growth factor calculations. Also, it was necessary to derive disaggregated forecasts of growth by model zone. The assistance of County Councils and Unitary Authorities was, therefore, sought. Following a series of discussions and briefing sessions, a substantial level of co-operation was obtained and the Local Authorities provided planning information for both base and future planning scenarios.

A spreadsheet was created to calculate growth factors. The zones in the transport model are smaller than in TEMPRO (up to 20 zones per Local Authority District compared to 2-3 in TEMPRO). For the purposes of calculating growth factors in TEMPRO it was necessary, therefore, to combine model zones. The growth factor for the individual model zones was then derived by weighting the TEMPRO growth according to the household and employment figures for each zone.

The resulting growth factors by trip purpose and car availability were applied to Base Year (2001) trip matrices to create production and attraction totals for the appropriate years and scenarios, and the matrices furnished to these new totals.

4. METHODOLOGY

A number of possible sources of data could have been used to provide current planning policy forecasts (Scenario A3). TEMPRO (National Trip End Model) is most often used for transport studies and provides population, household and employment and workforce data by Local Authority area, and subdivided into urban areas within the District/ Borough boundary. For the EoE, two data sets are available:

- TEMPRO 1.4 (trend-based); and
- TEMPRO 1.5 (policy-based).

An examination of the two data sets compared with the housing and job growth proposed in current policy and the Draft Plan, shows significant variations at County and zonal level. As household formation is a key driver in trip-making it is appropriate to consider household numbers, in Table 2 below, as a useful comparison between the data sets.

The key points to note are:

- For the Region as a whole TEMPRO v1.4 is marginally closer than v1.5 to the predicted growth under current policies; however, there were found to be local differences. Also, employment forecasts in TEMPRO (not shown in the above table) differ considerably from RPG6/ RPG9 policy.
- At County level TEMPRO v1.4 housing figures are quite close to the figures now contained in Draft EoE Plan, but again, there are significant differences at District level and with employment policy targets throughout the Region.

In summary TEMPRO planning data were not considered suitable for use in the model because of the marked differences with both housing and employment figures derived from current and EoE Plan policies. Consequently, input from the Local Authorities was requested.

Table 2 Comparison of Increase in Households and Percentage Change 2001-2021

	Current Planning Policy RPG6/9		Draft EoE Plan		TEMPRO v1.4	TEMPRO v1.5
	Increase	%	Increase	%	%	%
Bedfordshire & Luton	59,538	26%	59,538	26%	24%	17%
Cambridgeshire & Peterborough	82,310	27%	86,669	29%	28%	22%
Essex (including Southend & Thurrock)	101,751	15%	120,262	18%	19%	15%
Hertfordshire	63,700	15%	78,008	19%	18%	13%
Norfolk	61,164	18%	64,832	19%	21%	18%
Suffolk	53,100	19%	56,894	20%	22%	18%
East of England	421,564	19% (18.75%)	466,203	21% (20.74%)	21%	16%

It should be noted that the EoE Plan levels of development are targets or aspirations and are not the same as forecasts. However, in order to test the potential impacts of the Draft Plan it was necessary to assume that the development proposed will materialise at the same rate and spatial distribution as outlined in the Draft Plan. This Study therefore assumes that Policy H1 housing allocations by District and Policy E2 job targets will be achieved by 2021.

Local Authorities were asked to use the District or Sub-Region figures and disaggregate them to model zones on the basis of local knowledge of past development rates, known allocations, urban capacity studies and other local information. Counties and Unitary Authorities were briefed on the Study and the modelling process in June 2004. Although general guidance was given, it was left open to individual authorities to provide the best fit in relation to their own views on future development.

The transport model zones are based on 1991 Wards and there have been boundary changes since 1991. Therefore in order to calculate growth factors, it was first necessary to align the 2001 Ward data with the 1991 boundaries. This was a far from straightforward exercise and was undertaken by the Local Authorities. Future year figures were estimated in terms of households; to allow for vacancies an assumption of a 3% reduction from dwelling allocation to households was used in most cases. In addition, for most areas it was assumed that the building rate would be constant over the 20-year period, even though it is acknowledged that in practice, in order to achieve the higher rates of development, it is likely that the development will be 'back loaded' and the rate of development will increase throughout the Plan period. The exception to this is in Essex and Southend, where some phasing work was undertaken.

5. HOUSING DATA

Base Year

The Base Year household figures by zone were provided by the Local Authorities, who took the 2001 census returns for households, reassigned them to 1991 Wards and then aggregated these to zone level. There were found to be a number of differences in the data from the 2001 census compared with the TEMPRO household figures for 2001, however, the census data were used since they are clearly the more reliable. The main differences in the 2001 household data are shown in Table 3 below and demonstrate that the 2001 census is generally lower than the TEMPRO forecasts for 2001. At District level there are some significant differences, in particular the 2001 census result is lower in Cambridge (24%), Forest Heath (18%), Southend (12%), Mid Beds (9%), East Cambridgeshire (9%) and Watford (9%). The only District with significantly higher household numbers in the census is Harlow (-16%).

Table 3 Difference between 2001 Census results & TEMPRO 2001 households, by County

	TEMPRO – 2001 Census	% by which TEMPRO higher than Census data
Bedfordshire (including Luton)	10,170	5%
Cambridgeshire (including Cambridge)	7,600	3%
Essex (including Southend & Thurrock)	10,800	2%
Hertfordshire	15,600	4%
Norfolk	4,100	1%
Suffolk	5,600	2%
East of England	53,900	2%

Future Years

RPG6/ RPG9 Rolled Forward (Scenario A3)

The data for 2016 and 2021 for this scenario were derived by using the assumed annual rate of household growth under the previous RPGs. This meant using the adopted Structure Plan figures for District housing levels.

Draft East of England Plan (Scenario F3)

The starting point for this model test is Policy H1 in the Draft Plan. This provides a distribution for the 478,000 additional dwellings (23,900 per annum) to be built in the Region between 2001-2021 giving an annual housing requirement by District.

Table 4 shows a comparison of the increases in household numbers expected by District under Scenarios A3 and F3. The number of households in the table is lower than dwellings in Policy H1 due to the allowance made for vacancies. Also, there is not exact agreement between these figures and Policy H1. This is because figures were supplied by the individual Local Authorities and there are certain differences in methodology adopted. Overall, however, the amount of development allocated to zones reflects well the key policies and District/ Sub-Regional targets.

6. EMPLOYMENT DATA

Assembling the household data was relatively straightforward in terms of base (census) data and future policies, which allocate numbers by District. The employment forecast is more difficult due to the lack of sound data on existing number of jobs by zone and also because economic forecasting is notoriously difficult. There are various possible economic forecasts which could be used, including TEMPRO, but as the Regional Spatial Strategy and a number of Sub-Regional studies have been informed by the BSL Experian forecasts, these were considered the most appropriate set of forecasts to adopt.

Base Year

The Base Year employment data were derived from the BSL Experian employment forecasts (except for Essex CC and Suffolk CC who used 2001 census data for the Base Year). The 2001 data is a forecast from data from 1998. These forecasts are higher than those from the census, however, the census tends to underestimate the total number of jobs. The Experian data is available only at District level and the Local Authorities disaggregated this to zones based on census employment data proportions.

Table 4

Additional Housing Figures Zone 1991 Districts	Scenario A3 (RPG6/9 Rolled Forward)			Scenario F3 (Draft EoE Plan)		
	Households		% Change	Households		% Change
	2016	2021	2001 - 2021	2016	2021	2001 - 2021
BEDFORDSHIRE & LUTON						
Bedfordshire						
Bedford	14,724	20,246	34	14,724	20,246	34
Mid Bedfordshire	10,313	13,813	28	10,313	13,813	28
South Bedfordshire	17,057	22,742	50	17,057	22,742	50
Bedfordshire Total	42,093	56,801	37	42,093	56,801	37
Luton Total	2,053	2,737	4	2,053	2,737	4
BEDFORDSHIRE & LUTON TOTAL	44,146	59,538	26	44,146	59,538	26
CAMBRIDGESHIRE & PETERBOROUGH						
Cambridgeshire						
Fenland	7,250	9,600	26	7,455	9,834	27
Huntingdon	8,440	11,220	17	8,003	10,638	16
East Cambridgeshire	6,370	8,470	29	6,177	8,213	28
South Cambridgeshire	17,770	23,660	42	17,396	23,162	41
Cambridge	11,000	14,660	33	10,703	14,265	32
Cambridgeshire Total	50,830	67,610	29	49,735	66,113	28
Peterborough Total	11,026	14,700	21	15,342	20,556	29
CAMBRIDGESHIRE & PETERBOROUGH TOTAL	61,856	82,310	27	65,077	86,669	29
ESSEX, SOUTHEND & THURROCK						
Essex						
Uttlesford	5,881	7,881	29	5,781	7,781	28
Braintree	9,013	12,013	22	5,613	7,513	14
Colchester	10,992	14,592	24	12,392	16,592	27
Tendring	6,289	8,389	14	6,189	8,289	13
Harlow	4,862	6,362	18	5,862	7,762	21
Epping Forest	1,848	2,448	5	6,923	10,559	21
Chelmsford	12,736	16,936	26	10,136	13,536	21
Maldon	2,011	2,711	11	1,711	2,311	10
Brentwood	1,433	1,933	7	2,133	2,833	10
Basildon	6,793	9,093	13	7,593	10,393	15
Rochford	2,350	3,150	10	3,050	4,450	14
Castle Point	2,521	3,421	10	2,621	3,921	11
Essex Total	66,729	88,929	16	70,004	95,940	18
Southend Total	2,122	2,822	4	4,322	5,822	8
Thurrock Total	7,500	10,000	17	13,500	18,500	32
ESSEX, SOUTHEND & THURROCK TOTAL	76,351	101,751	15	87,826	120,262	18
HERTFORDSHIRE						
North Hertfordshire	7,645	10,192	21	11,613	15,484	32
Stevenage	4,190	5,586	17	4,704	6,272	19
East Hertfordshire	8,158	10,878	21	15,288	20,384	39
Dacorum	5,293	7,055	13	4,631	6,174	11
St Albans	4,630	6,173	12	5,145	6,860	13
Welwyn Hatfield	4,116	5,490	14	4,263	5,684	14
Broxbourne	3,969	5,293	15	3,749	4,998	14
Three Rivers	2,940	3,920	12	2,646	3,528	11
Watford	3,453	4,606	14	3,381	4,508	14
Hertsmere	3,381	4,508	12	3,087	4,116	11
HERTFORDSHIRE TOTAL	47,775	63,700	15	58,506	78,008	19
NORFOLK						
South Norfolk	7,860	10,480	22	7,976	10,634	23
Great Yarmouth	4,720	6,293	16	3,943	5,258	13
Norwich	5,858	5,772	11	5,858	7,394	14
Broadland	7,334	9,768	20	9,847	11,742	23
Breckland	8,531	11,375	22	10,916	14,509	29
North Norfolk	5,156	6,880	16	4,147	5,529	13
Kings Lynn and West Norfolk	7,952	10,595	18	7,335	9,766	17
NORFOLK TOTAL	47,412	61,164	18	50,023	64,832	19
SUFFOLK						
Babergh	5,175	6,900	20	3,765	5,020	14
Ipswich	6,000	8,000	16	11,371	15,162	30
St. Edmundsbury	6,600	8,800	22	5,855	7,750	19
Forest Heath	3,900	5,200	23	4,678	6,238	27
Mid Suffolk	6,075	8,100	23	5,609	7,478	21
Suffolk Coastal	7,050	9,400	19	7,274	9,699	20
Waveney	5,025	6,700	14	4,160	5,547	11
SUFFOLK TOTAL	39,825	53,100	19	42,713	56,894	20
EASTERN REGION TOTAL	317,365	421,564	19	348,291	466,203	21

Additional Job Figures	Scenario A3 (RPG6/9 Rolled Forward)			Scenario F3 (Draft EoE Plan)		
	Jobs		% Change	Jobs		% Change
	2016	2021	2001 - 2021	2016	2021	2001 - 2021
Zone 1991 Districts						
BEDFORDSHIRE & LUTON						
Bedfordshire						
Bedford	16,824	22,544	31	16,824	22,544	31
Mid Bedfordshire	5,697	7,677	16	5,697	7,677	16
South Bedfordshire	9,743	12,990	26	9,743	12,990	26
Bedfordshire Total	32,264	43,211	26	32,264	43,211	26
Luton Total	5,134	7,993	9	5,134	7,993	9
BEDFORDSHIRE & LUTON TOTAL	37,398	51,204	20	37,398	51,204	20
CAMBRIDGESHIRE & PETERBOROUGH						
Cambridgeshire						
Fenland	1,810	2,910	9	4,810	6,420	20
Huntingdon	11,510	13,330	18	12,655	16,215	22
East Cambridgeshire	3,620	4,420	19	4,370	5,540	24
South Cambridgeshire	11,650	12,940	19	16,483	22,035	33
Cambridge	17,500	19,580	21	20,307	25,790	28
Cambridgeshire Total	46,090	53,180	18	58,625	76,000	26
Peterborough Total	7,480	8,160	9	12,855	16,900	18
CAMBRIDGESHIRE & PETERBOROUGH TOTAL	53,570	61,340	16	71,480	92,900	24
ESSEX, SOUTHEND & THURROCK						
Essex						
Uttlesford	4,100	4,500	13	10,800	11,000	32
Braintree	3,100	4,000	8	4,500	6,000	12
Colchester	5,100	6,700	9	10,725	14,200	20
Tendring	-100	-100	0	4,800	6,100	15
Harlow	-2,100	-2,800	-8	4,600	6,100	16
Epping Forest	3,200	4,300	11	6,000	8,000	21
Chelmsford	2,900	3,900	5	4,600	6,000	8
Maldon	500	600	3	800	1,000	5
Brentwood	5,100	6,800	21	1,500	2,000	6
Basildon	600	700	1	10,300	11,000	14
Rochford	600	700	3	2,800	3,000	13
Castle Point	-700	-1,000	-5	1,800	2,000	11
Essex Total	22,300	28,300	5	63,225	76,400	15
Southend Total	3,700	4,900	7	9,000	13,000	19
Thurrock Total	5,530	6,810	11	20,300	26,000	43
ESSEX, SOUTHEND & THURROCK TOTAL	31,530	40,010	6	92,525	115,400	18
HERTFORDSHIRE						
North Hertfordshire	9,732	10,791	19	3,315	4,420	8
Stevenage	-140	60	0	1,283	1,710	4
East Hertfordshire	7,509	8,710	13	5,842	9,290	14
Dacorum	8,161	8,631	12	7,830	10,440	14
St Albans	12,651	14,020	21	4,440	5,920	9
Welwyn Hatfield	5,240	5,790	9	5,745	7,660	12
Broxbourne	2,310	2,720	8	1,875	2,500	7
Three Rivers	6,460	6,861	20	2,955	3,940	11
Watford	6,539	7,979	13	5,408	7,210	11
Hertsmere	10,421	11,752	20	8,708	11,610	20
HERTFORDSHIRE TOTAL	68,882	77,314	14	47,400	64,700	11
NORFOLK						
South Norfolk	4,521	5,544	13	5,879	7,792	19
Great Yarmouth	2,389	2,782	7	3,541	4,717	12
Norwich	4,571	5,096	5	7,442	9,944	10
Broadland	2,468	2,856	7	3,711	4,946	12
Breckland	2,989	3,480	7	4,430	5,901	12
North Norfolk	969	905	2	2,091	2,816	7
Kings Lynn and West Norfolk	3,093	3,508	6	4,857	6,483	11
NORFOLK TOTAL	21,000	24,170	7	31,950	42,600	12
SUFFOLK						
Babergh	3,442	3,477	11	2,513	3,350	10
Ipswich	7,103	7,656	12	13,500	18,000	27
St. Edmundsbury	4,600	4,891	10	5,606	7,475	15
Forest Heath	5,574	6,179	19	3,572	4,763	15
Mid Suffolk	4,005	4,312	12	3,854	5,139	15
Suffolk Coastal	8,042	8,993	19	6,000	8,000	17
Waveney	2,709	2,865	7	3,880	5,173	12
SUFFOLK TOTAL	35,475	38,373	13	38,925	51,900	17
EASTERN REGION TOTAL	247,855	292,411	12	319,678	418,704	17

Future Years

RPG6/ RPG9 Rolled Forward (Scenario A3)

The previous RPG and related round of Structure Plans did not contain employment projections or targets. Thus the jobs forecast for Scenario A3 (current policy) was based on the Experian 'Business As Usual' employment forecasts. These are provided at District level, and were disaggregated to zones on a pro-rata basis in terms of existing jobs, but adding in known employment allocations.

Draft East of England Plan (Scenario F3)

The starting point for the employment assumptions was Policy E2 in the Draft Plan. This policy states that Local Development Documents will include policies to secure the job growth targets, identified as 421,500 for the Region between 2001-2021. It breaks down the figure by County and Sub-Region.

Policy E2 was derived by EERA from the Experian EG21 set of forecasts (2003), but enhanced to reflect the regeneration aspirations of the Region. The disaggregated data provided by the Local Authorities for Scenario F3 is constrained to Policy E2 totals at County level. Again a consistent level of annual growth across the period was assumed unless information from the Local Authorities indicated otherwise.

The increases in employment numbers calculated using this methodology are shown in Table 5.

7. EXTERNAL ZONES

In view of the extensive coverage of the EoE model, it would not be practical to prepare detailed forecasts for every external zone. For forecasting purposes, therefore, the zones outside the EoE and LSM Study Areas (with the exception of Greater London discussed below) were aggregated to form 15 regional zones, summarised in Table 6.

For each regional zone, the traffic growth forecasts for each user group were extracted directly from TEMPRO, and assumed to apply equally to each zone in the region.

Milton Keynes South Midlands Sub Region

During the course of this Study, the Panel Report on the Milton Keynes South Midlands (MKSM) Sub-Regional strategy was published, followed in October 2004 by the Secretary of State's response. As a consequence, planning inputs were reviewed. Although not policy at the time the forecasting was carried out, it was decided to incorporate the growth proposed by the draft Sub-Regional Strategy (SRS) into Scenarios A3 and F3. The majority of Bedfordshire and Luton are within the MKSM Sub-Region. The housing and employment figures in Scenarios A3 and F3 for this area are, therefore, the same.

Housing and employment assumptions were drawn from the spatial policies set out in the SRS Consultation Draft (October 2004). Strategic Policy 1 identifies the main focus for growth which together would account for an increase of 169,800 dwellings in the whole Sub-Region by 2021. There would be a targeted net increase of around 174,000 jobs. These figures are split by growth town but it was necessary to disaggregate the data further and allocate to zones through a combination of local knowledge, discussions with Local Authorities and interpretation of supporting text contained in SRS documents. The main objective was to incorporate reasonable assumptions for Bedfordshire and Luton, but zones outside the EoE areas (such as Milton Keynes and Aylesbury Vale) were also growthed in line with SRS proposals.

London

In the LSM model, growth factors for London Boroughs and Districts south of London were calculated only at County level, hence all zones in London would have the same growth factor, as would most zones in Kent (North Kent/ Thames Gateway was treated separately).

Table 6 Aggregation of External Zones

Regional Zone	Constituent Counties
Berkshire	Berkshire
East Sussex	East Sussex
Hampshire	Hampshire Isle of Wight
Mid and South Kent	Kent (excluding Thames Gateway area)
North	Northumberland Tyne and Wear Durham Cleveland North Yorkshire West Yorkshire South Yorkshire Humberside Lincolnshire Cumbria Lancashire Greater Manchester Merseyside Cheshire Staffordshire Nottinghamshire Derbyshire Shropshire
North Kent	Kent (Thames Gateway area)
Oxfordshire	Oxfordshire
Buckinghamshire	Buckinghamshire (area external to LSM Study Area)
Leicestershire	Leicestershire (area external to LSM Study Area)
Warwickshire	Warwickshire (area external to LSM Study Area)
Scotland	Scotland
Surrey	Surrey
Wales	Wales
West	Cornwall Avon Dorset Somerset Gloucestershire Devon Wiltshire Hereford and Worcester West Midlands
West Sussex	West Sussex

It is recognised that commuting from the Region into London has a significant impact on travel in EoE. Thus the planning assumptions in relation to job and housing growth in London were considered further. The London Plan (February 2004) proposes higher levels of housing and employment growth than those contained in previous TEMPRO forecasts, and there are considerable differences between north, south, east, west and central sectors. In particular, employment growth proposed to the east of London is far higher than in other sectors. Using TEMPRO to provide 2001 Base Year data, Sub-Regional policies in the London Plan formed the basis of assumed levels of growth for the five sectors as summarised in Table 7. The London Plan sets out policies for growth to 2016. Forecasts to 2021 were obtained by assuming the same annual rate of growth after 2016.

Table 7 London Plan Growth

Sub-Region	Housing (000s)		% Increase	Employment (000s)		% Increase
	2001	2021		2001	2021	
Central	719	862	20%	1,773	2,092	18%
East	801	939	17%	667	999	50%
North	448	511	14%	355	389	10%
South	584	640	10%	529	577	9%
West	595	655	10%	713	827	16%

(figures rounded to nearest thousand)

All growth factors for the areas external to the Region are kept constant throughout the different scenario tests.

8. AIRPORTS AND PORTS

There is a great deal of uncertainty surrounding the issue of passenger and employment forecasts at the airports in the Region. Growth at the two major airports in the Region (Stansted and Luton) could increase dramatically, with a knock-on effect in terms of surface access transport and potential impacts on the strategic network. The assumptions made about passenger throughput and employment growth are central to predicting increase in demand. LSM assumed current planning permission at Stansted of 25 million passengers per annum (mppa) and used a growth factor based on the ratio between existing and predicted passenger numbers and employees to derive future year trip attractions. These assumptions were made prior to the SERAS and the Aviation White Paper (The Future of Air Transport - December 2003). However, despite the White Paper, the expansion at Stansted and Luton are dependent on planning consent being obtained. The tests carried out as part of this Study examine the strategic impacts of growth as set out in the Draft Plan, which is sufficient for strategic analysis. A certain amount of interpretation was necessary to establish this growth, as explained below. Nevertheless, further work will be required to assess the surface transport impacts of the respective developments.

Stansted

The Government's White Paper on Aviation supported development of a second runway at Stansted, to be operational by 2011/12, with an ultimate capacity for passenger throughput of 82mppa. The airport has grown rapidly in recent years, particularly in the leisure market. In 2003 it handled 19 million passengers, compared to just under 7 million in 1998. The White Paper suggests that additional terminal capacity could allow throughput of 35mppa and BAA are proceeding with a planning application for "maximum use" of the airport to be submitted in 2006.

The Draft Plan does not support the White Paper proposal for a second runway and instead (Policy ST1) proposes expansion up to the maximum of its existing single runway. It has planning permission to expand its terminal building and supporting infrastructure to 25mppa and this policy would allow further increases in passenger throughput to around 35mppa.

Increases in passenger and freight capacity will generate demand for new employment. Land is available within the airport and it is expected that this is where operational and directly associated airport employment will be accommodated. Indirect and other airport-related employment is more likely to go elsewhere, either in the Sub-Region or further afield.

For the purposes of this Study, growth in trips has been based on forecasts of increases in passenger throughput and of job growth. Using estimates from recent studies by Halcrow/Pacec and Cambridge Econometrics, passengers were assumed to grow to 34mppa by 2016 and 36mppa by 2021 from a 2001 base of 13.7mppa.

The jobs target in Policy E2 identifies a total of 31,100 new jobs in the Essex part of the Stansted/ M11 Sub-Region and 8,900 in the Hertfordshire part. A considerable proportion of

this overall target of 40,000 jobs would, no doubt, depend on airport growth, but the Draft Plan does not specify what the proportion is expected to be.

A number of studies have been undertaken to support the development of the spatial strategy in relation to the M11 corridor, but a primary issue with estimating growth objectives for this Sub-Region is the uncertainty regarding the amount of employment growth arising from expansion at Stansted Airport. These studies have provided a different range of estimates, which are summarised in Table 8. They suggest a direct job increase varying from 2,800 – 11,300 by 2021. Although the number of jobs estimated in 2001 was just over 10,000 this appears to have declined to about 9,800 by 2003.

Table 8 Stansted Comparison between Job Growth estimated in Recent Studies

	Jobs 2021	Increase 2001-2021	Jobs 2036	Increase 2001-2036
Maximum Use of Existing Runway				
Bone Wells (2003)	21,600	11,300	17,300	7,000
Halcrow/ PACEC (2004)	16,900	6,600	16,000	5,700
Cambridge Econometrics/ York Aviation (2004)	13,100	2,800	11,800	<1,500
Two Runways				
Bone Wells (2003)	38,100	27,800	35,300	25,000
Halcrow/ PACEC (2004)	32,000	21,700	31,300	21,000
Cambridge Econometrics/ York Aviation (2004)	24,000	13,700	22,800	12,500

These are assumed to be direct airport jobs, the majority of which are expected to be at or close to the airport. Indirect jobs are more difficult to estimate, but would be fewer and likely to be more dispersed across the Region (and beyond).

Policy E2 'aspirational' increase in jobs for the Stansted/ M11 Sub-Region is around 20,000 more than Experian/ BSL's 'Enhanced Growth 21' forecast and it must be assumed that a significant proportion of these would be through job increase due to growth at Stansted, either directly or indirectly. Thus, the assumption was made that Stansted maximum use would produce 10,000 additional jobs (direct and indirect) located within the airport zone.

Future year transport demand was modelled simply by applying growth factors based on passenger and employment increases. No major changes in trip distribution result from this process which, in practice, might be expected to occur as the expanded airport attracts a greater number of trips from outside the regional catchment.

Impact on Housing in the Sub-Region

The studies referred to above considered housing needs related to Stansted in the Draft Plan. Generally, the studies suggest that the numbers of dwellings proposed for the Sub-Region are probably sufficient to cater for increased employment at Stansted with maximum use of one runway. Moving from one to two runways may, however, create a need for additional allocations. However, the Draft Plan does not support a second runway and the main model tests do not, therefore, need to take account of the need for an increased housing allocation to support that higher level of airport growth.

Luton

The aviation White Paper supports the growth of Luton up to the maximum use of a single full length runway based on the current alignment. Forecasts suggest there would be sufficient demand to justify expansion to full potential for the single runway of 30mppa by 2030. The airport currently operates at about 7mppa and is growing towards the 10mppa limit included in the Bedfordshire and Luton Structure Plan. The Draft Plan accepts in principle the expansion of the existing airport to obtain full use from its existing 2160 metre runway, equivalent to a notional throughput of around 18mppa, although theoretical capacity may be higher. For

modelling purposes it was, therefore, assumed that throughput would be 17mppa by 2016 and 20mppa by 2021 for the Draft Plan proposal.

SERAS suggested that airport employment could grow to 12,000 by 2021 under the maximum use option, from about 7,000 at present. Luton Airport Study (Halcrow 2004) indicated that in 2003 there were 7,800 direct airport employees and between 12,600 and 15,900 total jobs. Predicted employees in 2021 are shown in Table 9.

Table 9 Luton Airport Job Forecasts (Halcrow)

	Employees (000s)		
	2001	2021	
		Range	Median Figure
Direct Jobs	7,000	9,700 – 13,700	11,700
Total Jobs	13,000	16,900 – 28,500	22,700

Employment land within the airport perimeter is limited but it appears reasonable to assume that the increase in direct jobs would be located here. As regards indirect jobs, for the purposes of this Study it was assumed that these would be dispersed elsewhere within the Sub-Region (and possibly beyond). The proposed Milton Keynes South Midland Sub-Regional strategy provides for 12,600 new jobs within Luton and South Bedfordshire but this is given as a 'reference value' not a target. After discussion with Luton Borough Council the assumption was made that direct airport jobs should be additional to this figure. Thus, the number of jobs at the airport would increase from 7,000 in 2001 to 12,000 by 2021.

There is considerable uncertainty surrounding these policies and forecasts but the levels of growth shown in Table 10 have been assumed.

Table 10 Luton Airport – Housing and Employment Assumptions

Scenario	Passengers			Employees		
	2001	2016	2021	2001	2016	2021
A3 Current Policy	6,582	8,000	8,500	7,000	6,500	6,200
F3 Draft EoE Plan	6,582	17,000	20,000	7,000	11,000	12,000

As with Stansted, forecast trips are based on simple growth factoring and any major redistribution of trips due to increased scale of operation was not taken into account in the modelling.

Other Airports

Southend Airport currently handles only 5,000 passengers a year, although in the 1960's there were 0.75mppa. The Draft Plan supports "modest expansion to meet local market demand" at Southend Airport as a catalyst to aid regeneration. The airport's masterplan will demonstrate how expansion will fit in with Thames Gateway regeneration, with a target to achieve 1mppa by 2021.

The current limit on passenger movement at Norwich Airport is around 0.7mppa based on existing terminal capacity. The Sub-Regional strategy would promote development of the airport along with associated employment uses and better surface transport. SERAS forecasts ranged between 0.5mppa and 0.7mppa by 2015 depending on whether high capacity, at one extreme, or maximum use, at the other, was assumed to be delivered by major airports in the Southeast. In the absence of any further information or policy guidance on likely level of expansion, at Norwich, passenger throughput was assumed to be 1.1mppa by 2021.

For both airports, trips were growthed to allow for projected passenger increases to 2021 with no redistribution of trip patterns.

Employment figures prepared by Local Authorities have allowed for growth in jobs within and close to the zones where these airports are located.

Ports

There is a need to reflect the growth in traffic using the east coast ports. However, there is currently a high level of uncertainty regarding the future of the ports, as there are a number of planning applications awaiting decision by the Secretary of State. These are at:

- Harwich, Bathside Bay;
- Felixstowe; and
- London Gateway, Shellhaven.

The public inquiry for the proposal at Bathside Bay has recently closed. This development provides for an increase in capacity (by provision of new docks, quays a rail terminal, container handling depot etc.) at Harwich of 1.7million TEUs (Twenty Foot Equivalent Units). Evidence in support of the application suggested that this would equate to about 3,330 HGVs a day (some 350 in the peak hour). The Transport Assessment suggests that HGVs will make up about 11% of all traffic on the A120 east of Colchester. As part of this proposal improvements to the A120 and A12/ A120 interchange are under consideration.

At present this increase in goods movement is not explicitly included in the planning data in any of the future year scenarios, but, the zone 23000 Harwich Port (Employment) shows 300 jobs in 2001 and 1,500 in 2016 and 2021 reflecting the expansion at Harwich but within the overall total set by the EoE Plan for the Sub-Region (Data supplied by Essex County Council).

A decision is also awaited on major proposals on the Port of Felixstowe reconfiguration and London Gateway development (Shellhaven). The Draft Plan supports these expansions for their regeneration benefits and it was assumed that employment figures set out in Policy E2 and Sub-Regional allocations implicitly allow for these developments. In all cases, however, considerable increases in HGV movements would be anticipated which may not be taken fully into account through the more general growth calculations applied.

In the model, forecasts of heavy goods vehicle movements were taken from those developed for LSM using the SRA's Freight Demand Model. This approach is more sophisticated than using National Road Traffic Forecasts, since it reflects:

- changes in growth for different ranges of trip length (in general long-distance trips are increasing at a higher rate than short-distance trips), which is important as HGVs are excluded from the trip distribution model; and
- the approximate mix of commodities transported to, from and within the LSM Study Area (it was assumed that this would not be greatly different from that in the EoE Study Area).

The model was run to produce, for each origin-destination pair (albeit with common values for each zone within a County), HGV growth factors for 2001 to 2011 and 2021, assuming that the SRA's target of an 80% increase in rail freight carried by 2010 is met. After that it is assumed there is no further growth in rail freight.

The growth factors for 2011 and 2021 were then interpolated to calculate growth factors for 2016.

If required, the impact of additional numbers of HGVs generated by port expansion could be investigated through sensitivity testing.

9. CONCLUSIONS

This Annexe has set out in more detail the planning inputs and assumptions incorporated in the EoE model which was used to generate forecasts for operational assessment of the strategic highway network. The majority of the planning inputs were derived during Summer and Autumn of 2004. It may be appropriate to review and update key assumptions for future modelling work as new information becomes available.