

**A POLICY CRITIQUE OF STANSTED AIRPORT'S EXPANSION
TO 25 MILLION PASSENGER PER ANNUM (MPPA)**

A Working Paper

by

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Section 1. Introduction

In this paper we undertake a preliminary assessment of the regional planning and development implications of BAA Stansted Airport's planning permission to grow to 25 million passengers per annum (mppa) by 2010. Our concern is not simply to consider the **overall** growth of the airport on the airport site itself **but the nature and type of growth both on- and off-site**. In this document we focus on the planning permission documents submitted by BAA.

The methodology we employed was to draw on published and unpublished numerical estimates of the airport's growth – particularly including estimates produced by the airport owner, BAA, and their economic and planning consultants DTZ Peda - and critically, and systematically analyse their figures. We adopted this approach because unless the figures which were employed in the initial calculations were correct then all of the subsequent projections which flow from them - and the policies which could then be based on them – could be flawed.

The analysis is divided into two parts – firstly, are the growth forecasts **correct?**; and secondly, what do these forecasts actually **mean** in developmental terms? In effect, what we have done is to produce a critique of the existing body of evidence by questioning underpinning assumptions and then draw some preliminary conclusions for the region based on this analysis.

Section 2. An Overview of Stansted Airport

Stansted is the most rapidly growing airport in Europe – and one of the fastest expanding in the world. Stansted is located in the district of Uttlesford in the county of Essex in Southern Britain. It is growing so rapidly that policy is being out-paced by events – and its overall growth is still accelerating. In fact, the **overall** rate of growth at Stansted has been consistently underestimated by the airport owners BAA, and by local authorities in the area. Even after September 11th there is still good reason to believe, Stansted's growth is continuing to rapidly increase. In view of this current growth and the application to expand to 25mppa we feel that the time is ripe to develop a consistent policy response to its future development so that its economic developmental advantages can be maximised and its deleterious developmental effects minimised. The policy response needs to be informed, co-ordinated and far sighted. Such a response must be based on the best, and most current information available. It is not self-evident however that local planning policy for the area is of such a character – partly because of the sheer rapidity of developments.

Unfortunately, therefore, some existing local policy is neither particularly pro-active, nor far-sighted. For example, in 1998 Essex County Council identified in their **Draft Replacement County Structure Plan**, a number of areas of future economic potential in the county. However, the **Structure Plan** stated with regard to Stansted,

.. existing development plans have already made ample provision for airport development, employment uses, and housing in relation to the airport's expansion up to 15 mppa by about 2008. **There are no proposals to expand the airport beyond its current 15 mppa capacity.** (Essex County Council (1998) **Technical Report 4 – The Essex Economy**, p.12, emphasis added)

The clear implication of the document was that no further action would be required to meet the airport's requirements until 2008, but on 1 August 2001, BAA Stansted submitted a planning application to Uttlesford District Council in Essex, where it is located, to increase its passenger throughput level from the existing 15 million passengers per annum (mppa) to 25 mppa by the year 2010 – an increase in passenger numbers of 45%. This virtual doubling of activity at the airport will result, according to BAA Stansted, 'in an additional 6,000 airport jobs' and '3,600 other jobs dependent on the airport' (BAA Stansted 2001). In spite of this vast increase in employment numbers BAA Stansted argue that 'we do not require further housing allocations' in the local area (BAA Stansted 2001).

Two points need to be made about the final quote. Firstly, one of the key issues relating to this type of rapid airport expansion is not simply considering housing development, *per se*, important though it is, but examining other types of possible airport-related development – surface transport, retail, commercial – as well; and, secondly, not narrowly restricting the assessment to what is **required** in operational terms for the airport to continue to function, but what might be **feasible and/or desirable** in policy terms to encourage the airport's growth as a vehicle to improve the relative competitive economic position of the East of England Region over, say, the next decade. A more positive stance to growth is certainly not the direct responsibility of the airport owners but it might well be in the regional interest and it could help achieve the East of England Development Agency's (EEDA) declared aim of, '*making the East of England region one of the 20 wealthiest regions in Europe by the year 2010*' (EEDA, 2001).

But to return to return to Stansted's recent growth. In media terms, Stansted is not simply a 'breaking story' but a continuing and rapidly breaking story. As a consequence, information about it constantly needs to be not simply revised numerically but – more importantly - re-assessed in the light of its changing operating context to inform the policy context. As we have indicated, in terms of data sources in this study we will utilise, where appropriate, our own published and unpublished research and advisory work and the work of others, including government statistics, official reports, planning strategies and statements of policy.

In particular, we will draw on material from a number of BAA documents, some of which were submitted in support of their planning application to allow the airport to develop from 15mppa to 25mppa. We will also develop the logic of the arguments put forward in two of our own recent documents about Stansted growth: ***Managing London Stansted Airport's Impact*** (typescript, Hart and McCann 2000); and 'The Continuing Growth of London Stansted Airport: Regional Economic Impacts and Developmental Potential' (Hart and McCann, December 2000, **Regional Studies**), as

well as on work Hart has carried out on international airport development for the OECD.

The August 2000 planning application for Stansted’s growth is still being considered by the relevant local authority – Uttlesford District – where the airport is located and while this process is going on we would like to independently analyse claims made by various parties about the airport’s likely and possible impact and examine other developmental issues relating to the airport as well.

Section 3. Stansted’s Operating Context

3.1 General Airport Activity

In terms of the airport activity pattern, the first dimension of analysis to consider is the scale of operations. This includes, the number of aircraft which take off and land – Air Traffic Movements (ATMs). Table 1 below sets out the main dimensions and provides a basic framework for airport analysis.

TYPES OF AIRPORT ACTIVITY - A FRAMEWORK FOR ANALYSIS
Scale of Operations
- ATMs ('000)
- Passengers – Current ('000)
- Passengers – Forecast 2010 ('000)
- Freight (Tonnes '000)
Economic Impact
- Jobs
- Direct – Current
- Indirect Multipliers
- Induced Multipliers

Table 1 – Dimensions of Airport Activity

Source: Hart 2002, OECD

The framework considers the number of passengers which are transported and the amount of cargo which is carried. In addition, we can also look at how these activities change over time – both in terms of time series data and projected growth. The second dimension of analysis is the economic impact of the airport in terms of jobs – direct, indirect, and induced. In some cases – but not all – airport activity can be fairly precisely quantified but as we will demonstrate in the next section, the figures and definitions used need to be carefully analysed.

For the present, using the framework, we can make a start in assessing about how Stansted is developing both in its own right and with relation to the other main

London airports, in overall terms. Table 2, below, shows the three main London airports – Heathrow, Gatwick and Stansted – although Stansted is much smaller than the others in absolute terms - **in percentage terms**, it had the highest rate of increase of Terminal Passenger (39.6%) and ATMs (33.3%) during the period 1998-99.

	Terminal Passengers (000s)	% change	Air Transport Movements (000s)	% change
Heathrow	6,1807	3.0	448,157	2.0
Gatwick	30,434.7	6.0	246,519	2.7
Stansted	9,127.7	39.6	133,031	33.3
London Area Total	101,370.0	6.4	827,707	6.2

Table 2: Major London Airport Passenger Throughput 1998/99

Source: BAA 1999

Further, in terms of growth by market destination, it is clear as Table 3, below, also indicates that Stansted has grown much faster in terms of domestic passengers (21.1%) and even more so in international terms (43.8%) than has either Gatwick or Heathrow. The latest detailed figures – post September 11th – are still awaited but all of the indications are that Stansted has continued its rapid growth – or maybe even accelerated it while trans-atlantic business travel at both Heathrow and Gatwick has suffered.

	Domestic Passengers (000s)	% change	International (000s)	% change
Heathrow	7135.0	-0.5	54672	3.5
Gatwick	2792.9	3.4	2541.4	5.9
Stansted	1454.7	21.1	7672.9	43.8
London Area Total	1027.3	2.3	89987.3	6.9

Table 3: Current growth of London airspace by market.

Source: BAA 1999

We will now begin to focus specifically on Stansted and examine in detail the ways in which its employment effect has been calculated by BAA and the planning consultants which they have employed for a number of years - DTZ Pieda. In doing so we will rely on the their figures, and their assumptions, and then seek to systematically and critically analyze them.

Both BAA and ourselves would like to see Stansted expand in a responsible manner as we have argued for more than a decade. What we and BAA may disagree on, however, is the nature and form the proposed expansion will take – particularly in employment terms - and what its expansion might mean for the local area and for the wider region. It is important to make the point at the outset of this analysis that we are using our best endeavors to understand the figures and the categories which BAA/Pieda have used. It is possible that we have misunderstood their assumptions; their calculations; their interpretations, or all three. For the sake of transparency we will seek to explain, in detail, at every stage in the process what our interpretations of the BAA/Pieda figures and assumptions are so that they could subsequently be checked by others. We have sought to be objective and unbiased in our analysis.

In terms of our analysis the most important document is, DTZ Pieda (August 2001) **BAA Stansted Employment Effects, Volume 7**, which was submitted as part of the planning application to allow the airport to grow to 25mppa. This document provides the most detailed economic forecasts and, as such, is the foundation for much of the assumed impact of Stansted in employment terms. Unless otherwise specified, the figures quoted in this section relate to this document.

3.2 Study Area and Local Multipliers

It is generally accepted that airports create jobs both on and off the airport site and that one directly-related on-site airport job will have ‘multiplier effects’ on other types of indirect and induced employment. The establishment of clear and consistent definitions and boundaries are fundamentally important considerations in these types of calculations. However there are different ways of establishing these categories. Throughout the analysis which follows we will employ the categories used by BAA with our comments about the appropriateness and the numerical accuracy of the calculations employed within each element.

We will begin with boundaries, and it is immediately apparent that that the boundaries defined by PIEDA are largely local to the airport. This is unsurprising, since the primary concern of BAA and their consultants is the effective operation of the airport itself and not its overall effect on its hinterland – or for that matter of the East of England region. Where you stand depends on where you sit.

The Stansted employment and employment multiplier estimates used by Pieda consider only employment generated in the ten local authority areas which account for more than 1% of Stansted 1997 employment (1998 Survey)¹. These are Uttlesford (28.1%), East Hertfordshire (22.1%), Braintree (13.3%), Harlow (5.1%), Chelmsford (2.7%), Colchester (2.4), Cambridge (1.7%), St. Edmundsbury (1.8%), South Cambs (1.6%) and Epping Forest (1.3%). Wider regional employment effects, which account for 20% of Stansted’s 1997 employment, are ignored. *As a result, the employment*

¹ Stansted Employment Survey Feb 1998, based on 1997 employment patterns.

multipliers can be considered to be fairly spatially circumscribed in terms of employment generation.

With regard to each total district's employment share, Stansted employment activities account for Uttlesford (5.4%), East Hertfordshire (2.3%), Braintree (1.4%), Harlow (0.9%), Chelmsford (0.2%), Colchester (0.2), Cambridge (0.2%), St. Edmundsbury (0.3%), South Cambs (0.2%) and Epping Forest (0.1%). ***The relative importance of Stansted employment is generally very low in each of the Local Authority Districts (LADs), except for the three adjacent authorities where it is somewhat more significant.*** However, this relative geographical employment concentration in Stansted is greater than the equivalent patterns of both Heathrow and Gatwick (BAA, August 2000, Appendix A Tables 1 and 2 pp. 53-54), but the absolute numbers for Stansted and their contributions to adjacent LAD employment levels, are much lower for Stansted than for either Heathrow or Gatwick.²

In terms of multiplier employment categories, the airport employment effects are split up by Pieda according to:

(i) ***Direct Employment*** (on and off-site) - which is solely part of, or related to, Stansted. (The distinction is simply a matter of the location of the perimeter fence!).

(ii) ***Indirect employment*** – which is the first and subsequent rounds of expenditure by airport supplying firms. **These are often referred to as localisation effects.**

(iii) ***Induced employment*** – which is the employment supported by the employment-expenditure behaviour of (i) and (ii). **These are normally known as urbanisation effects**

This appears to be a little unusual in terms of both defining multiplier categories and calculating multiplier effects – and, by definition, in order for the classifications to work we need to consider what we must assume regarding purchasing patterns in order to justify this approach. Nevertheless we will accept these definitions and we will now consider each of the Pieda multiplier categories and estimates and comment on our understanding of them.

Pieda calculate that in terms of **direct on-sight employment** during the period 1997-1999, direct employment has increased from 6744³-8770, with passengers numbers

² For Heathrow, the 1992 proportionate airport and LAD employment figures in the adjacent LADs are Hillingdon (12.4%, 5.0%), Hounslow (14.8%, 6.9%), Spelthorne (9.7%, 9.7%), Windsor and Maidenhead (6.4%, 4.6%) and Slough (2.1%, 2.0%). These figures are based on a 1994 survey of 74.2% of Heathrow's employment total of 51,140. For Gatwick, the 1998 proportionate airport and LAD employment figures in the adjacent LADs are Crawley (25.8%, 11.4%), Mid-Sussex (13.4%, 4.4%), Reigate and Banstead (11.7%, 4.1%), and Horsham (9.2%, 3.2%). These figures are based on a 1998 survey of 80% of Gatwick's employment total 25,495.

³ Stansted Employment Survey 1998

per direct on-site employee rising from 800 in 1997 to 1100 in 1999, which represents a 17% per annum increase in productivity between 1997-1999. We have no reason not to assume that these figures are correct.

However, the calculation for *indirect employment* is puzzling. The indirect employment multiplier estimate for 1999 is calculated by Pieda on the basis of the 1998 survey of Stansted purchases and the associated employment (Table 3.1). But we feel that *the figures quoted in paragraph 3.7 need to be corrected*. In the 1997 figures quoted in the 1998 survey, the value of the indirect multiplier is $(6744+310^4)/6744 = 1.0459$. But if this indirect multiplier is used for 1999 direct employment figures we have $8766 \times 1.0459 = 402$. In para 3.7 it states that '*...indirect employment is 502 (which has been rounded down to 500) for the new base year of 1999*'. However, given the logic of the argument, the para **should read as** '*...indirect employment is 402 (which has been rounded down to 400) for the new base year of 1999*'. In addition, as far as we can tell, contrary to what is stated in paragraph 3.7, productivity effects (of expenditure-employment) are *not* actually included in this indirect multiplier calculation.

Next, the *induced employment multiplier* estimates for Stansted for both 1997 and 1999, is based on an indirect multiplier estimate **of 1.24**. This estimate itself is based on comparisons with Heathrow T5 induced employment multiplier estimates of 1.3 (Pieda 2001) and 1.25 (Oxford Economic Forecasting 2001). These Heathrow T5 employment multiplier estimates are then scaled down to reflect the different residential patterns of employment between the Heathrow and Stansted. In particular, on the basis of a BAA 1997 survey, Stansted employment is rather more geographically dispersed. Therefore Pieda adopt a value of 1.24.

The 1997 Stansted induced employment estimate of 1690 is calculated from $(6744+310) \times 1.24 = 1692$, which is then rounded down. Once again, adopting this approach for 1999 data with the corrected lower value of indirect employment gives:

$$(8766+402) \times 1.24 / (8766+402) = 2200.$$

On this basis, the total 1999 Stansted employment estimates, which are consistent with the employment shares for 1997, as Table 4, on the following page indicates, should be:

⁴ 6744 is direct employment and 310 is 1997 estimated induced employment

Employment Category	Number	% share
Direct employment	8766	77.1
Indirect Employment	402	3.5
Induced Employment	2200	19.3
Total	11,368	100

Table 4 - 'Corrected' Stansted Employment Figures - 1999

These estimates, the aggregate (indirect + induced) Stansted employment multiplier value for 1999 is therefore given by: $11368/8766 = 1.297^5$

We can compare these with what we feel might be the incorrect Pieda 1999 rounded estimates which are given in Table 3.3 page 8 and which are replicated in Table 5 below.

These estimates give as aggregate multiplier value of $11490/8766 = 1.311$

Employment Category	Number	% share
Direct employment	8770	76.3
Indirect Employment	500	4.4
Induced Employment	2220	19.3
Total	11,368	100

Table 5 - 'Uncorrected' Stansted Employment Figures - 1999

Thus, the aggregate Stansted multiplier values are generally slightly higher than the estimated (assumed) indirect multiplier value of 1.24, although lower than the earlier, Pieda estimates would suggest which we believe for the reasons which we have indicated are incorrect.

3.2 Future Direct Employment

In 2001 BAA assumed that Stansted will reach 15 mppa by 2002, and 25 mppa by 2010. At the same time, BAA provide detailed forecasts for each of the major air-transport activities carried out at Stansted. These forecasts are given in Table 4.1 on page 10 of BAA (2001), which we include in Table 6 below.

Passengers	(mppa)	(relative	ATMs (000s)	Cargo (000s tonnes)
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⁵ which obviously is exactly the same as the 1997 multiplier value

	change)		
1999	9.4	135.8	180
2002	15.0 (1.595)	180.0 (1.325)	225 (1.25)
2010	25.0 (2.659)	232.5 (1.712)	535 (2.972)

Table 6 – Stansted’s Projected Activity Increases to 2010 by BAA

As we see, the expected growth of the different airport activities, namely, passenger throughput, air traffic movements (ATMs), and the cargo tonnage handled, are all quite different. In the short run, passenger throughput is expected to be relatively the largest growth area, followed by the number of ATMs and then cargo tonnage handled. **In the long run, however, the relative growth of cargo activities is expected to outweigh passenger growth**, which itself will be relatively larger than the number of ATMs. The implication here is that average aircraft sizes are assumed to increase over time.

At the same time, BAA provided estimates of Stansted’s future direct employment. These estimates from table 4.2 on page 11 are reproduced here in Table 7, below. On the basis of these employment growth forecasts for Stansted, given in Table 7, and the output growth figures for Stansted given in Table 6, on the previous page, Pieda calculate Stansted’s aggregate employment productivity by dividing estimated total passenger throughput by estimated total direct employment. The Pieda results are reported in Table 4.4 of page 13 of BAA (2001).

	No. of Direct Employees
1999 (annual return)	8766
2000 (annual return)	9500
2002	10800
2010	16000

Table 7 – BAA Estimated Number of Direct Employees until 2010

We are puzzled by these figures. According to our analysis, at face value, the *BAA/Pieda employment and productivity estimates are apparently not right, because BAA/Pieda have evidently not followed BAA’s own assumptions about productivity growth* among the different airport-transportation activities. In order to see this if this is true, we have to consider how BAA, and subsequently Pieda, calculated their employment, employment growth, and productivity growth figures. This is so because, **the total employment forecasts for Stansted, and the resulting employment growth and productivity estimates, depend crucially on the productivity performance of each of the different airport activities, and their relative contribution to Stansted employment generation.**

To begin with, BAA (2001) assumed that the distribution of Stansted employment categories is the same in 1999 as it was in 1997. In 1997 the distribution was⁶:

(a) Passenger related staff	35.6%
(b) Aircraft operations and maintenance staff	34%
(c) Cargo handling staff	3.7%
(d) Support staff (fire crews etc)	8.9%
(e) Administration and maintenance	17.8%

Table 8 – BAA Estimated Distribution of Employment - 1997

On this basis, with a 1999 employment level of 8766, the 1999 employment totals for each airport activity grouping will be (a) 3120, (b) 2980, (c) 324, (d) 780, (e) 1560.

The categories (a)-(c) are assumed to grow with airport traffic increases (allowing for productivity effects), whereas (d)-(e) are assumed to grow directly in proportion to (a)-(c) added together.

The 1999 employment values for (a)-(c) are applied to the expected growth performance of each of the various airport transportation activities over the next decade, given in Table 6 on page 9. BAA's own annual productivity gain assumptions for each of the different airport-transportation activities are initially given in Table 8.7 on page 12 of BAA (2001), and are repeated here in Table 9 below.

	1999-2002 assumed productivity growth	annual	2002-2010 assumed productivity growth	annual
Passenger employment	8.0		2.5	
ATMs	4.0		1.0	
Cargo employment	1.5		1.0	

Table 9 – BAA Assumed Productivity Growth: 1999-2002/2002-2010

If we adopt the same activity-based productivity assumptions of BAA, over the same respective time periods, these annual productivity growth estimates imply the absolute cumulative productivity growth improvements given by Table 10, below⁷.

⁶ Stansted Employment Survey 1998

⁷ Here, for example, an 8% annual efficiency gain over three years leads to a labour requirement in 2002 of only 77% of the 1999 level. Meanwhile, a 2.5% annual efficiency gain over the eight years from 2002-2010, leads to a labour requirement in 2010 of only 82% of the 2002 level. The labour requirement in 2010, relative to the 1999 level can be calculated by multiplying these two values. Therefore, in this particular case, $0.77 \times 0.82 = 0.63$.

	1999-2002 (3 year compound efficiency growth)	2002 index of productivity -relative to 1999	2002-2010 (8 year compound efficiency growth)	2010 index of productivity relative to 1999
Passenger employment	0.77	0.77	0.82	0.63
ATMs	0.88	0.88	0.92	0.81
Cargo employment	0.96	0.96	0.92	0.88

Table 10 – BAA Assumed Productivity Growth: 1999-2002/2002-2010

We can now calculate the total employment levels and growth for Stansted airport over each of the respective time periods. This is done by multiplying the relative growth in total airport activity (given by the bold figures in Table 6 on page 9) for each of the airport categories,⁸ by the productivity discounting factors provided by Table 10, above. On the basis of these calculations, which are made explicitly on the basis of BAA’s own productivity assumptions in Table 9, on the previous page, we can produce the following forecasts in Table 11, on the following page, for the levels of assumed future direct employment at Stansted.

It appears, however, that our Stansted employment estimates, given in Table 11 here, are rather different to those suggested by BAA and given in Table 5 on page 9. To see this, we can compare directly the two sets of estimates in Table 9, above, which gives the initial erroneous estimates of BAA from Table 7, on page 10, and also our ‘corrected’ estimates, which based on BAA’s own productivity assumptions given in Table 12 on the following page.

But why is there a difference between BAA’s estimates, and our estimates based on BAA’s own assumptions? The apparent reason for this is that BAA have applied their own 2002-2010 annual productivity growth estimates to the whole period 1999-2010, rather than allowing for the fact that their own dramatic productivity growth assumptions for the period 1999-2002 are quite different to those for the period 2002-2010.⁹

	1999 estimates	‘Corrected’ estimates	2002	‘Corrected’ estimates using BAA	2010
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⁸This assumes passenger-related activity employment is related to total passenger growth, aircraft operations and maintenance employment is related to the growth in ATMs, and cargo employment is related to cargo tonnage growth, for each of the respective time periods.

⁹On this basis, Peda’s estimates give a cumulative productivity adjustments for 1999-2010 of 0.75 for passenger employment and 0.895 for both aircraft operation and cargo handling employment.

		using	BAA	productivity estimates
		productivity estimates	productivity estimates	
Passenger related employment (a)	3120	3833		5226
Aircraft ops (b)	2980	3474		4132
Cargo (c)	324	388		847
Total for a+b+c (growth of a+b+c relative to 1999)	6424 (1)	7695 (1.197)		10205 (1.588)
Support (d)	780	934		1238
Admin (e)	1560	1867		2477
Total (a-e)	8766	10496		13920

Table 11 – BAA ‘Corrected’ Growth Estimates: 2002/2010

	1999 estimates	‘Corrected’ 2002 estimates using BAA productivity estimates	BAA 2001 estimates for 2002	‘Corrected’ 2010 estimates using BAA productivity estimates	BAA 2001 estimates for 2010
Passenger related employment (a)	3120	3833		5226	6222
Aircraft ops (b)	2980	3474		4132	4566
Cargo (c)	324	388		847	861
Total for a+b+c (growth of a+b+c relative to 1999)	6424 (1)	7695 (1.197)		10205 (1.588)	11649 (1.813)
Support (d)	780	934		1238	1414
Admin (e)	1560	1867		2477	2828
Total (a-e)	8766	10496	10800	13920	15891 (rounded to 16000)

Table 12 – Comparing BAA ‘Corrected’ Growth Estimates Using Productivity Estimates – 1999/2001/2002/2010

The result of this is that on page 11 of BAA (2001), BAA assume that Stansted will grow by 7234 (82.5%) between 1999-2010, and by 5200 (48.1%) between 2002-2010. On other hand, our ‘corrected’ estimates suggest that, on the basis of BAA’s own productivity assumptions, Stansted will grow by 5154 (58.8%) between 1999-2010,

and by 3424 (32.6%) between 2002-2010. As such, the *BAA (2001) estimate of total Stansted employment growth from 1999-2010 is 49.9 percentage points higher than our ‘corrected’ value*, which is calculated according to BAA’s own proposed methodology. Similarly, in terms of employment, the *BAA (2001) estimate of total Stansted employment growth from 2002-2010 is 15.5 percentage points higher than our ‘corrected’ value*, which is calculated according to BAA’s own proposed methodology.

The problem then reappears in the ‘implied’ productivity estimates of *Pieda, who apparently have used the original BAA figures which we have just questioned*, for the reasons given. Pieda (2001) calculate the implied aggregate airport productivity growth on the basis of number of passengers per employee (Pax), across all employment categories. Aggregate airport productivity is defined as Pax per Employee, and Pieda’s estimates of implied productivity growth are based on the erroneous BAA estimates, outlined above. In Table 13, below, the Pax per Employee figures given by Pieda in Table 4.4 page 13, can be compared with our ‘corrected’ implied productivity figures, based on BAA’s own estimates of productivity gains according to the different airport employment sectors.

	Pieda (2001) Productivity (Pax per Employee) estimates	Pieda/BAA implied employment growth estimates	‘Corrected’ productivity estimates (using BAA’s own airport-activity productivity estimates).	‘Corrected’ implied employment growth estimates
1999	9.4m/8766=1072		9.4m/8766=1072	
2002	15m/10800=1388		15m/10496=1429	
2010	25m/16000=1560		25m/13920=1795	
Implied Average Annual Growth Rate (% p.a.)				
1999-2002	9.1	7.2	10.0	6.2
1999-2010	3.5	5.6	4.8	4.3
2002-2010	1.5	5.0	2.9	3.6

Table 13 – Stated and Corrected Pieda/BAA Pax Estimates

On the basis of these calculations, Pieda 2001 forecast that Stansted annual productivity growth per airport employee (calculated across all employment categories) will be much lower (1.5%) between 2002-2010, than the estimated rapid growth between 1999 and 2002 (9.1%). The effect of this will be to reduce the annual productivity growth during 1999-2010 to 3.5%.

However, Pieda argue that the short-run productivity estimate for 1999-2002 appears to be rather high relative to the medium (2002-2010) and long-run (2002-2010) estimates. *But, as we see from the Table 13 above, the Pieda implied productivity estimates are, according to our calculations, themselves too low, if we accept the original activity-based productivity assumptions of BAA. Our ‘corrected’ productivity estimates for the periods 1999-2002, 1999-2010, and 2002-2010, are 10%, 4.8% and 2.9%, and these would appear to us be more realistic,* given historical observations of airport productivity growth.

Once again, if we take what we believe to be the raw estimates of BAA which suggest that 2010 employment level will be 16,000, this implies an annual employment growth rate for Stansted of 5.6% for the period 1999-2010. On the other hand, adopting our ‘corrected’ estimates on the basis of BAA’s own original productivity growth assumptions, the implied annual employment growth rate for Stansted is 4.3% during the period 1999-2010.

What apparently has happened is that Pieda have overstated Stansted’s local direct employment growth on the basis of their own assumptions, because they have understated the different airport-activity productivity gains which were assumed by BAA initially.

3.3 Future Indirect and Induced Employment

We can now move from simply looking a direct employment calculations to wider employment considerations. In Table 4.5 on page 15 of BAA (2001), Pieda provide their overall total Stansted employment estimates and forecasts for the time periods 1999, 2002 and 2010. These forecasts are broken down into *direct employment*, *indirect employment*, and *induced employment*. For each time period, the induced employment is calculated as $(direct + indirect) \times 1.24$, whereby 1.24 is the estimated induced multiplier. The Pieda estimates are reproduced in Table 14, below.

	1999 (9.4mppa)	2002 (15mppa)	2010 (25mppa)
Direct	8766	10800	16000
Indirect	500	770	1130
Induced	2220	2780	4110
Total	11490	14340	21240

Table 14 – Pieda Estimated Employment Multipliers – 1999/2002/2010

As we saw in Section 3.2 of this report, the Pieda estimate of the 1999 indirect employment of 500 is almost certainly incorrect. Unfortunately, this erroneous estimate is then applied to various proportioning factors for the different time periods. **As a result, the initial error is magnified when applied to the later time periods.** The reason for this is that in order to calculate the indirect employment for later time periods, what Pieda have done is simply multiplied the passenger increase factor (given in Table 6, on page 9, as 1.595 for 2002, and 2.659 for 2010) by the original

erroneous estimate of indirect employment of 500, and then multiplied the whole amount by a discounting factor, which allows for productivity gains on the part of the indirect industries.

The error which leads to multiplier values initially increasing and then decreasing, however, is much more fundamental. We believe that the problem here is that Pieda have discounted the productivity effects over time incorrectly.

A cursory observation of these estimates immediately suggests that there must be an error in them. The reason for this is that the implied indirect multiplier values for 1999, 2002 and 2010 are 1.057, 1.071, and 1.070.¹⁰ In other words, the Pieda indirect multiplier estimates first increase and then decrease. However, this is economically impossible. If there are no productivity effects on the part of indirect industries there will be no change in the indirect multiplier values over time, whereas if there are productivity gains over time on the part of indirect industries, the multiplier value should fall continuously.

To calculate the efficiency gains, Pieda have adopted the Cambridge Econometrics estimate that the Eastern Region general productivity gains between 1999 and 2010 will be of the order of 1.6% per annum. However, we believe Pieda have also not calculated the cumulative effect of these productivity gains correctly, because for the period 1999-2002 they have calculated the cumulative productivity effect over two years instead of three years. Similarly, for the period 1999-2010 they have calculated the cumulative productivity effect over ten years instead of eleven years. To demonstrate this, we can show how these calculations were made.

For the 2002 indirect employment estimate, we have: $1.595 \times 500 \times 0.968 = 771$ (rounded down to 770), whereby 0.968 represents a 1.6% productivity gain compounded over two years instead of three. Similarly, for the 2010 indirect employment estimate, we have: $2.659 \times 500 \times 0.85 = 1130$, whereby 0.85 represents a 1.6% productivity gain compounded over ten years instead of eleven.

In order to correct for these errors, we should first convert the stated estimate for 1999 indirect employment from 500 to 402. Secondly, we must calculate the cumulative effect of a 1.6% annual productivity gain over a three year period for 1999-2002, and for an eleven year period for 1999-2010.

Following this logic, for the 'corrected' 2002 calculation of indirect employment, we have: $1.595 \times 402 \times 0.952 = 610$. Similarly, for the 2010 calculation of indirect employment, we have: $2.659 \times 402 \times 0.835 = 892$. In these two calculations, the discounting factors 0.952 and 0.835 represent the cumulative efficiency effects of a 1.6% annual productivity increase on the part of indirect activities, over a three and an eleven year period respectively.

¹⁰ I.e. 500/8766, 770/10800, and 1130/16000

Following the logic of Pieda, to calculate the induced effects, we must now add the direct plus ‘corrected’ indirect employment for each year, and then multiply the ‘corrected’ sum by 1.24.¹¹

	1999 (9.4mppa)	2002 (15mppa)	2010 (25mppa)
Direct	8766	10496	13920
Indirect	402	610	892
Induced	220	2665	3554
Total	11368	14340	18366

Table 15 – ‘Corrected’ Pieda Estimated Employment Multipliers – 1999/2002/2010

As we see, *our estimates of the Stansted employment total for the various years are much lower than those proposed by Pieda and BAA*, as indicated by Table 15 above. However, our lower estimates have not been generated on the basis of different data or different assumptions. *Our lower estimates have been generated simply by correcting for what we feel are the simple numerical errors made by both BAA and Pieda.* In order to construct our ‘corrected’ estimates we have still employed exactly the same assumptions as BAA and Pieda regarding the productivity gains achieved by the various airport-related and non-airport activities.

The two sets of estimates can be compared in Table 16 below. Our ‘corrected’ estimates are in bold, and the stated Pieda and BAA estimates are given in brackets.

	1999 (9.4mppa)	2002 (15mppa)	2010 (25mppa)
Direct	8766 (8770)	10496 (10800)	13920 (16000)
Indirect	402 (500)	610 (770)	892 (1130)
Induced	2200 (2220)	2665 (2780)	3554 (4110)
Total	11368 (11490)	13771 (14340)	18366 (21240)

Table 16 – A Comparison of ‘Corrected’ and Uncorrected Pieda Estimated Employment Multipliers – 1999/2002/2010

The stated estimates of Pieda and our ‘corrected’ estimates differ by significant amounts. As we see in Table 17, on the following page, we believe that **the margin of error between the Pieda/BAA estimates and the corrected values increases over the length of the time period forecasted.**

¹¹ It is interesting to note that Pieda assume that productivity effects will accrue to indirect activities, but not to induced activities.

Type of Error	1999 (9.4mppa)	2002 (15mppa)	2010 (25mppa)
Direct	-	304	2080
Indirect	100	160	238
Induced	20	115	556
Total Error	120	579	2874
Error (% of direct employment)	1.4	4.2	20.64

Table 17 – Margin of Error Employment Calculations – 1999/2002/2010

For the 1999 estimates, the total margin of error is approximately 120 jobs,¹² and this represents only 1.4% of the direct airport employment. By 2002 the estimates diverge by 579, which represents an increased margin of error of 4.2%. **However, by 2010, the estimates diverge by 2874, which represents a margin of error of 20.64% of the forecast airport direct employment. This is a very significant error.**

If we consider the implications of this error we can see that in order to increase airport capacity from 15 mppa in 2002 to 25 mppa in 2010, the apparently erroneous Pieda estimates suggest in Table 7.1 on page 43, that airport related (direct + indirect + induced) employment will have to increase by 6900 from 14340 to 21240. This represents an overall (direct + indirect + induced) employment increase of 48.1%. On the other hand, our corrected estimates show the increase will be of the order of 4595, from a 2002 total employment level of 13771 to a 2010 level of 18366. This represents an increase of only 33.3% with respect to the 2002 level. The ‘corrected’ total increase of 4595 is only two-thirds of the erroneous Pieda estimate.

In table 4.8 of BAA (2001), Pieda report the initial ‘best’ estimates on the part of the Inspector Graham Eyre during the original Stansted Inquiry during 1981-83 (The Airports Inquiries 1981-1983, Ch.22 Table 7.11), which suggested that with a throughput of 15 mppa, Stansted direct employment would be of the order of 21,300. The Inspector had assumed that Stansted would reach 15 mppa by 1996. BAA’s later estimates, which took account of subsequent productivity gains, were 21,000 for their 1992 estimate and 20,000 for their 1996 estimate, with the 1992 estimate also assuming that Stansted would reach 15 mppa by 1996.

Our ‘corrected’ estimates suggest that the total (direct + indirect + induced) employment for Stansted in 2002 with a throughput of 15 mppa, will be only 65% of the 1992 BAA ‘best’ estimate for the direct employment alone required to sustain such a throughput at Stansted, and only 48% of the 1992 BAA ‘best’ estimate for total Stansted employment at this capacity level. Similarly, our ‘corrected’ estimate for the 2010 total employment of Stansted, when it is operating with a throughput of 25

¹² As we see in Tables 1-3 the actual error is 124, but the error reported here is 120, because all the subsequent indirect and induced numbers of Pieda presented here are calculated on the basis of BAA and Pieda’s rounding of the numbers.

mppa, is still only 63.9% and 87.4%, respectively, of the 1992 BAA 'best' direct and total employment estimates for Stansted when operating with a 15 mppa throughput.¹³

All of this means that the impact of Stansted airport's proposed expansion to 25 mppa on the local area in terms of the different types of employment we have been considering and the consequent housing figures is likely to be less than the original Pieda calculations suggested.

Section 4. Stansted's 'Transportation Employment' Effect

As we have noted earlier (Hart and McCann 2000), in addition to direct, indirect and induced employment generated by the airport, there is an important, and neglected, fourth category - the 'transportation effect'. The transportation effect means that certain types of firms, particularly growing international high-tech firms, like to be in relative close proximity to growing international airports.

There have been very few attempts to quantify this 'transportation impact'. In the case of Manchester airport, as well as the indirect and induced multiplier effects, the Centre for Local Economic Strategies (CLEs 1988) found that the extra employment generated by the immigration of mobile investment crucially dependent on the airport amounted to some 13,000, in 150 firms. This implied an extra multiplier value of 1.5 additional to all the other multiplier effects.

Of particular importance here, however, is the relationship between airport infrastructure and the quality and nature of immigrant investment into a region. The location of an airport facility is particularly important either for plants and enterprises which are part of a larger and spatially diffuse corporate structure, or for firms which are attempting to develop larger international markets. Many modern high growth industries are ones which depend significantly on face to face contact in order to exchange information, such as for example, certain types of high-tech industries, computer firms, and bio-tech companies, plus many service-sector industries. For these high growth sectors in the modern economy, accessibility to an airport with comprehensive national and international network facilities is not only very important, but will become increasingly more so over the coming decades.

Evidence for the importance of this effect in the case of Gatwick (Sussex Enterprise/Coopers and Lybrand 1997) suggests that Gatwick is credited with generating at least 10% of the business of 13% of Sussex firms. This is particularly important for service sector firms, especially for medium and larger size firms. The strength of this employment generation connection was most apparent for firms which were local to the airport. Gatwick was found to be both a major and growing focus for the attraction and retention of mobile investment, with 75% of local firms regarding it as 'critically important' or 'important', and only 5% regarding it as 'not important'. Meanwhile,

¹³ As we see on page 17 of BAA (2001), Pieda's estimates imply that the total (direct + indirect + induced) employment in 2010 for 25 mppa will be only slightly higher than BAA's 1992 estimate of Stansted direct employment.

12% of local firms regarded Gatwick as a significant factor in the locational decision-making (i.e. by implication 31,000 jobs locally). This finding is particularly for firms *within* a 30 minute/20 mile drive time, which accounted for two-thirds of the firms regarding Gatwick as a major factor in their locational decision-making. Moreover, the firms who most regarded the proximity of Gatwick as crucial tended to be firms in globally-competitive markets, such as electronics, computers, pharmaceuticals, etc who wished to locate their HQ operations nearby. Similar evidence for Heathrow (BAA/1213 1992 Roger Tym and Partners) found that all 23 firms with HQs in the area close to Heathrow argued that Heathrow was 'important' to their location decision, with 18 arguing it was 'crucial' (Hart and McCann 1999, 2000).

If we adopt the estimates from Manchester as a guide to the potential impact of Stansted, the 'transportation effect' multiplier of 1.5 would imply an additional regional employment level of 23,100 in 2004/5 and 32,400 in 2009, over and above the direct, indirect and induced multiplier effects. Allowing for the efficiency gains outlined earlier, this would imply a total regional direct, indirect, induced and transportation effect employment of 66,220 in 2004/5 and 92,880 in 2009, of which 50,820 and 71,280 are the additional employment levels in 2004/5 and 2009 respectively, generated by the multiplier effects, over and above the airport employment. Moreover, these employment estimates do not include the construction employment generated by the airport expansion, nor the induced regional tourism employment associated with the presence and expansion of local airport facilities.

However, the (Pieda 2001) estimated multipliers do not take the transportation effect into account in any kind of detailed way, presumably at least partly because the airport operators BAA are more concerned about the direct employment links with the airport site rather than its regional implications. The Pieda multipliers are, therefore, static, in that the local income effects are assumed to derive solely from the expenditure patterns of the (airport-related) firms located within or adjacent to the airport, and their employees. The Stansted employment multiplier estimates described above therefore assume that *no additional investment* or employment is generated because of the *presence* of the airport in the region, on the part of either new immigrant firms or expansions by existing regional firms. As such these estimates can only be considered to be the *lower* limits of employment generation, from the point of view of additionality. For example, if a single large firm (employing 500-1000 people) decided to invest in the Eastern region on the basis of the accessibility afforded by Stansted, all the above multiplier estimates would have to be adjusted upwards significantly.

Most commentators feel that **the strength of local employment demand depends crucially on the location of the area**. Areas close to good transport infrastructure facilities, which provide good accessibility to a range of markets, are inherently very attractive for industrial investment in all forms. The western part of East of England, for example, is close to good road networks (M11, A1), to good rail networks (Liverpool Street connection), and to airport facilities. **In particular, the location of Stansted airport is crucial.**

Airports mature and as we have indicated, while much of the early growth of Stansted has been concentrated on low cost airlines involving European travel, the composition of scheduled activity at Stansted is beginning to change quickly. Stansted is increasing its share of business passenger traffic, as executives seek to increase the convenience and reduce the congestion associated with frequent airline travel. Moreover, Stansted is also now both the largest and the fastest growing UK airport for the handling of dedicated cargo shipments.

The increasingly rapid expansion of Stansted is part of the general expansion of demand for access to the London airspace. London Heathrow is currently the largest international airport in the world, and the London airspace is the most congested. However, the rate at which the current airport infrastructure around London can expand to meet the demands of the next two decades are limited by the physical capacity constraints associated with both Heathrow and Gatwick. Beyond the expected development of Terminal Five at Heathrow, both airports will have limited, or very time consuming further possibilities for expanding. **The major means – and probably the fastest - of providing for the continued expansion of airport demand in the South East over the next three decades almost certainly will involve the expansion of Stansted Airport.** This could involve the construction of an additional runway, or even two runways.

As we suggested earlier, **at each stage over the last two decade, the actual level of demand at Stansted has been greater than the predicted needs** (Hart and McCann 2000). The current limit on annual air passenger movements at Stansted is 15 million passengers per annum (mppa), but this limit is likely to be reached by 2005. The limit will be raised significantly to allow for future demand in the medium term, if the application for 25 mppa is granted. However, long run predictions for Stansted suggest that by 2025 the airport will be handling 35 mppa, or more.

Certain business sectors are very airport related and not simply high-tech firms. For example, in terms of employment output, in 1999, the Transport, Distribution, Hotels and Communication sectors together accounted for 26.3% of overall activity in the Eastern region (CE/IER 2001), and this level of activity is sure to grow. The most recent estimate of Eastern regional (GOER) employment growth in the Transport and Distribution sectors to the year 2010 is 142,000, which represents an increase of 20% on the employment current levels, and is equivalent to an annual employment growth rate of 1.6% in the regional transport related sectors (CE/IER 2001).

However, the growth in strategic transportation infrastructure investments such as an airport not only increases the direct employment in the local transport related sectors. It also generates indirect and induced employment growth in a range of other sectors which either provide inputs to the transport sectors, or benefit from the general improvements in accessibility to an area.

But if a welcoming, pro-active planning policy regime existed in the area which deliberately sought to target and attract various types of induced employment

and the ‘transportation effect’ the multiplier figures for Stansted could be significantly greater than those employed by BAA.

For example, if we use local and regional of the order of 1.4 and 2.8 which are not unreasonable (Hart and McCann 2000), these figures imply that within the next few years, employment will increase by between around 10,000 and 20,000 in the immediate vicinity of the airport, and by between about 20,000 and 40,000 in the regional economy as a whole. Whatever the margin of error between these various estimates, it is very clear that employment growth in the Stansted hinterland, in the broadest sense of that term, is likely to be very significant in the coming decades.

Section 5. Stansted’s Policy Context

As we indicated (Hart and McCann 2000), it is clear that Stansted has important medium and long-term economic implications for its region. For example, many modern high growth industries depend significantly on face to face contact in order to exchange information, such as, certain types of high-tech industries, computer firms, and bio-tech companies, plus many service-sector industries. For these high growth sectors in the modern economy, accessibility to an airport with comprehensive national and international network facilities is not only very important, but will become increasingly more so over the coming decades.

The extent to which the growth is realised – and the rate and nature of the growth - however, crucially depends on the public policies – including economic, transport, and planning policies - adopted both locally and in the Eastern and South Eastern regions as a whole as well as nationally. The developmental issues raised by the airport are not simply local issues – they are regional, and national, and international in scope.

Policy is - or should be - based on an understanding of events as they do develop over time; as they are **likely** to develop; and as they **should** develop from a public interest perspective. As we have noted earlier, the future policy issues for the East of England region which surround Stansted’s grow are both large-scale and long-term. Airports are becoming increasingly important as conduits for regional, national and international accessibility. Processes of globalisation are transforming the interrelationships between economic activities across different locations.

The ability to develop and co-ordinate market mechanisms across increasingly larger and more sophisticated market areas, demands continuous improvements in the quality, speed, timeliness and service variety of national and international travel. It also demands an informed policy response. Because of the size and complexity of international markets, the airline industry is generally the only possible means by which these types of private and commercial travel needs can be provided. These economic developments will ensure that demands for the expansion of UK airport capacity will continue apace, in order to ensure that the UK’s international competitiveness is maintained.

At the same time as a general national requirement for an expansion in UK airport capacity, the geographical structure of these demands in the UK is very specific. The principal requirement is for continually increasing access to the Greater London Air Space (GLAS). The reason for this is that the economy of London, unlike the vast majority of other UK and European cities, means that it is a truly global city, with complex commercial linkages to all sectors and countries in the global economy. In order to cater for these commercial demands, the airport capacity of London's airports will need to be increased substantially over the next two decades. However, space limitations and planning restrictions **could** mean that there are limited expansion possibilities for either Heathrow (after T5) or Gatwick in the short to medium-term. The London air space capacity expansion could therefore depend heavily on the expansion of capacity at Stansted Airport. The findings of the Department of Transport, Local Government and the Regions' *South East and East of England Regional Air Service Study (SERAS)* study which is expected in the imminently should be instructive in this regard.

In the meantime if we accept that, airports can act as vehicles to increase economic competitiveness and that increasing regional competitiveness is high on the UK policy agenda at the national and regional level but it viewed as important in other European countries as well. Fierce competition from cities such as Amsterdam, Frankfurt and Paris, all of which are increasing their airport capacity rapidly, may divert some London air traffic demand, if appropriate facilities are not forthcoming. Similarly, the levels of long-run employment growth in the local districts will depend on both the scale of supply and the location of land made available for development. Local authorities in the area have the opportunity to take advantage of the airport-induced growth to develop both their service sectors and their manufacturing sectors in the long run. High quality manufacturing and service industries can benefit significantly from the improved accessibility associated with such long-run transportation improvements.

Recently, there has been a good deal of activity with regard to the airport's policy context. At the national level the competitive advantage of international airports and their developmental consequences is increasingly recognised by the UK government and a national airport review has been established following the recommendation put forward in the 1998 Transport White Paper, *A New Deal for Transport*, regarding the importance of taking an integrated approach to planning and development and the need to take a long term view of future airport development policy and look ahead some thirty years. In a related move the former Department of Transport, Environment and the Regions (DETR) produced a consultation paper, *Appraisal Framework for Airports in the South East and Eastern Regions* (February 2000), which looked in more detail at the requirements of the airports in the South East and the East of England regions and the various options which are open to them with regard to future expansion. As we have already indicated, In addition, the important DTLR, *SERAS* study is expected imminently. The medium- and long-term implications of this analysis for Stansted could be very significant.

In terms of airport policy at the international level, the OECD has carried a study of airport impact in 9 different countries around the world (Hart, 2000) and the European Union has now completed the first stage of the 'Common Options for Airport Regions' research project (COFAR) which has reviewed developmental opportunities in several European countries (EU, typescript, 2000).

There are also a whole host of other planning and economic development documents have been published within the UK over the past few years both at the regional and the local level which bear on Stansted and its surroundings. These documents include, for the East of England: the **Draft Regional Guidance for the East of England** (1998); the **Panel Report on the Draft Regional Guidance for the East of England** (1999); **Regional Planning Guidance for East Anglia to 2016 (RPG 6)** (November 2000); the **Regional Economic Development Strategy for the East of England** (1999).

In addition there are also documents relating to the old South East Region which relate to Stansted, including: (**Draft Regional Guidance for the South East (A Sustainable Strategy for the South East)** (1998); the **Panel Report on the Draft Regional Guidance for the South East** (1999); and **Regional Planning Guidance for the South East (RPG 9)** (2000).

At the local level, the **Essex and South End Structure Plan Replacement** was published in 1998, the **Panel Report on the Essex and South End Structure Plan** in 1999 and in 2001 the **Replacement Structure Plan** was approved. And at the district level is currently revising their local plan, the **Uttlesford Local Plan – Proposed Modifications** was published in 2004.

Policy is continuing to change but one thing is clear from the existing documents cited above. There is a dynamic tension between different levels of government in their attitude toward Stansted's future. Some years ago a distinction was drawn between national/regional planning which was concerned with resource investment and regional/local planning which was concerned with land use issues. As matters now stand it seems to us that the county and district local authorities want to minimize Stansted's impact on environmental grounds and that national policy would like to encourage the airport's development on economic competitive grounds. This 'policy schizophrenia' is, to say the least unhelpful. Perhaps the way forward lies at the regional level which links national and local and occupies a potential pivotal position with regard to shaping the future.

The regional aspects of these airport expansion effects are profound. The location of airport facilities, and the nature of the traffic they cater for, have crucial impacts in terms of the development of regions. Airports act as a major stimulus to local growth, and these impacts are felt far beyond simply those sectors which are directly related to airport's activities. The long-term regional investment, employment, and competitive environment is substantially affected by the current decisions made concerning airport infrastructure, and these decisions also have profound implications for future land use strategies, local housing needs and regional (non-air) transportation strategies.

There are other issues which we feel important but have not been able to analyse in any detail. In broad brush terms they are: what are the spatial implications of the employment considerations we have identified?; What are the regional labour market impacts of Stansted's expansion according to the various commercial sectors involved?; What is the impact of SERAS likely to be on the region?; And what spatial, transport and land-use strategies are available in order to best respond to these demands and help to promote the East of England's competitive position over the next decade?

Section 5. Conclusion

A major focus of this report has been analyse the figures involved in the planning application to expand Stansted to 25mppa. Ironically, one of our key findings, that the local impact of Stansted's proposed expansion in employment terms might well be less than was originally thought, might make it easier to gain the acceptance of the relevant local authorities involved to allow the development to take place.

Our main overall findings are that the BAA projections over-estimate the local employment impact of the airport's proposed growth and under-estimate its potential regional 'transportation' employment effect. These two findings are, of course, related to each other in important ways, and we also feel that they have potentially significant medium and long-term economic, competitiveness and planning policy implications for the East of England region.

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