# THE IMPACT OF STANSTED EXPANSION UPON SURFACE ACCESS NETWORKS

***Report to Stop Stansted Expansion***

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# EXECUTIVE SUMMARY

## Introduction

- In April 2003, following the publication of the second edition of the Government's consultation paper, *'The Future Development of Air Transport in the United Kingdom: South East'*, Stop Stansted Expansion (SSE) commissioned Berkeley Hanover Consulting (BHC) to undertake a review of the impact of a possible expansion of Stansted Airport upon the surface access networks of the airport and the local area.

## Transport Drivers

- The four Stansted expansion options (maximum use of existing runway, one new runway, two new runways and three new runways) are covered in this report with an analysis of passenger and employee numbers in each option inputting into surface access assessments.

## Adequacy of Existing Surface Access Networks

- Currently, approximately 65% of Stansted passengers use private transport to access the airport, with 5% using coaches and 30% using trains. Some 94% of Stansted employees use private transport to commute to/from the airport, 2% use coaches, 2% use the train and 2% walk or cycle. Rail services have proved very popular in recent years compared to many other UK airports and the road system, whilst under some strain, appears to be coping sufficiently.

## Passenger Flows

**SERAS Passenger Estimates for 2030, Figures in MPPA**

| Option | Interliners | Passengers Requiring Surface Access | Total Passengers | % Requiring Surface Access |
|---|---|---|---|---|
| STN1 | 0.3 | 25.4 | 25.7 | 99% |
| STN2 | 23.6 | 50.8 | 74.4 | 68% |
| STN3 | 29.4 | 68.3 | 97.7 | 70% |
| STN4 | 36.3 | 85.2 | 121.5 | 70% |

***Source: Department for Transport Model***

- BHC has not challenged the SERAS passenger estimates, which indicate large increases in the number of passengers requiring surface access in every Stansted option.

## Local Labour Markets and Employment Generation

**SERAS Estimates of Employment Figures in 2030**

| Option | Direct | Indirect | Total | Increase from 1998 |
|---|---|---|---|---|
| STN1 | 14,000 | 4,000 | 18,000 | 80% |
| STN2 | 43,000 | 13,000 | 56,000 | 460% |
| STN3 | 57,000 | 17,000 | 74,000 | 640% |
| STN4 | 72,000 | 21,000 | 93,000 | 830% |

*Source: SERAS Main Document*

**BHC Estimates of Employment Figures in 2030**

| Option | Direct | Indirect | Induced | Attracted | Total | Increase from 1998 |
|---|---|---|---|---|---|---|
| **STN1** | 14,000 | 1,000 | 4,000 | 0 | 19,000 | 90% |
| **STN2** | 43,000 | 3,000 | 14,000 | 20,000 | 80,000 | 700% |
| **STN3** | 57,000 | 5,000 | 18,000 | 35,000 | 115,000 | 1050% |
| **STN4** | 72,000 | 6,000 | 23,000 | 50,000 | 151,000 | 1410% |

***Source: BHC***

- BHC's employment estimates are the same for SERAS for direct employment; use a multiplier of 8% for indirect employment to calculate local impacts rather than the 30% SERAS applies to calculate for national impacts; uses a 30% induced employment multiplier (something that SERAS suggests can be used) and provides estimates of attracted employment that may be generated in the area because of the presence of a large airport. It should be noted that all employment figures (for both SERAS and BHC) are gross impact figures and may be subject to displacement. The issue of displacement is not addressed in SERAS and for the purposes of consistency and comparison we have maintained this position. Even if the net national jobs created are less than local impacts because of displacement, the gross local impacts still exist and need to be measured.

## Impacts on the Road Networks

- BHC has calculated estimates for the demand placed upon the road network using both SERAS and BHC passenger and employment forecasts.

| Option | SERAS Average Number of Daily Car Journeys | BHC Average Number of Daily Car Journeys |
|---|---|---|
| Today | 40,000 | 40,000 |
| STN1 | 60,000-62,000 | 60,000-65,000 |
| STN2 | 170,000-172,000 | 190,000-195,000 |
| STN3 | 214,000-216,000 | 250,000-255,000 |
| STN4 | 268,000-270,000 | 320,000-326,000 |

***Source: BHC Imputation Using SERAS Estimates and BHC Estimates***

- The above estimates cast considerable doubt on the ability of the local road network to sustain a large expansion of Stansted. On the basis of the BHC forecasts, BHC considers that additional road network improvements will be required by 2030 **over and above the improvements suggested in SERAS**. These are: an additional motorway lane in both directions on the M11 between Junctions 8 – 9; an additional motorway lane in both directions on the M11 between Junctions 8 and the junction with the M25, Junction 27; an additional motorway lane in both directions on the M25 between Junctions 26 – 29, widening on the Link between the airport and the M11 Junction 8, and improvements to this junction; and finally, widening of the A120 from the Bishop's Stortford bypass to Little Dunmow.

**Impacts on the Rail Networks**

- BHC has calculated estimates for the demand placed upon the rail network using both SERAS and BHC passenger and employment forecasts.

**BHC Rail Usage Estimates, 2030**

| Option | SERAS Average Number of Daily Rail Journeys | BHC Average Number of Daily Rail Journeys |
|---|---|---|
| Today | 12,600 | 12,600 |
| STN1 | 18,000-19,000 | 18,000-19,000 |
| STN2 | 30,000-32,000 | 38,000-40,000 |
| STN3 | 35,000-37,000 | 50,000-52,000 |
| STN4 | 41,000-43,000 | 60,000-62,000 |

*Source: BHC Imputation of SERAS Figures and BHC Estimates*

- BHC's assessment does not significantly dispute the feasibility of the SERAS rail schemes. Where we would differ is in supporting the need for an additional rail loop with STN3 and STN4 as recommended by BAA and the SRA[1].

- It is important to note that the journey totals given above for road and rail relate only to workers commuting to their place of work and airport passengers travelling to and from the airport but does not take into account other generated journeys such as shopping trips of new residents, school trips for the children of new residents etc. This is not calculated within SERAS and BHC has therefore not included it for the purposes of consistency but it would undoubtedly further increase the trip generation figures.

[1] paras 7.23 and 7.24, p.80, '*Responsible Growth*', BAA, (May 2003)

**Costs of Increased Surface Access Infrastructure**

**SERAS and BHC Estimates**

| Option | SERAS Estimate | BHC Additional Road Estimate | BHC Additional Rail Estimate | Total BHC Additional Estimate |
|---|---|---|---|---|
| STN1 | £0m | £100m-£150m | £0m | £100m-£150m |
| STN2 | £785m | £100m-£150m | £0m | £100m-£150m |
| STN3 | £1,629m | £275m-£305m | £175m-£260m | £450m-£565m |
| STN4 | £1,880m | £275m-£305m | £175m-£260m | £450m-£565m |

***Source: SERAS Stage Two Appraisal Summary Tables and BHC***

- The general principle recommended in SERAS is that for surface access, the airport developer should contribute to the funding, taking account of the extent to which the developer benefits. If entirely left to private developers, economic theory predicts that surface access will be undersupplied. BAA have no commercial incentive to provide surface access for attracted employment but this would very likely form a substantial percentage of additional employment in the larger Stansted options. Hence the Government needs to take this into account and ensure that surface access is well catered for to meet airport growth - but this does not occur in SERAS. If surface access infrastructure is not adequately funded then it is the travellers who use these networks regularly who will suffer the most. Existing residents will witness a decline in their quality of life and new residents will suffer from a lower quality of life than they would otherwise have with adequate surface access.

- The proposal promoted by the Office of the Deputy Prime Minister (ODPM) for the development of some 200,000 new houses in the South East by 2016 – including the London-Stansted-Cambridge corridor – would generate significant additional transport demands even allowing for some of the 'new' residents being potentially new airport employees. The travel demands of the proposed Stansted Airport expansions <u>and</u> the proposed London-Stansted-Cambridge expansion area, will need to be evaluated in some detail before the total 2030 transport infrastructure enhancements can be defined.

**Conclusions**

- There must be some considerable doubt cast over the employment figures shown in SERAS that feed into the calculations for required surface access improvements. BHC's employment estimates are significantly higher than the SERAS figures as induced and attracted employment estimates (the inclusion of which is hardly controversial in standard airport employment estimates) are not made in SERAS. Yet these induced and attracted employees will generate a much greater level of traffic in the local area and BHC believes that, with particular regard to the road network, this would place an unsustainable strain that could only be alleviated by significantly higher investment than that suggested in SERAS.

- The rail figures in SERAS appear to be somewhat more robust but still appear underestimates and if the rail infrastructure improvements are not implemented by the dates of new runways opening it is likely that more air passengers will choose private modes of travel. This would result in still more road traffic, more congestion and increased environmental impacts and even more road infrastructure improvements would be necessitated.

- With the SRA and BAA stating:

  *'Key issues for an acceptable economic transport assessment and the resultant funding requirements will need to be resolved'*[2]

  and SERAS stating:

  *'Further work will be required to identify in more detail the level of surface transport investment required'*[3]

  three of the key agents in airport surface access provision appear to be unsure of the way ahead. Yet the question of the level of surface access required and who pays for it needs to be unambiguously resolved to ensure that such necessary improvements will in fact be made and delivered on time.

- We conclude that **SERAS has significantly underestimated the level of surface access provision required for the Stansted options** and there must be a considerable concern that a **failure to agree funding would result in a serious degradation on the local transport network system** in the event of any of these options being implemented.

[2] para 60, p.145, Joint BAA and SRA statement in *'Responsible Growth'*, BAA, (May 2003)
[3] para 17.15, p.152, *'SERAS Main Document (Second Edition)'*, DfT, (February 2003)

# CONTENTS

# 1 INTRODUCTION

1.1 In April 2003, Stop Stansted Expansion (SSE) commissioned Berkeley Hanover Consulting (BHC) to undertake a review of the impact of a possible expansion of Stansted Airport upon the surface access networks of the airport and the local area.

1.2 The Government's consultation paper, *'The Future Development of Air Transport in the United Kingdom: South East'* has been reissued in a second edition in February 2003 that includes Gatwick airport in a number of the expansion packages and is hereafter referred to by BHC as SERAS. The consultation paper contains within it seventeen different packages with an expanded Stansted featuring in nine of the different packages with one, two or even three new runways. Appendix A provides a list of these packages.

1.3 Chapter 2 of this report provides detail of the various Stansted expansion options proposed in SERAS and Chapter 3 examines the existing surface access networks for the Stansted area. Chapter 4 examines the passenger forecasts whereas Chapter 5 studies SERAS and BHC forecasts for employment generation. Chapters 6 and 7 study the impact on road and rail networks respectively and Chapter 8 gives both SERAS and BHC estimates for the costs of the new or upgraded surface access infrastructure required with each expansion option as well as the consequences of not investing in the required infrastructure. Chapter 9 presents our conclusions.

1.4 We would like to stress that the views expressed in this report are solely those of Berkeley Hanover Consulting and do not necessarily reflect the views of SSE.

# 2 TRANSPORT DRIVERS

### Stansted Options

2.1 SERAS presents five options for STN:

**Table 2.1 Stansted Options**

| Option | Name Used in Report |
|---|---|
| Base Case | Not Used |
| Maximum Use | STN1 |
| 1 new runway | STN2 |
| 2 new runways | STN3 |
| 3 new runways | STN4 |

*Source: BHC*

2.2 Four of the five options will be studied in the report and surface access costs and impacts will be analysed for each of the four options.

### Passengers

2.3 Passenger traffic is a major driver of surface access traffic, as all passengers apart from those interlining (i.e. those who use Stansted as a connecting airport and not as an origin nor destination airport) will travel to and/or from the airport by road (by private car or taxi/coaches) or rail.

**Table 2.2 Current Passenger Figures for Stansted**

| Stansted Passengers | MPPA in 2002 |
|---|---|
| Interlining Passengers | 0.2 |
| Passengers Requiring Surface Access | 14.6 |
| **Total** | **14.8** |

*Source: Department for Transport Model*

2.4 Table 2.2 above displays the current situation, with very few interlining passengers at Stansted and the vast majority of passengers currently requiring surface access modes.

**Table 2.3 Capacities of Stansted Options, MPPA**

| Option | Capacity |
|---|---|
| STN1 | 35 |
| STN2 | 82 |
| STN3 | 102 |
| STN4 | 129 |

*Source: SERAS Main Document*

2.5 Table 2.3 above shows the capacities of the different Stansted options studied in SERAS. Even the least expanded option of STN1 will have a capacity more than double the present number of passengers using Stansted and the other options of STN2, STN3 and STN4 could be larger than any airport currently operating in the world (Heathrow handled 64 million passengers in 2000/01 and Atlanta Hartsfield, the world's busiest airport, handled 77 million passengers in 2002). Clearly this would require a tremendous step change in the level of surface access provision for an airport of such size - see Chapter 4 for the estimates of passenger numbers at Stansted in 2030.

**Employment Generation**

2.6 The other major driver of surface access traffic aside from airport passengers is that generated by airport employees or those employed because of the presence of Stansted airport, travelling to work. The current situation is displayed in Table 2.4 below - see Chapter 5 for the SERAS and BHC estimates of employment generation in 2030.

**Table 2.4 Employment Numbers at Stansted in 1998**

| Employment Type | Number |
|---|---|
| Direct Jobs | 8,000 |
| Indirect Jobs | 2,000 |
| **Total** | **10,000** |

*Source: SERAS Main Document*

2.7 At 10,000 jobs with 15 million passengers, Stansted is currently a very 'efficient' airport with a relatively high number of passengers per employee (for instance, Stansted currently has 670 employees per million passengers whereas Heathrow has 1,520 employees per million passengers). This is partly explained by the dominance of low cost airlines at Stansted compared to the other major South East airports. However, with the expansion of Stansted airport, more scheduled airlines are expected to move to Stansted and these airlines bring with them greater numbers of staff and are stronger generators of other forms of direct employment (such as cargo companies, hotels etc) as well as inward investment.

**EASIE Principles**

2.8 To attempt to weigh up the various costs and benefits of the packages in SERAS, the Government will apply an evaluation framework called the five EASIE principles. They are:

**E**conomy
**A**ccessibility
**S**afety
**I**ntegration
**E**nvironment

2.9 In addition to the five above mentioned criteria to assess the airport options there should be added a sixth 'hidden' criterion, that of feasibility of private financing. With the Government effectively ruling out large-scale subsidy of airport expansion, airport developers must primarily fund any options and hence if they do not think the White Paper's conclusions on airport expansion are viable then the decision making process will have failed.

2.10 Surface access is undeniably a key area that will be used to appraise the airport expansion options, featuring in the Accessibility category although certain aspects can also feature in the Integration category. There is as yet no weighting attached to any of the 5 EASIE criteria as this will be decided upon by the Minister, although the very fact that Accessibility and Integration overtly feature means that surface access is unlikely to be ignored. BAA's response[4] to the SERAS consultation has further raised the perceived importance of surface access issues by initially discounting some of the options, including a four runway Stansted, on grounds of a lack of confidence of a sufficient scale of surface access proposals and this has been backed up by the Strategic Rail Authority in a joint submission in BAA's response in May 2003. This is discussed in more detail in following chapters

[4] '*Responsible Growth*', BAA, (May 2003)

# 3 ADEQUACY OF EXISTING SURFACE ACCESS NETWORKS

## Modal Choice

3.1 Table 3.1 below presents a detailed breakdown of the most recent modal shares of surface access networks for air passengers at Stansted, divided into public and private forms of transport.

**Table 3.1 Existing Mode Share of Air Passenger Surface Access at Stansted**

| Public/Private Transport | Mode | Users | Percentage |
|---|---|---|---|
| Private | Private Car | 5.9 million | 52% |
| | Hire Car | 0.3 million | 3% |
| | Taxi and Mini Cab | 1.1 million | 10% |
| Public | Bus and Coach | 0.6 million | 5% |
| | Rail | 3.4 million | 30% |
| **Total Private** | | **7.3 million** | **65%** |
| **Total Public** | | **4 million** | **35%** |
| **Total** | | **11.3 million** | **100%** |

*Source: BAA Stansted Airport Access Strategy– July 2001 Update*

## Rail

3.2 Rail services at Stansted have had considerable success in attracting passengers from private cars in recent years and rail demand is generally expected to continue growing over the next 10 years. Whilst underlying growth may be accommodated by filling empty seats on existing services and by running longer trains, existing and potential future train operators aspire to run more frequent services to Stansted Airport. WAGN now provide a five train per hour service (travel time from Liverpool Street is approximately 44 minutes) between the morning and evening peaks to the airport. This comprises four expresses and a local service, and has helped to encourage passenger growth of around 20% during the past year. Rail now accounts for around 30% of the air passenger market for travel to Stansted Airport, the highest public transport share for any UK airport.

3.3 Network Rail have identified that the key issue for the route is capacity between Tottenham Hale and Bishops Stortford along the Lea Valley, owing to the mix of fast and stopping services over the two-way railway. If demand grows and if it is commercially viable, additional tracks will be required. They have undertaken studies – on behalf of the Strategic Rail Authority (SRA) and British Airports Authority (BAA) – to examine the options for and the timing of such enhancements.

3.4 Poor punctuality, exacerbated by the need to flight fast and stopping services over the congested section in the Lea Valley, has been improved by removing the Gauge Corner Cracking restrictions that were in force at the beginning of the year.

Network Rail are also continuing to carry out significant amounts of short-term performance improvement investment work on the route to mitigate failures of the old equipment, until renewals under the West Anglia Route Modernisation (WARM) project are completed.

3.5 The recent announcement to expand Stansted to handle 25 million passengers a year is expected to be met on the rail side by the extension of the Stansted Express to twelve carriage trains and by improving the existing Stansted station. A second tunnel for the airport is not expected to be required for this level of expansion.

**Road**

3.6 The road network does not have quite such a positive report as the current rail situation but the consensus is that the roads are generally currently coping with the existing level of traffic. The A120 improvement between Braintree and Stansted will reduce journey times and hopefully stimulate a greater number of coach services to reduce airport employee car usage.

**Airport Employee Travel Patterns**

3.7 Where Stansted airport performs less well is on travel patterns of employees as Table 3.2 below demonstrates.

**Table 3.2 Stansted Airport Employee Travel Patterns**

| Public/Private Transport | Mode | 1997 | 2001 |
|---|---|---|---|
| Private | Private Car Driver | 93% | 90% |
| | Private Car Passenger | 3% | 4% |
| Public | Bus and Coach | 1% | 2% |
| | Rail | 1% | 2% |
| Other | Walking, Other | 2% | 2% |
| **Total Private** | | **96%** | **94%** |
| **Total Public** | | **2%** | **4%** |
| **Total** | | **100%** | **100%** |

*Source: BAA Travel Plan 2001*

3.8 While there has been an improvement in recent years, airport employee travel patterns are still dominated by private transport. Whilst new employees in the near future are increasingly likely to use public transport (as given local recruitment problems they tend more to come from areas such as North East London that have good public transport links to Stansted), Stansted's employees will still on the whole prefer private transport, given the relatively rural location of the airport.

# 4 PASSENGER FLOWS

## SERAS Estimates

**Table 4.1 SERAS Passenger Estimates for 2030, Figures in MPPA**

| Option | Interliners | Passengers Requiring Surface Access | Total Passengers | % Requiring Surface Access |
|---|---|---|---|---|
| STN1 | 0.3 | 25.4 | 25.7 | 99% |
| STN2 | 23.6 | 50.8 | 74.4 | 68% |
| STN3 | 29.4 | 68.3 | 97.7 | 70% |
| STN4 | 36.3 | 85.2 | 121.5 | 70% |

*Source: Department for Transport Model*

4.1 Table 4.1 shows an interesting feature of the SERAS estimates for Stansted airport: that of extra runways turning Stansted into a hub airport with a correspondingly higher number of interlining passengers. In the STN1 option, virtually all passengers use Stansted as an origin and/or destination airport and hence require surface access, which is very similar to the present day situation. However, with one, two or three new runways, Stansted undergoes a step change and becomes a hub airport with around 30% of its traffic connecting passengers who do not require surface access. However, what should be borne in mind is that while **proportionally** more passengers do not require surface access as Stansted gains extra runways, the **absolute** number of passengers requiring surface access still increases very significantly. From STN1 to STN2 the proportion requiring surface access falls by 30% but the absolute number using surface access modes increases in size by 100%. In analysing the surface access impacts, it is the number of people who actually use different surface access modes that is of concern, not the passenger make-up of the airport or total passenger numbers.

## BHC Estimates

4.2 In the past, BHC has noticed a concerted tendency for BAA to underestimate the capacity of their airports. At the Heathrow Terminal 4 Inquiry, BAA claimed a four terminal LHR would have capacity of just 38 mppa. By 1990, BAA claimed that a four terminal LHR 5 would have a maximum capacity of 50 mppa. It is currently handling around 64 mppa. Furthermore, it is evident that over time, efficiency improvements and technological adaptation will allow for improvements in air traffic control, passenger handling at terminals and increasing aircraft size. It is probable, therefore, that any capacities forecast now are likely to be even higher at a later date as a result of technological and efficiency improvements that have not been predicted. BHC would tend to suggest that the capacities could be raised for the Stansted options but as none of the options are forecast to meet their capacity by 2030, this would not affect the 2030 figures in any case and hence they are not calculated. Instead, BHC suggests that the SERAS estimates for 2030 are adequate, as we are not disputing the forecasts, only the capacities.

# 5 LOCAL LABOUR MARKETS AND EMPLOYMENT GENERATION

**SERAS Estimates**

**Table 5.1 SERAS Estimates of Employment Figures in 2030**

| Option | Direct | Indirect | Total | Increase from 1998 |
|---|---|---|---|---|
| STN1 | 14,000 | 4,000 | 18,000 | 80% |
| STN2 | 43,000 | 13,000 | 56,000 | 460% |
| STN3 | 57,000 | 17,000 | 74,000 | 640% |
| STN4 | 72,000 | 21,000 | 93,000 | 830% |

***Source: SERAS Main Document***

5.1 With SERAS estimating that there are currently 10,000 jobs created at Stansted airport, every option in 2030 will clearly have a highly significant impact; with the smallest option leading to an 80% increase in jobs and the largest an 830% increase in jobs according to SERAS.

**BHC Estimates**

**Table 5.2 BHC Estimates of Employment Figures in 2030**

| Option | Direct | Indirect | Induced | Attracted | Total | Increase from 1998 |
|---|---|---|---|---|---|---|
| **STN1** | 14,000 | 1,000 | 4,000 | 0 | 19,000 | 90% |
| **STN2** | 43,000 | 3,000 | 14,000 | 20,000 | 80,000 | 700% |
| **STN3** | 57,000 | 5,000 | 18,000 | 35,000 | 115,000 | 1050% |
| **STN4** | 72,000 | 6,000 | 23,000 | 50,000 | 151,000 | 1410% |

*Source: BHC*

5.2 The breakdown of BHC's estimates is as follows:

- Direct employment – As SERAS

- Indirect employment – BHC use 8% of direct employment to account for local impacts whereas SERAS uses 30% of direct employment to account for national impacts. 8% is figure used by BHC at the Heathrow Terminal 5 Inquiry.

- Induced employment – 30% of direct and indirect employment, a figure that SERAS states could be added to their figures.

- Attracted employment – BHC estimates given our and other consultants' research into attracted employment studies at other airports.

5.3 Through the addition of induced and attracted employment, BHC estimates are considerably higher (and considerably more realistic, we would argue) than the SERAS estimates. The smallest option generates a 90% increase in employment over 30 years, whereas the largest option generates a staggering 1410% increase in local employment levels.

5.4 It should be noted that all employment figures (for both SERAS and BHC) are gross impact figures and may be subject to displacement impacts. The issue of displacement is not raised in SERAS and for the purposes of consistency and comparison we have maintained this position. Even if the net national jobs created are much smaller than local impacts because of displacement, the gross local impacts still exist and need to be measured.

**Table 5.3 BHC Employment Estimates in Local Areas in 2030**

| | STN1 | STN2 | STN3 | STN4 |
|---|---|---|---|---|
| **Braintree** | 3,300 | 13,700 | 20,400 | 27,600 |
| **East Herts** | 5,500 | 21,700 | 32,200 | 43,400 |
| **Harlow** | 1,300 | 5,100 | 7,600 | 10,200 |
| **Uttlesford** | 7,000 | 28,600 | 42,500 | 57,400 |
| **Total of the Above** | **17,100** | **69,100** | **102,700** | **138,600** |

*Source: BHC*

5.5 As Table 5.3 shows, much of the employment at Stansted is forecast to be from workers from a tight catchment area, with East Herts and Uttlesford alone estimated to 'supply' approximately 63-68% of the total labour force generated by Stansted. The current populations of these areas could not feasibly supply the workforce requirement of the larger Stansted options and hence either local areas will have to massively urbanise (the more likely option) or workers will have to commute long distances to the Stansted area, thereby increasing the total travel to work movements.

**Housing**

5.6 Housing demand is partially a function of employment: the greater the number of STN and STN related employees, the greater the demand for local housing. In SERAS, local housing is composed of two geographical areas: the Core Catchment Area (CCA) and the Wider Catchment Area (WCA). The CCA for Stansted includes Uttlesford, Harlow and East Herts; the WCA includes Braintree, Chelmsford, Enfield and Epping Forest.

5.7 To calculate the new demand housing as a result of various STN options, SERAS makes the assumption that:

> *'labour market catchment areas remain the same and that jobs (direct and indirect) are filled by in migrants in proportion to the existing residential location of employees.'*[5]

[5] p.18, *SERAS: Land Use and Urbanisation Study*, Arup Economics & Planning, (2002)

5.8 This appears to be a reasonable assumption as there is a well documented trend (for instance noted at Heathrow) that as an airport expands new workers will at first come from increasingly distant locations but in the longer term will gravitate towards living nearer the airport in a similar proportion as before the expansion.

5.9 However, an assumption that SERAS makes that is certainly more contentious relates to the supply of new housing. SERAS assumes that the existing Regional Planning Guidance targets which extend to 2006 can simply be projected forward until 2030[6] regardless. This allows SERAS to produce figures for additional housing above an extended RPG without comment on the feasibility of this assumption in an area around an airport such as STN. BHC believes that this can give somewhat misleading figures for housing demand and so all SERAS housing figures quoted in this report are imputed from SERAS employment demand and divided by the average number of workers per household in the South East, which is 1.11 according to the 2001 Census data. This gives an absolute number of houses required, unlike the figures quoted in SERAS, which are for the number of houses required relative to an extended RPG. The houses required are those needed for employment levels above the 1998 employment levels assuming that existing residents in non-airport related employment are not displaced by the incomers.

**Table 5.4 Imputed SERAS Housing Estimates in 2030 Above 1998 Levels**

| | STN1 | STN2 | STN3 | STN4 |
|---|---|---|---|---|
| **Total Additional Jobs** | 8,000 | 46,000 | 64,000 | 83,000 |
| **CCA Additional Housing** | 4,800 | 27,800 | 38,600 | 50,100 |
| **WCA Additional Housing** | 2,400 | 13,700 | 19,000 | 24,700 |
| **Total Additional Housing** | 7,200 | 41,500 | 57,600 | 74,800 |
| **Increase in Housing on 1998** | 80% | 460% | 640% | 830% |

*Source: BHC Imputation of SERAS data*

5.10 As with the SERAS employment figures, the SERAS housing calculations do not include induced or attracted employment, again producing an output that BHC would contend is artificially low and highly misleading. Therefore BHC has produced estimates for housing demand taking induced and attracted employment into account and this is shown below:

[6] p.6, *SERAS: Land Use and Urbanisation Study*, Arup Economics & Planning, (2002) The figures given in p.88 of SERAS (Second Edition) main document state that extending the present RPG planned rate of house building to 2030 could result in 83,000 new homes being constructed in the core and wider catchment areas.

**Table 5.5 BHC Housing Estimates in 2030 Above 1998 Levels**

| | STN1 | STN2 | STN3 | STN4 |
|---|---|---|---|---|
| **Total Additional Jobs** | 9,000 | 70,000 | 105,000 | 141,000 |
| **CCA Additional Housing** | 5,000 | 43,000 | 64,000 | 86,000 |
| **WCA Additional Housing** | 3,000 | 21,000 | 31,000 | 42,000 |
| **Total Additional Housing** | 8,000 | 64,000 | 95,000 | 128,000 |
| **Increase in Housing on 1998** | 90% | 700% | 1050% | 1410% |

*Source: BHC*

# 6 IMPACTS ON THE ROAD NETWORKS

6.1 Table 6.1 below gives an overview of the level of improvements SERAS expects to be necessary for the various STN options:

**Table 6.1 SERAS Road Infrastructure Estimates, 2030**

| Option | Road Improvements Required |
|---|---|
| **STN1** | Improvements to M25 J15 to J26, A120 Braintree to Marks Tey and Bishop's Stortford to A10, A10 Ware to A120 |
| **STN2** | As STN1 plus: Dual c/w access road to be built to connect to an improved A120 near Great Dunmow to a new Jn with the M11 (between J8 & 9) north of Elsenham, providing a new Airport access road to the Airport Terminal from the northeast; Improvement & re-alignment of A120; M25 dualling (to D4) between J26-27 |
| **STN3** | M11 J6-7 upgrade to D4(M), M25 J26-27 upgrade to D4(M) |
| **STN4** | As STN3 plus: M11 J7-8 upgrade to D4(M) |

*Source: SERAS Stage 2 Appraisal Summary Tables*

6.2 It is interesting to note that in the recently published BAA response (see earlier reference) to the SERAS consultation, it is stated that:

> *'BAA believes that the airport access road infrastructure identified by SERAS analysis for the one, two and three new runways scenarios for Stansted needs further review. The Government's regional policy envisages significant housing development in the London-Stansted-Cambridge corridor, as well as important economic development in Cambridge and Harlow. Our preliminary review of the strategic road infrastructure has identified the need for a co-ordinated approach to assess the level of M11 improvements required to support increased levels of activity as Stansted, over and above what would in any event be required to deliver an appropriate regional strategy.*[7]

6.3 While not exactly a outright criticism of the SERAS estimates, a reasonable interpretation of BAA's statement can be taken to mean that they believe the road network, even with improvements as envisaged by SERAS, would still require significant improvements to cope with increased traffic in the area through both the growth of Stansted and development of the London-Stansted-Cambridge corridor. BHC would broadly agree with this contention on the basis of the figures shown in Tables 6.2 and 6.3 below:

[7] p.82, '*Responsible Growth'*, BAA, (May 2003)

**Table 6.2 BHC Road Usage Estimates Using SERAS Figures, 2030**

| Option | Stansted Employees Daily Driving to Work | Stansted Passengers Annually Driving to Airport | Average Number of Daily Car Journeys |
|---|---|---|---|
| Today | 9,400 | 10 million | 40,000 |
| STN1 | 13,000-14,000 | 15-16 million | 60,000-62,000 |
| STN2 | 40,000-42,000 | 42-43 million | 170,000-172,000 |
| STN3 | 53,000-55,000 | 52-53 million | 214,000-216,000 |
| STN4 | 66,000-68,000 | 65-66 million | 268,000-270,000 |

*Source: BHC Imputation Using SERAS Estimates*

6.4 Table 6.2 provides a scale approximation of the increase of traffic that might be reasonably expected with the expansion of Stansted given the SERAS figures. The dramatic increase in scale with even just one new runway is immediately apparent. However, Table 6.3 below, using BHC employment estimates, shows even greater figures:

**Table 6.3 BHC Road Usage Estimates Using BHC Figures, 2030**

| Option | Stansted Employees Daily Driving to Work | Stansted Passengers Annually Driving to Airport | Average Number of Daily Car Journeys |
|---|---|---|---|
| Today | 9,400 | 10 million | 40,000 |
| STN1 | 14,000-16,000 | 15-16 million | 60,000-65,000 |
| STN2 | 58,000-60,000 | 42-43 million | 190,000-195,000 |
| STN3 | 83,000-85,000 | 52-53 million | 250,000-255,000 |
| STN4 | 110,000-112,000 | 65-66 million | 320,000-326,000 |

*Source: BHC*

6.5 Moving from the present situation to BHC's estimates of maximum use, i.e. STN1, will increase airport-related road traffic by at least 50%. Moving from the present situation to one, two or three new runways would generate increases by 2030 of at least 375%, 525% and 700% respectively. It is important to note that the journey totals given above relate only to workers commuting to their place of work and airport passengers travelling to and from the airport but does not take into account other journeys such as shopping trips of new residents, school trips for the children of new residents etc. This is not calculated within SERAS and BHC has therefore not included it for the purposes of consistency but it would undoubtedly further increase the trip generation figures.

6.6 The above figures undeniably cast doubt on the ability of the local road network to sustain a large expansion of Stansted. BHC also has a number of specific concerns that are based on the SERAS forecasts (these concerns are of course exacerbated if the higher BHC employment forecasts are used) and they are listed below:

- Because of the need for more capacity on the M25 through Hertfordshire, which is subject to the timing of improvements to the M25, other more local and inappropriate roads in Hertfordshire are likely to be used.

- It is expected that the majority of airport traffic will use the M11 towards London and the M25. Between Junction 7 (Harlow) and Junction 8 (Stansted Airport), the airport traffic in the am peak period in 2030 is forecast to comprise some 43% of the total for a 1 new runway option and 62% for the 4 runway option. The am peak total flows would increase from some 6,700 to 10,000 (50%), requiring a fourth lane. The SERAS forecasts suggest that the non-airport traffic would reduce from 46,000 in 2015 to 38,00 in 2030 – the reduction of non-airport traffic being due to this element of traffic re-routing on to unsuitable Essex and Hertfordshire local roads.

- It is anticipated that while the airport traffic will be encouraged to utilise the recommended motorway and trunk road routes (by route information, traffic signs, company travel plans, etc.), some airport road traffic – particularly airport employees and frequent flying passengers – can be anticipated to quickly find their own routes to and from the airport at their travel time of choice and this in many cases will lead them to use convenient (to them) local roads, with a high consequential environmental impact.

- Many airport employees are expected to live in Harlow. Those from north Harlow can be anticipated to join the M11 at Junction 7 to the north of the town, along the A1184 through Sawbridgeworth of the B183. These roads are not suitable for this increase in airport traffic. It would be better served via an improved M11 / A414 as an alternative to the east-west link to the M25 and thus reduce traffic flows in Hertford.

- There is a need for further improvements to be made on the A120 in Hertfordshire. SERAS assumes the A120 in Hertfordshire between the A120 from Bishop's Stortford and the A10 at Puckeridge will be improved. However such an improvement is not in Hertfordshire County Council's existing Local Transport Plan (LTP) and thus funding is unsure. BAA, in their planning application to expend to 25mppa, are not offering to fund a potential bypass at Little Hadlam traffic lights, where traffic flows with the expanded airport are predicted to increase from 2,500 to 2,900-3,200 – a level requiring dualling.

- The increased capacity on the M11 is unlikely to be adequate, and much traffic – airport and non-airport – is likely to divert to local roads. It is suggested that not enough sufficient attention or impact assessment has been paid by SERAS to the congestion problems of the Stansted expansion options, in respect of the identification of congestion problems on the local county road network, potential local solutions, their costs, the necessary planning, funding and implementation issues, nor on assessments of the local environmental impact – noise, pollution, local congestion, impact on the local landscape, historic buildings, ecology etc..

6.7 On the basis of the BHC forecasts, BHC considers that additional road network improvements will be required by 2030. The major additional road improvements – brought about by BHC's suggested increased airport traffic estimation for the Stansted Airport options involving the construction of a third or fourth runway (STN3 and STN4) – are considered to be:

- an additional motorway lane in both directions on the M11 between Junctions 8 – 9.
- an additional motorway lane in both directions on the M11 between Junctions 8 and the junction with the M25, Junction 27.
- an additional motorway lane in both directions on the M25 between Junctions 26 – 29.
- widening on the Link between the airport and the M11 Junction 8, and improvements to this junction.
- widening of the A120 from the Bishop's Stortford bypass to little Dunmow.

6.8 The potential costs of these suggested additional road improvements are included in Chapter 8.

# 7 IMPACTS ON THE RAIL NETWORKS

7.1 Train services in the vicinity of Stansted Airport are currently provided by three train operating companies (TOCs) namely Anglia Ltd., West Anglia Great Northern Railway Ltd. (WAGN) (which includes the Stansted Express), and Great North Eastern Railway Ltd. These three current franchises expire in March 2004. The Strategic Rail Authority (SRA) is proposing to change the franchise that will take over from the current ones with a new Greater Anglia Rail Franchise from 2004. On 15 April 2003 the SRA announced that they were inviting 3 pre-qualified bidders – Arriva Train Ltd, GB Railways plc and National Express Group – to submit bids for this new franchise by 1 September 2003. The new franchise will combine the existing Anglia, Great Eastern, West Anglia Great Northern (Liverpool Street) services (including Stansted Express), combining all Liverpool Street services into one franchise. These three bidders are likely to propose improvements to the rail services and possibly to the rail network. However until the preferred bidder is announced sometime in the Spring of 2004 such proposed improvements cannot be defined.

7.2 Table 7.1 below gives an overview of the level of improvements SERAS expects to be necessary for the various STN options:

**Table 7.1 SERAS Estimates for Rail, 2030**

| Option | Rail Improvements Required |
|---|---|
| **STN1** | N/A |
| **STN2** | Additional track (single to double) from West Anglia Route to Airport, requiring a second rail tunnel at airport approach; Express service to Stratford; Regional services via Cambridge to Manchester via Birmingham, Manchester vis Nottingham, Leeds, Norwich |
| **STN3** | As STN2 plus: Extending the Airport access track to provide loop to join the Cambridge Line near Elsenham Station; 4-tracks throughout on West Anglia Main Line as far as South Tottenham; Express service to St Pancras and Heathrow via CrossRail; Regional services via Cambridge to Sheffield and Ipswich |
| **STN4** | As STN3 plus: Additional link to join a re-instated rail line to Braintree giving local services to Norwich via Ipswich (replaces service via Cambridge in STN3); Liverpool St via Chelmsford link |

*Source: SERAS Stage 2 Appraisal Summary Tables*

7.3 Table 7.2 below gives a more detailed indication of the level of services that could be expected with the various Stansted options. As can be seen, the larger options bring with them a marked increase in the level of services to the North and a greater variety of services to London such as express trains to St Pancras and a tie in with the proposed Crossrail route.

**Table 7.2: SERAS Estimates of Frequency of Rail Services at Stansted, 2030**

| | STN1 | STN2 | STN3 | STN4 |
|---|---|---|---|---|
| 2030 AM peak demand (Number of passengers) | 2622 | 4678 | 8217 | 9528 |
| Express trains to London Liverpool Street | 4 tph | 4 tph | 4 tph | 4 tph |
| Semi-fast trains to London Liverpool Street | | 2 tph | 2 tph | 2 tph |
| Slow trains to London Liverpool Street | 1 tph | 1 tph | 1 tph | 3 tph |
| Express trains to London St Pancras | | | 4 tph | 4 tph |
| Semi-fast trains to Stratford | | 4 tph | 4 tph | 4 tph |
| Crossrail services | | | 4 tph | 4 tph |
| Trains to the North | | 2 tph | 2 tph | 3 tph |
| Trains to Birmingham | 1 tph | 2 tph | 2 tph | 2 tph |
| Trains to Norwich | | | | 2 tph |
| Trains to Ipswich | | | 1 tph | |
| **Total Trains Per Hour** | **6 tph** | **15 tph** | **24 tph** | **28 tph** |

*Source: BHC Imputation of SERAS data*

7.4 Unlike the very cautious assessment of the road network by BAA, their joint assessment of rail improvements with the SRA is much more confident. BAA believes that rail demand from one or two new runways can certainly be met within the SERAS rail proposals and even the three new runway option is not totally impracticable:

> *'The SRA and BAA believe that the strategy and supporting schemes identified for the one and two new runway options outlined above will need to be considerably expanded to accommodate the growth in airport and non-airport rail demand for the three new runway SERAS option. The SRA view is that this is possible but that further work will be required to assess the exact package of options that would need to be in place to facilitate such growth.'*[8]

[8] p. 145 *'Responsible Growth'*, BAA, (May 2003)

7.5 BHC's assessment, with the figures shown below in Tables 7.3 and 7.4, does not hugely dispute the feasibility of the SERAS proposed rail schemes.

**Table 7.3 BHC Rail Usage Estimates Using SERAS Figures, 2030**

| Option | Stansted Employees Daily Using Rail | Stansted Passengers Annually Using Rail | Average Number of Daily Rail Journeys |
|---|---|---|---|
| Today | 200 | 4.5 million | 12,600 |
| STN1 | 4,000-5,000 | 8 million | 18,000-19,000 |
| STN2 | 14,000-15,000 | 22 million | 30,000-32,000 |
| STN3 | 18,000-19,000 | 30 million | 35,000-37,000 |
| STN4 | 22,500-23,500 | 37 million | 41,000-43,000 |

*Source: BHC Imputation of SERAS Figures*

7.6 Even in the heaviest use example of STN4, 41,000-43,000 daily rail passengers should be sufficiently met by 28 trains per hour.

**Table 7.4 BHC Rail Usage Estimates Using BHC Figures, 2030**

| Option | Stansted Employees Daily Using Rail | Stansted Passengers Annually Using Rail | Average Number of Daily Rail Journeys |
|---|---|---|---|
| Today | 200 | 4.5 million | 12,600 |
| STN1 | 4,000-5,000 | 8 million | 18,000-19,000 |
| STN2 | 20,000-21,000 | 22 million | 38,000-40,000 |
| STN3 | 28,000-29,000 | 30 million | 50,000-52,000 |
| STN4 | 37,000-38,000 | 37 million | 60,000-62,000 |

*Source: BHC*

7.7 Again, even in the heaviest use example of STN4, 60,000-62,000 daily rail passengers should be sufficiently met by 28 trains per hour, which would give around 190 passengers per train. Admittedly, this does assume an even distribution of passengers throughout the day whereas it is the peaks that are of greatest interest. Where BHC estimates do differ from SERAS is that we would support the need for an additional rail loop recommended by BAA and the SRA[9] and this is costed in the next chapter. Furthermore, as pointed out in the previous chapter, the SERAS and BHC figures refer only to workers commuting and airport passengers travelling to and from the airport but does not take into account other journeys such as shopping trips of new residents, school trips for the children of new residents etc. This is not calculated within SERAS and BHC has therefore not included it for the purposes of consistency but it would undoubtedly raise the trip generation figures.

[9] paras 7.23 and 7.24, p.80, '*Responsible Growth*', BAA, (May 2003)

# 8 COSTS OF INCREASED SURFACE ACCESS INFRASTRUCTURE

8.1 The general principle recommended in SERAS is that in respect of rail improvements:

> '. . . *aviation should bear the costs of facilities used by them or their passengers.*'[10]

Airport developers would be expected to raise the necessary funding from the air passenger and employee rail fares, or air passengers might be asked to pay by an Airport User charge. Funding of other rail schemes that may be of benefit to airport passengers and employees schemes is also crucial although recent announcements from the SRA are not too promising on this point; for example the problematic future of the East to West London Cross Rail scheme, which is of relevance to Stansted Airport in respect to the Stansted - Stratford rail service. BAA have recently indicated with regard to Stansted that they cannot be assumed to be funding all such rail costs although this is far from being a reliable indicator as to who will eventually pay.

8.2 In respect of road improvements, SERAS says that:

> '*It is already a well-established principle that developers should meet the costs imposed by their development on the road network . . . This will normally be secured through a Section 278 agreement under the Highways Act 1980.*'[11]

Again, BAA have recently indicated that they cannot be assumed to fund all costs for this and again this pronouncement should not be treated as the final word on the matter.

**SERAS Estimates**

**Table 8.1 SERAS Estimates of Surface Access Costs**

| Option | Surface Access Costs Above Maximum Use |
|---|---|
| STN1 | £0m |
| STN2 | £785m |
| STN3 | £1,629m |
| STN4 | £1,880m |

*Source: SERAS Stage Two Appraisal Summary Tables*

8.3 It should be noted that the SERAS estimates above and the BHC estimates below are for road and rail track only; they do not cover the costs of rolling stock for rail.

[10] para 17.7, p.151, '*SERAS Main Document (Second Edition)*', DfT, (February 2003)
[11] para 17.13, p.152 '*SERAS Main Document (Second Edition)*', DfT, (February 2003)

**BHC Estimates**

**Table 8.2 BHC Estimates of Surface Access Costs**

| Option | Additional Road Costs | Additional Rail Costs | Total Additional Costs | Total Cost Above Maximum Use |
|---|---|---|---|---|
| STN1 | £100m-£150m | £0m | £100m-£150m | £100m-£150m |
| STN2 | £100m-£150m | £0m | £100m-£150m | £885m-£935m |
| STN3 | £275m-£305m | £175m-£260m | £450m-£565m | £2079m-£2194m |
| STN4 | £275m-£305m | £175m-£260m | £450m-£565m | £2330m-£2445m |

*Source: BHC*

8.4 Table 8.2 above gives the BHC estimates for additional and total surface access costs. The potential costs of these suggested additional road improvements including design, construction, land costs, compensation, junction improvements, and contract preparation and supervision are broadly estimated to be between £275m–£305m. These estimates will need to be refined in respect of the ground conditions, drainage requirements, and the number of bridge structures – over drainage ditches, minor roads, etc – and access requirements. BHC have broadly estimated the additional rail costs of a new 'southern' railway recommended by BAA and the SRA to be some £290m-£350m. This broad estimate will need to be refined in respect of the ground conditions, drainage requirements, and the number of bridge structures – over drainage ditches, minor roads, etc.

**Consequences of Not Funding Required Surface Access Infrastructure**

8.5 Surface access at Stansted will affect three broad categories of people:

- Existing residents, be they airport or non-airport workers
- New residents, again be they airport or non-airport workers
- Passengers requiring surface access to Stansted airport

8.6 Airport developers will surely provide adequate access for the last category, passengers, otherwise there is no point in developing Stansted; but it is in the top two categories, particularly the first category of existing residents that are less likely to be as well catered for. If surface access infrastructure is not adequately funded then it is the people who use these networks regularly who will suffer the most. Existing residents will witness a decline in their quality of life (aside from the polluting effects of the airport itself) and new residents will suffer from a lower quality of life than they would otherwise have with adequate surface access. New runways at Stansted will hugely urbanise what is a largely rural area and, conversely, not laying down enough rail track and roads will exacerbate the problems associated with this urbanisation as an urban traffic gridlock will be generated, with all the environmental and economic (time spent in traffic is unproductive) problems this brings. Building new runways in the South East over the next twenty years, when none have been built in the last fifty years is in itself likely to prove challenging but the challenge of ensuring infrastructure is provided early enough to support this is even more difficult and could lead to huge problems. The problems around Heathrow today are all too evident (witness Ken Livingstone's plan to create a congestion charging ring around the airport) and even one more runway at Stansted will create an airport handling more passengers than Heathrow today, with the larger Stansted options dwarfing Britain's largest airport.

8.7 Another related issue is the proposal promoted by the Office of the Deputy Prime Minister (ODPM) for the development of some 200,000 new houses in the South East – at Ashford, Thames Gateway, London-South Midlands, London-Stansted-Cambridge – all by an aspirational date of 2016. This proposal was put forward in March 2003, after the publication of the second edition of SERAS. In respect of Stansted, these proposals would materially generate significant additional transport demands even allowing for some of the 'new' residents of the London-Stansted-Cambridge being potentially new airport employees. The travel demands of the proposed Stansted Airport expansions <u>and</u> the proposed London-Stansted-Cambridge expansion area, will need to be evaluated in some detail before the total 2030 transport infrastructure enhancements can be defined. Just one of these policy changes would utterly change the Stansted area and both together would likely require a vast upgrading of the cost estimates of the SERAS surface access requirements.

# 9 CONCLUSIONS

9.1 The rationale behind the SERAS process is an attempt to put an end to piecemeal incremental growth and instead plan and manage growth to minimise its adverse side affects. Surface access is a key criterion for analysing the options in SERAS, particularly given that the issue of who should fund surface access is of some contention. If entirely left to private developers, economic theory predicts that surface access will usually be undersupplied. BAA has no incentive to provide surface access for attracted employment but this would very likely form a substantial percentage of additional employment in the larger Stansted options. Hence the Government needs to take this into account and ensure that surface access is well catered for to meet any airport growth.

9.2 With this view in mind, there must be some doubt cast over the employment and housing figures shown in SERAS that feed into the calculations for surface access improvements required. BHC's employment estimates are significantly higher than the SERAS figures for the Stansted expansion options – by 6% for STN1, 43% for STN2, 55% for STN3 and 62% for STN4 – as induced and attracted employment estimates (the inclusion of which is hardly controversial in standard airport employment estimates) are not made in SERAS. These induced and attracted employees will generate a much greater level of traffic in the local area and BHC believe that, with particular regard to the road network, this would place an unsustainable strain that could only be alleviated by significantly higher investment than that given in SERAS.

9.3 The rail figures in SERAS appear to be somewhat more robust but still underestimated and if the rail infrastructure improvements are not implemented by the dates of new runways opening, it is likely that more air passengers will choose private modes of travel. This would result in still more road traffic, more congestion and increased environmental impacts and would lead to even more road infrastructure improvements being required. Adding to this is the additional commuting generated by plans for the London-Stansted-Cambridge corridor that has not been accounted for in SERAS, which leads BHC to argue for the importance of early or at least very prompt delivery of rail improvements.

9.4 With the SRA and BAA stating:

> *'Key issues for an acceptable economic transport assessment and the resultant funding requirements will need to be resolved'*[12]

and SERAS stating:

> *'Further work will be required to identify in more detail the level of surface transport investment required'*[13]

[12] para 60, p.145, Joint BAA and SRA statement in *'Responsible Growth'*, BAA, (May 2003)
[13] para 17.15, p.152, *'SERAS Main Document (Second Edition)'*, DfT, (February 2003)

the three key agents in airport surface access provision appear to be unsure of the way ahead. Yet the question of the level of surface access required and who pays for it needs to be unambiguously resolved to ensure that such necessary improvements will in fact be made and delivered on time.

9.5 We conclude that **SERAS has significantly underestimated the level of surface access provision required for the Stansted options** and there must be a considerable concern that **a failure to agree funding would result in a serious degradation on the local transport network system** in the event of any of these options being implemented.

# APPENDIX A – PACKAGES IN SERAS (SECOND EDITION)

**Table A.1 Capacity of SERAS Packages in 2030, MPPA**

| Package Number | Principle Components | LHR | LGW | STN | LTN | Cliffe | Total |
|---|---|---|---|---|---|---|---|
| 1 | Base Case | 89 | 40 | 15 | 10 | - | 154 |
| 2 | Max Use | 89 | 46.5 | 35 | 31 | - | 201.5 |
| 5B | LHR+1 | 116 | 46.5 | 35 | 31 | - | 228.5 |
| 6 | LGW+1 Close or Parallel | 89 | 62 or 83 | 35 | 31 | - | 217 or 238 |
| **7** | **STN+1** | **89** | **46.5** | **82** | **31** | **-** | **248.5** |
| 9 | LGW+2 | 89 | 115 | 35 | 31 | - | 270 |
| **10** | **STN+2** | **89** | **46.5** | **102** | **31** | **-** | **268.5** |
| 11 | LHR+1 and LGW+1 | 116 | 62 or 83 | 35 | 31 | - | 240 or 261 |
| **12** | **LHR+1 and STN+1** | **116** | **46.5** | **82** | **31** | **-** | **275.5** |
| **13** | **LGW+1 and STN+1** | **89** | **62 or 83** | **82** | **31** | **-** | **261 or 282** |
| **14** | **STN+3** | **89** | **46.5** | **129** | **31** | **-** | **295.5** |
| **15** | **LHR+1, LGW+1 and STN+1** | **116** | **62 or 83** | **82** | **31** | **-** | **291 or 312** |
| **16** | **LHR+1 and STN+2** | **116** | **46.5** | **102** | **31** | **-** | **295.5** |
| **17** | **LGW+1 and STN+2** | **89** | **62 or 83** | **102** | **31** | **-** | **294 or 315** |
| 18 | LHR+1 and LGW+2 | 116 | 115 | 35 | 31 | - | 297 |
| **19** | **LGW+2 and STN+1** | **89** | **115** | **82** | **31** | **-** | **314** |
| 21 | Cliffe+4 | 89 | 46.5 | 35 | 31 | 113 | 314.5 |

*Source: SERAS Main Document*