

**Appendix A: Hertfordshire
Strategic Employment Sites
Supporting Research**

**A Final Report by
Regeneris Consulting**

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1. Socio Economic Conditions in Hertfordshire

1. This chapter provides an overview of socio economic conditions and recent economic performance in Hertfordshire. The analysis draws on a detailed interrogation of key socio economic datasets and highlights key messages about the structure and performance of Hertfordshire’s economy in relation to key national, regional and local comparator areas.
2. The analysis focuses on trends in wealth generation, labour market conditions and the sectoral structure of the business and employment base and highlights the key strengths and weaknesses of Hertfordshire’s economy.

Hertfordshire Overview

3. Like many areas bordering London, Hertfordshire has seen strong population growth over the past ten years. The 7% population increase between 1999 and 2009 was slightly greater than the national increase of 5% and saw Hertfordshire’s population increase to almost 1.1 million residents (691,000 of whom are working age).

Hertfordshire generates high levels of GVA...

4. Hertfordshire is amongst the UK’s largest economic areas; in 2008 the county’s GVA was £26 billion (the fifth largest contribution in the UK outside of London). The county’s current GVA per head of £24,000 remains markedly higher than the national average of £21,100 and is almost £5,000 per head greater than the average for the East of England.

Table 1-1: GVA 1998 – 2008

	1998		2008		Change 1998 - 2008	
	Total GVA (£ millions)	GVA per head	Total GVA (£ millions)	GVA per head	Total GVA (£ millions)	GVA per head
UK	781,985	13,370	1,295,665	21,100	66%	58%
East of England	65,930	12,440	110,775	19,380	68%	56%
Hertfordshire	15,820	15,570	26,010	24,000	64%	54%
Surrey	16,765	16,120	28,025	25,460	67%	58%
Essex	13,920	10,840	24,250	17,480	74%	61%
Central Beds	4,600	12,470	7,020	17,160	53%	38%
Berkshire	15,240	19,150	26,860	31,900	76%	67%
Buckinghamshire	7,200	15,250	10,965	22,320	52%	46%

Source: ONS Headline GVA and GVA per head at current basic prices.

...but GVA growth is much slower than in comparator areas

5. While Hertfordshire’s GVA has grown by more than £10 million over the past ten years, this 64% increase has not kept pace with regional (68%) or national (66%) GVA growth. Other counties in the East of England (notably Essex) have seen much larger increases in GVA in the same period.
6. Although Hertfordshire’s GVA per head is greater than regional and national averages, the rate of growth over the past ten years has not kept pace with key comparators in the East and South East of England and high growth rates elsewhere have seen comparator areas

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overtake Hertfordshire on this measure. For example, the large growth in Berkshire's GVA (67%) has seen it increase from £15,200 in 1998 (slightly lower than Hertfordshire's then GVA per head of £15,800) to £31,900 in 2008, almost £8,000 per head more than Hertfordshire's current GVA per head.

Strong economic links with Central and Outer London...

- Hertfordshire is an exporter of labour with a net outflow of just under 36,000 people. The county's location bordering London to the South has brought with it strong economic and transport links to Central and Outer London. Travel to work patterns suggest a strong interdependence between the Hertfordshire and London economies.

Figure 1-1: Hertfordshire Area Context



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- Table 1-2 indicates that the largest outflows of commuters from Hertfordshire are to central London districts (with Westminster and the City of London ranking highest). Ten of the fifteen districts receiving the largest inflow of commuters from Hertfordshire are within London, the remainder are within the East of England region.
- Residents of London boroughs are less well represented amongst those commuting into Hertfordshire. The largest inflows are from within the East of England region with Central Bedfordshire and Luton accounting for the largest proportion. There are some substantial flows from a small number of outer London boroughs including Barnet, Harrow and Enfield.

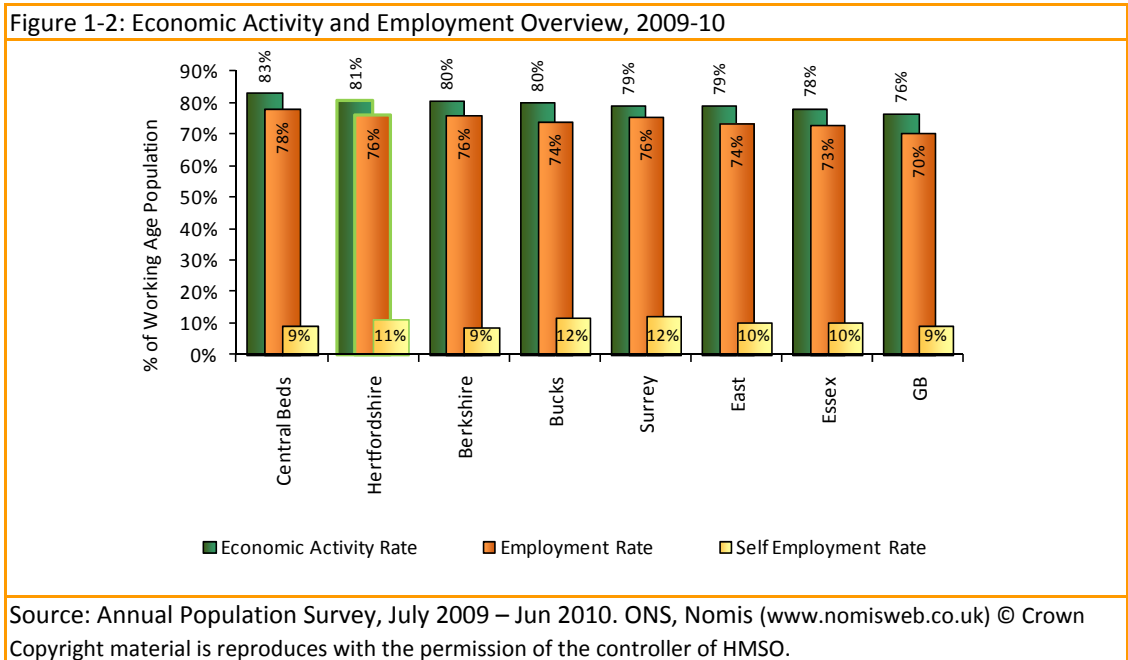
Table 1-2: Overview of Key Travel to Work flows into and out of Hertfordshire

Commuting into Hertfordshire 117,980			Commuting out of Hertfordshire 153,873		
LA of residence	Number	% of in-commuters	Destination LA	Number	% of out-commuters
Central Bedfordshire	18,000	15%	Westminster	16,500	11%
Luton	9,000	8%	City of London	12,900	8%
Barnet	7,400	6%	Barnet	10,300	7%
Harrow	6,000	5%	Enfield	10,100	7%
Enfield	6,000	5%	Camden	9,000	6%
Aylesbury Vale	5,000	4%	Harrow	6,800	4%
Harlow	4,500	4%	Harlow	6,000	4%
Epping Forest	3,900	3%	Luton	5,900	4%
Uttlesford	3,800	3%	Hillingdon	5,700	4%
Hillingdon	3,400	3%	Islington	5,200	3%
South Cambridgeshire	3,300	3%	Brent	4,700	3%
Chiltern	2,900	2%	Central Bedfordshire	4,400	3%
Brent	2,500	2%	Tower Hamlets	3,800	2%
Milton Keynes	2,100	2%	Uttlesford	3,600	2%
Bedford	1,700	1%	Epping Forest	2,700	2%

Source: 2001 Travel Flows (Local Authority) UK Census ONS Nomis (www.nomisweb.co.uk) © Crown Copyright
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A strong and resilient labour market...

10. Levels of economic activity and employment in Hertfordshire are high overall and compare well to national and regional averages; 81% of Hertfordshire’s working age population are economically active (two percentage points greater than the East of England average and four greater than the national average).



11. The employment rate of 76% also compares favourably. Hertfordshire’s strong self employment rate provides a further indicator of the strength of the county’s labour market

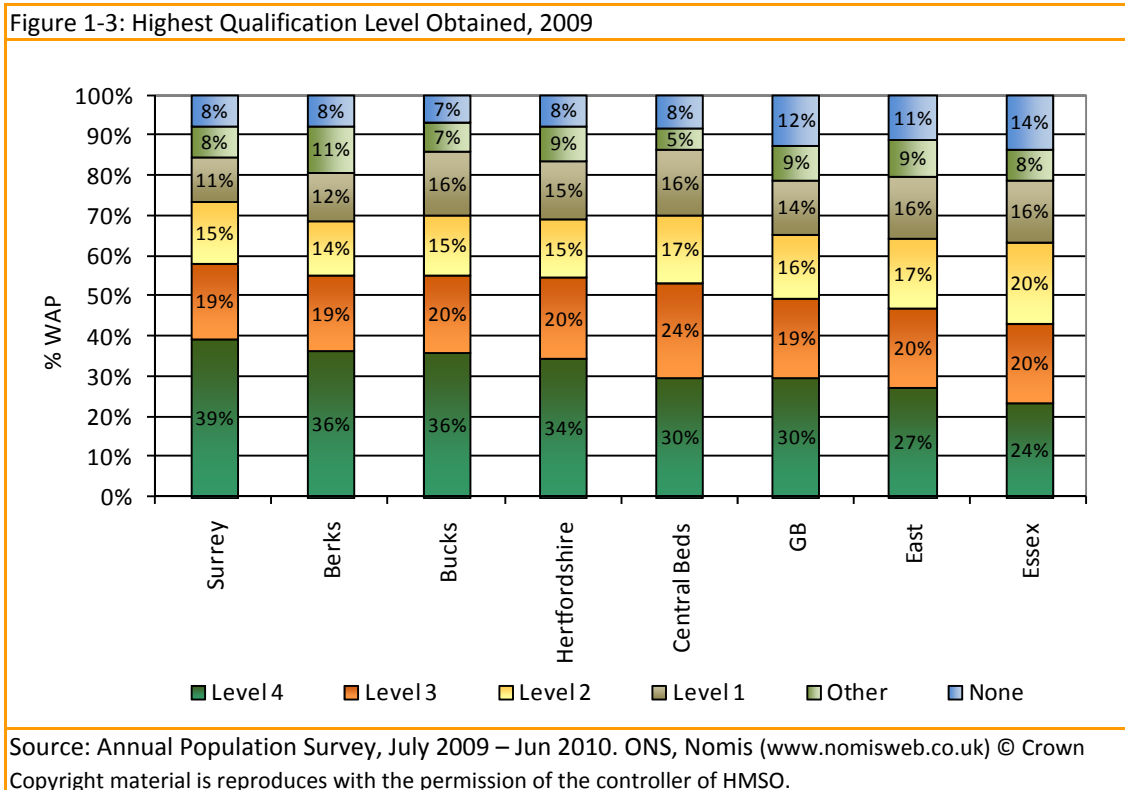
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and economy - 11% of the county's working age population are self employed - two percentage points more than the national average.

12. Rates of economic activity and employment have been less badly affected by the recession in Hertfordshire than elsewhere in the country; nationally and regionally, economic activity rates decreased slightly (by 0.5%) between 2008/09 and 2009/10 while there was a slight increase in Hertfordshire in the same period. This apparent resilience is also evident in the relative stability of Hertfordshire's employment rate over recent years; between 2007/08 and 2009/10, the employment rate has decreased by more than two percentage points nationally and regionally. In the same period, Hertfordshire's employment rate decreased by just 1.4%. There have also been signs in the past 12 months that Hertfordshire's employment rate has started to stabilise (decreasing by just 0.2% between 2008/9 and 2009/10 while decreases in excess of one percentage point were evident nationally and regionally).

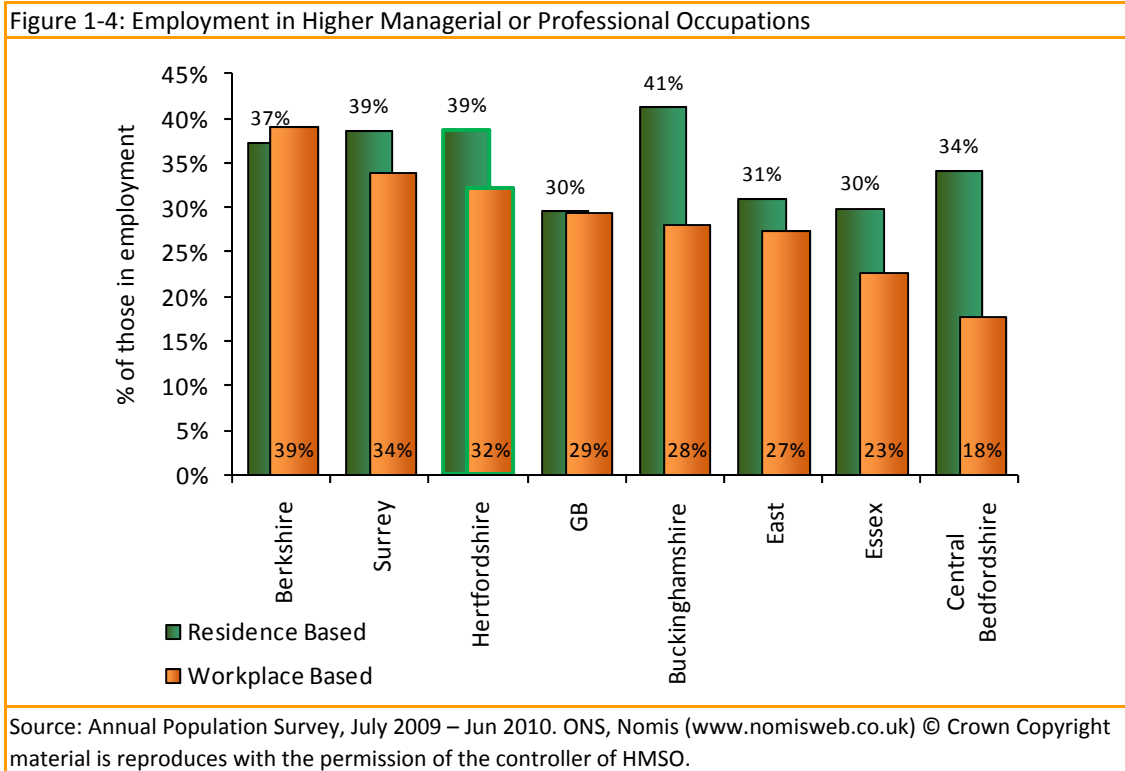
... with evidence of a highly skilled population

13. The skills profile of Hertfordshire residents compares favourably to national and regional comparators and is on par with other similar comparators in the East and South East of England. More than half of Hertfordshire's population is qualified to at least level 3 which compares well to the national level of 47% but is somewhat behind Surrey (58%) and Berkshire (55%).



14. The strong skills profile of Hertfordshire's residents is reflected in their occupational profile; 39% are employed in Higher Managerial or Professional occupations, second only to Buckinghamshire and significantly above the national and regional averages. The proportion of people employed in HMP employment has increased considerably in Hertfordshire over recent years; increasing from 35% of WAP in 2006-07 to its current level of 39%.

15. Figure 1-4 shows that while the proportion of people living in Hertfordshire and working in HMP occupations is particularly high, a much smaller proportion of those working in Hertfordshire are employed in HMP occupations (32%). This suggests a tendency for highly skilled residents to commute out of the county for employment, a characteristic that is common to other comparators including Surrey and (to a much greater extent) Buckinghamshire.



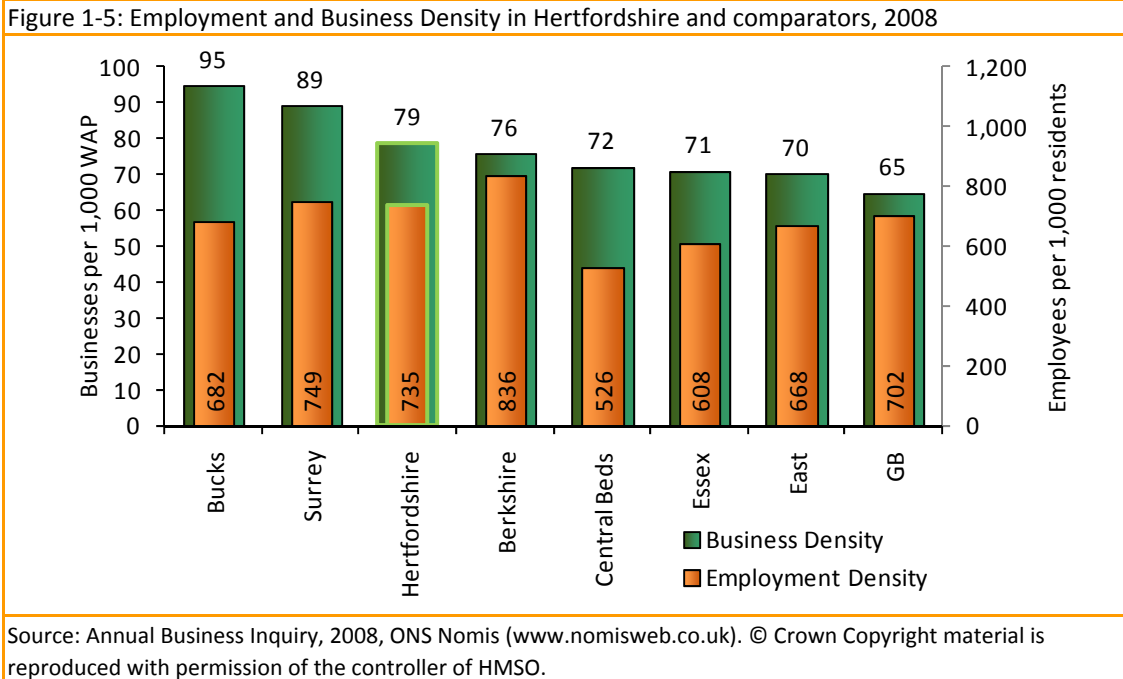
Business Base and Employment

16. The most up to date information about employment levels is available through the Office for National Statistics new dataset the Business Register and Employment Survey (BRES). This dataset has replaced the Annual Business Inquiry as the central source of employment and sector data from 2008. Methodological differences between BRES and ABI mean that there is now a discontinuity in the analysis of employment trends as the two datasets are not comparable.
17. Our analysis of employment in Hertfordshire first provides an up to date snapshot of the sectoral breakdown of the county's employment in 2009 using BRES data and then undertakes a separate analysis of recent trends using ABI data which is available for 1998 to 2008. This analysis of ABI data has been undertaken using 2003 SIC definitions so that sectoral change can be analysed over an adequate timescale. This means that the trend analysis is not fully compatible with the 2009 data presented as the 2003 SIC do not read across fully to the 2007 codes, although given the methodological differences between the two sources, the two sets of analysis should be treated separately in any case.

¹ Methodological differences between the two datasets mean that the 2009 BRES figures should not be compared with the ABI figures and any differences between 2008 ABI stats and 2009 BRES stats can not be considered to be part of observed trends in the ABI data.

High Business and Employment Densities...

18. Hertfordshire’s business density of 79 businesses per 1,000 working age residents is very high in comparison to national and regional levels but remains some way behind key comparator areas of Buckinghamshire and Surrey which have business densities of 95 and 89 businesses per 1,000 WAP respectively. To catch up with Buckinghamshire in terms of business density, and additional 11,000 businesses would need to be formed in Hertfordshire.



19. Hertfordshire’s employment density is also high and second only to Berkshire, which has a particularly high employment density of 836 jobs per 1,000 working age residents. This is more than 100 jobs per 1,000 working age residents greater than that of Hertfordshire.

Trends in Employment

Employment growth has not kept pace with national and regional trends...

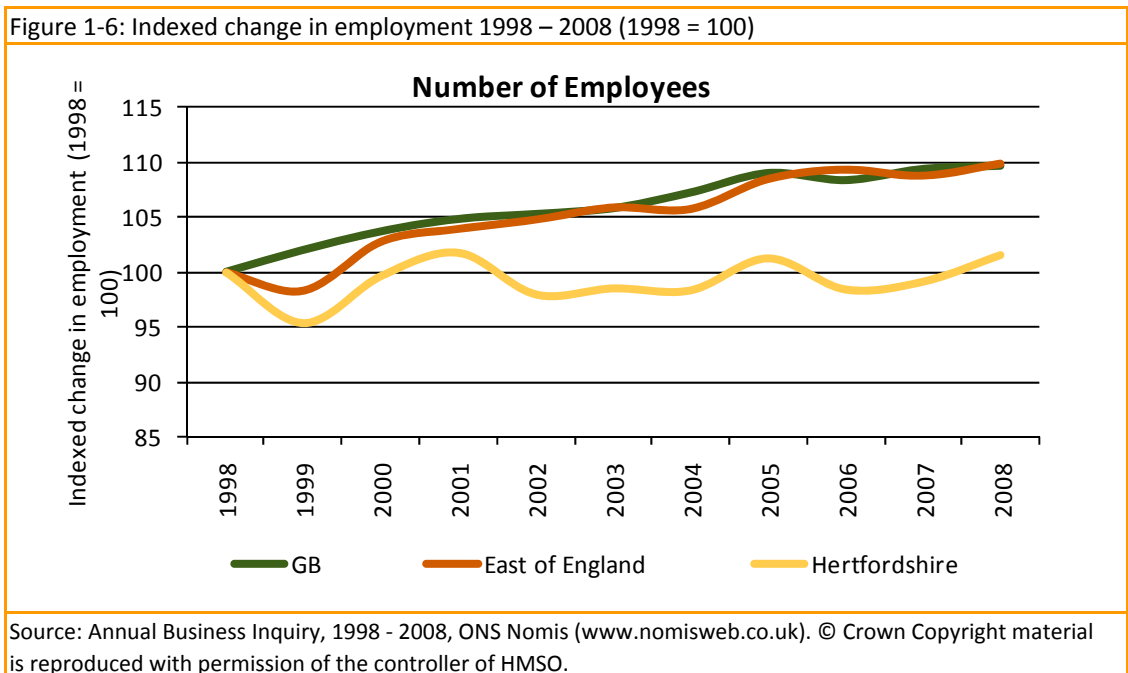
20. In 2008, there were just over 500,000 people employed in Hertfordshire. Growth over the last ten years has been positive (a 2% increase in employment overall) but has not kept pace with employment growth nationally or regionally (both of which grew by 10% in the same period).

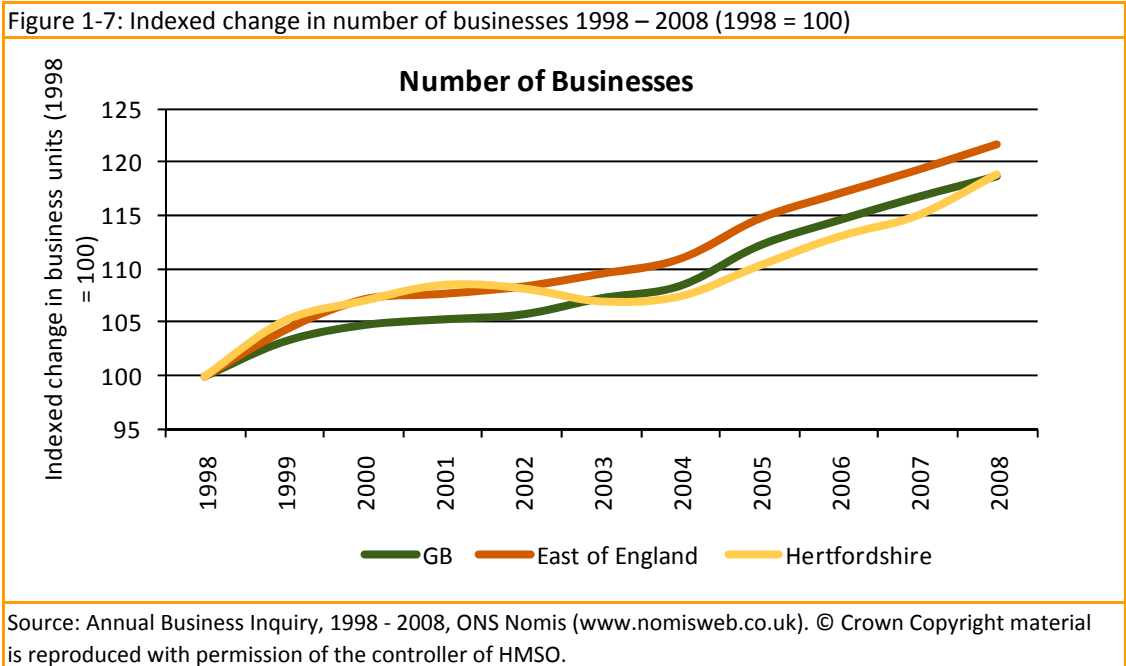
Table 1-3: Business base and employment change 1998 – 2008

	1998		2003		2008		Absolute change 1998 - 2008		% change 1998 - 2008	
	Empl (000s)	Data Units (000s)	Empl (000s)	Data Units (000s)	Empl (000s)	Data Units (000s)	Empl	Data Units	Empl	Data Units
GB	24,144	2,062	25,553	2,212	26,494	2,446	941	234	10%	19%
East of England	2,157	204	2,283	224	2,368	248	85	24	10%	22%
Hertfordshire	496	45	489	49	503	54	14	5	2%	19%
Surrey	477	53	501	56	514	61	13	5	8%	16%
Essex	443	49	507	54	518	60	11			
Berkshire	415	36	454	39	462	42	8	3	11%	18%
Buckinghamshire	208	25	210	27	207	29	-3	2	-1%	17%
Central Beds	80	10	78	10	84	12	6	2	5%	20%

Source: Annual Business Inquiry, 2008, ONS Nomis (www.nomisweb.co.uk). © Crown Copyright material is reproduced with permission of the controller of HMSO.

21. Employment growth rates of other comparator areas have significantly outstripped the rate of employment growth in Hertfordshire, with all comparators except Buckinghamshire growing by at least double the rate of Hertfordshire. This can, to some extent, be attributed to the relatively high baseline level of employment from where Hertfordshire has started, but as Figure 1-6 shows, employment has been relatively volatile in Hertfordshire over recent years and has not followed the strongly positive trends observed nationally or for the East of England as a whole.





22. Growth in the number of business units has been more stable but, as for employment, the increase has been slower than regional and national comparators. The shortfall in growth appears to be attributable to a reduction in the number of businesses in Hertfordshire between 2001 and 2004. In all other years, Hertfordshire’s growth rate has been similar to the national and regional rates and as Figure 1-6 shows, the rate of growth between 2007 and 2008 actually exceeded them.

Wholesale and Retail and Administration and Support are dominant sectors...

23. The sectoral breakdown of 2009 employment figures in Table 1-4 suggests that Hertfordshire’s employment base is weighted towards employment in wholesale and retail and administrative and support services to a greater extent than nationally; more than one in five of the county’s 509,000 jobs are in wholesale and retail and 13% are in administration and support services. The high Location Quotients² (LQs) of these sectors indicate that employment in these sectors is more concentrated in Hertfordshire than nationally.

² The location quotient of sectoral employment in an area is used as a way of analysing the degree of concentration of that sector relative to some benchmark figure, in this case, Great Britain. A location quotient above 1 indicates a higher degree of concentration locally than in the benchmark area.

	Employees 000s	% of total	LQ vs GB
G : Wholesale and retail trade; repair of motor vehicles/cycles	105	21%	1.3
N : Administrative and support service activities	65	13%	1.7
M : Professional, scientific and technical activities	43	8%	1.2
Q : Human health and social work activities	45	8%	0.7
P : Education	45	9%	0.9
F : Construction	31	6%	1.3
C : Manufacturing	35	7%	0.8
I : Accommodation and food service activities	26	5%	0.8
J : Information and communication	24	5%	1.3
H : Transportation and storage	20	4%	0.8
O : Public administration and defence; compulsory social security	18	4%	0.6
K : Financial and insurance activities	14	3%	0.7
S : Other service activities	12	2%	1.2
R : Arts, entertainment and recreation	11	2%	0.9
L : Real estate activities	10	2%	1.2
E : Water supply; sewerage, waste management and remediation	3	1%	0.9
All sectors	509	100%	1.0

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24. The LQ of 1.7 for administrative and support service activities is particularly high and suggests that employment in this sector is substantially more concentrated in Hertfordshire than nationally. Within this broad section, key concentrations of employment are present in the following sectors³:

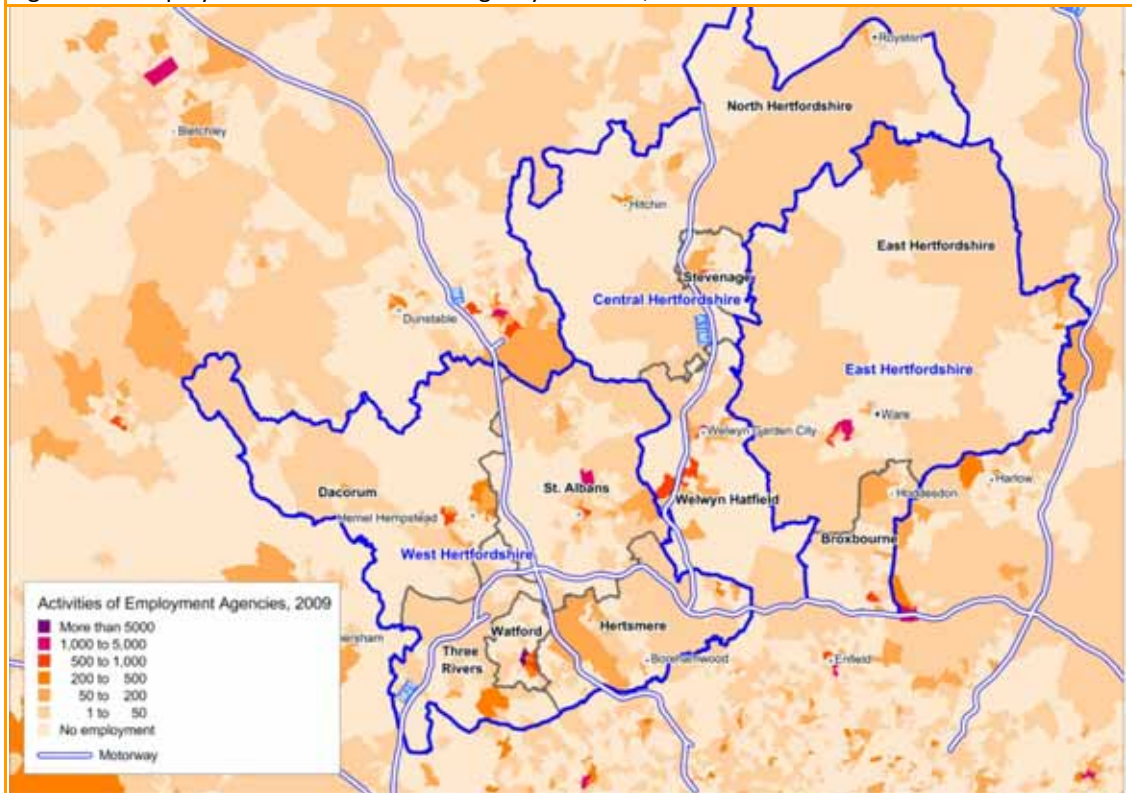
- **Activities of employment and recruitment agencies.** Hertfordshire has a large base of concentrated employment in temporary employment agency activities (26,000 employees / LQ 2.3) and activities of employment placement activities (5,400 employees / LQ 1.9). Together, these two 4 digit SIC categories account for almost 6% of overall employment in the county. Many of these positions are likely to be temporary staff employed by employment agencies but on assignments across a range of sectors. Figure 1-8 shows that although employment in this sector is quite widespread across the county, there is a very particular concentration of employment within a single SOA in Watford (13,000 employees). This, together with the location of a number of HQs of large recruitment consultancies in Watford (e.g. McGinley Ltd and The Kellis Group suggest that much of this temporary employment may be with companies located outside of Hertfordshire.
- **General cleaning of buildings.** Although this is a relatively low value adding sector,

³ More detailed data tables for the sectoral analysis are available in the appendix

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it provides significant employment in Hertfordshire, accounting for 17,800 of the county's jobs. Hertfordshire is more dependent on employment in this sector than nationally, with an LQ of 2.4.

Figure 1-8: Employment and Recruitment Agency activities, 2009



Source: Business Register and Employment Survey, 2009. ONS, Nomis (www.nomisweb.co.uk) © Crown Copyright Material is reproduced with the permission of the controller of HMSO. Digital Mapping Solutions from Dotted Eyes. Reproduced by permission of Ordnance Survey on behalf of the controller of HMSO © Crown Copyright 2009. All rights reserved. Licence number 10001998

... and Hertfordshire is less dependent on the public sector than elsewhere

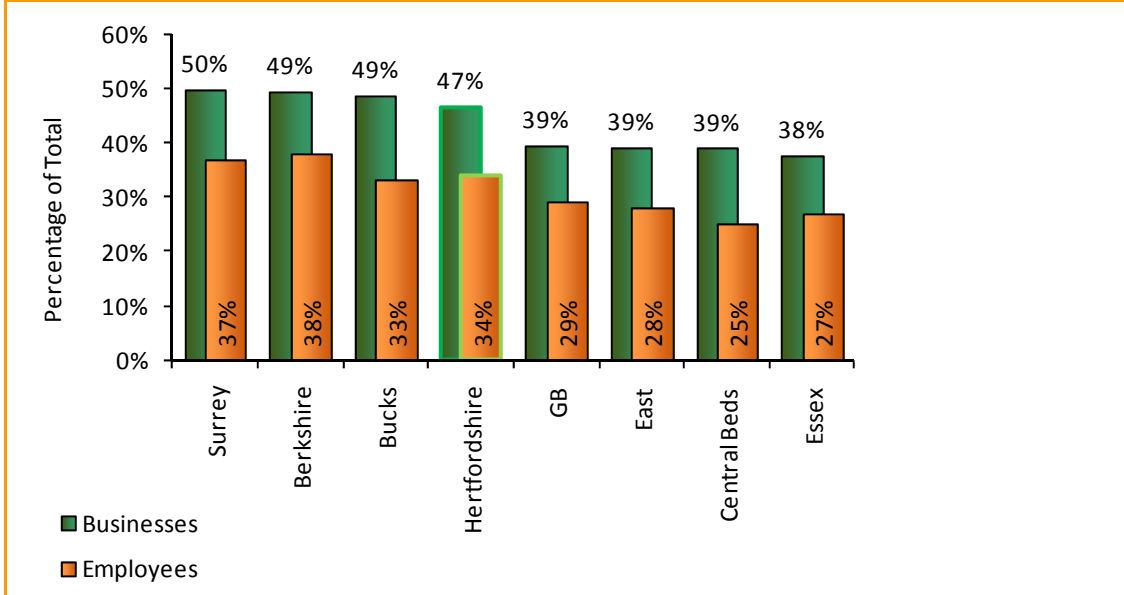
25. Interestingly, the main sources of public sector employment are considerably less concentrated in Hertfordshire than nationally. While human health and social work, education and public administration and defence employ more than 20% of the Hertfordshire total between them, their low LQs mean that in comparison to the national average, Hertfordshire's economy is less dependent on public sector employment. The strong private sector component of Hertfordshire's economy is likely to make the area much less vulnerable to the impact of reduced availability of public funding in the coming years.

Concentrations of employment in knowledge based industries...

26. Almost half of Hertfordshire's businesses and 34% of the county's employees are within sectors that are classed as Knowledge Based Industries (Figure 1-9). This places Hertfordshire's KBI sector well ahead of the national and regional averages, but lagging slightly behind that of Surrey, Berkshire and Buckinghamshire.
27. It is worth noting however that this analysis is based on the 2003 OECD definition of KBIs (see appendix for full SIC breakdown) which does not include some of the more creative sectors that are included in other KBI definitions (e.g. Work Foundation). Because of the

county's large creative sector, the exclusion of these sectors from the OECD definition may disadvantage Hertfordshire slightly in this analysis. However, this definition is widely accepted and internationally comparable and can still provide a helpful indicator of the extent of KBI activity in an area.

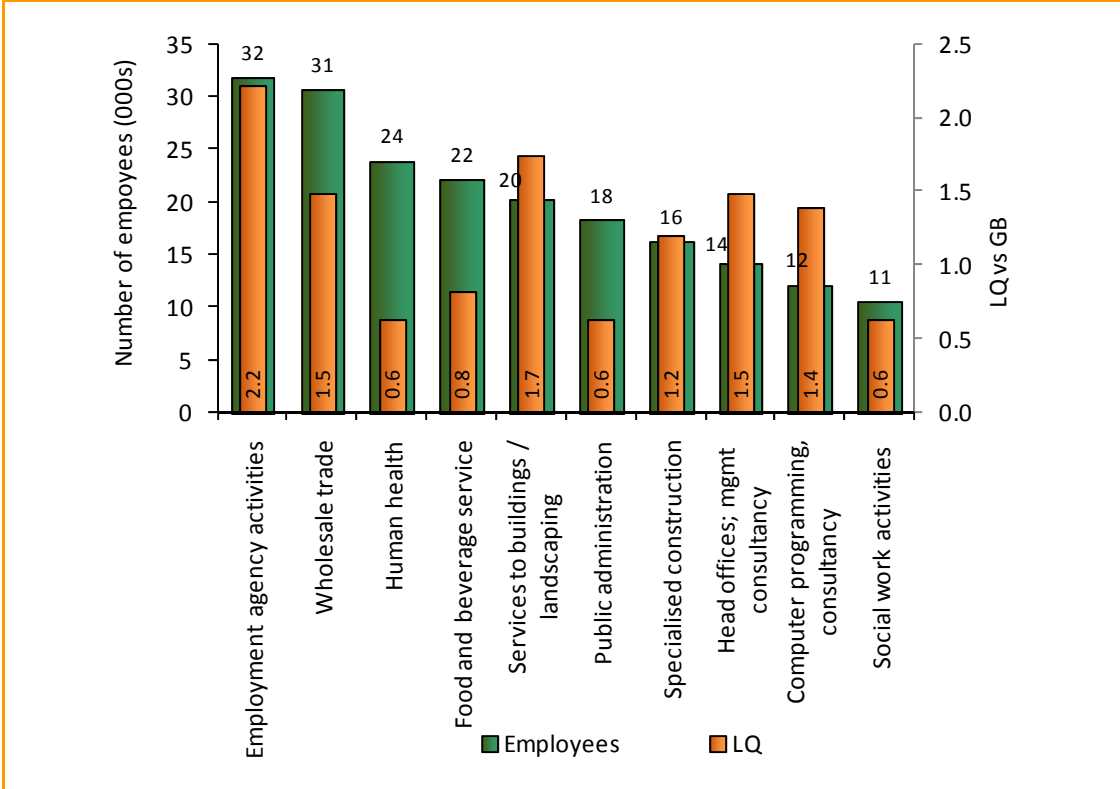
Figure 1-9: Proportion of employment and business units in Knowledge Based Industries, 2008



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28. A considerable proportion (8%) of Hertfordshire's workforce are employed in professional, scientific and technical activities. The relatively high concentration of employment of this type (LQ of 1.2) is an indication that Hertfordshire's economy is providing employment for a highly skilled workforce. At a more detailed sectoral level, notable concentrations of employment within this sector suggest a specialism in research into natural / life sciences. In particular, research and experimental development on natural sciences and engineering has an LQ of 3 and employs 22,000 people across Hertfordshire.
29. Activities of head offices and management consultancies also contribute significantly to the concentration of employment in the professional, scientific and technical activities sector. This sub-sector employs 14,100 people in Hertfordshire and has a high LQ of 1.5.
30. The Information and Communication sector is another example of a knowledge intensive sector with a strong presence in Hertfordshire. Employment in telecommunications is particularly important to the Hertfordshire economy with wired telecommunications activities being a particularly highly concentrated sector (with an LQ of 16.7 and employing 2,200 people). A further 5,600 people are employed in other telecommunications activities with an LQ of 1.5.
31. Motion picture, video and television programme production is a key sub-sector within the Information and Communication section, employing 1,200. The high concentration of employment of this type in Hertfordshire (this sector has an LQ of 1.4) is likely to be related to the location of TV and film studios within Hertfordshire (e.g. Elstree Studios in the South of the county) as well as supply chain companies serving key studios in neighbouring counties (e.g. Pinewood Studios in Berkshire) and London.

Figure 1-10: High volume sectors 2009



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32. Hertfordshire's relatively large construction workforce (31,000 jobs) also appears to be at the higher skilled / knowledge intensive end of the construction sector; key concentrations in this sector are in the professional and skilled trades including:

- Construction of other civil engineering projects (5,400 people / LQ 2)
- Electrical Installation (6,600 people / LQ 1.5)
- Development of building projects (1,900 / LQ 1.3)
- Plumbing, heat and air conditioning installation (3,200 employees / LQ 1.3)

33. Around 7% of Hertfordshire's workforce is employed in Manufacturing, a smaller proportion than nationally (with a location quotient of 0.8 suggesting this sector is less important Hertfordshire's employment base than nationally). There are some key concentrations however, and the highest volume activities appear to be in the higher value, advanced manufacturing area. For example, there are high concentrations of employment in manufacture of weapons and ammunition (which employs 1,700 people and manufacture of pharmaceutical preparations which employs 3,000 people and has an LQ of 5.4.

... with specialisms in Life Sciences and Software and Digital and Green Industries

34. Employment in Life Sciences and Software and Digital industries is particularly concentrated in Hertfordshire. As Table 1-5 shows, more than 10,000 people (2% of the workforce) are employed in Life Sciences in Hertfordshire, double the concentration nationally and regionally and only matched by Berkshire.

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Table 1-5: Employees in Priority Sectors, 2009

Sector		GB	East of England	Hertfordshire	Berkshire	Surrey	Essex	Buckinghamshire	Central Bedfordshire
Creative and Media	Number	1044.2	82.2	17.5	16.5	27.3	18.7	9.1	3.4
	%	4%	3%	3%	4%	5%	4%	5%	4%
Life Sciences	Number	181.4	32.3	10.4	7.1	3.7	4.1	2.1	0.6
	%	1%	1%	2%	2%	1%	1%	1%	1%
Software and Digital	Number	598.6	53.8	18.6	46.0	21.4	9.6	7.5	1.8
	%	2%	2%	4%	10%	4%	2%	4%	2%
Advanced Engineering	Number	926.9	102.1	18.6	13.7	17.4	22.1	7.5	3.7
	%	4%	4%	4%	3%	3%	4%	4%	5%
Green Industries	Number	364.5	50.1	10.1	10.9	11.7	8.4	2.7	1.0
	%	1%	2%	2%	2%	2%	2%	1%	1%
Logistics	Number	1212.1	123.2	19.9	17.2	14.8	27.6	4.9	5.4
	%	5%	5%	4%	4%	3%	5%	2%	7%
Prof, Banking and finance	Number	1440.9	97.0	25.0	21.0	37.4	25.0	11.3	2.3
	%	5%	4%	5%	5%	7%	5%	6%	3%

Source: Business Register and Employment Survey, ONS Nomis (www.nomisweb.co.uk). © Crown Copyright Material is reproduced with the permission of the controller of HMSO.

Note: These figures will differ from those presented in Table 1-8 because they are based on 2009 BRES data. Aside from the methodological differences between BRES and ABI data, the sectors have been defined using 2007 SIC which differs slightly from the 2003 SIC used for ABI data.

35. Software and Digital industries (which includes telecommunications) are also very well represented in Hertfordshire, with 4% of the county's employment being in this sector. While this is clearly a key concentration for Hertfordshire, employment in this industry is significantly more concentrated in Berkshire, where it accounts for 10% of the county's total employment.
36. Hertfordshire has a strong employment base in advanced engineering, which employs almost 19,000 people however employment in this sector is not particularly concentrated. Similarly, employment in the Creative and Media sector is significant in volume, but does not represent a sector specialism for Hertfordshire. Conversely, Green Industries and Environmental consultancy represents a key specialism relative to the national average (the LQ of the sector is 1.4) but employment is much lower volume; the 10,100 employees in this sector represents 2% of Hertfordshire's employment base.

Sources of Employment Growth

37. Overall, employment in Hertfordshire grew by 2% between 1998 and 2008, significantly behind the national growth rate of 10% in the same period. Table 1-1 provides an overview

	GB			Hertfordshire		
	Number of employees 2008 (000s)	Absolute change 1998 – 2008	% change 1998 - 2008	Number of employees 2008 (000s)	Absolute change 1998 – 2008	% change 1998 - 2008
Education	2,485	624.2	34%	45	9.3	26%
Construction	1,269	160.8	15%	31	8.1	35%
Recreation, culture and sport	751	189.6	34%	14	4.1	43%
Health and social work	3,282	762.5	30%	45	4.1	10%
Retail trade	2,792	163.2	6%	62	2.9	5%
Real estate activities	511	206.5	68%	9	2.2	31%
Other business activities	3,490	920.9	36%	88	2.2	3%
Public admin	1,441	74.8	5%	16	1.8	13%
Other service activities	338	64.2	23%	7	1.1	20%
Hotels and restaurants	1,802	238.5	15%	29	1	4%
Supporting and aux transport	464	135	41%	7	0.9	15%
Sewage and refuse disposal	117	12.7	12%	2	0.7	54%
Auxiliary to financial intermediation	324	117.8	57%	5	0.7	17%
W'sale and commission trade	1,115	-34.3	-3%	30	0.7	2%
Agri, hunting and related	71	23	48%	1	0.6	78%
Research and development	112	15.9	17%	6	0.6	11%
Manuf wood, cork & straw prods	69	-14.3	-17%	1	0.2	24%
All sectors	26,493.6	2,349.3	10%	503.4	7.8	2%

Source: Annual Business Inquiry, 2008, ONS Nomis (www.nomisweb.co.uk). © Crown Copyright material is reproduced with permission of the controller of HMSO.
Note: All sectors employing more than 500 people with above Hertfordshire average growth rate (2%) between 1998 and 2008

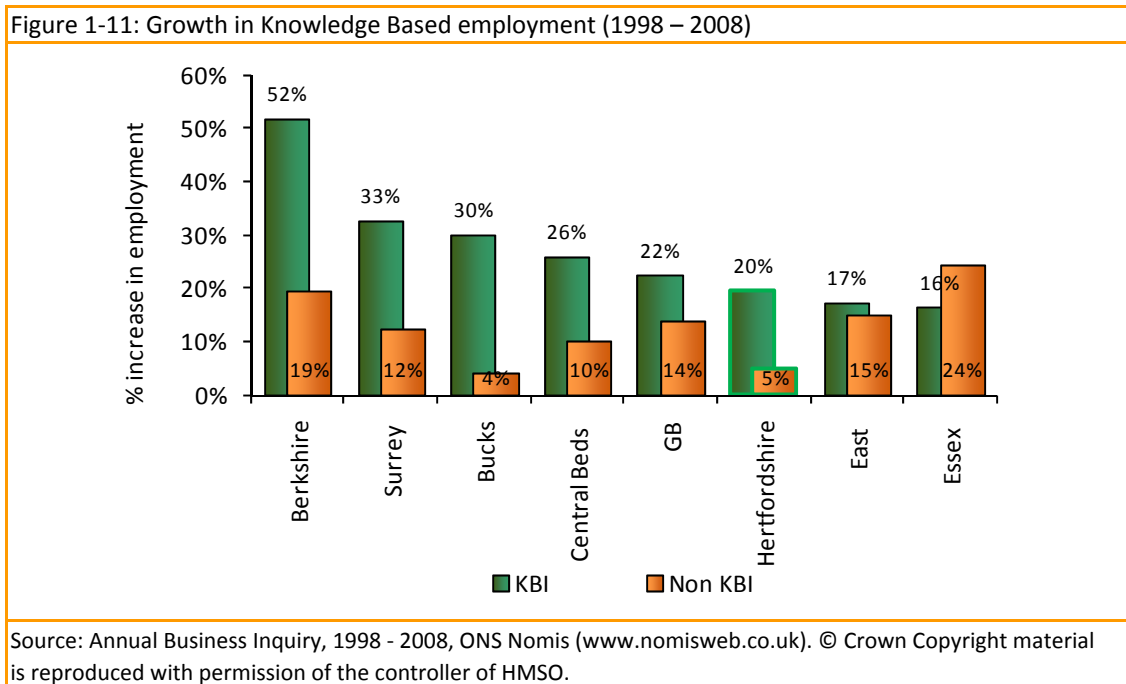
Limited growth in Knowledge Based Industries...

38. Given the high value nature of Hertfordshire's economy, higher value added or knowledge intensive sectors are not as strongly represented amongst the key growth sectors outlined in Table 1-6 as might be expected. For example,
- While there has been growth in R&D and activities auxiliary to financial intermediation this is modest in absolute terms and growth rates have been far outstripped by the national averages. For example the increase in R&D employment was six percentage points less in Hertfordshire than nationally and the increase in activities auxiliary to financial intermediation was 40 percentage points less than nationally.

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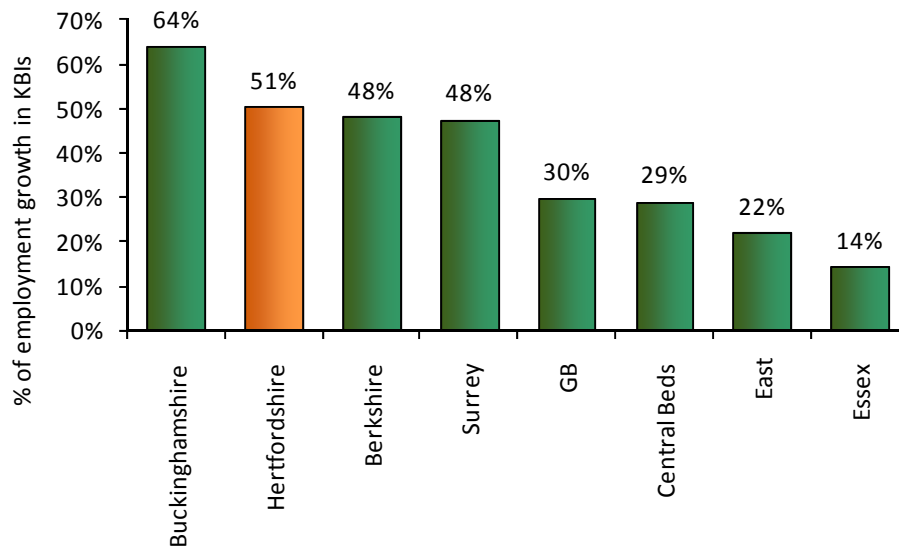
- Nationally, employment in Real Estate Renting and Business grew by 38% between 1998 and 2008 while growth in Hertfordshire was comparatively very low (3% in the same period). This relatively low rate of growth can, to some extent be explained by the pre-existing high level of employment in this sector (it had an LQ of 1.6 in 1998) but the slow rate of growth has weakened Hertfordshire’s strength in this sector; its LQ has reduced to 1.3.

39. Figure 1-11 provides a breakdown of the growth in employment in KBI employment and non-KBI employment between 1998 and 2008 for Hertfordshire and comparators. While the overall growth in KBI employment of 20% in this 10 year period on Hertfordshire was slightly greater than regional growth in KBI employment, this rate of growth is slightly behind the national rate of growth and significantly behind that of other local comparators. For example, Berkshire has increased its KBI employment by more than half in the same period and Surrey and Buckinghamshire by more than 30%.



40. However, the comparatively slow growth in KBI employment does not signify a transition to a lower value economy in Hertfordshire. Figure 1-12 shows that more than half of Hertfordshire’s overall employment growth between 1998 and 2008 was accounted for by KBIs, a larger proportion than nationally and regionally and second only to Buckinghamshire, which has seen a particularly large increase.

Figure 1-12: Proportion of employment growth accounted for by KBI employment 1998 - 2008



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... but growth in public sector employment

41. Education has made by far the largest contribution to employment growth in Hertfordshire (9,300 jobs) although the 26% increase is significantly less proportionally than that occurring nationally in the same period. Increases in employment in some other sectors that tend to be public sector funded have been less proportionally than nationally (e.g. employment in Health and Social work grew by 10% in Hertfordshire compared to 30% nationally).
42. Limited growth in these sectors has been offset to some extent by the very large growth in public sector admin which increased by 13% in Hertfordshire compared to 5% nationally. However, given the limited availability of public sector funds, it is unlikely that this trend will continue in the short to medium term.

... as well as a growing construction industry

43. After education, the construction sector has made the most significant contribution to growth with a net increase of 8,100 employees between 1998 and 2008 (35%). The majority of growth has occurred within the plumbing sub sector which has grown by more than 1000 jobs (more than 80% increase) and more general construction and civil engineering employment which has grown by almost 3,000 jobs. Interestingly, manufacture of wood, cork and straw products has increased by 24% (c 200 jobs) in Hertfordshire while it has been decreasing nationally. This could be related to the increase in construction employment as all of this growth is accounted for by Manufacture of builders carpentry and joinery sub-sector.
44. Recreation, culture and sport has been another key source of employment growth and has increased by 43%, nine percentage points more than nationally. Operation of sporting arenas and stadiums accounts for a large proportion of this increase (900 new jobs) and a further 1,500 new jobs were provided through other sporting activities.

Shrinking sectors

45. Overall, employment growth in expanding sectors was more than 77,000 between 1998 and 2008. However the overall net increase has been slowed to 37,500 jobs in the same period due to significant shrinkage of some sectors.

	GB			Hertfordshire		
	Number of empl 2008 (000s)	Absolute change 1998 – 2008	% change 1998 – 2008	Number of empl 2008	Absolute change 1998 – 2008	% change 1998 – 2008
30:Manuf office machinery/comps	19	-30	-62%	0	-1.3	-81%
18:Manuf wearing apparel	25	-112	-82%	0	-0.8	-76%
21:Manuf pulp, paper and products	59	-46	-44%	0	-0.6	-65%
66:Insurance and pension funding	149	-83	-36%	2	-2.4	-60%
15:Manuf of food and beverages	377	-102	-21%	2	-2.4	-56%
32:Manuf radio, TV / coms equipment	55	-70	-56%	1	-0.7	-35%
33:Manuf medical, precision, optical instr	111	-28	-20%	3	-1.7	-35%
36:Manuf furniture n.e.c.	137	-67	-33%	3	-1.2	-33%
28:Manuf fabricated metal products	317	-86	-21%	4	-1.8	-32%
31:Manuf electrical machinery / app	101	-82	-45%	3	-1.3	-31%
25:Manuf rubber and plastic products	166	-79	-32%	2	-0.9	-31%
29:Manuf machinery and equipment nec	256	-126	-33%	5	-2.1	-30%
22:Publish, print & repro recorded media	273	-84	-23%	6	-2.1	-27%
24:Manuf chemicals and chemical prod	157	-98	-38%	6	-2.0	-26%
64:Post and telecommunications	452	-22	-5%	12	-3.9	-24%
60:Land transport; transport via pipelines	528	18	4%	7	-2.1	-22%
50:Sale, maintenance, repair motor vehicles	521	-45	-8%	12	-2.8	-19%
65:Finance intermed, ex insurance / pension	590	-4	-1%	7	-0.6	-8%
72:Computer and related activities	549	174	46%	17	-1.2	-6%

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Considerable decline in Manufacturing Employment overall...

46. Overall, employment in manufacturing has decreased by 33% (just under 20,000 jobs) in Hertfordshire in the past ten years. This trend has been echoed elsewhere and Hertfordshire's manufacturing employment base has declined by a similar proportion to nationally and regionally.

... with some shrinkage in higher value manufacturing sectors

47. While it is therefore no surprise to see so many manufacturing sectors in the list of shrinking sectors outlined in table 1-7, it is a concern that employment in some of the higher value manufacturing sectors has also contracted over recent years. The 56% reduction in

● Hertfordshire Strategic Employment Sites: Appendix A●

employment in manufacture of chemicals and chemical products and 30% reduction in manufacture of medical, precision and optical instruments employment are a key concern given their importance to Hertfordshire's life sciences cluster.

... as well as in other Knowledge Based Industries

48. In addition to losses in the manufacturing sector, there have also been some notable loss of employment in higher value, higher skilled sectors. In particular
- Post and telecommunications. Employment has decreased by 24% (2,100 jobs). The majority of this reduction has occurred between 2006 and 2008.
 - Financial intermediation, except insurance and pension funding has declined by more than 600 jobs (a loss of 8%). All of this decrease can be accounted for by the sub-sector Other Monetary intermediation.
 - Computer and related activities. Loss of employment has been focused on lower value added sub sectors including data processing (which lost c1,600 jobs and maintenance and repair of office computers which lost 1,400 jobs. In both of these sub sectors, the majority of this decline in employment has occurred during the recession.

Recent Trends for priority sectors

49. Table 1-8 provides overview of recent the change in employment in the four priority sectors for Hertfordshire⁴.

	2003 Employment (000s)	2003 LQ vs GB	2008 Employment (000s)	2008 LQ vs GB	Absolute Change 2003 – 08 (000s)	% change 2003 - 08
Life Sciences	9.7	2.7	11.2	3.1	1.4	15%
Advanced Manufacturing	19.1	0.8	21.8	1.0	2.8	14%
Professional banking and finance	27	0.9	30	1.0	3.0	11%
Logistics	16	0.8	15.9	0.8	-0.1	-0.5%
Software and Digital	22.5	1.6	21.9	1.5	-0.6	-3%
Green Industries (ex consult*)	11	1.6	10.7	1.4	-0.3	-3%
Creative Industries	25.7	1.1	24.5	1.0	-1.2	-5%

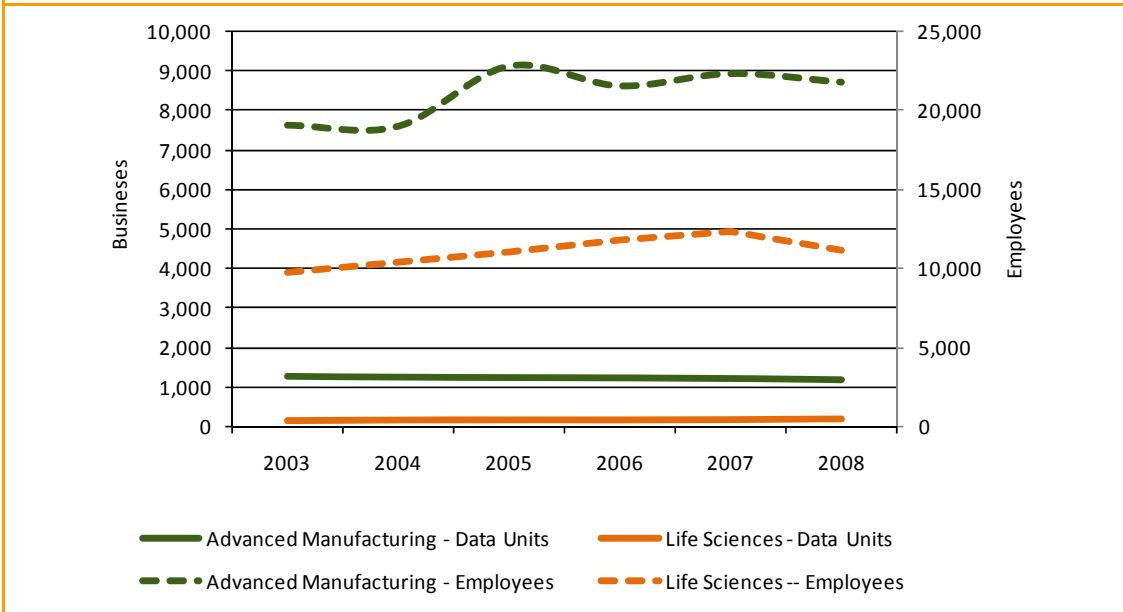
Source: Annual Business Inquiry 2003 – 2008
 Note: 2003 SIC codes do not adequately provide for environmental consultancy activities. The SIC code in which environmental consultancy activities fit covers all business management and consultancy activities. The large variety of businesses included in this SIC code would skew the analysis considerably.

⁴ These figures presented in Table 1-8 are based on Annual Business Inquiry data and will therefore differ from those in Table 1.5, which is based on BRES data. Aside from the methodological differences between BRES and ABI data, the grouped sectors in the analysis in Table 1-8 have been defined using 2003 SIC which differs slightly from the 2007 SIC used for BRES data.

Significant growth in Life Sciences and Advanced manufacturing...

- 50. The past five years have seen Hertfordshire consolidating its existing strengths in Life Sciences and Advanced Manufacturing. The increase of 1,400 employees (15%) in the Life Sciences sector has further increased the concentration of employment in this field in Hertfordshire – the LQ of the sector has increased from 2.7 to 3.1. In the same period, the number of Life Sciences companies in Hertfordshire has increased by 40.
- 51. Employment in advanced Manufacturing has also increased notably by 2,800 people. Although the sector remains no more concentrated in Hertfordshire than it is elsewhere, there are signs that the importance of this sector to the regional economy has increased, since its LQ has increased from 0.8 to 1.0 in the past five years. Although employment has increased significantly, the number of advanced manufacturing business has decreased by just less than 100. This is likely to be due largely to improvements in efficiency and technology reducing the labour requirements of advanced manufacturing businesses.

Figure 1-13: Trends in employment and business units in Advanced Manufacturing and Life Sciences 2003 – 2008



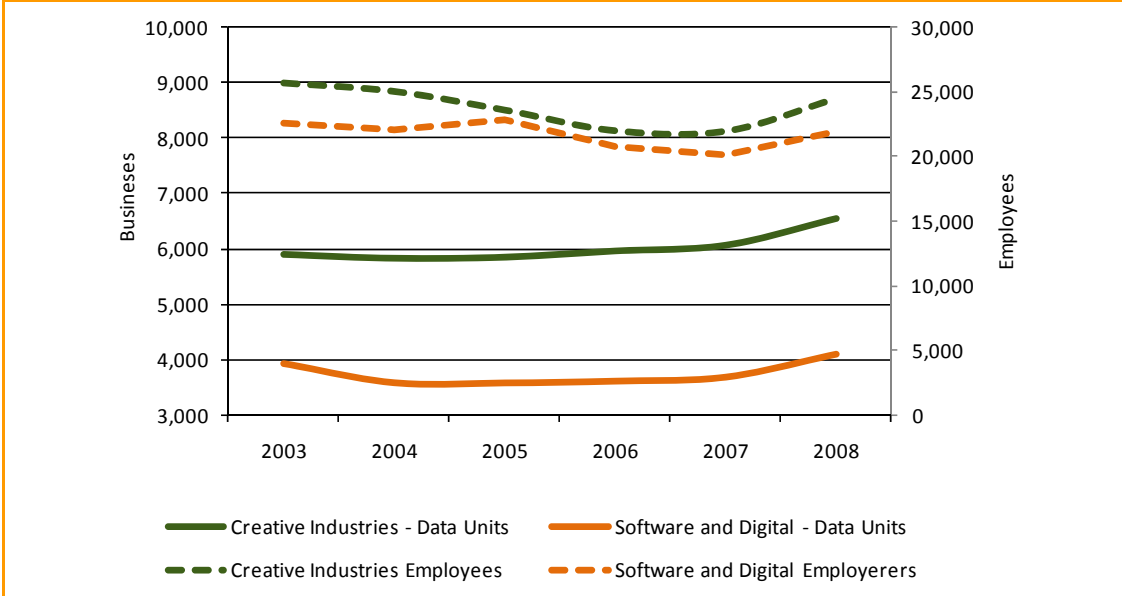
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- 52. Between 2003 and 2008, employment in the Professional, Banking and Finance sector increased by 3,000 representing an increase of 11%. However, even with this large growth, employment in this sector remains no more concentrated in Hertfordshire than it is nationally.

... and a recent upturn in Creative and Media and Software and Digital

- 53. Although Table 1-8 suggests that overall employment in the Creative and Media and Software and Digital sectors has decreased overall, the trends plotted in show significant upturns in job creation and business formation in these sectors since 2007

Figure 1-14: Trends in employment and business units in Creative and Media and Software and Digital

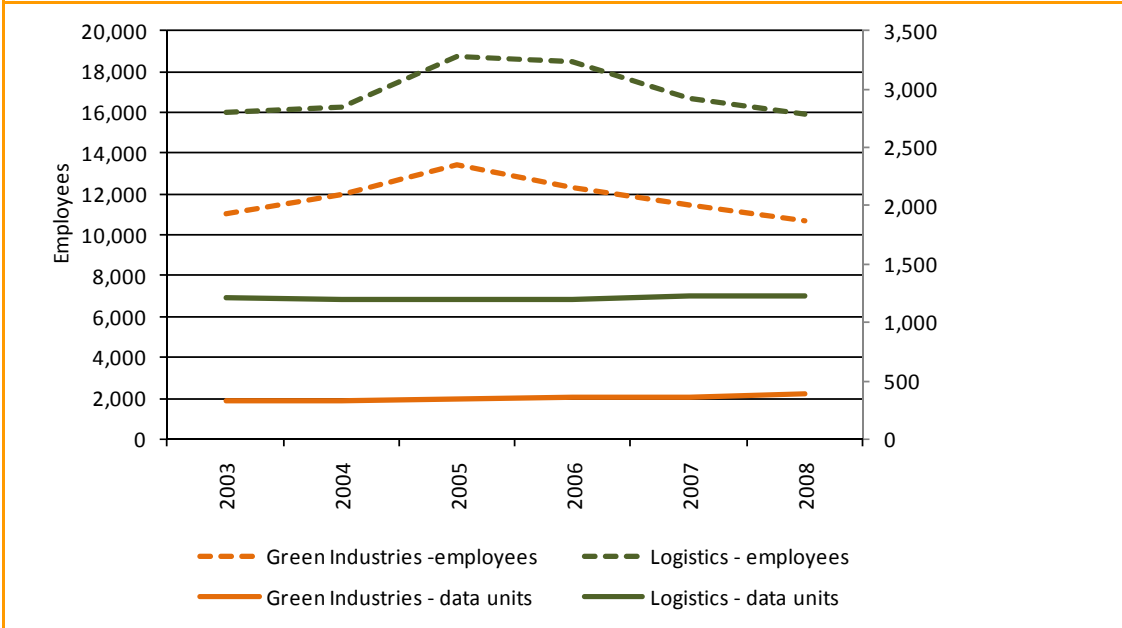


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... but contraction of employment in Green Industries

54. The volume of employment in Green Industries shrank by 3% overall between 2003 and 2008. This represents a loss of 1,400 jobs. shows that the contraction in employment has occurred rapidly and steadily since 2005 and there is some evidence to suggest that this contraction in employment may be related to increases in productivity in the sector as the volume of business units remained stable during this period.

Figure 1-15: Trends in employment and business units in Green Industries and Logistics

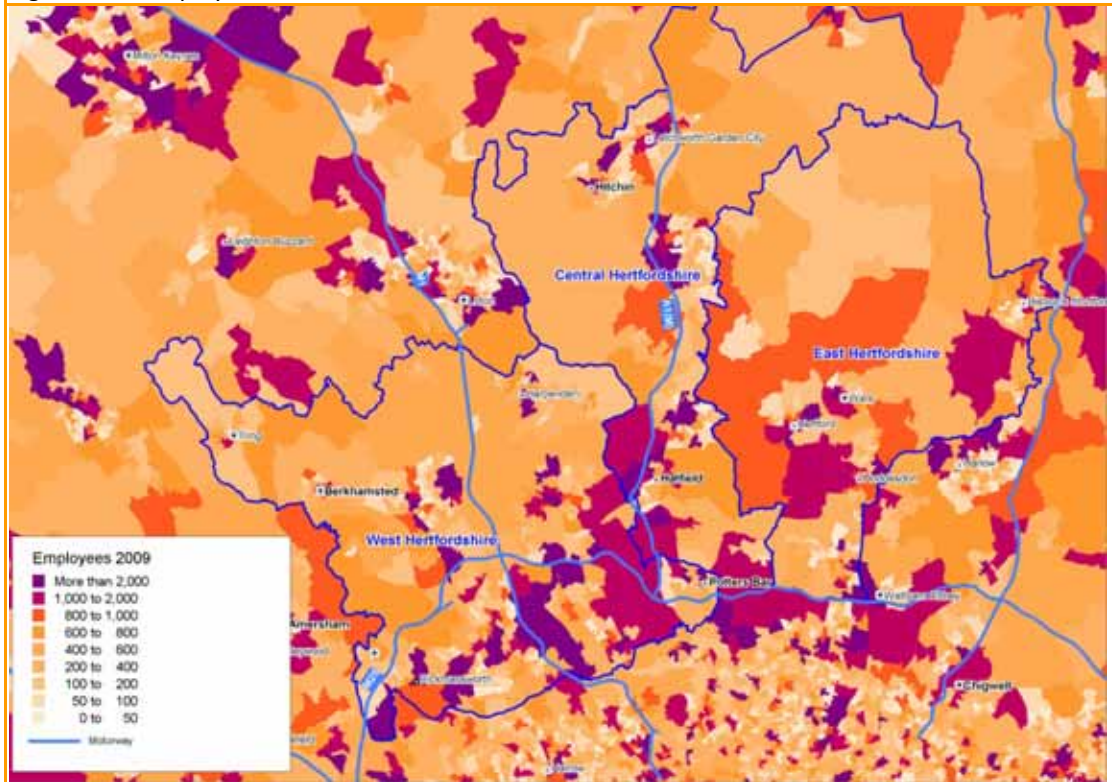


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Local Area Analysis

55. Hertfordshire is not a homogenous area economically, the ten Local Authority Areas that make up the county vary significantly in terms of the size and type of their business and employment bases. Figure 1-16 shows that employment is particularly concentrated along the county's motorway corridors, particularly the M1 through Stevenage and Welwyn Hatfield and the M25 through Three Rivers, Hertsmere and Watford. The importance of Hertfordshire's connections to and relationships with London are illustrated by the concentration of employment towards the south of the county and along the M1 motorway.

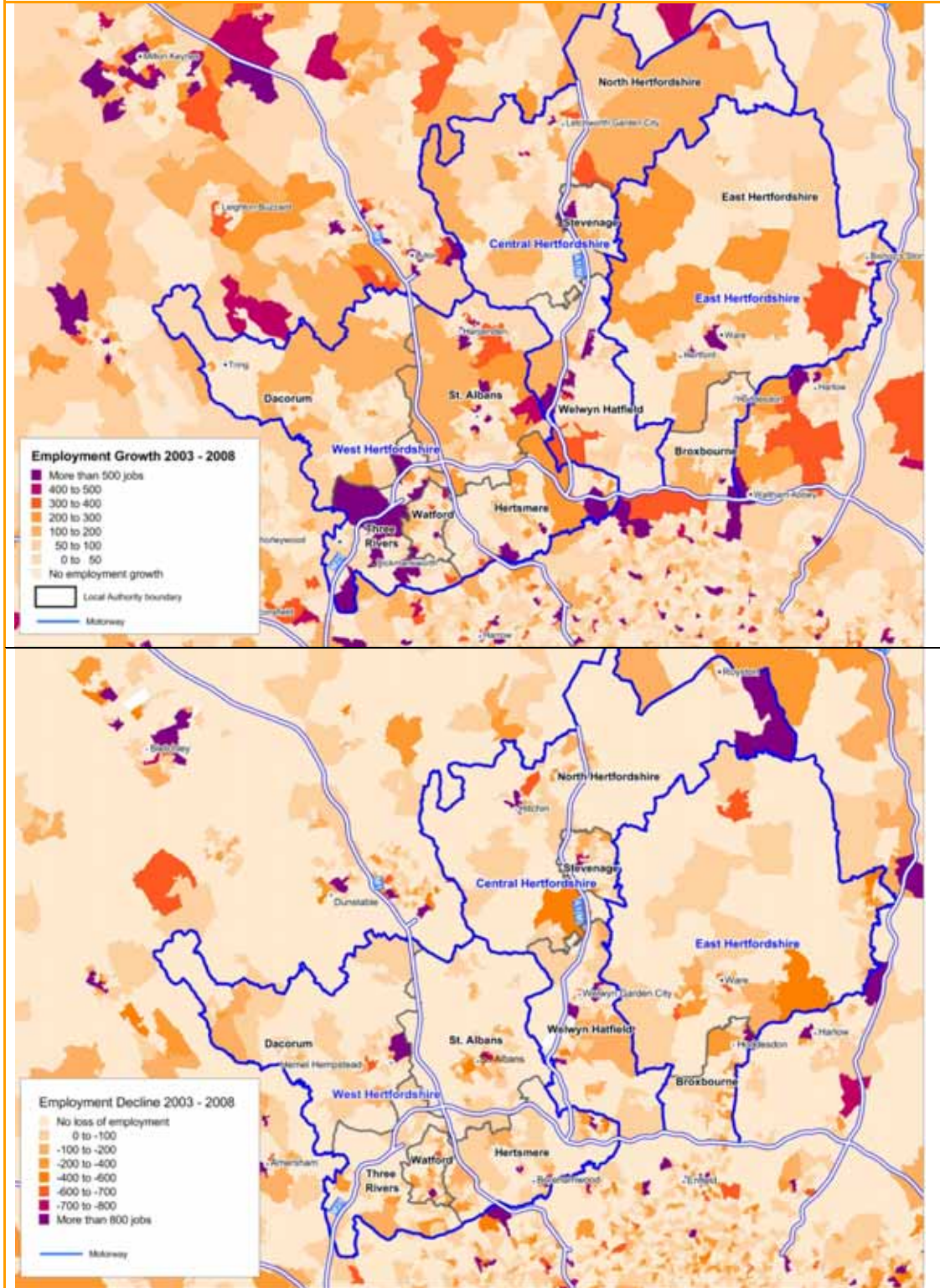
Figure 1-16: Employment in Hertfordshire, 2009



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56. Growth in employment has been strongly focused around the motorway network and to the South of the County, particularly in areas with existing concentrations of employment. West Hertfordshire in particular has seen a significant growth in employment, particularly around Three Rivers and Watford. Pockets of growth in St Albans and Harpenden are also notable.
57. Elsewhere in the county, there have been other pockets of high growth primarily along the motorway network (particularly along the M1). There are also small pockets of high employment growth in East Hertfordshire in Ware and Hertford.

Figure 1-17: Employment Trends - 2003 – 2008



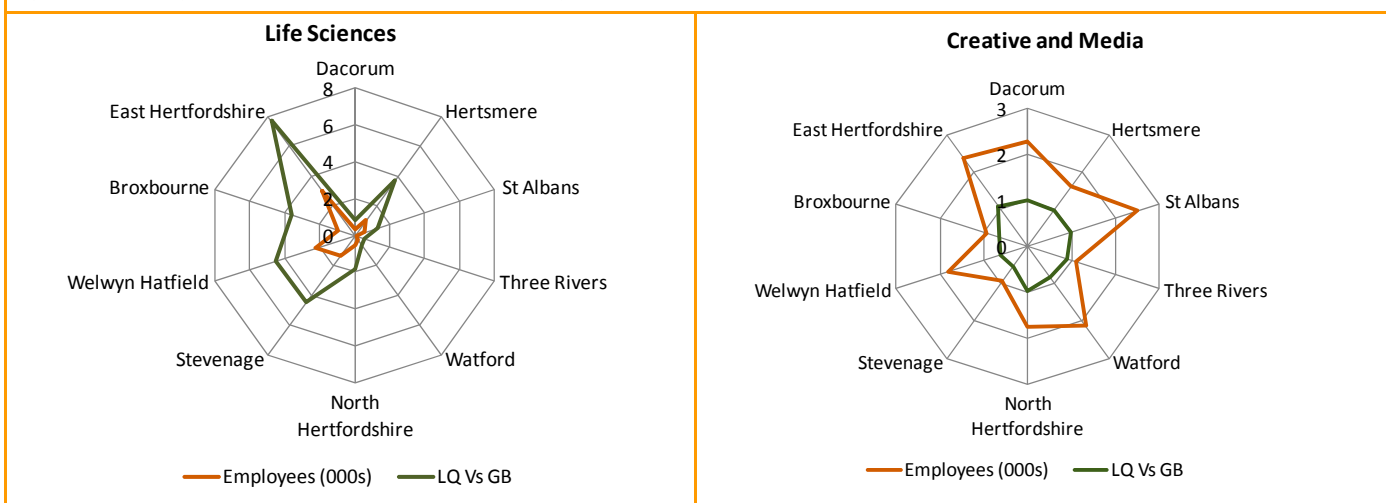
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● Hertfordshire Strategic Employment Sites: Appendix A ●

58. There are only a handful of isolated areas where employment has declined significantly. These are focused around East Hertfordshire although there are a small number of isolated SOAs in West Hertfordshire that have seen very large decreases in Employment.
59. An overview of employment, business base and labour market indicators for each of the Local Authority areas is provided in Table 1-9. The key differences in the sectoral make up of local economies across Hertfordshire are outlined in Figure 1-18. The following section drawn on this, as well as more detailed data provided in the appendix, to provide a headline overview of each of Hertfordshire’s three key economic areas:
- **West Hertfordshire:** Including the local authority areas of Dacorum, Hertsmeire, St Albans⁵, Three Rivers and Watford.
 - **Central Hertfordshire:** Covering North Hertfordshire, Stevenage and Welwyn Hatfield
 - **East Hertfordshire:** Covering Broxbourne and East Hertfordshire Local Authorities.

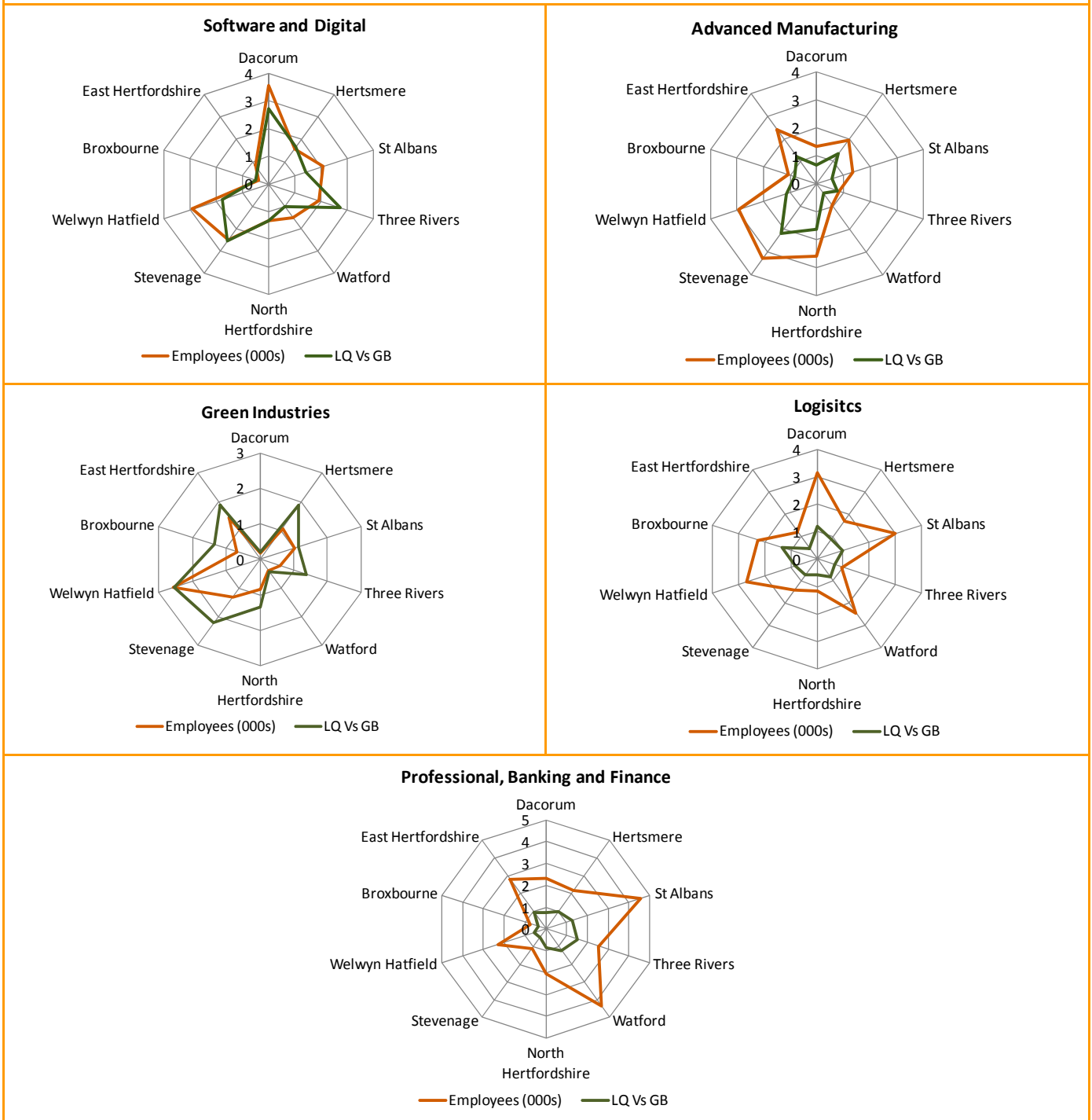
Figure 1-18: Employment and LQs (vs GB) in Priority Sectors, 2009



⁵ Note: 2008 Annual Business Inquiry figures for St Albans should be treated with caution, particularly those for the Banking and Finance sector. The veracity of this data has been questioned due to a particularly large increase between 2007 and 2008 that is believed to be anomalous.

● Hertfordshire Strategic Employment Sites: Appendix A ●

Figure 1-18: Employment and LQs (vs GB) in Priority Sectors, 2009

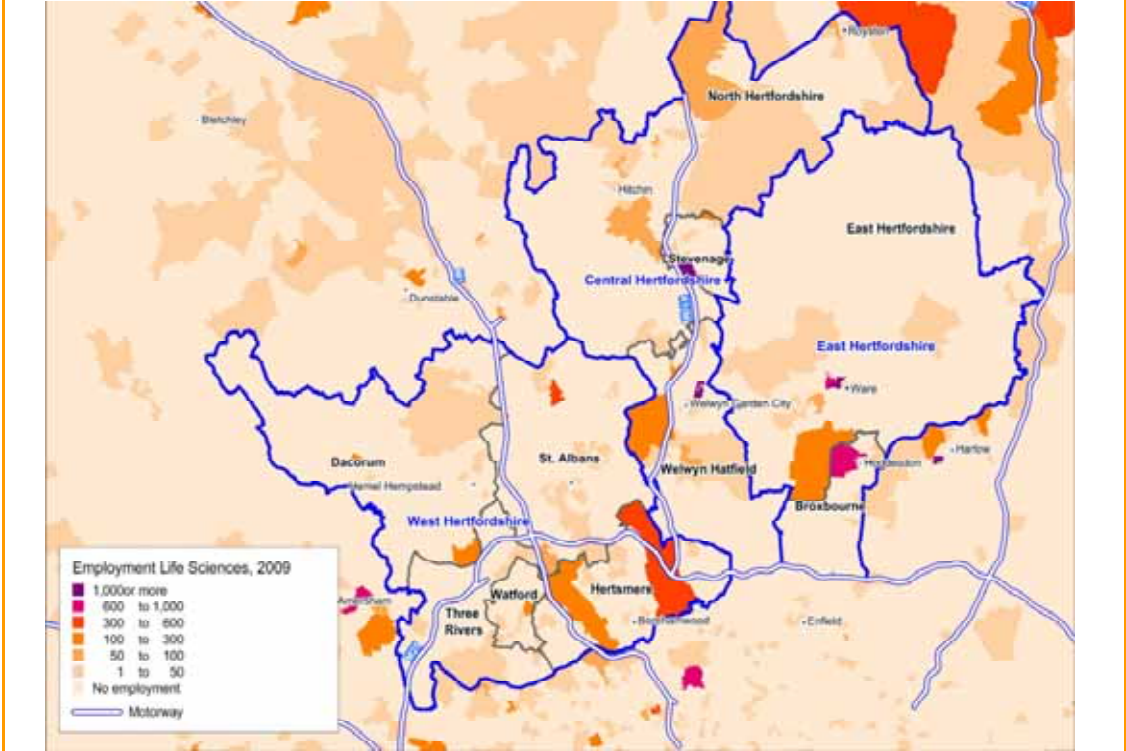


Source: Business Register and Employment Survey, ONS Nomis (www.nomisweb.co.uk)

● Hertfordshire Strategic Employment Sites: Appendix A●

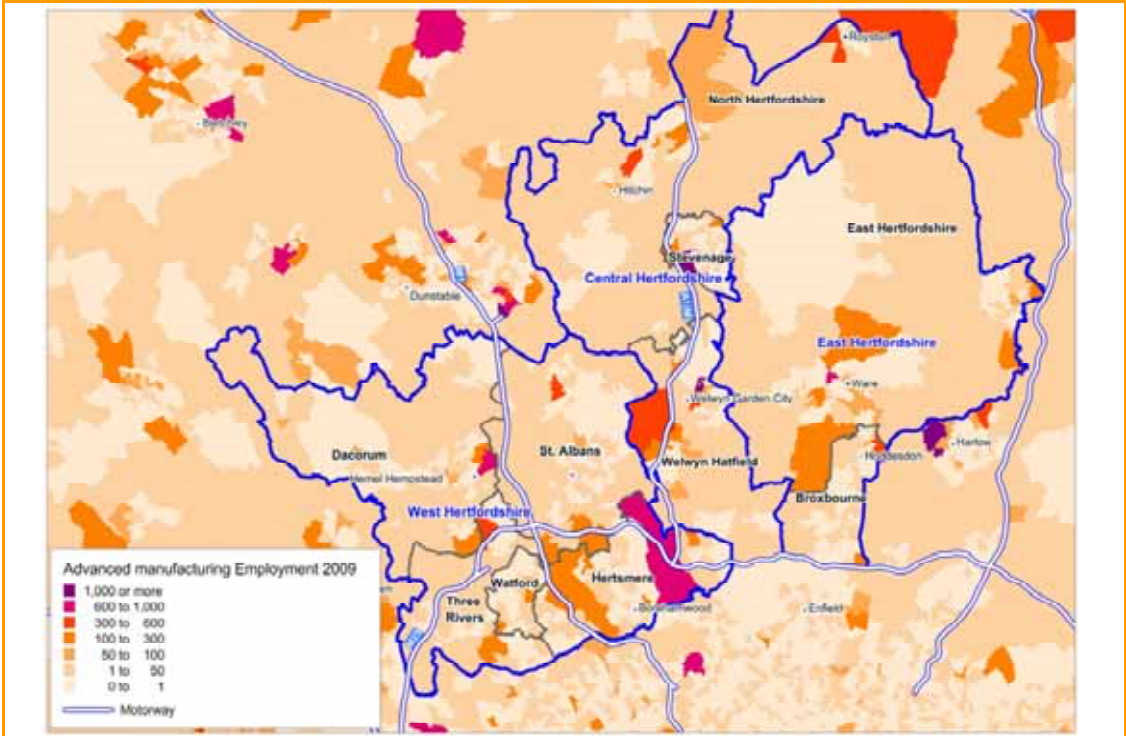
	Employment				Business Base				Travel to Work Flows Net flow	Economic Activity		Occupations	
	Total 2009 (000s)	% of total	% change 1998 - 2003	% change 2003-8	Number of Businesses 2008 (000s)	% of Herts Total	% change 1998 - 2003	% change 2003-8		Economic Activity Rate 2009/10	Percentage point change 2004/5 to 2009/10	% residents HMPs	Percentage point change 2004/5 to 2009/10
Hertfordshire	508.9	100%	-1%	3%	54.0	1.0	↑7%	↑11%	-36,000	81%	-1%	39%	↑4%
West Hertfordshire	258.2	51%	↓-8%	↑5%	28.5	53%	↑6%	↑10%	-13,800	78%	↓-3%	42%	↑4%
Dacorum	57.0	11%	2%	↓-5%	7.4	14%	↑7%	↑9%	-700	78%	↓-7%	40%	↑4%
Hertsmere	41.3	8%	↑5%	↓-1%	5.2	10%	↑9%	↑14%	-1,500	78%	1%	39%	↑8%
St Albans	64.7	13%	↓-32%	↑23%	7.4	14%	-1%	↑9%	-9,800	78%	↓-4%	50%	3%
Three Rivers	30.9	6%	↑19%	↑18%	4.3	8%	↑13%	↑13%	-9,800	79%	-1%	43%	↑9%
Watford	64.3	13%	↓-4%	-3%	4.2	8%	↑4%	↑7%	7,900	81%	-1%	35%	-1%
Central Hertfordshire	158.8	31%	6%	1%	14.1	26%	↑9%	↑10%	-440	83%	0%	37%	↑6%
North Hertfordshire	44.7	9%	2%	↓-8%	6.4	12%	↑9%	↑6%	-11,000	83%	↑2%	37%	1%
Stevenage	42.4	8%	2%	-2%	3.1	6%	↑8%	↑17%	2,200	87%	↑2%	31%	↑9%
Welwyn Hatfield	71.6	14%	↑13%	↑12%	4.6	9%	↑10%	↑12%	8,600	80%	↓-2%	40%	↑8%
East Herts Area	91.9	18%	↑5%	0%	11.5	21%	↑8%	↑15%	-21,300	83%	↑1%	35%	1%
Broxbourne	36.4	7%	↑12%	-1%	3.9	7%	↑11%	↑19%	-11,300	82%	↑3%	32%	6%
East Hertfordshire	55.5	11%	1%	0%	7.5	14%	↑7%	↑13%	-10,100	84%	↑2%	37%	↓-3%

Figure 1-19 : Distribution of employment in Life Sciences, 2009



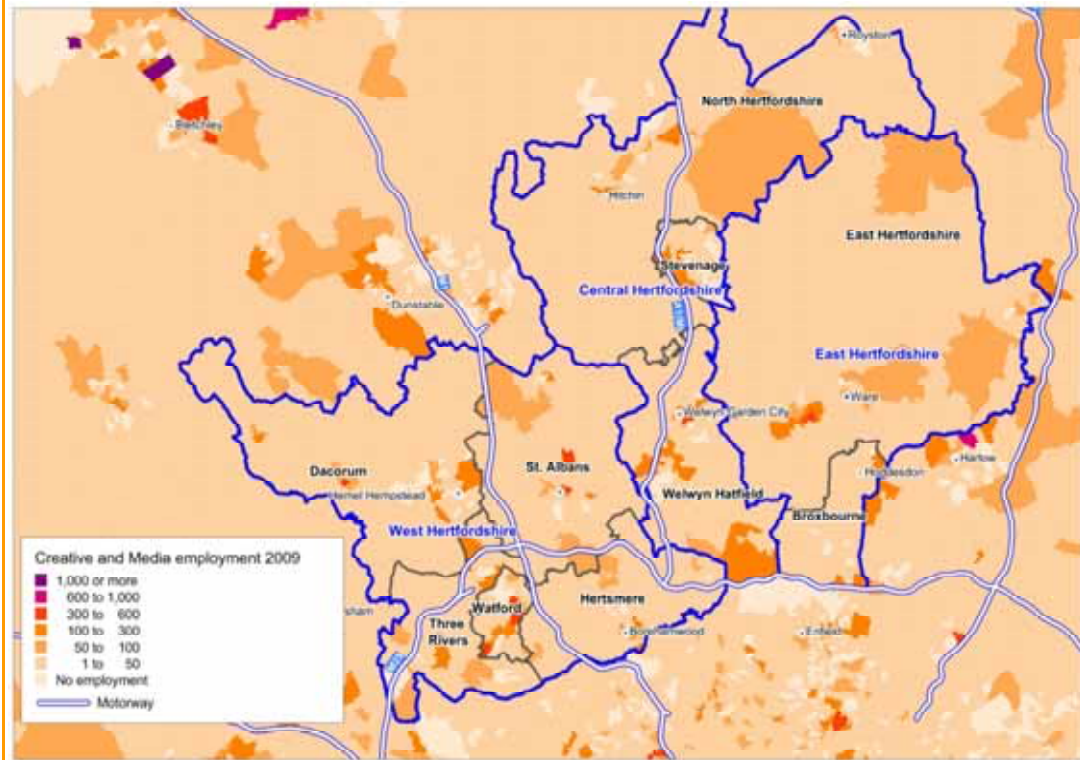
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Figure 1-20 : Distribution of employment in Advanced Manufacturing, 2009



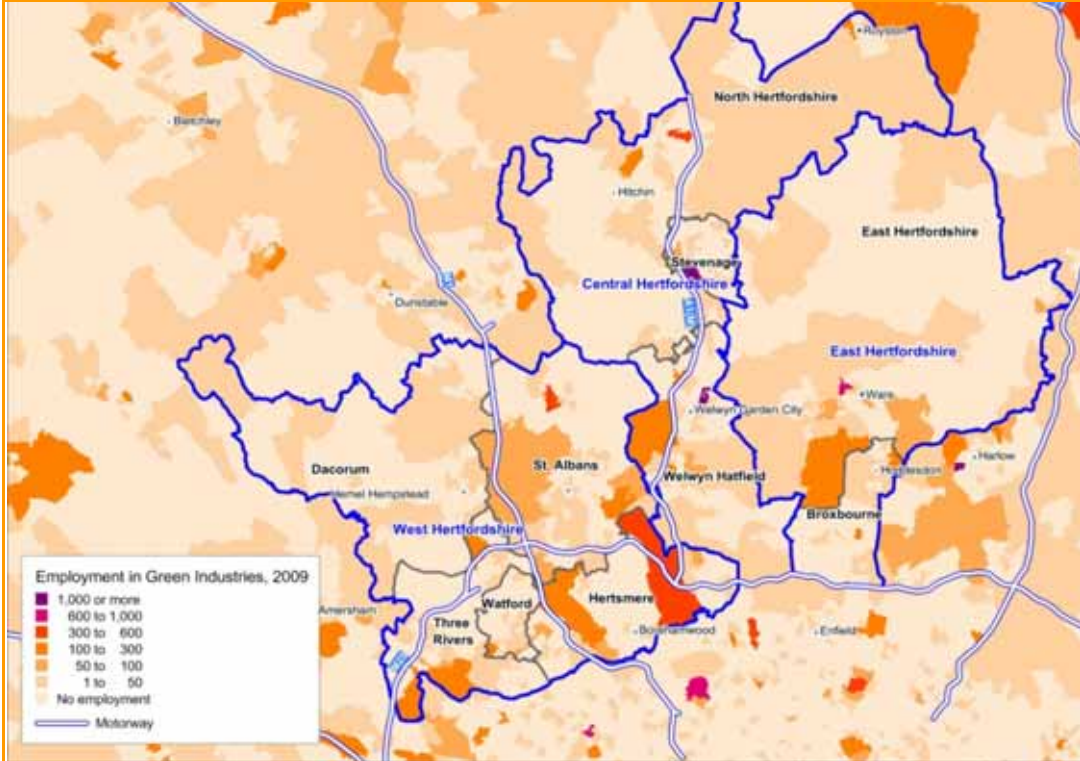
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Figure 1-21 : Distribution of employment in Creative and Media, 2009



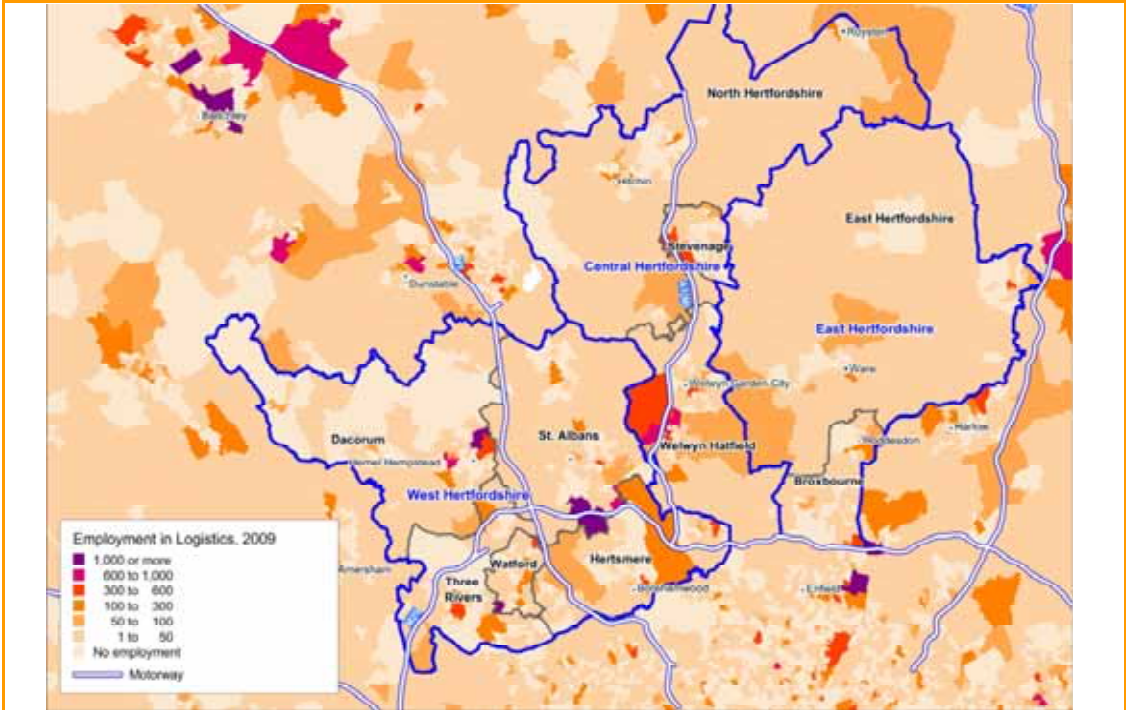
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Figure 1-22 :: Distribution of employment in Green Industries and Consultancy, 2009



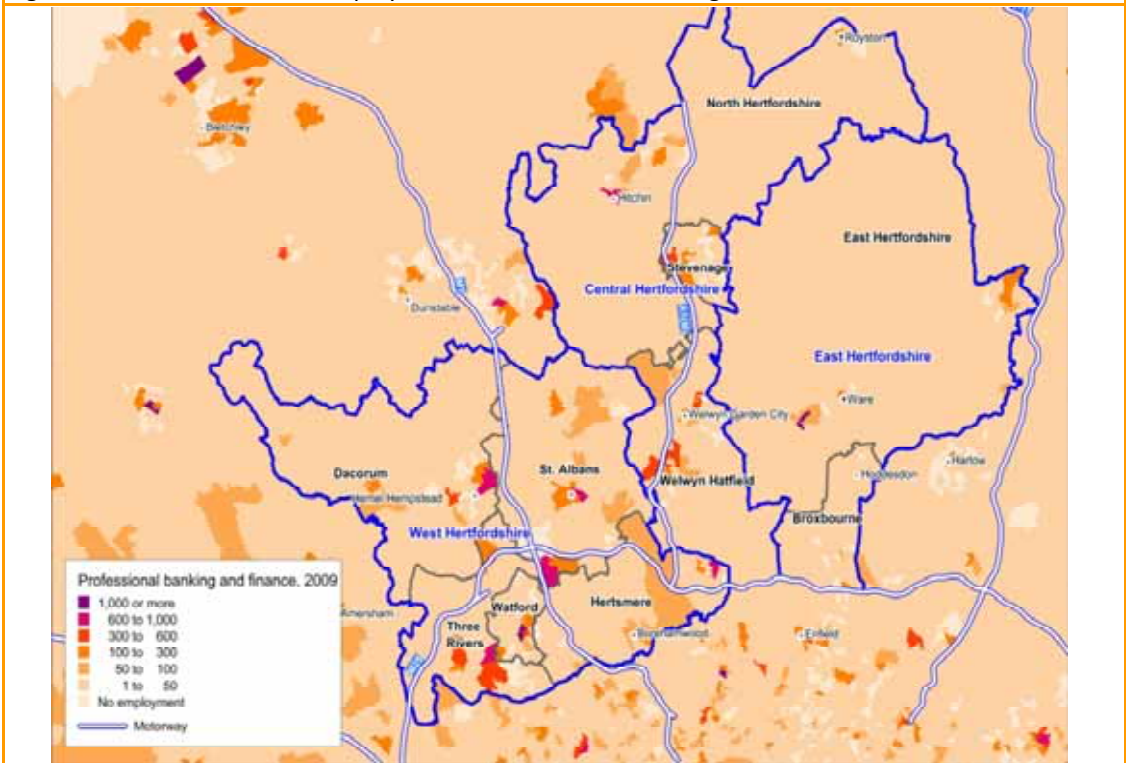
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Figure 1-23 :: Distribution of employment in Logistics, 2009



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Figure 1-24 :: Distribution of employment in Professional, Banking and Finance 2009



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West Hertfordshire Overview

West Hertfordshire - Key Characteristics:

Key focus of employment in Hertfordshire, accounting for more than half of the county's employment.

Overall **increase in employment** over the past ten years but growth has been unstable and there is considerable variation between the growth trajectories of the local authorities within West Hertfordshire

Strong increases in employment in St Albans and Three Rivers but overall declining employment in Dacorum and Watford (with a sustained **trend of decreasing employment in Watford**)

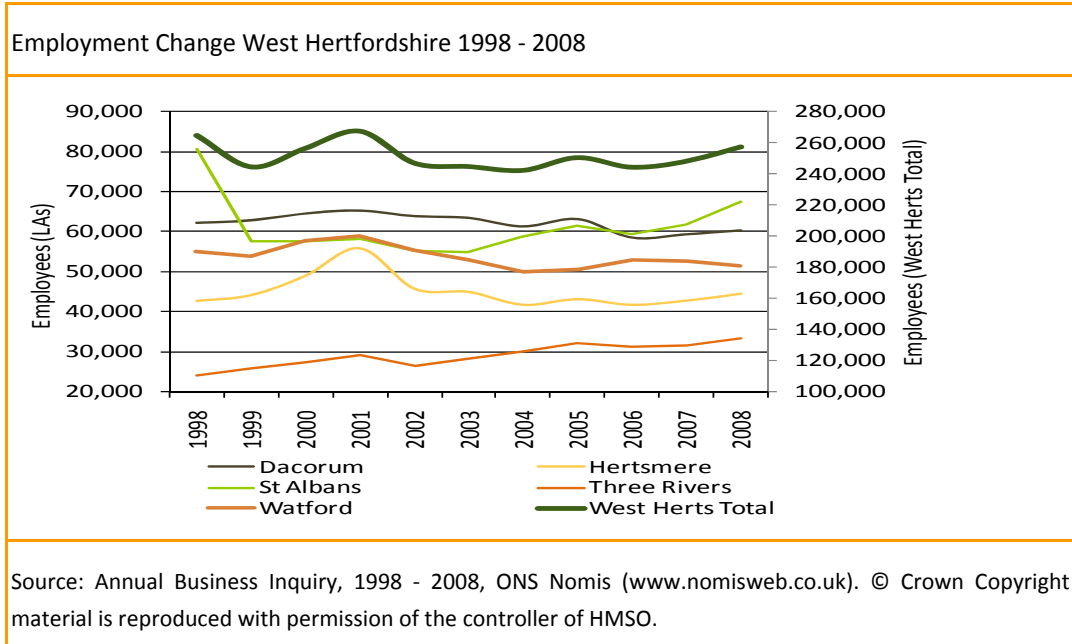
Net exporter of labour from all local authorities with the exception of Watford.

Strong representation of **knowledge based industries** in the West Hertfordshire, particularly St Albans and key concentrations of employment in **Creative and Media** and **Software and Digital** industries.

Other important sectors include **Post and Telecommunications** and Research and Development.

Business Base and Employment

60. West Hertfordshire has made a key contribution to economic growth in Hertfordshire over past 10 years. Employment in this part of the county accounts for more than half of the Hertfordshire total and the rate of employment growth in West Hertfordshire between 1998 and 2008 has outstripped the county average. Within West Hertfordshire, Watford and St Albans have the highest volume of employment, each host to more than 60,000 jobs and together accounting for almost half of the 258,000 jobs in West Hertfordshire.



61. While the volume of employment in West Hertfordshire has grown overall in the past five years (by 5%), there have been significant fluctuations over the past ten years and large variations in the growth trajectories of individual local authorities. While employment in St Albans and Three Rivers has increased remarkably over since 2003 (by 23% and 18%), there have been small declines in employment in Dacorum and Watford. While much of the more recent decline can be put down to the impact of the recession, the sustained trend of

declining employment numbers in Watford should be highlighted, particularly as this authority is part of Hertfordshire's southern employment core.

62. Although employment numbers have been unstable overall, the number of businesses in each LA has increased markedly in the past 10 years. The rate of business base growth in Hertsmere and Three Rivers has been particularly large. Although Watford's business base has grown, the overall increase of 7% is the slowest growth rate of all the West Hertfordshire local authorities.

Travel to Work and Labour Market

63. West Hertfordshire is a net exporter of labour and has a daily net outflow of commuters of 13,800. Within West Hertfordshire, only Watford is a net importer of labour, with a daily inflow of 7,900.
64. The economic activity rate of West Hertfordshire's residents (78%) is below the Hertfordshire average of 81%. This has declined by almost three percentage points between 2004/5 and 2009/10. The majority of this decrease has actually occurred in the last 12 months when the actual number of economically active residents decreased by almost 3,000, resulting in a two percentage point decrease in the economic activity rate. This recent decline suggests that the West Hertfordshire labour market may have been more severely affected by the economic downturn than other parts of the county.
65. Although the economic activity rate is lower than the county average, a high proportion (42%) of West Hertfordshire's residents are employed in Higher Managerial or Professional occupations. This is significantly greater than the Hertfordshire average and has increased by four percentage points in the last five years. St Albans has a particular high concentration of HMP residents; half of its population.

Key Sectors

66. West Hertfordshire has the highest proportion of KBIs in all of Hertfordshire's economic areas. Almost half of the businesses in West Hertfordshire are KBIs and there is a particularly large cluster of KBIs in St Albans, where 53% of the businesses are trading in knowledge intensive sectors.
67. West Hertfordshire is a hub for much of the county's employment in Creative and Media and the sector is well represented (in volume terms) in all of West Hertfordshire's local authorities (although the LQ is around 1 for all, so employment is not particularly concentrated). There are particular concentration of employment in the Software and Digital sector in Dacorum (where there are 3,500 employees in this sector) and Three Rivers (where the 2,000 Software and Digital employees give the sector an LQ of almost 3).
68. At the local authority level, employment in Life Sciences and Advanced Manufacturing is not particularly concentrated, although there are some concentrations within SOAs in Hertsmere, particularly to the West and East of Borhamwood. Hertsmere also has a relative specialism in Green Industries and Environmental consulting, which employs more than 1,000 people in the borough with an LQ of almost 2.
69. Other notable sectors include:
- Wholesale and Commission Trade: employs 16,700 people across West Hertfordshire with concentrations of employment in Hertsmere and Dacorum

• Hertfordshire Strategic Employment Sites Study: Appendix A •

- R&D Just over 1,500 people are employed in R&D in West Hertfordshire, the majority of these are employed in Hertsmere, where the LQ of this sector is 4.2.
- Post and Telecommunications: Employs 5,800 people with particular concentrations in Dacorum (LQ 1.7) Three Rivers (LQ 1.9) and Watford (LQ 1.6).

Central Hertfordshire Overview

Central Hertfordshire - Key Characteristics

Employment has grown at a considerably higher rate than the rest of the county over the past ten years

Concentrations of employment are primarily focused on the **motorway network**. Motorway corridors have also been the key focus of employment growth over recent years.

The overall impact of significant and sustained **employment growth in Welwyn Hatfield** has been countered by **declines in employment in Stevenage and North Hertfordshire** since 2005.

Very small net exporter of labour overall, but this is primarily due to the **large net outflow from North Hertfordshire**, Stevenage and Welwyn Hatfield are both net importers.

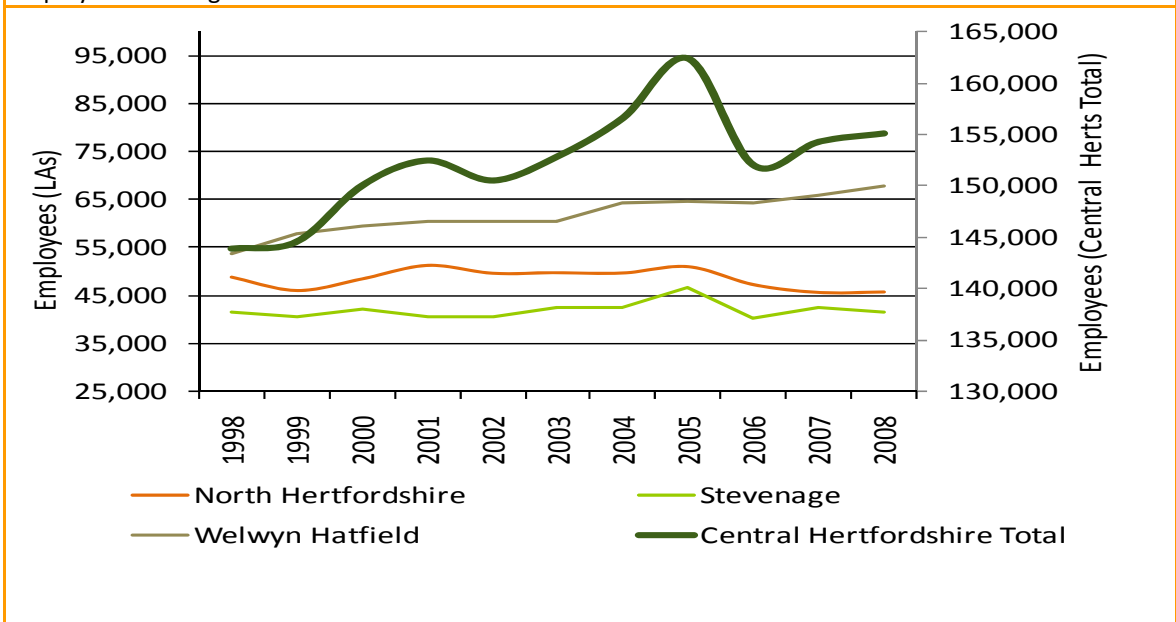
Concentrations of employment in **higher value, knowledge intensive** sectors particularly R&D and telecommunications.

Significant concentrations of employment in **Life Sciences** and **Software and Digital industries** and a strong presence of **Advanced Manufacturing** employment (with a particular specialism in manufacture of machinery and equipment and medical instruments).

Business Base and Employment

70. Central Hertfordshire has been a key source of economic growth in Hertfordshire over the past ten years. The overall increase in employment in Central Hertfordshire (8%) in this period has significantly outstripped the county average of 2%. Just under a third of Hertfordshire's employment and a quarter of the county's business base is located within the three local authority districts that make up Central Hertfordshire. Concentrations of employment are primarily focused around the M1 motorway, which runs through the Centre of Central Hertfordshire.

Employment Change Central Hertfordshire 1998 - 2008



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71. The steady rate of employment growth in Central Hertfordshire over the last ten years masks some significant variations at the local authority level; Welwyn Hatfield appears to be the key source stable growth in this part of the county and has seen a 27% increase in the number of jobs the local authority supports. Conversely, employment levels in Stevenage and North Hertfordshire have been more unstable and have seen significant declines since 2005.
72. Of the three local authorities, North Hertfordshire has seen the largest decline in its employment base over recent years; declining by 8% between 2003 and 2005. While there was some growth in the size of North Hertfordshire's business base in this period, the 6% increase in the number of businesses lags significantly behind the 12% and 17% increases in Welwyn Hatfield and Stevenage.

Travel to Work and Labour Market

73. There appears to be near equilibrium in Central Hertfordshire's travel to work patterns, with only a marginal net export of 440 commuters. However, this masks significant differences within the area. Stevenage and Welwyn Hatfield has significant daily inflows of commuters while the large outflow of North Hertfordshire (11,000) reflects the relative under performance of this area's economy.
74. Rates of economic activity are high across Central Hertfordshire and are particularly high in Stevenage (87%). Slight increases in economic activity in North Hertfordshire and Stevenage over the past five years have counterbalanced the 2% decrease evidence in Welwyn Hatfield and kept the overall economic activity rate of Central Hertfordshire stable at 83%.

Key Sectors

75. Retail and Wholesale and Commission Trade are key employers in Central Hertfordshire and employ 42,000 people between them. While employment in both of these sectors is more concentrated here than nationally, the area's key concentrations of employment are in higher value, more knowledge intensive sectors. Employment in Research and Development is particularly important to the area's economy employing almost 4,000 people (at almost six times the national concentration). The focus of this employment is in Stevenage and Welwyn Hatfield (with all but 400 of these jobs being located in these local authorities).
76. This R&D focus is evident in the concentrations of employment in Life Sciences and Software and Digital industries in Central Hertfordshire. There are key concentrations of employment in both of these sectors in central Stevenage and Welwyn Garden City.
77. In Welwyn Hatfield, 3,000 people are employed in Software and Digital industries (a concentration of employment almost twice the national average for the sector). There are also concentrations of advanced manufacturing employment in these two authorities with particular specialisms in machinery and equipment and medical instruments.
78. There is a large and significant presence of the telecommunication sector in Welwyn Hatfield as well as a large Green Industries and Environmental consulting sector, which employs more than 2,000 people in the borough (more than twice the concentration as nationally).
79. The public administrative and defence sector has growth particularly strongly in Stevenage and Welwyn Hatfield (5,400 additional jobs in the past 5 years) while actually declining in

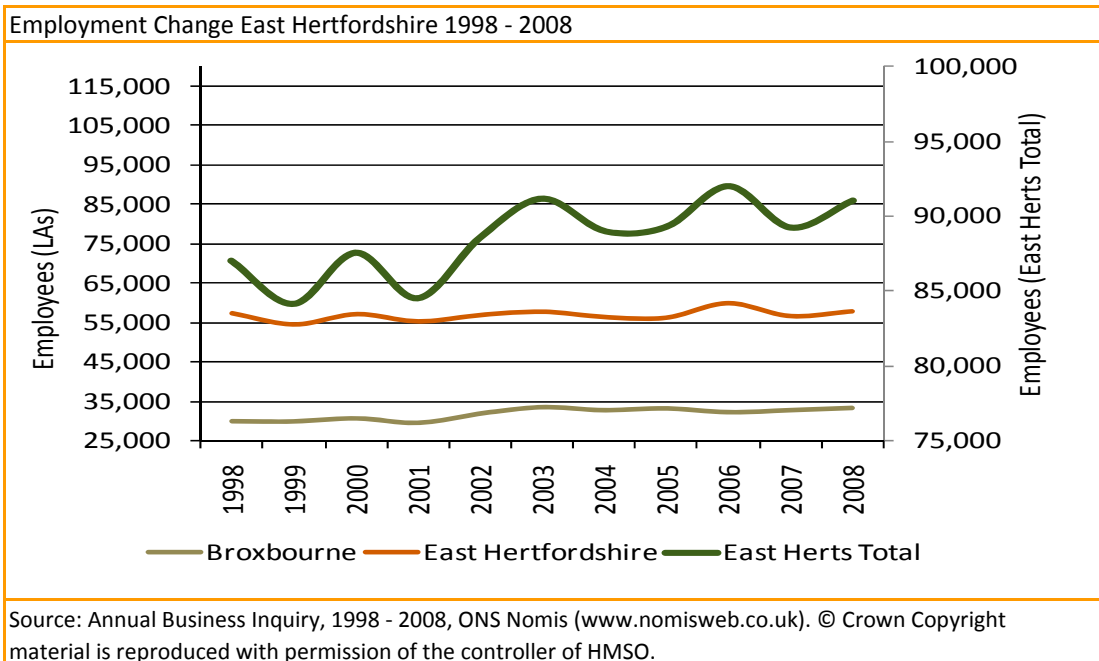
North Hertfordshire. In spite of this recent growth, public sector employment remains much less concentrated locally than nationally.

80. North Hertfordshire has been the source of considerable growth in the Manufacture of Furniture sector, in which employment has grown by 48% in the past five years. There are now 1,000 people employed in this sector in North Hertfordshire with a very high LQ of 4.4.

East Hertfordshire Overview

Business Base and Employment

81. East Hertfordshire has seen steady employment growth over the past ten years, increasing by 5% overall. Although there have been some fluctuations in overall employment levels, there has been a slight increasing trend within both Broxbourne and East Hertfordshire. Overall, East Hertfordshire's employment base has grown by 5% between 1998 and 2008.



82. Although there has been limited recent growth in employment levels, East Hertfordshire's business base has grown by a much larger proportion in the past five years than the Hertfordshire average, increasing by 15%. The increase has been particularly large in Broxbourne, which has seen an increase of almost 20%

Travel to Work and Labour Market

83. East Hertfordshire has the largest net outflow of commuters (21,300) of all the economic areas in Hertfordshire; both Broxbourne and East Hertfordshire have net daily outflows in excess of 10,000 residents.
84. Rates of economic activity are above average in East Hertfordshire (83% across the two authorities compared to 81% for the county as a whole) although there appears to be less employment in highly skilled occupations than elsewhere in Hertfordshire. While 35% of residents being employed in HMP occupations is still a large proportion, it is markedly lower than the Hertfordshire average.

Key Sectors

85. There are very large concentrations of life sciences employment in East Hertfordshire. The sector employs 3,000 people overall and has an LQ in excess of 7. The R&D sector as a whole has a strong presence in East Hertfordshire, but has contracted considerably (by 41%) in the last five years. Advanced manufacturing also has a strong presence in East Hertfordshire, with manufacture of chemicals and chemical products being particularly prominent, employing 3,600 people (the majority of these in East Hertfordshire).
86. There is a large volume of employment in Creative and Media in East Hertfordshire (almost 2,500 employees) and the logistics sector is particularly well represented in Broxbourne.
87. Recreational cultural and sporting activities has been a key source of employment growth, increasing by 65% in the past five years to its current level of 1,900 employees. This increase has affected both LAs similarly. Real estate activities have also increased significantly in their importance to the local economy. Broxbourne has been the key focus for this growth, where employment in this sector has more than doubled.

Conclusions / Summary

88. Hertfordshire is amongst the key economic areas in Great Britain in terms of wealth generation; the county is in the top five GVA NUTS 3 areas outside of London in terms of the absolute levels of GVA it creates and GVA per head in Hertfordshire is markedly higher than the national average. Hertfordshire has strong economic links with London and the county's residents and workers enjoy rapid transport links to outer and central London, which have facilitated Hertfordshire's development into a net exporter of labour (primarily to central and outer London), encouraged businesses to locate in the county to take advantage of these economic links and contributed to the relative wealth of the county.
89. In spite of the clear benefits of its geographical position and the strength of its labour market, this analysis has found some clear indications that, over recent years, Hertfordshire's economy has not been performing as well as it might. Although Hertfordshire's current economic performance is well above the national and regional averages, the county's performance does not compare favourably to areas with similar labour markets and positions relative to London. For example, both Buckinghamshire and Surrey have a lot in common with Hertfordshire in terms of the headline characteristics of their labour markets, but both have markedly higher business and employment densities.
90. Hertfordshire's GVA has grown considerably over recent years but the rate of growth has not kept pace with national or regional increases and has been significantly outstripped by other local comparable economies including Berkshire, Essex and Surrey
91. Recent trends suggest that Hertfordshire's economic performance has been slipping behind for a number of years, growth in the size of the business base has only just kept pace with the national average and has been behind that of the East of England. Similarly, the 2% increase in the county's employment base between 1998 and 2008 is particularly low – employment in all other comparators considered in this analysis has grown by at least twice the rate of Hertfordshire; the county's employment growth rate was eight percentage points less than the national average, nine behind Berkshire and fifteen less than Essex's in the same period.
92. There is evidently a need to boost the economic performance of Hertfordshire and although economic growth has been sluggish, Hertfordshire has some important sectoral strengths

and assets on which to build. The county has a strong base of Knowledge Intensive Industries and a particular concentration of employment in professional, scientific and technical occupations. Hertfordshire's strength in Research and Development, Life Sciences and Advanced Manufacturing alongside clusters of Media and Creative and Software and Digital businesses in some parts of the county will provide a solid foundation for growth. The county's comparative under-reliance on public sector employment will also stand it in good stead as the availability of public sector funding decreases.

SIC Definitions of grouped Sectors

Advanced Manufacturing 2003 SIC
2710 : Manufacture of basic iron and steel and of ferro-alloys
2851 : Treatment and coating of metals
2852 : General mechanical engineering
2861 : Manufacture of cutlery
2862 : Manufacture of tools
2863 : Manufacture of locks and hinges
2911 : Manufacture of engines and turbines, except aircraft, vehicle and cycle engines
2912 : Manufacture of pumps and compressors
2913 : Manufacture of taps and valves
2914 : Manufacture of bearings, gears, gearing and driving elements
3161 : Manufacture of electrical equipment for engines and vehicles not elsewhere classified
3162 : Manufacture of other electrical equipment not elsewhere classified
3530 : Manufacture of aircraft and spacecraft
7310 : Research and experimental development on natural sciences and engineering
7430 : Technical testing and analysis
3410 : Manufacture of motor vehicles
3420 : Manufacture of bodies for motor vehicles: manufacture of trailers and semi-trailers
3430 : Manufacture of parts and accessories for motor vehicles and their engines
3310 : Manufacture of medical and surgical equipment and orthopaedic appliances
3320 : Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment
3210 : Manufacture of electronic valves and tubes and other electronic components
3220 : Manufacture of television and radio transmitters /apparatus line telephony and line telegraphy
3230 : Manufacture of television and radio receivers, sound or video recording or reproducing
272 : Manufacture of tubes
273 : Other first processing of iron and steel nec; production of non-ECSC ferro-alloys
274 : Manufacture of basic precious and other non-ferrous metals
275 : Casting of metals
292 : Manufacture of other general purpose machinery
293 : Manufacture of agricultural and forestry machinery
294 : Manufacture of machine tools
295 : Manufacture of other special purpose machinery
297 : Manufacture of domestic appliances not elsewhere classified
311 : Manufacture of electric motors, generators and transformers
312 : Manufacture of electricity distribution and control apparatus
313 : Manufacture of insulated wire and cable
314 : Manufacture of accumulators, primary cells and primary batteries
315 : Manufacture of lighting equipment and electric lamps
Advanced Manufacturing 2007 SIC
242 : Manufacture of tubes, pipes, hollow profiles and related fittings, of steel
243 : Manufacture of other products of first processing of steel
244 : Manufacture of basic precious and other non-ferrous metals
245 : Casting of metals

271 : Manufacture of electric motors, generators, transformers and electricity distribution apparatus
272 : Manufacture of batteries and accumulators
273 : Manufacture of wiring and wiring devices
274 : Manufacture of electric lighting equipment
275 : Manufacture of domestic appliances
281 : Manufacture of general purpose machinery
283 : Manufacture of agricultural and forestry machinery
284 : Manufacture of metal forming machinery and machine tools
289 : Manufacture of other special-purpose machinery
2410 : Manufacture of basic iron and steel and of ferro-alloys
3030 : Manufacture of air and spacecraft and related machinery
7219 : Other research and experimental development on natural sciences and engineering
7120 : Technical testing and analysis
2910 : Manufacture of motor vehicles
2920 : Manufacture of bodies for motor vehicles; manufacture of trailers and semi-trailers
2931 : Manufacture of electrical and electronic equipment for motor vehicles
2932 : Manufacture of other parts and accessories for motor vehicles
3250 : Manufacture of medical and dental instruments and supplies
2790 : Manufacture of other electrical equipment
2561 : Treatment and coating of metals
2562 : Machining
2571 : Manufacture of cutlery
2572 : Manufacture of locks and hinges
2573 : Manufacture of tools
2611 : Manufacture of electronic components
2612 : Manufacture of loaded electronic boards
2620 : Manufacture of computers and peripheral equipment
2630 : Manufacture of communication equipment
2640 : Manufacture of consumer electronics
2651 : Manufacture of instruments and appliances for measuring, testing and navigation
2652 : Manufacture of watches and clocks
2660 : Manufacture of irradiation, electromedical and electrotherapeutic equipment
2670 : Manufacture of optical instruments and photographic equipment
2680 : Manufacture of magnetic and optical media
Life Sciences 2003 SIC
2441 : Manufacture of basic pharmaceuticals
2442 : Manufacture of pharmaceutical preparations
3310 : Manufacture of medical and surgical equipment and orthopaedic appliances
7310 : Research and experimental development on natural sciences and engineering
Life Sciences 2007 SIC
2110 : Manufacture of basic pharmaceutical products
2120 : Manufacture of pharmaceutical preparations
3250 : Manufacture of medical and dental instruments and supplies
7219 : Other research and experimental development on natural sciences and engineering
Software and Digital 2003 SIC
7221 : Publishing of software
7222 : Other software consultancy and supply
7260 : Other computer related activities
3002 : Manufacture of computers and other information processing equipment
3340 : Manufacture of optical instruments and photographic equipment
6420 : Telecommunications
3210 : Manufacture of electronic valves and tubes and other electronic components
3220 : Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy
3230 : Manufacture of television and radio receivers, sound or video recording or reproducing

apparatus and associated goods
Software and Digital 2007 SIC
5821 : Publishing of computer games
5829 : Other software publishing
6201 : Computer programming activities
6202 : Computer consultancy activities
2611 : Manufacture of electronic components
2620 : Manufacture of computers and peripheral equipment
2640 : Manufacture of consumer electronics
2670 : Manufacture of optical instruments and photographic equipment
6110 : Wired telecommunications activities
6120 : Wireless telecommunications activities
6130 : Satellite telecommunications activities
6190 : Other telecommunications activities
Creative and Media 2003 SIC
173 : Finishing of textiles
174 : Manufacture of made-up textile articles, except apparel
175 : Manufacture of other textiles
176 : Manufacture of knitted and crocheted fabrics
177 : Manufacture of knitted and crocheted articles
183 : Dressing and dyeing of fur; manufacture of articles of fur
221 : Publishing
223 : Reproduction of recorded media
363 : Manufacture of musical instruments
722 : Software consultancy and supply
921 : Motion picture and video activities
922 : Radio and television activities
1930 : Manufacture of footwear
2052 : Manufacture of articles of cork, straw and plaiting materials
2621 : Manufacture of ceramic household and ornamental articles
3621 : Striking of coins and medals
3622 : Manufacture of jewellery and related articles not elsewhere classified
7420 : Architectural and engineering activities and related technical consultancy
7440 : Advertising
7481 : Photographic activities
9231 : Artistic and literary creation and interpretation
9232 : Operation of arts facilities
1810 : Manufacture of leather clothes
Creative and Media 2007 SIC
1520 : Manufacture of footwear
1629 : Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting
2341 : Manufacture of ceramic household and ornamental articles
3211 : Striking of coins
3212 : Manufacture of jewellery and related articles
7111 : Architectural activities
7112 : Engineering activities and related technical consultancy
7311 : Advertising agencies
131 : Preparation and spinning of textile fibres
132 : Weaving of textiles
133 : Finishing of textiles
139 : Manufacture of other textiles
141 : Manufacture of wearing apparel, except fur apparel
143 : Manufacture of knitted and crocheted apparel
151 : Tanning and dressing of leather; manufacture of luggage, handbags,
181 : Printing and service activities related to printing

182 : Reproduction of recorded media
321 : Manufacture of jewellery, bijouterie and related articles
322 : Manufacture of musical instruments
581 : Publishing of books, periodicals and other publishing activities
582 : Software publishing
591 : Motion picture, video and television programme activities
592 : Sound recording and music publishing activities
601 : Radio broadcasting
602 : Television programming and broadcasting activities
741 : Specialised design activities
742 : Photographic activities
900 : Creative, arts and entertainment activities
Logistics 2003 SIC
6010 : Transport via railways
6024 : Freight transport by road
6110 : Sea and coastal water transport
6120 : Inland water transport
6210 : Scheduled air transport
6220 : Non-scheduled air transport
6311 : Cargo handling
6312 : Storage and warehousing
6321 : Other supporting land transport activities
6322 : Other supporting water transport activities
6323 : Other supporting air transport activities
6340 : Activities of other transport agencies
6411 : National post activities
6412 : Courier activities other than national post activities
Logistics 2007 SIC
4910 : Passenger rail transport, interurban
4920 : Freight rail transport
4931 : Urban and suburban passenger land transport
4932 : Taxi operation
4939 : Other passenger land transport n.e.c.
4941 : Freight transport by road
4942 : Removal services
4950 : Transport via pipeline
5010 : Sea and coastal passenger water transport
5020 : Sea and coastal freight water transport
5030 : Inland passenger water transport
5040 : Inland freight water transport
5110 : Passenger air transport
5121 : Freight air transport
5210 : Warehousing and storage
5221 : Service activities incidental to land transportation
5222 : Service activities incidental to water transportation
5223 : Service activities incidental to air transportation
5224 : Cargo handling
5229 : Other transportation support activities
5310 : Postal activities under universal service obligation
5320 : Other postal and courier activities
Green Industries (inc Business management and Consultancy) 2003 SIC
2830 : Manufacture of steam generators, except central heating hot water boilers
2911 : Manufacture of engines and turbines, except aircraft, vehicle and cycle engines
2912 : Manufacture of pumps and compressors
3110 : Manufacture of electric motors, generators and transformers

3120 : Manufacture of electricity distribution and control apparatus
3710 : Recycling of metal waste and scrap
3720 : Recycling of non-metal waste and scrap
4011 : Production of electricity
4021 : Manufacture of gas
4030 : Steam and hot water supply
4100 : Collection, purification and distribution of water
5157 : Wholesale of waste and scrap
9001 : Collection and treatment of sewage
9002 : Collection and treatment of other waste
9003 : Sanitation, remediation and similar activities
7310 : Research and experimental development on natural sciences and engineering
7414 : Business and management consultancy activities
Green Industries (inc Business management and Consultancy) 2007 SIC
2530 : Manufacture of steam generators, except central heating hot water boilers
2811 : Manufacture of engines and turbines, except aircraft, vehicle and cycle engines
2813 : Manufacture of other pumps and compressors
2711 : Manufacture of electric motors, generators and transformers
2712 : Manufacture of electricity distribution and control apparatus
3811 : Collection of non-hazardous waste
3812 : Collection of hazardous waste
3821 : Treatment and disposal of non-hazardous waste
3822 : Treatment and disposal of hazardous waste
3831 : Dismantling of wrecks
3832 : Recovery of sorted materials
3511 : Production of electricity
3521 : Manufacture of gas
3530 : Steam and air conditioning supply
3600 : Water collection, treatment and supply
4677 : Wholesale of waste and scrap
3700 : Sewerage
7211 : Research and experimental development on biotechnology
7219 : Other research and experimental development on natural sciences and engineering
Green Industries (ex Business management and Consultancy) 2003 SIC
2830 : Manufacture of steam generators, except central heating hot water boilers
2911 : Manufacture of engines and turbines, except aircraft, vehicle and cycle engines
2912 : Manufacture of pumps and compressors
3110 : Manufacture of electric motors, generators and transformers
3120 : Manufacture of electricity distribution and control apparatus
3710 : Recycling of metal waste and scrap
3720 : Recycling of non-metal waste and scrap
4011 : Production of electricity
4021 : Manufacture of gas
4030 : Steam and hot water supply
4100 : Collection, purification and distribution of water
5157 : Wholesale of waste and scrap
9001 : Collection and treatment of sewage
9002 : Collection and treatment of other waste
9003 : Sanitation, remediation and similar activities
7310 : Research and experimental development on natural sciences and engineering
Green Industries (ex Business management and Consultancy) 2007 SIC
2530 : Manufacture of steam generators, except central heating hot water boilers
2811 : Manufacture of engines and turbines, except aircraft, vehicle and cycle engines
2813 : Manufacture of other pumps and compressors
2711 : Manufacture of electric motors, generators and transformers

<p>2712 : Manufacture of electricity distribution and control apparatus 3811 : Collection of non-hazardous waste 3812 : Collection of hazardous waste 3821 : Treatment and disposal of non-hazardous waste 3822 : Treatment and disposal of hazardous waste 3831 : Dismantling of wrecks 3832 : Recovery of sorted materials 3511 : Production of electricity 3521 : Manufacture of gas 3530 : Steam and air conditioning supply 3600 : Water collection, treatment and supply 4677 : Wholesale of waste and scrap 3700 : Sewerage 7211 : Research and experimental development on biotechnology 7219 : Other research and experimental development on natural sciences and engineering</p>
<p>Professional, Banking and Finance, 2003 SIC</p> <p>6511 : Central banking 6512 : Other monetary intermediation 6521 : Financial leasing 6522 : Other credit granting 6523 : Other financial intermediation not elsewhere classified 6601 : Life insurance 6602 : Pension funding 6603 : Non-life insurance 6711 : Administration of financial markets 6712 : Security broking and fund management 6713 : Activities auxiliary to financial intermediation not elsewhere classified 6720 : Activities auxiliary to insurance and pension funding 7412 : Accounting, book-keeping and auditing activities; tax consultancy 7414 : Business and management consultancy activities</p>
<p>Professional, Banking and Finance, 2007 SIC</p> <p>6411 : Central banking 6419 : Other monetary intermediation 6491 : Financial leasing 6492 : Other credit granting 6499 : Other financial service activities, except insurance and pension funding, n.e.c. 6511 : Life insurance 6512 : Non-life insurance 6520 : Reinsurance 6530 : Pension funding 6611 : Administration of financial markets 6612 : Security and commodity contracts brokerage 6619 : Other activities auxiliary to financial services, except insurance and pension funding 6629 : Other activities auxiliary to insurance and pension funding 6630 : Fund management activities 6920 : Accounting, bookkeeping and auditing activities; tax consultancy 7022 : Business and other management consultancy activities</p>
<p>Knowledge Based Industries 2003 SIC</p> <p>2441 : Manufacture of basic pharmaceuticals 2442 : Manufacture of pharmaceutical preparations 3001 : Manufacture of office machinery 3002 : Manufacture of computers and other information processing equipment 3210 : Manufacture of electronic valves and tubes and other electronic components 3220 : Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy</p>

3230 : Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods
 3310 : Manufacture of medical and surgical equipment and orthopaedic appliances
 3320 : Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment
 3330 : Manufacture of industrial process control equipment
 3340 : Manufacture of optical instruments and photographic equipment
 3350 : Manufacture of watches and clocks
 3530 : Manufacture of aircraft and spacecraft
 6420 : Telecommunications
 6511 : Central banking
 6512 : Other monetary intermediation
 6521 : Financial leasing
 6522 : Other credit granting
 6523 : Other financial intermediation not elsewhere classified
 6601 : Life insurance
 6602 : Pension funding
 6603 : Non-life insurance
 6711 : Administration of financial markets
 6712 : Security broking and fund management
 6713 : Activities auxiliary to financial intermediation not elsewhere classified
 6720 : Activities auxiliary to insurance and pension funding
 7210 : Hardware consultancy
 7221 : Publishing of software
 7222 : Other software consultancy and supply
 7230 : Data processing
 7240 : Data base activities
 7250 : Maintenance and repair of office, accounting and computing machinery
 7260 : Other computer related activities
 7310 : Research and experimental development on natural sciences and engineering
 7320 : Research and experimental development on social sciences and humanities
 7411 : Legal activities
 7412 : Accounting, book-keeping and auditing activities; tax consultancy
 7413 : Market research and public opinion polling
 7414 : Business and management consultancy activities
 7415 : Management activities of holding companies
 7420 : Architectural and engineering activities and related technical consultancy
 7430 : Technical testing and analysis
 7440 : Advertising
 7481 : Photographic activities
 8030 : Higher education
 8511 : Hospital activities
 9211 : Motion picture and video production
 9220 : Radio and television activities
 9231 : Artistic and literary creation and interpretation

Knowledge Based Industries 2007 SIC

2110 : Manufacture of basic pharmaceutical products
 2120 : Manufacture of pharmaceutical preparations
 2611 : Manufacture of electronic components
 2620 : Manufacture of computers and peripheral equipment
 2630 : Manufacture of communication equipment
 2651 : Manufacture of instruments and appliances for measuring, testing and navigation
 2652 : Manufacture of watches and clocks
 2670 : Manufacture of optical instruments and photographic equipment
 3030 : Manufacture of air and spacecraft and related machinery
 3250 : Manufacture of medical and dental instruments and supplies

2823 : Manufacture of office machinery and equipment (except computers and peripheral equipment)
6110 : Wired telecommunications activities
6120 : Wireless telecommunications activities
6130 : Satellite telecommunications activities
6190 : Other telecommunications activities
6511 : Life insurance
6512 : Non-life insurance
6530 : Pension funding
6611 : Administration of financial markets
6612 : Security and commodity contracts brokerage
6619 : Other activities auxiliary to financial services, except insurance and pension funding
6621 : Risk and damage evaluation
6629 : Other activities auxiliary to insurance and pension funding
6630 : Fund management activities
5821 : Publishing of computer games
5829 : Other software publishing
6311 : Data processing, hosting and related activities
6201 : Computer programming activities
6202 : Computer consultancy activities
3320 : Installation of industrial machinery and equipment
9511 : Repair of computers and peripheral equipment
9512 : Repair of communication equipment
6910 : Legal activities
6920 : Accounting, bookkeeping and auditing activities; tax consultancy
7022 : Business and other management consultancy activities
6411 : Central banking
6419 : Other monetary intermediation
6420 : Activities of holding companies
6491 : Financial leasing
6492 : Other credit granting
6499 : Other financial service activities, except insurance and pension funding, n.e.c.
7120 : Technical testing and analysis
7311 : Advertising agencies
7320 : Market research and public opinion polling
7420 : Photographic activities
8610 : Hospital activities
5911 : Motion picture, video and television programme production activities
5912 : Motion picture, video and television programme post-production activities
9003 : Artistic creation
601 : Radio broadcasting
602 : Television programming and broadcasting activities
711 : Architectural and engineering activities and related technical consultancy
721 : Research and experimental development on natural sciences and engineering
722 : Research and experimental development on social sciences and humanities
854 : Higher education

2. Sector Forecasts

Introduction

1. The analysis and creation of sector forecasts forms a key component in identifying potential future demand for strategic employment sites in Hertfordshire to 2031. This section sets out the main findings from this analysis.
2. The approach was formed of five stages:
 - Analysis of Oxford Economics base, low and high employment forecasts for Hertfordshire (2011-2031) which are available through the East of England Development Agency's (EEDA) Insight East website;
 - A regional drill down into 59 more detailed employment sub-sectors to understand how particular elements of the economy are expected to change across the region. This helped to inform an understanding of how Hertfordshire's key sectors may change over time;
 - Analysis of employment forecasts for locations which have been successful in attracting inward investment. Berkshire and Cambridgeshire were identified for this purpose. The findings were then compared to the Hertfordshire forecasts;
 - Development of three employment forecasts for Hertfordshire to be used to guide thinking on strategic employment sites. These were status quo, base growth and aspirational growth.
 - Converting the employment growth of three chosen scenarios into employment land.
3. Total employment figures (sum of full and part time employees) have been used throughout unless stated as Full Time Equivalent.
4. While the analysis of forecasts does help to form an assessment of the demand for strategic employment land, the sectors it needs to appeal to and the most suitable locations, it does not provide a definitive answer. The figures should be viewed alongside other elements of analysis including findings from consultation with key businesses and the assessment of potential sites for strategic employment uses.

East of England Forecasting Model for Hertfordshire

5. The East of England Development Agency (EEDA) held a contract with Oxford Economics to provide bi-annual employment forecasts for the region⁶. The forecasts covered the period to 2031 and were available by county and district across 28 employment sectors. Three forecasts were produced each Spring and Autumn to provide a base forecast, low growth forecast and high growth forecast. The key messages from the most recent, and final, of these base, low and high forecasts (Autumn 2010) are provided within this section.
- 2.1 The method takes account of the supply and demand of labour and uses location quotients

⁶ This contract ended on 6th January 2011.

(LQs) as a starting point (building on Annual Business Inquiry data). Location quotients provide an indication of the level of concentration of a particular sector in a particular area, relative to the regional average. **Forecast trends in the LQs are based on how they have changed over time as well as how the sector is expected to perform regionally.** Three forms of location quotient are used in the model:

- Exporting sectors (e.g. manufacturing) – LQ is based on an area’s share of the region’s employees in a particular sector. Growth forecasts at the local level relate to the ‘interaction of the relevant LQ forecasts with the regional sector employee forecasts from Oxford’s Regional Model’.
- Service-based sectors (e.g. retail, health) – LQ is based on the number of employees in the sector per head of the local population. Forecasts for these sectors are driven by forecast changes in the local and regional population.
- Business services (e.g. finance, R&D and technical testing) – LQ is based on the number of a sectors employees relative to all jobs in the area, relative to the regional average. Local employee growth forecasts for these sectors are calculated through ‘the interaction of the relevant LQ forecasts with the regional sector employment forecasts from the Regional Model’.

6. The forecasting method used by Oxford Economics is based on ‘observed past trends only’ and therefore ‘reflect past infrastructure and policy environments’. They do not take into account new infrastructure or policy environments that have not yet had an effect on local data. Where past growth or decline of employment would lead the forecasts to produce extreme figures Oxford Economics temper these down to produce more realistic extrapolations. Further detail on the method can be found in Oxford Economics’ Technical Report at <http://www.insighteast.org.uk/viewResource.aspx?id=18086> .
7. The high and low growth forecasts show the implications in the East of England of future UK economic growth being higher or lower than in the baseline forecast. The base forecast applies the UK average annual percent GVA growth of 3% over 2011-2018 and 2.2% over 2018-2031 (overall growth over the period of 2.5%). The high growth forecast applies a UK average annual percent growth of 3.5% over 2011-2018 and 2.7% over 2018-2031 (overall growth over 2011-2031 of 3%). The low growth forecast is based on UK average annual percent GVA growth of 2.5% over 2011-2018 and 1.7% over 2018-2031 (equating to overall growth over 2011-2031 of 2%).

Forecast	Annual average percent GVA growth 2011-2018	Annual average percent GVA growth 2018-2031	Annual average percent GVA growth 2011-2031
Base	3.0	2.2	2.5
High	3.5	2.7	3.0
Low	2.5	1.7	2.0

8. Oxford Economics’ **base growth forecast** for Hertfordshire predicts total employment growth of 79,300 across the County from 2011 to 2031. Full Time Equivalent (FTE) employment is around 84% of total employment in each of the ten districts, giving FTE employment growth across the County of 66,845.
9. Growth is distributed across Hertfordshire as shown in Table 2-1. St Albans is forecast to experience the highest level of employment growth (+14,600 employees) while Broxbourne

is forecast to experience the lowest level of growth (+2,100 employees). This broadly reflects the general distribution of employment across the County at present.

10. Short term growth is likely to be more significant than in subsequent time periods. Table 2-1 shows, an additional 44,800 employees are forecast across the County in the five year period from 2011 to 2016 while only a further 34,500 employees are forecast for the subsequent fifteen year period from 2016 to 2031. This will have important repercussions for the timely response of the provision of employment land to accommodate this substantial short term employment growth.
11. In the ten year period from 2021-2031 some of Hertfordshire's ten districts are forecast declines in employment. This includes Broxbourne (-1,100 employees), East Hertfordshire (-500 employees), North Hertfordshire (-600 employees), Three Rivers (-100 employees) and Watford (-700 employees).

Table 2-1 Employment Change by District and Time Period (2011-2031) (Non-FTE)					
BASE SCENARIO (non-FTE)	Change in Employment (000's)				
	2011-2031	2011-2016	2016-2021	2021-2026	2026-2031
Broxbourne	2.1	2.6	0.6	-0.5	-0.6
Dacorum	9.5	5.6	2.5	0.7	0.7
East Hertfordshire	5.8	4.7	1.6	-0.3	-0.2
Hertsmere	13.4	6.0	3.5	1.9	2.0
North Hertfordshire	3.3	3.1	0.8	-0.3	-0.3
St Albans	14.6	6.6	3.6	2.1	2.2
Stevenage	9.3	3.9	2.4	1.5	1.6
Three Rivers	3.3	2.6	0.8	-0.1	0.0
Watford	5.6	4.5	1.7	-0.3	-0.4
Welwyn Hatfield	12.4	5.3	3.1	1.9	2.2
Hertfordshire	79.3	44.8	20.6	6.6	7.3

12. The baseline earlier in the report provided analysis of **historic employment growth trends**. Table 2-2 compares historic trends over the last ten years with the Oxford Economics forecast for the next ten years. From 1998 to 2008 employment grew by 7,800 jobs (2%) across the County. The districts with the largest employment growth were Welwyn Hatfield (+14,300 employees) and Three Rivers (+9,400 employees). Over the next ten years, Oxford Economics base forecast shows that the County is predicted to experience a growth rate of 13% (+65,400 employees). This is around seven times greater than the employment change for the previous ten years. The base forecast identifies St Albans (+10,200 employees) and Hertsmere (+9,500 employees) as having the largest absolute growth between 2011 and 2021.

Table 2-2 Forecast Growth Compared to Historic Trends (Non-FTE)								
	Trend		Forecast Growth 2011-2021					
	Historic Growth 1998-2008		Base Case Forecast		Higher Growth Forecast		Lower Growth Forecast	
	Total (000's)	%	Total (000's)	%	Total (000's)	%	Total (000's)	%
Broxbourne	3.5	12	3.2	9.8	4.7	14.4	2.7	8.3
Dacorum	-1.9	-3	8.1	13.4	10.1	16.7	7.3	12.1
East	0.5	1	6.3	10.9	8.7	15.1	5.4	9.4

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Hertfordshire								
Hertsmere	1.8	4	9.5	21.0	12.1	26.6	8.6	19.0
North Hertfordshire	-3.1	-6	3.9	8.7	5.7	12.6	3.2	7.3
St Albans	-13.3	-17	10.2	16.4	12.6	20.2	9.4	15.1
Stevenage	0	0	6.2	14.9	7.8	18.6	5.6	13.4
Three Rivers	9.4	40	3.4	10.0	5.0	14.6	2.9	8.6
Watford	-3.4	-6	6.2	12.1	8.6	16.8	5.4	10.5
Welwyn Hatfield	14.3	27	8.4	12.3	10.6	15.5	7.7	11.3
Hertfordshire	7.8	2	65.4	13.1	85.9	17.2	58.24	11.72

Source: Oxford Economics, Autumn 2010; ABI Employment Data

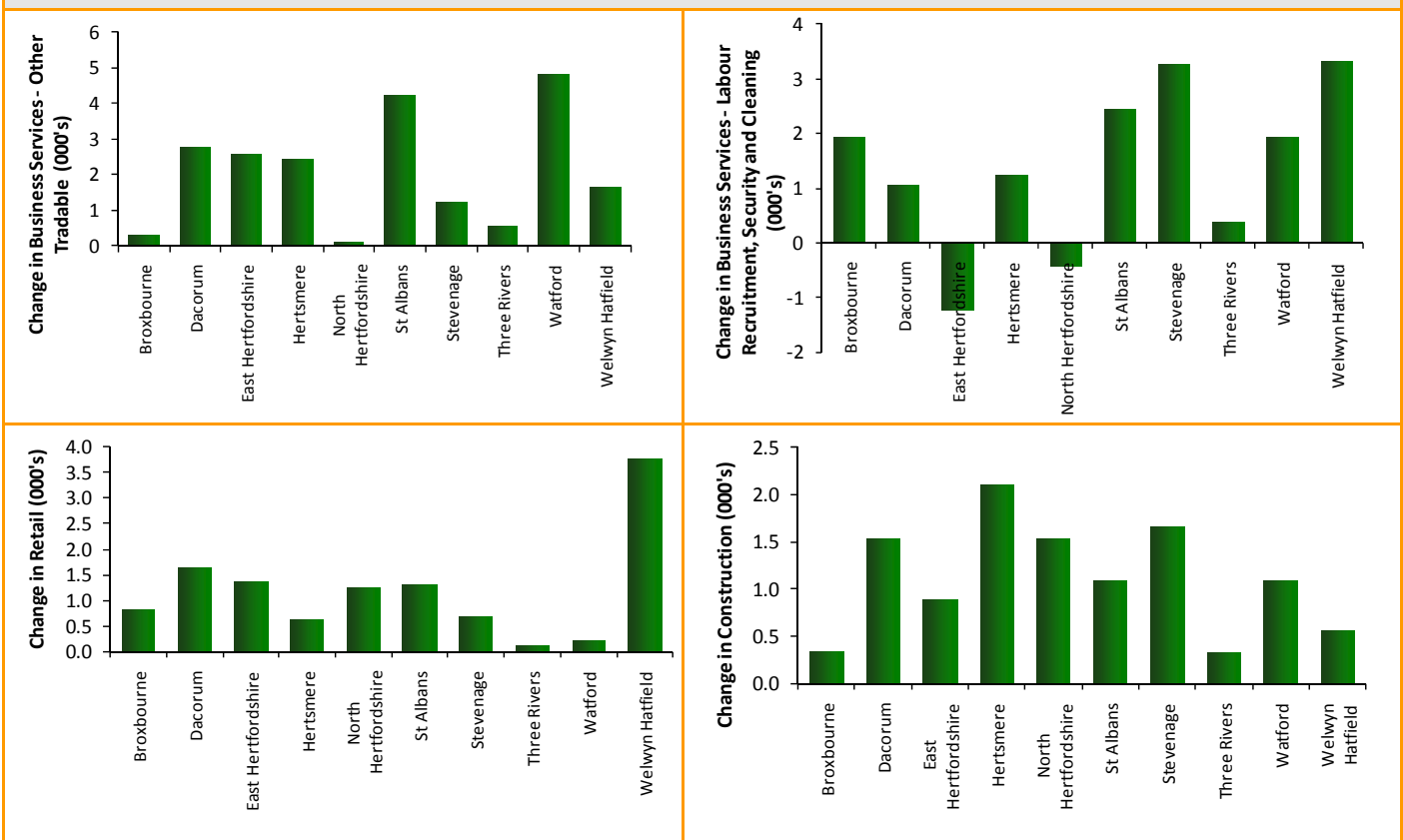
13. In terms of the base forecast to 2031, employment change varies considerably by **sector**. A number of sectors, particularly those within the professional and service industries, are forecast notable growth while other sectors, such as those within the manufacturing industry, are forecast considerable declines. Table 2-3 below shows the breakdown of employment change in Hertfordshire by sector.

Sector	Total Change	% Change
Agriculture and Fishing	-1.3	-35.7
Extraction	-0.1	-57.8
Manufacturing - Food, Drink and Tobacco	-0.7	-36.6
Manufacturing - Other Low Tech	-3.0	-48.4
Manufacturing -Metals and Engineering	-7.4	-46.5
Manufacturing - Chemicals and Process	-2.2	-30.7
Manufacturing - Other and Recycling	-0.3	-11.7
Utilities	-0.4	-25.2
Construction	11.1	37.8
Wholesale, Distribution and Sale/Maintenance of Motor Vehicles	7.7	18.9
Retailing	11.8	20.6
Hotels and Catering	3.2	10.9
Air Transport	0.0	18.9
Communications	1.2	9.3
Land and Other Transport	0.6	4.6
Water Transport	0.0	-45.7
Finance	2.1	16.2
Business Services - Computer Related	3.5	21.7
Business Services - Labour Recruitment, Security and Cleaning	13.9	36.9
Business Services -Other Including Call Centres	1.5	15.6
Business Services - R&D and Technical Testing	1.5	20.5
Business Services - Real Estate and Renting	3.8	27.0
Business Service - Other Tradable	20.7	52.2
Public Admin	-2.0	-12.5
Education	-1.6	-3.4
Health	7.2	14.8
Personal Services - Miscellaneous	7.9	31.1
Personal Services - Waste	0.3	13.6

Source: Oxford Economics, Autumn 2010

14. The sector forecast the greatest absolute employment growth is ‘other tradable’ business services. This sector is forecast a growth of 20,700 employees over the twenty year time period and covers activities such as legal services, advertising and architecture. ‘Other tradable’ business services are typically higher value added activities.
15. Other sectors forecast large levels of employment growth across the County are ‘labour recruitment, security and cleaning’ (+13,900 employees), retail (+11,800 employees) and construction (+11,100 employees). This set of sectors are typically lower end, lower value added activities. However, the labour recruitment category can also disguise employment demand from those sectors which use agencies to source employment on a permanent or ad hoc (seasonal) basis, some of which will be higher value added employment activities. A number of high end manufacturing businesses consulted for this study referred to a considerable proportion of their workforce being sourced from such agencies (in some instances up to 50% of the total workforce were from agencies and received the same training as the staff employed directly). This was taken into account during the floorspace calculations later in this Appendix through the redistribution of employment growth in this sector across the other sectors. Figure 2-1 shows the variations in employment change of the four main growth sectors by district.

Figure 2-1 Sectors Forecast Largest Absolute Growth in Employment 2011-2031 (Oxford Economics, Base Forecast) (Non-FTE)



Source: Oxford Economics, Base Forecast Autumn 2010; Regeneris Consulting, 2011

16. Looking at the percent growth of employment by sector provides another dynamic to understanding those sectors forecast to grow. While some sectors may not employ significant numbers, the rate of growth they are forecast to experience will be an important factor in the changing economy of Hertfordshire over the coming years. The sectors forecast the highest percent growth to 2031 are the same as those which are forecast the greatest absolute growth, stated above. In addition, wholesale and distribution (19%

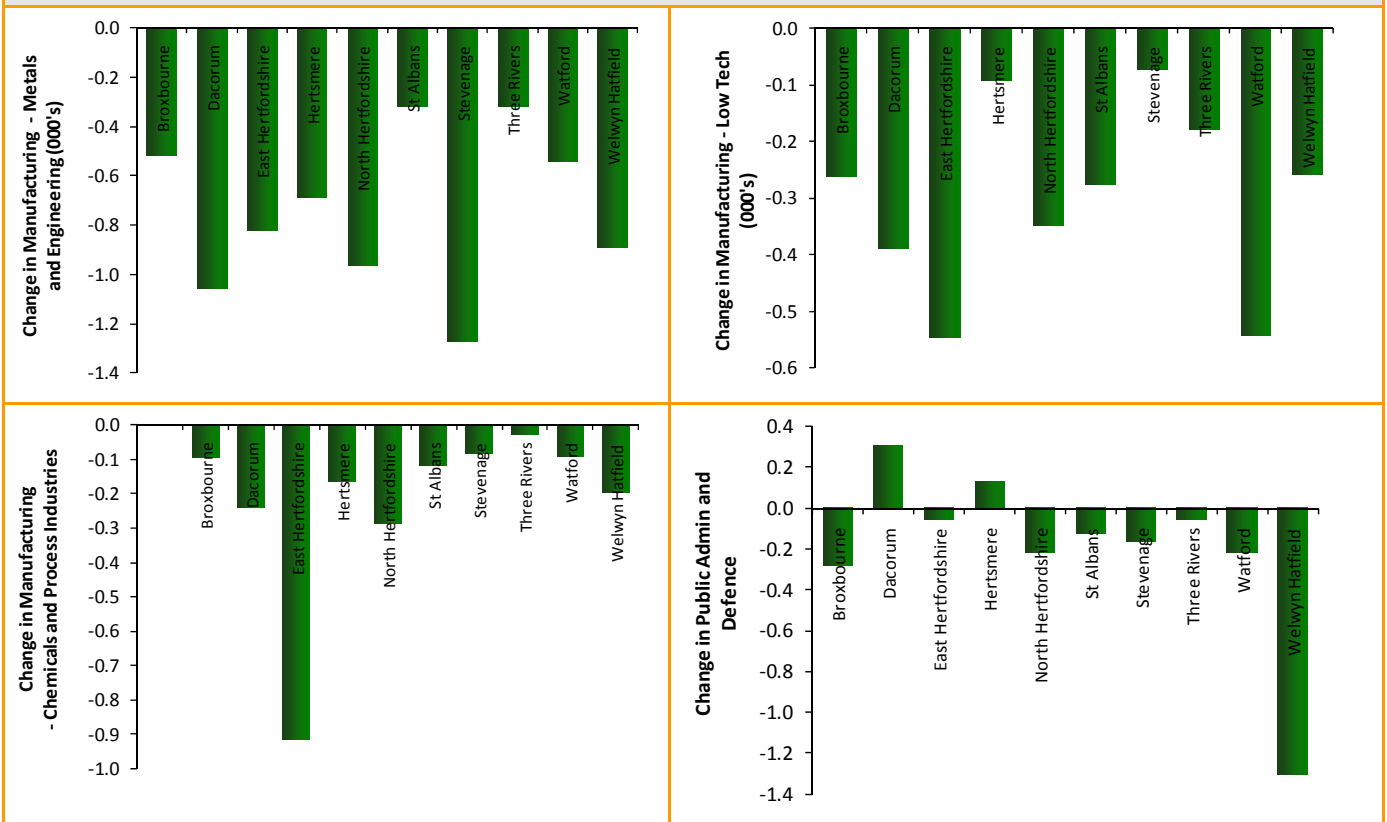
growth, +7,700 employees), air transport (19% growth, marginal employment change), computer related business services (+22% growth, +3,500 employees), R&D and technical testing (27% growth, +1,500 employees) and real estate and renting (27% growth, +3,800 employees) are all forecast notable percent growth.

17. The table below shows the top ten sectors by absolute and percent employment growth.

Table 2-4 Top 10 sectors showing growth (Non-FTE)			
Absolute Change(000's)		Percent Change (%)	
Business services - other tradable	20.7	Business services - other tradable	52.2
Business services - labour recruitment, security & cleaning	13.9	Construction	37.8
Retail	11.8	Business services - labour recruitment, security & cleaning	36.9
Construction	11.1	Other personal services - miscellaneous	31.1
Other personal services - miscellaneous	7.9	Business services - real estate & renting	27.0
Wholesale & distribution	7.7	Business services - computer related	21.7
Health	7.2	Retail	20.6
Business services - real estate & renting	3.8	Business services - R&D, technical testing	20.5
Business services - computer related	3.5	Air transport	18.9
Hotels & catering	3.2	Wholesale & distribution	18.9

18. A number of sectors are forecast to decline in employment over the 2011-2031 period. These are primarily in industrial sectors such as manufacturing. Variations by district are shown in Figure 2-2 for the sectors forecast the largest employment growth. The greatest absolute declines are forecast in metals and engineering manufacturing (-7,400 employees), 'other low tech' manufacturing (-3,000 employees), chemical and process industries (-2,200 employees) and public administration and defence (-2,000 employees). These manufacturing declines are forecast as a result of ongoing structural changes across the country and county. There will clearly be implications for industrial employment sites (B2). The decline in public administration is a reflection of public sector budget cuts which are affecting the country following the recession. The decline of office space used for public sector employment will be more than matched by growth in other office sectors, in particular business services. However, it is likely that the specific land and space requirements will be different for the two groups and must therefore be taken into account in the distribution of employment land by scale, location and quality.

Figure 2-2 Sectors Forecast Largest Absolute Declines in Employment 2011-2031 (Oxford Economics, Base Forecast) (Non-FTE)



Source: Oxford Economics, Base Forecast Autumn 2010; Regeneris Consulting, 2011

19. In terms of percent decline, the extraction industry is forecast the greatest change (-58%). This is, however, from a small employment base of around 100 jobs. Other sectors forecast notable percent declines in employment from 2011 to 2031 include those with the largest absolute decline and are 'other low tech' manufacturing (-48%, -3,000 employees), metals and engineering (-47%, -7,400 employees), water transport (-46%, marginal absolute decline) and food, drink and tobacco manufacturing (-37%, -700 employees).
20. The following table shows the top sectors by absolute and percent employment decline.

Table 5 Top 10 sectors showing decline (Non-FTE)			
Absolute Change (000's)		Percent Change (%)	
Manufacturing - metals & engineering	-7.4	Extraction	-57.8
Manufacturing - other low tech	-3.0	Manufacturing - other low tech	-48.4
Manufacturing - chemicals & process industries	-2.2	Manufacturing - metals & engineering	-46.5
Public admin & defence	-2.0	Water transport	-45.7
Education	-1.6	Manufacturing - food, drink & tobacco	-36.6
Agriculture	-1.3	Agriculture	-35.7
Manufacturing - food, drink & tobacco	-0.7	Manufacturing - chemicals & process industries	-30.7
Electricity, gas & water	-0.4	Electricity, gas & water	-25.2
Manufacturing - other & recycling	-0.3	Public admin & defence	-12.5
Extraction	-0.1	Manufacturing - other & recycling	-11.7

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21. Table 2-6 was included in the interim presentation delivered to the Steering Group in January 2011. This focuses on some of those sectors with a B Use Class (and therefore requiring employment land) as well as incorporating target sectors (discussed subsequently).
22. It also provides analysis for three specific geographies which were used in the baseline analysis (West, East and Central Hertfordshire).

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Table 2-6 Total Change in FTEs from 2011-2031 by Key Sector (000's) (FTE)

	Total Employment Change	Manufacturing					Wholesale and Distribution	Finance	Business Services			Key Sectors Employment Change
		Food, Drink and Tobacco	Low Tech	Metals and Engineering	Chemicals and Process Industries	Other and Recycling			Computer Related	Other including Call Centres	R&D and Technical Testing	
Broxbourne	1.77	-0.02	-0.22	-0.43	-0.08	-0.04	-0.23	-0.06	0.09	-0.09	0.01	-1.06
Dacorum	8.05	-0.09	-0.33	-0.90	-0.20	0.00	1.10	0.84	-0.07	0.41	0.10	0.86
East Hertfordshire	4.83	-0.07	-0.45	-0.68	-0.76	-0.10	1.09	0.07	0.34	0.04	-0.49	-1.00
Hertsmere	11.41	-0.01	-0.08	-0.58	-0.14	-0.02	2.70	0.57	0.74	-0.03	0.28	3.43
North Hertfordshire	2.77	-0.04	-0.29	-0.81	-0.24	0.06	0.29	0.04	0.80	0.01	0.17	0.00
St Albans	11.87	-0.03	-0.22	-0.26	-0.10	-0.04	0.53	0.41	0.61	0.24	0.25	1.39
Stevenage	7.88	-0.10	-0.06	-1.07	-0.07	0.00	0.29	0.17	0.68	0.16	-0.14	-0.14
Three Rivers	2.89	-0.11	-0.16	-0.28	-0.02	-0.06	0.15	0.06	0.32	0.23	0.03	0.16
Watford	4.75	-0.03	-0.46	-0.46	-0.08	-0.03	-0.29	-0.50	-0.16	0.09	0.00	-1.92
Welwyn Hatfield	10.44	-0.06	-0.22	-0.75	-0.16	0.00	0.87	0.14	-0.39	0.17	1.03	0.63
West Hertfordshire	38.97	-0.27	-1.25	-2.48	-0.54	-0.15	4.19	1.38	1.45	0.94	0.66	3.92
East Hertfordshire	6.60	-0.08	-0.67	-1.12	-0.84	-0.14	0.86	0.01	0.44	-0.05	-0.48	-2.07
Central Hertfordshire	21.09	-0.20	-0.57	-2.63	-0.48	0.06	1.45	0.36	1.09	0.34	1.06	0.49
Hertfordshire	66.66	-0.55	-2.49	-6.23	-1.86	-0.23	6.50	1.75	2.98	1.23	1.25	2.34

Source: EEDA, Variable Forecasts Baseline Forecast ABI, Oxford Economics, Autumn 2010 Update – Employee Tables; analysis by Regeneris Consulting

West Hertfordshire: Including the local authority areas of Dacorum, Hertsmere, St Albans, Three Rivers and Watford.

Central Hertfordshire: Covering North Hertfordshire, Stevenage and Welwyn Hatfield

East Hertfordshire: Covering Broxbourne and East Hertfordshire Local Authorities.

23. As identified in the main report, Hertfordshire County Council considers the following sectors to be a priority for the County's economy: Software and Digital; Life Sciences; Advanced Manufacturing; Creative and Media; Green Industries and Consultancy; Logistics; and Professional Banking and Finance. These sectors are forecast to experience varying degrees of growth or decline over the next twenty years. A full breakdown of the forecast for Hertfordshire is not possible by all of these sector categories due to the sectors used in the Oxford Economics forecast. Instead, we provide an overview of the sectors with the closest fit below. Later in this Appendix the regional forecast for the East of England is used to provide a more detailed illustration of how these priority sectors are forecast to change in the region.
24. **Software and Digital** activities are most closely aligned to the 'Business Services – Computer Related' and 'Communications' sectors used in the Oxford Economics forecasts. Computer Related business services are forecast to grow by 3,500 employees in Hertfordshire from 2011 to 2031. This is a 21.7% increase from a base of 16,400. By 2031 19,900 employees are forecast for this sector. The largest growth in this sector is forecast in North Hertfordshire (1,000 additional jobs). However, declines are forecast in Dacorum, Watford and Welwyn Hatfield. In 2011, 18,900 people were employed in Communications in Hertfordshire. This is forecast to increase by 1,200 jobs to 13,900 in 2031 (9.3% increase). Growth is forecast in six of the ten districts. The district with the highest forecast growth is Welwyn Hatfield with a forecast increase of 1,900 employees. Decreases in other districts bring the net employment change in this sector to below this number. Overall, growth of 4,700 jobs is forecast in the two sectors.
25. **Life Sciences** can be broadly analysed using 'Health' and the 'Manufacturing – Chemicals and Process Industries' sector group which incorporates a number of activities such as nuclear fuels, minerals, chemicals and rubber and plastics (this sector includes pharmaceuticals). All Manufacturing sectors are forecast to decline under the 2011-2031 forecast. However, the Chemicals and Process Industries group is forecast a lower percent decline (-30.7%) than other Manufacturing groups such as 'Other Low Tech' (-48.4% change 2011-2031). A total of 2,200 jobs are forecast to be lost in the Chemicals and Process Industries group between 2011 and 2031. This is from a base of 7,200 employees in 2011 to 5,000 in 2031. It is important for any analysis of this information to bear in mind that, while this is negative change, it relates to a wider classification than Life Sciences alone. However, this forecast highlights that Hertfordshire's current strength in this type of activity is not a given and that additional public sector support may be required to sustain and indeed enhance the sector. In terms of employment in Health, the sector is forecast to be within the top ten growth sectors of the County, with 7,200 additional jobs by 2031. East Hertfordshire (+1,400), St Albans (+1,400) and Stevenage (+1,200) are notable for their high levels of forecast employment growth both in absolute and percentage terms. This sector demonstrates the population concentrations in these areas but may also be a reflection of an advanced health services industry.
26. **Advanced Manufacturing** can be broadly analysed using 'Manufacturing – Metals and Engineering' sector group (incorporating a number of activities such as metals, machinery, electrical, optical and transport equipment) and 'Business Services – R&D and Technical Testing'. Metals and Engineering activities are forecast to decline by 7,400 jobs across Hertfordshire between 2011 and 2031. This is a 46.5% decrease from the 2011 employment figure in this sector (15,900 employees in 2011). In absolute terms, this is the largest loss of employees forecast across all sectors (-7,400). Stevenage, which demonstrates a

concentration of employment in this activity, is forecast the largest decline (-1,300 employees). Dacorum (-1,100) and North Hertfordshire (-1,000) are also forecast substantial decline. It is important for any analysis of this information to bear in mind that, while the data shows negative change, it relates to a wider range of manufacturing activities than Advanced Manufacturing alone. Higher end manufacturing is likely to see positive change comparative to lower added value manufacturing activities which are increasingly being relocated to cheaper locations abroad. However, ensuring that the necessary support is available to businesses operating within Advanced Manufacturing will still be important to ensure that they are retained in the County. The 'Business Services – R&D and Technical Testing' sector is forecast a more positive future. It is forecast to be the eight largest growth sector in terms of percentage change to 2031 (20.5%) though this translates into only 1,500 employees. Two locations in Hertfordshire (East Hertfordshire and Stevenage) are forecast declines (-600 and -200 respectively) while Welwyn Hatfield is forecast the largest growth (+1,200). While the 'R&D and Technical Testing' sector is forecast to grow in employment terms, it is unlikely to counteract the projected level of decline in 'Manufacturing – Metals and Engineering' (though this is not exclusively Advanced Manufacturing). As such, the R&D and technical testing functions should be supported and attracted as far as possible in order to maintain and strengthen the county's position as an Advanced Manufacturing location.

27. **Creative and Media** activities are particularly difficult to align to the 28 sector groups used within the Oxford Economics forecast. This is accentuated by the varying types of creative and media occupations available, for example covering architecture, textiles and other design activities as well as film and publishing. As a result, these activities fall within a number of broader sector groups (Other Low Tech Manufacturing; Other Manufacturing and Recycling; Business Services – Computer Related; Business Services – Other Tradable; Business Services – Other Including Call Centres; and Miscellaneous Services). For this reason, creativity and media is not reviewed here in terms of the Hertfordshire forecasts but instead is reviewed in the section on regional drill down later on in this Appendix.
28. **Green Industries and Consultancy** are again difficult to identify as they may fall within a number of other categories where individual businesses apply environmentally friendly practices, develop and manufacture environmentally friendly products, or offer advice to other businesses in applying environmentally friendly practices. As a result, Green Industries and Consultancy may come within a number of broader sectors covered in the Oxford Economics forecasts such as Construction, Manufacturing and Business Services. Construction employment is forecast to increase by 11,100 jobs from 2011 to 2031 while all Business Services categories (Computer Related, 'Labour Recruitment, Security and Cleaning', Other including Call Centres, R&D and Technical Testing, Real Estate and Renting and Other Tradable) are forecast to increase, resulting in an additional 44,900 jobs over the forecast period. While only a proportion of employment in Construction and Business Services is likely to be linked to Green Industries and Consulting it is likely that this proportion will increase over time and will be an important sector to support, particularly given heightened political attention on such industries. As a contrast, Manufacturing is forecast to decrease across the board (Metals and Engineering, Chemicals and Process Industries, Other and Recycling, Other Low Tech and Food, Drink and Tobacco). Despite this, it is anticipated that there will be an increase in green operations within the Manufacturing sectors nationwide. This is supported in the Hertfordshire context through our business consultations with organisations such as BRE who are pioneering new green technologies and help to attract similar organisations to the area.

29. **Logistics** can be analysed with relative accuracy by reviewing the forecasts for 'Wholesale, Distribution and Sale/Maintenance of Motor Vehicles' together with 'Land and Other Transport'. The Wholesale and Distribution sector is forecast to grow by 7,700 employees by 2031 while 'Land and Other Transport' is forecast to grow by 600 employees. This gives a total employment increase of 8,300 across the forecast period for the Logistics sector. Hertsmere is forecast the largest employment growth in 'Wholesale, Distribution and Sale/Maintenance of Motor Vehicles' (+3,200 employees) though both Broxbourne and Watford are forecast declines of 300 employees each. Hertsmere is forecast an increase of 500 jobs in 'land and other transport' and St Albans if forecast an increase of 300 jobs. However, both Dacorum and Watford are forecast declines of 300 and 400 employees respectively. The overall Logistics growth of 8,300 employees is reflective of the current strengths in these types of activities in certain parts of Hertfordshire at present. There are a number of high profile logistics companies, as well as companies in other sectors which operate distribution as a subset of their main business activity (such as News International who print and distribute papers across the country from their Hertfordshire location) which report that they are located in Hertfordshire due to its road network and connectivity.
30. **Professional, Banking and Finance** is covered by 'Finance' and 'Business Services – Other Tradable' (covering activities such as legal services, advertising and architecture). The finance sector is forecast to grow by 2,100 employees from 2011 to 2031. While this is not the most substantial growth forecast for the Business Services sectors, it reflects the strengths of this sector nationally and the general direction of employment change for professional services. The greatest increases are forecast in Hertsmere (+700 employees) and St Albans (+500 employees). However both Broxbourne and Watford are forecast declines (-100 and -600 jobs respectively). 'Business Services - Other Tradable' employment is forecast to be the largest growth sector in Hertfordshire, in terms of both absolute growth (+20,700) and percentage growth (52.2%). Watford (+4,800) and St Albans (+4,200) are forecast the largest growth while Dacorum (+2,800), East Hertfordshire (+2,600) and Hertsmere (+2,400) are also forecast large employment growth. Overall it is evident that the Professional, Banking and Finance priority sector is a key growth sector for the future. Companies operating within this sector across the UK can vary in size and there are a number of notable larger employers in this sector in Hertfordshire, though it is common for a large number of small organisations to exist in this sector, characterised by entrepreneurial activity and home working. As such, the support and offer which the sector may respond to may differ from that of other sectors which typically require large employment sites.
31. As mentioned previously, Oxford Economics also produced two additional employment forecasts alongside the base forecast on a bi-annual basis. These are a low growth scenario and high growth scenario. The general direction of travel of employment change is broadly in line with the base scenario for each sector.
32. The **low growth scenario** forecasts total employment change of 69,600 employees from 2011-2031. This equates to 9,700 fewer employees than the base scenario forecast of 79,300. Similar to the base scenario, the largest employment growth is expected to be seen in St Albans (+13,460) as well as Hertsmere (+12,050 employees), and Welwyn Hatfield (+11,590). The lowest level of growth is again forecast to be in Broxbourne (+1,430).

LOW SCENARIO (non-FTE)	Change in Employment (000's)				
	2011-2031	2011-2016	2016-2021	2021-2026	2026-2031
Broxbourne	1.4	2.3	0.4	-0.6	-0.7
Dacorum	8.5	5.1	2.2	0.6	0.6
East Hertfordshire	4.6	4.3	1.1	-0.4	-0.4
Hertsmere	12.1	5.6	3	1.7	1.8
North Hertfordshire	2.4	2.7	0.5	-0.4	-0.4
St Albans	13.5	6.2	3.3	1.9	2.1
Stevenage	8.5	3.6	2	1.4	1.5
Three Rivers	2.6	2.3	0.6	-0.2	-0.1
Watford	4.4	4.1	1.3	-0.4	-0.6
Welwyn Hatfield	11.5	4.9	2.8	1.8	2
Hertfordshire	69.5	41.1	17.2	5.4	5.8

Source: Oxford Economics, Autumn 2010

33. The **high growth scenario** forecasts employment in Hertfordshire to grow by 124,300 employees from 2011 to 2031. This is an increase of 45,000 employees above the base forecast. Again, the largest growth in employment is expected in St Albans (+19,790 employees) while Hertsmere is forecast a similar level of growth (+19,450). Broxbourne is forecast the smallest increase in employment with an additional 5,170 employees).

HIGH SCENARIO (non-FTE)	Total Change (000's)				
	2011-2031	2011-2016	2016-2021	2021-2026	2026-2031
Broxbourne	5.1	3.2	1.4	0.3	0.2
Dacorum	13.1	6.6	3.5	1.5	1.5
East Hertfordshire	11.7	5.7	3	1.3	1.7
Hertsmere	19.4	7.1	5	3.5	3.8
North Hertfordshire	6.9	3.9	1.7	0.6	0.7
St Albans	19.8	7.7	4.9	3.4	3.8
Stevenage	12.8	4.7	3.2	2.3	2.6
Three Rivers	6.8	3.3	1.7	0.8	1
Watford	11	5.5	3.1	1.1	1.3
Welwyn Hatfield	17.7	6.3	4.3	3.3	3.8
Hertfordshire	124.33	54.14	31.79	18.11	20.29

Source: Oxford Economics, Autumn 2010

34. Finally, it is important to understand how the Oxford Economics base forecast relates to the **Employment Land Review (ELR)** forecasts adopted by each of the ten Hertfordshire districts. The ELR forecasts have guided employment land strategies in the districts to date. It is important to bear these in mind as they may demonstrate the aspirations a district has for its economy. Columns two to five in Table 2-9 provide a comparison between the preferred employment growth scenario of each district with the Oxford Economics base, low and high forecasts, which have been aligned to the relevant time period (to match that of the preferred scenario forecast). Columns six to nine provide a comparison between Regional Spatial Strategy (RSS) employment growth and the Oxford Economics base, low and high forecasts.

35. Summing all preferred scenarios (87,000 jobs) gives a total change which falls between that of the base scenario (72,100 jobs) and high growth scenario (101,800 jobs). However, the preferred scenario's, and therefore the corresponding Oxford Economics scenario figures, relate to a variety of different time periods. None of the base scenario forecasts are reflective of the districts' preferred scenarios. However, the preferred scenarios for Dacorum and Watford are broadly in line with the low growth scenario for the corresponding time period and the preferred scenarios for East Hertfordshire and North Hertfordshire, are broadly similar to the high growth scenario. The preferred scenario forecasts for Broxbourne, Hertsmere and Stevenage are considerably higher than even the high growth scenario produced by Oxford Economics while the preferred scenarios for St Albans, Three Rivers and Welwyn Hatfield are lower than the low growth forecast provided by Oxford Economics. It should be noted however, that there is great variation between the Oxford Economics forecasts for the time periods corresponding to the ELR preferred scenarios and the 2011-2031 forecasts. For example, Oxford Economics forecast a decrease of 1,300 jobs in Hertsmere in the time period relating to the preferred scenario but an increase of 13,400 jobs between 2011-2031.
36. There is a large degree of variety between the RSS and Oxford Economics forecasts. The RSS forecast is greater than the Oxford Economics high growth forecast for four of the ten Hertfordshire districts. In St Albans and Welwyn Hatfield the RSS forecast is lower than the Oxford Economics low growth scenario while for Hertsmere, Stevenage, Three rivers and Watford the RSS forecast is between the high and base scenarios.

Geography	OE (various time periods aligned to ELR forecast dates)			Preferred Scenario	OE (2011-2031)			RSS (2011-2031)
	Base	High	Low		Base	High	Low	
Broxbourne	5.7	7.30	5.13	12.7	2.12	5.17	1.43	6.2
Dacorum	11.0	14.84	9.97	9.8	9.49	13.10	8.52	16.5
East Hertfordshire	7.9	10.58	6.99	11.6	5.82	11.66	4.53	13.6
Hertsmere	-1.3	1.51	-2.26	11.6	13.40	19.45	12.05	17.9
North Hertfordshire	2.2	5.06	1.44	7.1	3.31	6.95	2.47	9
St Albans	13.7	16.25	12.80	5.9	14.56	19.79	13.46	11.4
Stevenage	7.2	8.99	6.57	16.7	9.32	12.74	8.48	11.4
Three Rivers	6.0	9.62	5.33	1.6	3.31	6.76	2.65	4.3
Watford	3.8	9.49	2.67	2.2	5.56	11.01	4.45	10.7
Welwyn Hatfield	15.8	18.18	15.02	7.7	12.42	17.69	11.59	7.1
London Arc	73.2	106.53	36.45	60.9	60.85	92.96	54.16	74.1
Hertfordshire	72.1	101.8	63.7	87.0	79.3	124.3	69.6	108.1

Regional Drill Down

37. As part of the Hertfordshire Strategic Sites study we requested additional, more detailed sectoral, information from Oxford Economics. While this is only available at the regional level it provides a more detailed insight into the way that sectors are forecast to change in the East of England over the twenty year period to 2031, by providing a breakdown by 59 different sectors. This allows more detailed sector analysis than is available for the Hertfordshire level data which splits employment into 28 sectors. Such analysis is particularly important for Hertfordshire's priority sectors, as reviewed previously in this Appendix.

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38. Across the East of England, the forecast estimates employment growth in the region of 298,400 from 2011 to 2031. This suggests that Hertfordshire’s forecast growth (of 79,300 employees) contributes 27% of the regional growth.
39. As shown in Table 2-10, the sectors forecast to experience the largest absolute growth across the region are Legal and Accounting Services (+50,800 employees), Health (+36,600 employees), Retail Distribution (+36,600 employees), Labour Recruitment (+33,600 employees) and Miscellaneous Personal Services (+30,800 employees). Other sectors forecast to experience the largest increases include some business services (Industrial Cleaning, Real Estate, Computer Related and ‘Other’) as well as construction.
40. In terms of percent change, the top ten business sectors showing growth all fall within Business Services, demonstrating the national trend for growth of professional and services activities. It will be particularly important to bear this trend in mind when devising a strategy for the provision of strategic employment land given the tendency of such activities to occupy both town centre and business park locations. Table 2-10 shows these sectors.

Table 2-10 Top 10 Sectors Showing Growth in East of England (2011-2031) (Non-FTE)			
Absolute Change (000’s)		Percent Change (%)	
Business services - legal & accounting services	50.8	Business services - industrial cleaning	63.0
Health	36.6	Business services - legal & accounting services	54.2
Distribution - retail	36.6	Business services - technical testing & analysis	51.0
Business services - labour recruitment	33.6	Business services - renting services	47.6
Other personal services - miscellaneous	30.8	Business services - investigation & security services	45.5
Business services - industrial cleaning	28.9	Business services - other business services	44.3
Construction	26.8	Business services - research & development	43.6
Business services - real estate services	20.9	Business services - architectural & engineering	42.4
Business services - computer-related services	19.6	Business services - labour recruitment	42.1
Business services - other business services	18.6	Business services - advertising	40.9

Source: Regional 59 Sector Forecasts, Oxford Economics, Autumn 2010; Regeneris Consulting analysis

41. The sectors forecast the largest declines in employment are shown in Table 2-11. In terms of absolute employment decline Manufacturing sectors dominate the score board, with Agriculture being the only non-Manufacturing sector to appear. Particularly notable are the presence of high tech manufacturing activities such as Electrical and Optical goods which are forecast to decrease by between 5,000 employees (Instruments and Optical), 4,600 employees (Electrical) and 3,900 employees (Electrical Machinery).
42. In terms of the sectors with the greatest percent decline forecast over the coming twenty years, Manufacturing activities again dominate and Electrical and Optical goods again have a presence. However, Textiles (both ‘Leather and Clothing’ and ‘textiles’) and Extraction (Oil and Gas, Other Mining and Coal) display the largest percent decreases ranging from -74.5% to -57.2%.

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Absolute Change (000's)		Percent Change (%)	
Agriculture	-15.8	Textiles & leather - leather & clothing	-74.5
Machinery & equipment nec	-11.0	Textiles & leather - textiles	-67.0
Pulp, paper & printing	-10.7	Extraction - oil & gas	-62.2
Food, drink and tobacco - food	-9.1	Extraction - other mining	-59.7
Public administration & defence	-8.6	Extraction - coal	-57.2
Metals - metal goods	-8.4	Electrical & optical goods - electronics	-43.8
Electrical & optical goods - instruments & optical	-5.0	Pulp, paper & printing	-43.4
Electrical & optical goods - electronics	-4.6	Machinery & equipment nec	-42.8
Rubber & plastic products	-4.3	Electrical & optical goods - electrical machinery	-42.4
Electrical & optical goods - electrical machinery	-3.9	Metals - basic metals	-41.9

Source: Regional 59 Sector Forecasts, Oxford Economics, Autumn 2010; Regeneris Consulting analysis

43. As noted previously, Hertfordshire has recognised the following sectors as priority sectors: Software and Digital; Life Sciences; Advanced Manufacturing; Creative and Media; Green Industries and Consultancy; Logistics; and Professional Banking and Finance. The regional forecasts provided by Oxford Economics enable a closer interrogation of the forecast change within these sectors.

2.2 Overall, employment in **Software and Digital** activities is forecast to grow by 16,100 between 2011 and 2031 (a 15.9% increase). Growth is forecast to be particularly strong in Computer Related business services (19,600 additional employees) While overall growth in employment in these activities is anticipated, Manufacturing of Electronics (-4,600 employees) is forecast to decline.

SIC	Sector	2011 Employment	2031 Employment	Total Change	% Change
30,32	Manufacture of Electronics	10.4	5.8	-4.6	-43.8
64	Communications	41.6	42.8	1.1	2.8
72	Business Services - Computer Related	49.3	68.9	19.6	39.8
Total		101.3	117.5	16.1	15.9

Source: Regional 59 Sector Forecasts, Oxford Economics, Autumn 2010; Regeneris Consulting analysis

2.3 The forecasts for both Hertfordshire and the East of England in activities related to the Software and Digital sector show growth over the next twenty years. Given the existing strengths of the sector, for example with the presence of Computacentre who employ 1,000 people on the Hatfield Business Park, this area of employment has significant potential and, with correctly aligned support, could mark Hertfordshire out above its competitors.

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44. **Life Sciences** can be analysed using Pharmaceuticals (2003 SIC 24.4), manufacture of Instruments and Optical equipment (2003 SIC 33) and Research and Development (2003 SIC 73) sectors.
45. Table 2-13 highlights that between 2011 and 2031 Pharmaceuticals and the manufacture of Instruments and Optical equipment are both forecast to experience a decline of between 36 and 40%. Conversely, Research and Development is forecast to increase by 43.6% and 9,500 jobs. Using this definition, Life Sciences therefore shows a positive change of 5.6% (2,300 employees) in the East of England. However, this relies on the growth within Research and Development which is not solely related to Life Sciences activities.

	2011	2031	Total Change	% Change
Pharmaceuticals	6.3	4.0	-2.3	-36.0
Instruments and Optical	12.6	7.6	-5.0	-39.6
Research and Development	21.8	31.4	9.5	43.6
Total	40.8	43.0	2.3	5.6

Source: Regional 59 Sector Forecasts, Oxford Economics, Autumn 2010; Regeneris Consulting analysis

46. Based on the Oxford Economics forecasts for Hertfordshire the Life Sciences sector, at worst, is likely to decrease by around 2,200 jobs across Hertfordshire (with particular losses forecast in East Hertfordshire, -900 jobs) and, at best, increase by 2,300 jobs across the East of England (though this is buoyed by strong growth in Research and Development activities which are not exclusive to the Life Sciences sector). Any actions to support the Life Sciences operations in Hertfordshire will need to focus on ways of restricting the forecast losses and maximising potential gains across the range of activities encompassed by the sector. Hertfordshire already displays sector strengths with the presence of a number of high profile pharmaceuticals companies including GSK.
47. The activities shown in Table 2-14 fit broadly within our definition of **Advanced Manufacturing**. Overall, using this grouping of SIC codes (which is aligned to, but essentially not the same as, the definition used in our baseline analysis), the sector is forecast to decline by 25,700 jobs between 2011 and 2031 across the East of England. The only growth sectors within the group are shown as the two business services orientated sectors: Research and Development and Technical Testing and Analysis. Unfortunately it is not possible to disaggregate this data further. The largest absolute losses of employment are forecast to be in the Manufacturing of Machinery and Equipment (-11,000 jobs) and Metal Goods (-8,400 jobs).

SIC	Sector	2011 Employment	2031 Employment	Total Change	% Change
28	Metals - Metal Goods	20.3	11.9	-8.4	-41.4
29	Manufacturing – Machinery and Equipment	25.7	14.7	-11.0	-42.8
30,32	Electrical and Optical Goods - Electronics	10.4	5.8	-4.6	-43.8

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31	Electrical and Optical Goods – Electrical Machinery	9.3	5.3	-3.9	-42.4
33	Electrical and Optical Goods – Instruments and Optical	12.6	7.6	-5.0	-39.6
34	Transport Equipment – Motor Vehicles	9.1	6.4	-2.7	-30.0
35.3	Transport Equipment - Aerospace	6.7	4.7	-2.0	-30.4
35 excluding 35.3	Transport Equipment – Other Transport Equipment	1.5	1.1	-0.5	-30.2
73	Research and Development	21.8	31.4	9.5	43.6
74.4	Business Services – Technical Testing and Analysis	5.7	8.6	2.9	51.0
	Total	123.2	97.5	-25.7	-20.9

Source: Regional 59 Sector Forecasts, Oxford Economics, Autumn 2010; Regeneris Consulting analysis

48. Though forecasts are not the definitive answer to what will happen in the future, it is clear that manufacturing industries will need particular support to assist the retention and attraction of the higher value added functions that Advanced Manufacturing businesses bring to Hertfordshire.
49. **Creative and Media** activities are very difficult to analyse at the Hertfordshire level using the County forecasts. However, it is possible to identify this sector within the East of England forecasts to a broad degree by using Textiles, ‘Pulp, Paper and Printing’, ‘Architecture and Engineering’ and Advertising sectors (unfortunately there is no sector which clearly reflects either the film or design industry). Combined, these four sectors are expected to grow by 4,700 employees from 2011 to 2031 (an increase of 7.3%). The largest areas of growth are predicted within the business and professional services of ‘Architecture and Engineering’ (14,200 employees) and Advertising (2,200 employees) while the manufacturing elements of Textiles and ‘Pulp, Paper and Printing’ are both forecast to decline (by 800 and 10,700 jobs respectively).

SIC	Sector	2011 Employment	2031 Employment	Total Change	% Change
17	Textiles	1.3	0.4	-0.8	-67.0
21-22	Pulp, paper and printing	24.7	14.0	-10.7	-43.4
74.2	Architecture and Engineering	33.4	47.6	14.2	42.4
74.4	Advertising	5.3	7.4	2.2	40.9
	Total	64.7	69.4	4.7	7.3

Source: Regional 59 Sector Forecasts, Oxford Economics, Autumn 2010; Regeneris Consulting analysis

50. There are therefore mixed messages about the future potential of the Creative and Media sectors within the East of England, with business services related activities forecast to increase and manufacturing related activities forecast to decline. It is disappointing that a closer analysis cannot be provided of the film industry though it is acknowledged that

Hertfordshire demonstrates particularly strengths in this area, with the presence of Elstree Studios and Leavesdon.

51. **Green Industries and Consultancy, Logistics and Professional Banking and Finance** sectors were analysed in detail previously using the Hertfordshire forecasts. Application of the East of England forecasts does not provide any further insight into the future growth prospects of these sectors.

How are Other Areas Forecast to Change?

52. In informing our understanding of how Hertfordshire's employment and economy may change over the next twenty years it was interesting to interrogate areas which have been successful in developing their economy in the way in which the County aspires. Berkshire and Cambridgeshire were chosen as aspirational comparator locations and their employment forecasts were reviewed in order to understand the level of development Hertfordshire would require in order to achieve growth on a par.
53. **Cambridgeshire** forecasts were obtained from the Insight East forecasts produced by Oxford Economics. These therefore use the same sectors as analysed for Hertfordshire throughout this Appendix. Between 2011 and 2031, Cambridgeshire's employment is forecast to grow by 70,200. This is a 25% increase compared to Hertfordshire's forecast increase of 16%. Notable growth is forecast in the business sectors, some of which (computer related, other including call centres and R&D and technical testing) are forecast absolute growth which is double, triple, or indeed quadruple, that forecast for Hertfordshire over the same time period. This is reflective of the existing sector strengths in the County, which are supported by high quality and high profile business parks as well as Cambridge's international status. Education employment in Cambridgeshire is also forecast to increase by 6,400 employees compared to a decline of 1,600 employees in Hertfordshire. This is likely to be a reflection of the current strengths in education in Cambridgeshire including the University of Cambridge.
54. In terms of percentage change, all Business Services activities are forecast to increase at a greater rate than for Hertfordshire. Finance is forecast an increase of 26.6% which is ten percentage points greater than the 16.2% increase forecast for Hertfordshire. However, in absolute terms, Hertfordshire is actually forecast a greater employment change in this sector (2,100 jobs compared to 1,000 jobs in Cambridgeshire). Sectors for which Cambridgeshire is forecast a lower percent increase than Hertfordshire are those in which Hertfordshire demonstrates sector strengths, such as Wholesale, Distribution and Sale/Maintenance of Motor Vehicles which reflects its optimum location for logistics operations (reported through a number of our business consultations); and Air Transport, reflecting proximity to Stansted airport.
55. Employment is forecast to decrease in all but one of the manufacturing sub-sectors in the County in both absolute and percentage terms. Interestingly, Cambridgeshire is forecast marginal growth in 'Other and Recycling' manufacturing. The forecast predicts a growth of 100 jobs in this sector (4.6% increase) in comparison to Hertfordshire's loss of 300 jobs (-11.7%).
56. The following table contains the forecast change in employment for Cambridgeshire's sectors.

Table 2-16 Cambridgeshire Employment Forecast (2011-2031) (Non-FTE)		
Sector	Total Change	% Change
Agriculture and Fishing	-2.8	-34.2
Extraction	-0.1	-55.1
Manufacturing - Food, Drink and Tobacco	-1.3	-26.7
Manufacturing - Other Low Tech	-1.7	-42.3
Manufacturing -Metals and Engineering	-4.3	-34.2
Manufacturing - Chemicals and Process	-11.2	-33.9
Manufacturing - Other and Recycling	0.1	4.6
Utilities	-0.2	-23.9
Construction	2.2	21.3
Wholesale, Distribution and Sale/Maintenance of Motor Vehicles	2.6	14.6
Retailing	5.6	25.5
Hotels and Catering	1.7	11.8
Air Transport	0.0	8.0
Communications	-0.6	-20.0
Land and Other Transport	3.1	40.7
Water Transport	0.0	-9.4
Finance	1.0	26.6
Business Services - Computer Related	6.2	63.7
Business Services - Labour Recruitment, Security and Cleaning	11.6	85.4
Business Services -Other Including Call Centres	3.0	50.2
Business Services - R&D and Technical Testing	9.6	82.7
Business Services - Real Estate and Renting	4.3	59.7
Business Service - Other Tradable	13.8	76.7
Public Admin	-0.7	-5.1
Education	6.4	16.4
Health	8.0	21.1
Personal Services - Miscellaneous	4.1	40.4
Personal Services - Waste	0.5	32.7
Source: Oxford Economics, Autumn 2010		

57. **Berkshire** forecasts were obtained from SEEPB and SEEDA. They were produced by Cambridge Econometrics in June 2010 and cover a broader set of sectors in comparison with the Oxford Economics forecasts (9 sectors instead of 28) as well as a slightly shorter timescale (2011 to 2030). Between 2011 and 2030, Berkshire's employment is forecast to increase by 23%, demonstrating total growth of 122,600 jobs. This is in comparison with Hertfordshire's forecast of 16%. The broad sector demonstrating the highest absolute growth forecast is 'Financial, Business and Other Market Services' (+102,400 employees, 54% increase). Construction, 'Distribution, Hotels etc', 'Transport and Communications' and 'Non-Market Services' are also forecast to experience growth in employment. However, reflecting the Hertfordshire forecasts, traditional industries are again forecast to decline. Agriculture, 'Mining and Quarrying', Manufacturing and 'Electricity, Gas and Water' are all forecast employment losses. The largest employment loss is expected to be in Manufacturing which is forecast a decline of 12,000 employees.

	Total Change 2011-2030	% Change 2011-2030
Agriculture etc	-1.3	-27.2
Mining & Quarrying	-0.2	-32.8
Manufacturing	-12.0	-32.9
Electricity, Gas & Water	-0.6	-31.1
Construction	1.9	6.0
Distribution, Hotels etc	13.8	12.1
Transport & Communications	1.9	5.7
Fin., Bus. & Other Mkt. Services	102.4	54.1
Non Market Services	16.6	16.7
Total	122.6	23.9

Source: Cambridge Econometrics, June 2010

Agreed Employment Scenarios

58. The previous sections of the Sector Forecasts Appendix have provided an overview of those forecasts which already exist. These help to build an understanding of Hertfordshire's employment growth overall and by sector as well as demonstrate how these compare to employment growth forecast in other, possibly more economically successful, locations.
59. In order to apply these findings usefully to the Hertfordshire Strategic Sites Study we developed two further employment scenarios for Hertfordshire. These are:
- **Status Quo Scenario** – applying the 2% growth rate experienced in Hertfordshire over the past ten years to generate an employment scenario which forecasts growth of 4% over the next twenty years (2% growth per decade). This was achieved by reflecting the current employment profile of the County.
 - **Aspirational Scenario** – applying the Cambridgeshire growth rate of 25% to Hertfordshire's 2011 employment figure. This was achieved by applying the percent change forecast for each sector for 2031.
60. These two additional scenarios, together with the **Oxford Economics base forecast**, provided base (Base Scenario, 16% growth rate), low (Status Quo Scenario, 4% growth rate) and high (Aspirational Scenario, 25% growth rate) growth scenarios to feed into the assessment of requirements for strategic employment sites across the County.
61. Table 2-18 provides a comparison of the employment figures by sector for the three scenarios. As already discussed, the Base Scenario forecasts employment growth of 79,300 for the County over the twenty year time period. By applying the sector growth rates forecast for Cambridgeshire to the Hertfordshire sectors a total employment growth of 122,900 is forecast. Conversely, should the County's employment continue to grow in accordance with historic trends of 2% per decade, only an additional 19,900 jobs are likely to arise by 2031.

	Base		Aspirational		Status Quo	
	Total Change	% Change	Total Change	% Change	Total Change	% Change
Agriculture	-1.3	-35.7	-1.2	-34.2	-0.3	-9.0

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Extraction	-0.1	-57.8	-0.1	-55.1	0.0	-14.5
Manufacturing - food, drink & tobacco	-0.7	-36.6	-0.5	-26.7	-0.2	-9.2
Manufacturing - other low tech	-3.0	-48.4	-2.6	-42.3	-0.7	-12.2
Manufacturing - metals & engineering	-7.4	-46.5	-5.4	-34.2	-1.9	-11.7
Manufacturing - chemicals & process industries	-2.2	-30.7	-2.5	-33.9	-0.6	-7.7
Manufacturing - other & recycling	-0.3	-11.7	0.1	4.6	-0.1	-2.9
Electricity, gas & water	-0.4	-25.2	-0.4	-23.9	-0.1	-6.3
Construction	11.1	37.8	6.3	21.3	2.8	9.5
Wholesale & distribution	7.7	18.9	6.0	14.6	1.9	4.7
Retail	11.8	20.6	14.7	25.5	3.0	5.2
Hotels & catering	3.2	10.9	3.4	11.8	0.8	2.7
Air transport	0.0	18.9	0.0	8.0	0.0	4.7
Communications	1.2	9.3	-2.5	-20.0	0.3	2.3
Land and other transport	0.6	4.6	5.6	40.7	0.2	1.2
Water transport	0.0	-45.7	0.0	-9.4	0.0	-11.5
Finance	2.1	16.2	3.4	26.6	0.5	4.1
Business services - computer related	3.5	21.7	10.4	63.7	0.9	5.4
Business services - labour recruitment, security & cleaning	13.9	36.9	32.2	85.4	3.5	9.3
Business services - other including call centres	1.5	15.6	4.7	50.2	0.4	3.9
Business services - R&D, technical testing	1.5	20.5	6.0	82.7	0.4	5.1
Business services - real estate & renting	3.8	27.0	8.5	59.7	1.0	6.8
Business services - other tradable	20.7	52.2	30.4	76.7	5.2	13.1
Public admin & defence	-2.0	-12.5	-0.8	-5.1	-0.5	-3.1
Education	-1.6	-3.4	7.6	16.4	-0.4	-0.9
Health	7.2	14.8	10.3	21.1	1.8	3.7
Other personal services - miscellaneous	7.9	31.1	10.3	40.4	2.0	7.8
Other personal services - waste disposal	0.3	13.6	0.7	32.7	0.0	3.4
Total	79.3	15.9	122.9	24.7	19.9	4.0

Source: Oxford Economics, Autumn 2010; Regeneris Consulting, 2011

62. The key growth sectors of the Base Scenario are Construction (+ 11,100), Retail (+11,800), Labour Recruitment, Security and Cleaning (+13,900), and 'Other Tradable' business services (+20,700). The same sectors are identified as the key growth sectors in the Status Quo Scenario, but at much lower employment growth levels (around 300 to 500 jobs per sector). The Aspirational Scenario demonstrates how sectors would change if Cambridgeshire's forecast growth rates were to occur in Hertfordshire. As such this Scenario combines both Cambridgeshire's forecast growth rates with Hertfordshire's sector strengths. This similarly identifies key employment growth sectors as Retail (+14,700), Labour Recruitment, Security and Cleaning (+32,200) and 'Other Tradable' business services (+30,400).
63. In terms of Hertfordshire's priority sectors:
- **Software and Digital** employment uses 'Computer Related' business services and

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‘Communications’ as proxy sectors. According to these sectors, employment in Software and Digital activities is forecast to increase overall in all three Scenarios, though the Communications element is forecast to decrease under the Aspirational Scenario.

- **Life Sciences** employment, using ‘Chemicals and Process Industries’ as a proxy, is forecast to decline in all three Scenarios. Both the Base and Aspirational Scenarios forecast decline around 2,200-2,500 employees.
- **Advanced Manufacturing** employment is forecast to decline in all three Scenarios (reflected in declines in Manufacturing sectors as a proxy).
- It is not possible to forecast specific **Creative and Media** employment growth using the sectors available under these Scenarios.
- **Green Industries and Consultancy** is again difficult to identify. It is likely to decline in accordance with both the Base and Status Quo scenarios (reflecting declines in Manufacturing overall) though may increase in the Aspirational Scenario (based on a marginal increase of 100 employees in ‘Other and Recycling’ manufacturing).
- **Logistics** employment is forecast to grow in all Scenarios. This is a reflection of the County’s existing strengths in ‘Wholesale, Distribution and Sale/Maintenance of Motor Vehicles’ and ‘Land and Other Transport’. Both sectors are forecast employment growth in all three Scenarios.
- Professional **Banking and Finance** employment is forecast to grow in all Scenarios when using Finance as a proxy.

Implications for Employment Land

64. To make the scenario employment growth applicable to employment sites, the figures were applied to our in-house employment land model. This required a number of steps including conversion to Full Time Equivalent jobs and application of employment densities using the Offpat/Home and Communities Agency *Employment Densities Guide* (2010) produced by Drivers Jonas Deloitte.
65. Table 2-19/20 below provides a breakdown of additional B use class employment. The B Use Classes are those which require employment land. Not all employment forecast in each sector is accounted for by B Class uses; this is taken into account in the figures shown below.
66. Of the 79,300 additional employment forecast for the County under the Oxford Economics base forecast, only 33,513 jobs (42%) are likely to require employment land as defined by B Use Classes. The same percentage applies for the Status Quo Scenario which predicts 8,415 of the total 19,900 employees requiring employment land while over half of the Aspirational Scenario employment growth (56%) would require B Use Class land.
67. The sectors which would require the most employment land are ‘Other Tradable’ business services (totalling 17,874 employees in office uses in the Base Scenario) and Wholesale and Distribution (totalling 6,872 employees in the Base Scenario). Declines in employment are expected in B Use Classes for all Manufacturing sectors in the Base Scenario, reflecting the loss forecast in employment in such activities overall. However, under the Aspirational

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Scenario growth of around 125 employees in 'Other and Recycling' is forecast in B Use Classes. Some activities, such as 'Agriculture', 'Electricity, Gas and Water', 'Hotels and Catering', 'Air Transport', 'Water Transport' and 'Waste Disposal' do not have any B Use Class employment needs forecast.

	Base	Aspirational	Status Quo
Agriculture	0.0	0.0	0.0
Extraction	-0.9	-0.9	-0.2
Manufacturing - food, drink & tobacco	-543.1	-383.5	-136.4
Manufacturing - other low tech	-2475.4	-2127.5	-621.6
Manufacturing - metals & engineering	-6165.0	-4439.2	-1548.0
Manufacturing - chemicals & process industries	-1832.9	-1979.7	-460.2
Manufacturing - other & recycling	-212.4	124.6	-53.3
Electricity, gas & water	0.0	0.0	0.0
Construction	483.9	299.4	121.5
Wholesale & distribution	6861.5	5860.2	1722.9
Retail	3365.8	4351.4	845.2
Hotels & catering	0.0	0.0	0.0
Air transport	0.0	0.0	0.0
Communications	735.8	-1265.1	184.8
Land and other transport	146.4	1137.3	36.8
Water transport	0.0	0.0	0.0
Finance	1866.1	3133.4	468.6
Business services - computer related	3139.7	9130.2	788.4
Business services - labour recruitment, security & cleaning	3916.5	9053.3	983.4
Business services - other including call centres	1313.9	4146.5	329.9
Business services - R&D, technical testing	1313.1	5193.9	329.7
Business services - real estate & renting	3375.8	7485.2	847.7
Business services - other tradable	17873.6	26627.5	4488.1
Public admin & defence	-1247.9	-355.7	-313.3
Education	-42.1	298.9	-10.6
Health	972.1	1442.1	244.1
Other personal services - miscellaneous	668.9	893.6	168.0
Other personal services - waste disposal	0.0	0.0	0.0
Total	33513.2	68625.6	8415.2

Source: Regeneris Consulting, 2011
 Note: Figures are as shown and are not in thousands as in previous tables.

68. Table 2-20 provides a further breakdown of employment by B Use Class by the three Scenarios. Office based employment is forecast to grow the most across all three Scenarios; totalling 32,769 employees in the Base Scenario, 63,624 employees in the Aspirational Scenario and 8,228 employees under the Status Quo Scenario. Industrial employment is forecast to decrease in all Scenarios while Warehouse employment is forecast moderate increases of around 9,700/9,800 according to the Base and Aspirational Scenario respectively.

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Table 2-20 Number of Jobs Forecast by B Use Class by 2031 (FTE)									
	B1/A2			B2			B8		
	Base	Aspirational	Status Quo	Base	Aspirational	Status Quo	Base	Aspirational	Status Quo
Agriculture	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Extraction	-0.9	-0.9	-0.2	0.0	0.0	0.0	0.0	0.0	0.0
Manufacturing - food, drink & tobacco	0.0	0.0	0.0	-488.8	-345.1	-122.7	-54.3	-38.3	-13.6
Manufacturing - other low tech	-574.6	-493.9	-144.3	-1710.7	-1470.3	-429.5	-190.1	-163.4	-47.7
Manufacturing - metals & engineering	0.0	0.0	0.0	-5548.5	-3995.3	-1393.2	-616.5	-443.9	-154.8
Manufacturing - chemicals & process industries	0.0	0.0	0.0	-1649.6	-1781.7	-414.2	-183.3	-198.0	-46.0
Manufacturing - other & recycling	0.0	0.0	0.0	-191.2	112.1	-48.0	-21.2	12.5	-5.3
Electricity, gas & water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction	483.9	299.4	121.5	0.0	0.0	0.0	0.0	0.0	0.0
Wholesale & distribution	0.0	0.0	0.0	0.0	0.0	0.0	6861.5	5860.2	1722.9
Retail	0.0	0.0	0.0	0.0	0.0	0.0	3365.8	4351.4	845.2
Hotels & catering	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Air transport	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Communications	367.9	-632.6	92.4	0.0	0.0	0.0	367.9	-632.6	92.4
Land and other transport	0.0	0.0	0.0	0.0	0.0	0.0	146.4	1137.3	36.8
Water transport	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Finance	1866.1	3133.4	468.6	0.0	0.0	0.0	0.0	0.0	0.0
Business services - computer related	3139.7	9130.2	788.4	0.0	0.0	0.0	0.0	0.0	0.0
Business services - labour recruitment, security & cleaning	3916.5	9053.3	983.4	0.0	0.0	0.0	0.0	0.0	0.0
Business services - other including call centres	1313.9	4146.5	329.9	0.0	0.0	0.0	0.0	0.0	0.0
Business services - R&D, technical testing	656.5	2596.9	164.9	656.5	2596.9	164.9	0.0	0.0	0.0
Business services - real estate & renting	3375.8	7485.2	847.7	0.0	0.0	0.0	0.0	0.0	0.0
Business services - other tradable	17873.6	26627.5	4488.1	0.0	0.0	0.0	0.0	0.0	0.0
Public admin & defence	-1247.9	-355.7	-313.3	0.0	0.0	0.0	0.0	0.0	0.0
Education	-42.1	298.9	-10.6	0.0	0.0	0.0	0.0	0.0	0.0
Health	972.1	1442.1	244.1	0.0	0.0	0.0	0.0	0.0	0.0
Other personal services - miscellaneous	668.9	893.6	168.0	0.0	0.0	0.0	0.0	0.0	0.0
Other personal services - waste disposal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	32769.3	63623.7	8228.4	-8932.2	-4883.4	-2242.9	9676.1	9885.2	2429.7

Source: Regeneris Consulting, 2011

Note: Figures are as shown and are not in thousands as in previous tables.

69. Table 2-21 shows the **floorspace requirements** for Hertfordshire as a result of the forecast B Use Class employment growth. The Base scenario forecasts an additional requirement of 857,069 sqm of floorspace by 2031. The Aspirational Scenario forecasts 1.7 times this amount (1,488,258 sqm) while if the County continues to grow at its current rate over the next twenty years (4% growth) only an additional 215,209 sqm will be required.

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70. All three scenarios suggest a decline in Industrial (B1c and B2) floorspace by 2031. This is reflective of the employment declines forecast for the Manufacturing sectors. Both Office (B1a) and Warehouse (B8) floorspace are forecast to increase in all scenarios, reflecting the continued national growth of professional and business services as well as the existing strengths in logistics within the County.

Table 2-21 Hertfordshire Floorspace Requirements by Scenario (sqm)				
	Sqm			
	B1a (Office)	B1c and B2 (Industrial)	B8 (Warehouse)	Total
Employment Density (Averages)	17.4sqm	41.5sqm	75sqm	
Base Scenario (15.9% growth)	502039.5	-370688.3	725708.6	857059.7
Aspirational (Cambridge) Scenario (24.7% growth)	949526.4	-202659.6	741390.7	1488257.5
Status Quo (4% growth)	126062.7	-93080.3	182226.3	215208.7

Source: Regeneris Consulting, 2011

71. Converting the floorspace requirements to hectares enables identification of possible employment land requirements. There is significant variation between the three scenarios. Should Hertfordshire experience employment growth in line with the Base Scenario (16%) around 159 ha of employment land may be required. However, almost double this (299ha) would be required should the County follow the projected growth trajectory of Cambridgeshire (25%) and less than a third of this would be required should historic growth of 2% every ten years occur (40ha).

Table 2-22 Hertfordshire Employment Land Requirements by Scenario (ha)					
	Ha				
	B1a (Office)		B1c and B2 (Industrial)	B8 (Warehouse)	Total
	Business Park	Town Centre			
Plot ratio	0.3	1.1	0.4	0.5	
Base Scenario (15.9% growth)	83.7	22.8	-92.7	145.1	159.0
Aspirational (Cambridge) Scenario (24.7% growth)	158.3	43.2	-50.7	148.3	299.0
Status Quo (Historical Growth) Scenario (4% growth)	21.0	5.7	-23.3	36.4	39.9

Source: Regeneris Consulting, 2011

72. While these hectare figures provide an illustration of the potential employment land requirements, it must be noted that not all such employment will take place on strategic employment sites. Some organisations and sectors will favour town centre locations, while others will require less space than predicted due to changing working practices such as home working. For example, one business consultee reported that though their workforce is likely to grow steadily over the coming years they are in fact likely to reduce their floorplate as a large proportion of employees now work from home on at least two out of five working days.

Some Considerations

73. The figures and commentary provided within this Appendix must be interpreted sensitively. Forecasts do not tell us everything we need to know about employment growth and

resultant employment land requirements. A number of factors will influence the level of employment growth which will occur in Hertfordshire over the next twenty years.

74. Forecasts are typically based on historical trends and do not take into account public sector policy changes (including local or county wide inward investment activities), changing working patterns (which impact on the requirement for, and type of, employment space), the ability of an area to attract businesses in sectors forecast to grow, local nuances or dramatic sector change (such as the dot com boom in the past).
75. All of these factors need to be taken into consideration when interpreting the results, applying them to the Hertfordshire context and identifying the need for, and characteristics required of, strategic employment land.

Concluding Comments

76. This Forecast Appendix has introduced a number of scenarios for employment growth over the next twenty years (2011-2031). These have been sourced from Oxford Economics (base, high and low) as well as generated by Regeneris Consulting through the application of both historical growth trends (Status Quo Scenario) and forecast sector growth rates of County's which have followed growth trajectories that Hertfordshire may wish to reflect (Aspirational Scenario).
77. The three chosen Scenarios (Base, Status Quo and Aspirational) produce different employment growth forecasts for Hertfordshire ranging from 19,900 in the Status Quo Scenario, 79,300 in the Base Scenario and 122,900 in the Aspirational Scenario.
78. While these figures are vastly different, the employment change forecast by sector for each Scenario retains a distinct profile; manufacturing employment is forecast to decline in the future while professional and business services are likely to increase substantially. This has important implications for the requirement of employment land, with office based uses likely to require additional and better quality provision and industrial uses expected to require a reduction in employment space. Warehouse employment land is forecast growth, in part reflecting the existing strengths of the County in logistics activities, but not to the level expected for office use.
79. In applying these findings to strategic employment sites it must be borne in mind that forecasting and hard quantitative figures do not provide the full picture. Local interpretation and knowledge of the changing context, including policy as well as profile raising activities, must also be considered.

3. Transport and Infrastructure Summary Appraisal

1. The Transport and Infrastructure Assessment has been prepared by WSP Group and is a high level assessment of the opportunities and constraints for each of the sites which have been assessed in the main report.

Ref	Potential Site	Strengths	Weaknesses	Opportunities	Constraints	Transport and Infrastructure				Phasing	Actions	Costs (ballpark estimate)	
						Proximity		Accessibility					Infrastructure
						Private Transport	Public Transport	Private Transport	Public Transport				
1	Waltham Cross / Park Plaza	<p>Located close to motorway junction and primary route network. Improvements to A10 already carried out as a result of News International permission.</p> <p>Relative proximity to West Anglia Mainline (WAML) Adjacent M25 J25</p>	<p>Poor public transport in the area and therefore high mode share to car likely, which is unsustainable. Distant from other services.</p> <p>Possible highway access constraints given Primary Route Status of much of local network</p>	<p>M25 capacity increases underway and planned for 2014. Existing permissions have obligation to improve M25 eastbound (clockwise) off-slip to A10.</p> <p>Rolling stock enhancements on WAML being introduced during 2011</p>	<p>Highway network congested. Poor alternative mode provision. Policy objection to new access to A10.</p> <p>Beyond easy walking distance from Cheshunt Station (opportunity for enhanced bus services?)</p>	✓	✓	✓	✓	<p>Flood Risk Near flood plain</p> <p>Water Supply Three Valleys Water Existing infrastructure is likely to require upgrade and expansion to support Harlow growth</p> <p>Groundwater Constraints</p> <p>Aquifer designation</p> <p>Potential for use of infiltration</p> <p>SW/FW Network network recently upgraded as part of development of News International Print works</p> <p>Sewage Treatment Capacity</p> <p>Electricity Supply</p> <p>Gas Supply</p>	<ul style="list-style-type: none"> Limited expansion prior to need for significant highway infrastructure taking advantage of managed motorway M25 junctions 23-27 Medium term 	<ul style="list-style-type: none"> Deal with policy decision on objection to additional A10 access Need to progress an A10 Route Strategy 	<ul style="list-style-type: none"> A10 improvements £10-20m M25 Junction 25 Improvements £10-15m (prohibitively expensive if A10 flyover required) Sustainable Transport Measures to tackle severance caused by A10 and provide links to rail £1-2m
2	Harlow North	<p>Connection to A414 would provide for some movements.</p> <p>Potential strong links to Harlow Town on WAML</p> <p>Good links west to Herts via A414</p>	<p>Limited public transport provision. Existing congestion within Harlow impacts on wider network.</p> <p>Physical separation from Harlow (Stort Valley)</p> <p>Limited highway capacity in absence of significant investment – Govt support for new link road uncertain even in medium term given recent spending review settlement so may need significant developer-funded investment</p> <p>- HA presumption against new junctions on m/ways</p>	<p>Harlow Council and Essex CC currently investigating transport improvements in the area. Some within Harlow planned for implementation.</p> <p>New rolling stock on WAML</p> <p>Links to STN via STN Express Rail</p>	<p>Existing peak period highway congestion. Policy objection from Highways Agency to new junction on M11. High cost and environmental objections to new road link to M11.</p> <p>A414 east via Harlow congested at peak times</p>	✓	✓	✓	✓	<p>Flood Risk Majority of area is outside of the flood plain. Site is crossed by 3 EA main rivers.</p> <p>Water Supply Thames Water</p> <p>Groundwater Constraints Outer GWPZ</p> <p>Aquifer designation Some secondary superficial deposits.</p> <p>Potential for use of infiltration may not be acceptable due to presence of GWPZ (dependent upon underlying geology type and potential for leaching of contaminants)</p> <p>SW/FW Network Little spare capacity in the drainage system to cater for the new developments</p> <p>Sewage Treatment</p>	<ul style="list-style-type: none"> A414 improvements currently underway together with Harlow transport improvements would allow for some additional trips Could have a phased approach of 20% with current proposals, 30% with further A414 and M11 Junction 7 improvements and then remainder with the housing and a new link road Any new roads and link to M11 would be combined with 	<ul style="list-style-type: none"> Essex CC progressing M11 access study. HCC need to share and involve HA to move forward any new junction (HA policy to object to new junctions) Further work required to consider environmental impacts of a new northern link road 	<ul style="list-style-type: none"> New link road plus new M11 Junction could cost around £20m

Ref	Potential Site	Strengths	Weaknesses	Opportunities	Constraints	Transport and Infrastructure				Phasing	Actions	Costs (ballpark estimate)	
						Proximity		Accessibility					Infrastructure
						Private Transport	Public Transport	Private Transport	Public Transport				
										Capacity Reliant upon upgrades to Rye Meads WwTW Electricity Supply Supply to Harlow town and adjacent town of Sawbridgeworth is at capacity Gas Supply	housing development • Medium to longer term		
3	Bishop's Stortford	<p>Located close to Stansted Airport and adjacent to M11 junction and A120 primary route.</p> <p>Proximity to Stansted Proximity to M11 J8 Potential to link to WAML at Stansted Mountfitchet or Bishops Stortford, or to STN-X at STN airport</p>	<p>Location would encourage unsustainable car commuting. A120 in Hertfordshire single carriageway and congested in peaks.</p> <p>Constrained capacity on highway links to west eg: A120 Little Hadham shuttle-working?</p>	<p>Potential housing development on Areas of Special Restraint (ASRs) north of BS could provide for short distance commuting in future.</p> <p>New rolling stock on WAML Links to STN via STN Express Rail</p>	<p>No planned proposals for transport improvements in the area.</p> <p>Peak period congestion in Bishops Stortford – impacts on accessibility of station Barrier effect of M11 etc to cycle / other access to STN</p>	✓ ✓	✓	✓ ✓	✓	Flood Risk Majority of area is outside of the flood plain. Site is crossed by EA main river. Water Supply Thames Water Groundwater Constraints Aquifer designation Unproductive strata Potential for use of infiltration Low permeability deposits and bedrock. SW/FW Network Sewage Treatment Capacity Reliant upon upgrades to Rye Meads WwTW Electricity Supply Gas Supply	<ul style="list-style-type: none"> Limited development prior to A120 dualling and M11 Junction 8 improvements Phasing of some growth could be linked to housing on Bishop's Stortford North to reduce commuting distances Growth linked to Stansted Airport jobs expansion Medium term 	<ul style="list-style-type: none"> Revise Transport Strategy for town to develop sustainable links to town centre and railway station 	<ul style="list-style-type: none"> Costs for A120 dualling and M11 Junction Upgrade significant (£20m+)
4	Radlett Aerodrome	<p>Located close to A414 with onward connections to M1/M25.</p> <p>Transportation issues previously investigated through SRFI planning application and Inquiry.</p> <p>Ease of connecting to Abbey Line / light rail conversion</p>	<p>Local highway network congestion. Objections to previous proposal for a SRFI. Significant traffic impact on the A414, one of the busiest roads in the county, and A5183 through Radlett. Likely to require new junction with the A414 leading to further congestion. Remote site that will require significant sustainable transport measures to overcome the lack of accessibility and poor existing provision.</p> <p>Adjacent to M25 but no direct access Potentially difficult to get highway access from A414 as PRN? Relatively free-standing site</p>	<p>Abbey Line conversion to tram.</p> <p>SRFI proposal included access arrangement that provided a by-pass for Park Street.</p>	<p>High Court challenge to Strategic Rail Freight Interchange (SRFI) decision. Cost of infrastructure.</p> <p>Peak period congestion at A414 junctions</p>	✓ ✓ ✓	✓	✓ ✓	✓	Flood Risk Adjacent to EA main river. Some areas within flood plain. Water Supply Thames Water Groundwater Constraints Inner and Outer GWPZ Aquifer designation Principal bedrock and secondary superficial aquifers Potential for use of infiltration Infiltration may not be acceptable due to presence of GWPZ (dependent upon underlying geology type and potential for leaching of contaminants) SW/FW Network Minor historical foul sewer flooding	<ul style="list-style-type: none"> Phasing needs to be linked to any Abbey Line upgrade Unlikely to get any development before infrastructure in place Improvements to M25 Junctions 21 and 21a (HA agreed mitigation for the rail freight proposal) Medium to longer term 	<ul style="list-style-type: none"> Need to consider change from rail freight (with current traffic concerns) to a higher traffic generator 	<ul style="list-style-type: none"> Significant costs of infrastructure (rail connection, bypass and new A414 junction)

Ref	Potential Site	Strengths	Weaknesses	Opportunities	Constraints	Transport and Infrastructure				Phasing	Actions	Costs (ballpark estimate)	
						Proximity		Accessibility					Infrastructure
						Private Transport	Public Transport	Private Transport	Public Transport				
			not immediately abutting urban areas and potential barrier effect of M25 / railway / A414 to providing sustainable access?										
5	Oxylane Decathlon Village	<p>Similar issues as Radlett Aerodrome. No particular strengths apart from how accessible it is for cars through being located close to M1, M25 and A405.</p> <p>Proximity to J21 / J21A of M25</p>	<p>Location would encourage unsustainable car commuting. Adjacent to already overloaded M25 junction and route between St Albans and Watford suffers from significant congestion. Poor accessibility without a car due to limited public transport provision and poor access to rail.</p> <p>Relative remoteness from rail links Relatively free-standing site not immediately abutting urban areas and potential barrier effect of surrounding highways to providing sustainable access?</p>	<p>M25 capacity increase under way. It is understood the Highways Agency have prepared a signalised junction layout for junction 21a. A large development of this scale may provide sufficient funding to upgrade the layout. However, the additional demand placed on the A405 is likely to outweigh the benefit.</p> <p>M25 widening increases strategic highway capacity</p>	<p>No plans for improved public transport. Site access to A405 difficult to achieve due to limited distance available between M25 J21a and Noke Roundabout. Access likely to include upgrade to the A405/ Noke Lane junction to an all movement signalised junction, which is currently opposed by HCC as LHA.</p>	✓	✓	✓	✓	<p>Sewage Treatment Capacity</p> <p>Electricity Supply</p> <p>Gas Supply</p> <p>Flood Risk</p> <p>Water Supply Thames Water</p> <p>Groundwater Constraints Outer GWPZ</p> <p>Aquifer designation Principal bedrock and secondary superficial aquifers</p> <p>Potential for use of infiltration Infiltration may not be acceptable due to presence of GWPZ (dependent upon underlying geology type and potential for leaching of contaminants)</p> <p>SW/FW Network</p> <p>Sewage Treatment Capacity Capital investment will be required to cater for growth</p> <p>Electricity Supply New infrastructure required to support growth</p> <p>Gas Supply</p>	<ul style="list-style-type: none"> Subject to A405 upgrade and capacity improvements to M25 Junctions 21 and 21a (HA agreed mitigation for the rail freight proposal) Very limited scope for development without significant infrastructure on local road network whilst the M25 widening may provide scope for capacity on the strategic trunk road network Medium to Longer Term 	<ul style="list-style-type: none"> Need to develop a sustainable transport strategy given lack of connectivity to rail 	<ul style="list-style-type: none"> Suitable road access improvements potentially fundable except the A405 Rail access not possible Public transport access challenging but viable
6	BRE south of Bricket Wood	<p>Apparent proximity to strategic network. Existing site already being used for various employment uses.</p> <p>Potential to link to rail at Bricket Wood Strategic rail connectivity via Watford Junction Proximity to M1 Jct 6 and strategic nth-sth connectivity, and to M25 J21A for east west connectivity</p>	<p>Poor local road network and connections to strategic network. Several existing accesses to the area available which are residential roads and may restrict the scale and type of development.</p> <p>Impact of Govt decision not to fund Watford Junction scheme in this Spending Review period?</p>	<p>Potential for new station on Abbey Line once converted to tram. Some work already done in SADC Core Strategy Review to identify sustainable transport measures required to improve accessibility.</p> <p>M25 widening increases strategic highway capacity</p>	<p>No proposals to improve local transport network.</p> <p>Congestion at M1 J6 Barrier effect of M1 to sustainable transport connections to Watford?</p>	✓	✓	✓	✓	<p>Flood Risk</p> <p>Water Supply Thames Water</p> <p>Groundwater Constraints Outer GWPZ</p> <p>Aquifer designation Principal bedrock aquifers</p> <p>Potential for use of Infiltration Infiltration may not be acceptable due to presence of GWPZ (dependent upon underlying geology type and potential for leaching of contaminants)</p> <p>SW/FW Network</p> <p>Sewage Treatment Capacity Capital investment will be required to cater for growth</p>	<ul style="list-style-type: none"> Limited development until new link road and access provided onto suitable local road network Longer term 	<ul style="list-style-type: none"> Need to progress sustainable transport strategy to demonstrate accessibility by non-car modes 	<ul style="list-style-type: none"> Would require new road link and railway station with significant costs

Ref	Potential Site	Strengths	Weaknesses	Opportunities	Constraints	Transport and Infrastructure				Phasing	Actions	Costs (ballpark estimate)	
						Proximity		Accessibility					Infrastructure
						Private Transport	Public Transport	Private Transport	Public Transport				
										Electricity Supply New infrastructure required to support growth			
										Gas Supply			
7	Maylands, Hemel	<p>Location benefits from good connections to M1 and A414. Existing site already being used for various employment uses and it has been identified as an employment site for future expansion by the Borough Council. A Sustainable Transport Plan has been developed to identify measures to provide improved sustainable transport links to Hemel Hempstead.</p> <p>Adjacent Hemel urban area – scope to promote sustainable access (see opportunities too)? Strategic highway accessibility – at A414/M1 ‘crossroads’</p>	<p>Poor public transport facilities and long distance from rail connection. Previous proposals prepared by the Borough Council have included a new access onto the A414 which is likely to lead to further congestion to an already heavily congested section of the road network.</p> <p>Relatively remote from rail</p>	<p>The delivery of the North East Relief Road has been linked to the expansion of this major employment site. Some preliminary investigations have been prepared to identify a route and may lead to further transport improvements to the town. A transport model has recently been prepared that can test access and development impacts.</p> <p>Adjacent Hemel urban area – scope to promote sustainable access (see opportunities too)?</p>	<p>Connection to B487 could encourage additional traffic flow through Redbourn.</p> <p>Peak period congestion on A414 (and at M1?)</p>	✓	✓	✓	✓	<ul style="list-style-type: none"> • Potential for additional growth from M1 Managed Motorway capacity enhancements following M1 junction improvements some 2-3 years ago • Further phasing subject to North East Relief Road and tackling local congestion together with providing improved bus links • Short to medium term 	<ul style="list-style-type: none"> • Utilise local traffic model to test options and develop an expansion strategy • Develop masterplan for sustainable growth and to improve site further 	<ul style="list-style-type: none"> • North East Relief Road around £5-10m • Local junction improvements £2-5m • Sustainable measures £2-3m 	
						✓	✓	✓	✓	Flood Risk Three Valleys Water			
						✓	✓	✓	✓	Water Supply Three Valleys Water			
						✓	✓	✓	✓	Groundwater Constraints Principal Bedrock Aquifer			
						✓	✓	✓	✓	Aquifer designation Principal Bedrock Aquifer			
						✓	✓	✓	✓	Potential for use of infiltration			
						✓	✓	✓	✓	SW/FW Network Sewage Treatment Capacity			
						✓	✓	✓	✓	Electricity Supply			
						✓	✓	✓	✓	Gas Supply			
8	Gunnels Wood, Stevenage	<p>Builds on existing employment area and good connections to A1(M) and A602. Good cycle infrastructure.</p> <p>Adjacent Stevenage urban area Proximity to Stevenage rail station and long distance services on ECML (plus routes to Cambridge / Kings Lynn via ‘Great Northern’ line Relative ease of access to LTN airport North south strategic highway connections via A1(M)</p>	<p>Peak period congestion on GWR, A602 and A1(M). Location some distance from residential areas. Limited public transport provision.</p> <p>Potential reduced levels of ECML rail service following recent review?</p>	<p>Take advantage of infrastructure being provided by Glaxo development around A1(M) J7 and A602.</p> <p>Enhanced non-car connectivity into Stevenage urban area? Recent increased seating capacity on First Capital Connect Services</p>	<p>No proposals to increase capacity of A1(M).</p> <p>Peak period congestion on A1(M) incl. J7 and J8 plus some queuing on main carriageway – HA confirmed Peak period rail overcrowding esp. London-bound</p>	✓	✓	✓	✓	<ul style="list-style-type: none"> • Scope for growth due to A1(M) Junction 7 capacity enhancements for GSK and Managed Motorway approach to A1(M) • Any large scale expansion dependent upon A1(M) widening (currently not proposed) • Short to medium term 	<ul style="list-style-type: none"> • Need a sustainable transport strategy to improve masterplanning of area and improve links to town centre and rail 	<ul style="list-style-type: none"> • Not necessarily significant – could simply be local highway improvements around £5m 	
						✓	✓	✓	✓	Flood Risk Three Valleys Water			
						✓	✓	✓	✓	Water Supply Three Valleys Water			
						✓	✓	✓	✓	Groundwater Constraints Secondary SD Aquifer + Principal Bedrock Aquifer			
						✓	✓	✓	✓	Aquifer designation Secondary SD Aquifer + Principal Bedrock Aquifer			
						✓	✓	✓	✓	Potential for use of infiltration			
						✓	✓	✓	✓	SW/FW Network Existing sewerage network may not support development.			
						✓	✓	✓	✓	Sewage Treatment Capacity			
						✓	✓	✓	✓	Electricity Supply Major reinforcement required to primary Substation			
						✓	✓	✓	✓	Gas Supply Reinforcement required, though connections easier to west of Stevenage			
9	Knebworth Innovation Park	<p>Good connections to A1(M) and A602.</p> <p>Stevenage rail station provides</p>	<p>Remote from residential areas and other facilities in Stevenage. Poor public transport facilities. Would</p>	<p>Enhance case for A1(M) improvements. Utilise network improvements being implemented by</p>	<p>A1(M) acts as a barrier to pedestrian and cyclists. Viability of public transport provision.</p>	✓	✓	✓	✓	<ul style="list-style-type: none"> • Scope for growth due to A1(M) Junction 7 capacity enhancements for 	<ul style="list-style-type: none"> • Need to consider strategy for growth given close proximity of 2 	<ul style="list-style-type: none"> • Would require significant investment to overcome A1(M) 	
						✓	✓	✓	✓	Flood Risk			
						✓	✓	✓	✓	Water Supply Three Valleys Water			
						✓	✓	✓	✓	Groundwater Constraints			

Ref	Potential Site	Strengths	Weaknesses	Opportunities	Constraints	Transport and Infrastructure				Phasing	Actions	Costs (ballpark estimate)	
						Proximity		Accessibility					Infrastructure
						Private Transport	Public Transport	Private Transport	Public Transport				
		<p>long distance services on ECML (plus routes to Cambridge / Kings Lynn via 'Great Northern' line but would need improved connections</p> <p>Relative ease of access to LTN airport</p> <p>North south strategic highway connections via A1(M)</p>	<p>encourage unsustainable car commuting. Peak period congestion on A1(M) and A602.</p> <p>Detached from Stevenage urban area – barrier impact of A1(M)</p>	<p>Glaxo.</p> <p>Recent increased seating capacity on First Capital Connect Services</p>	<p>Peak period congestion on A1(M) at J7 plus some queuing on main carriageway – HA confirmed</p>		✓			<p>Aquifer designation</p> <p>Potential for use of infiltration</p> <p>SW/FW Network Severe sewage capacity constraints</p> <p>Sewage Treatment Capacity Severe sewage capacity constraints</p> <p>Electricity Supply Major reinforcement required</p> <p>Gas Supply Reinforcement required, though connections easier to west of Stevenage</p>	<p>GSK and Managed Motorway approach to A1(M)</p> <ul style="list-style-type: none"> Any large scale expansion dependent upon A1(M) widening (currently not proposed) and would compete for capacity with GSK and Gunnels Wood Longer term 	<p>other important sites all separated by major routes</p>	<p>barrier to provide sustainable links to Stevenage costing around £10-15m</p>
10	Hatfield	<p>Builds on existing development area and transport infrastructure. Opportunity to link into the sustainable transport measures that were introduced as a result of the redevelopment of the BAe site.</p>	<p>Local highway network poor to north and west of the site and connection could lead to unacceptable rat-running. Site poorly located for rail access.</p> <p>The further development of this site will lead to increased congestion on the already heavily congested A1057 between St Albans and Hatfield. A1(M) identified as an existing congestion hotspot.</p>	<p>Take advantage of Business Park transport improvements. Previous discussions relating to this site have investigated the possibility of a link road between the A414 and the minor road network to the north.</p>	<p>Existing congestion and finite capacity of local network. No plans for improvement to A1(M) beyond current tunnel enhancement works.</p>	✓	✓	✓	✓	<p>Flood Risk</p> <p>Water Supply Three Valleys Water</p> <p>Groundwater Constraints</p> <p>Aquifer designation</p> <p>Potential for use of infiltration</p> <p>SW/FW Network Sewage Treatment Capacity Reliant upon capacity at Mill Green WwTW</p> <p>Electricity Supply</p> <p>Gas Supply</p>	<ul style="list-style-type: none"> Additional growth would need to be phased with new highway infrastructure Short to medium term 	<ul style="list-style-type: none"> Need sustainable transport strategy to mitigate impacts on the A1(M) Develop proposals for a new link road 	<ul style="list-style-type: none"> Sustainable transport measures building on existing successes £2-3m New link road and local capacity improvements around £10m
11	Watford Junction	<p>Good public transport network. Local bus services, strategic rail connections at Watford Junction, good local rail services.</p> <p>Access to strategic road network to the east via A4008 Stephenson Way to M1 junction 5 if new connection to Colonial Way provided.</p> <p>North south strategic highway connections via A1(M) Ease of westbound highway linkages via A414 Close to both St Albans and Hatfield urban areas but...</p>	<p>Local traffic congestion. Congested connections to strategic highway network. Would be overcome by new Colonial Way Link road but recent withdrawal of central government support makes this unlikely in the short to medium term.</p> <p>...not physically abutting either</p>	<p>Croxley Rail Link will provide good connections to London Underground Abbey Line passes through site. Service frequency would be increased through conversion to tram. Development could provide Watford Junction Interchange scheme which improves highway connectivity to M1 Link Road.</p> <p>Alban Way cycle network? Choice of rail connections via Hatfield / St Albans but relatively remote from both?</p>	<p>Funding and timescale of improved transport network. Abbey Line railway line passes through site. Any development or/ near railway land is highly regulated.</p> <p>Peak period congestion on A414 / A1057?</p>	✓	✓	✓	✓	<p>Flood Risk Minor historical surface water sewer flooding</p> <p>Water Supply Three Valleys Water</p> <p>Groundwater Constraints Outer GWPZ</p> <p>Aquifer designation</p> <p>Potential for use of infiltration Infiltration may not be acceptable due to presence of outer GWPZ (dependent upon underlying geology type and potential for leaching of contaminants)</p> <p>SW/FW Network Minor historical surface water sewer flooding</p> <p>Sewage Treatment</p>	<ul style="list-style-type: none"> Phasing dependent upon funding for local rail improvements and new link road Medium to long term (subject to delivery of new link road) If local congestion can be tackled provides for dispersed trips onto strategic trunk road network which might make growth easier to deliver 	<ul style="list-style-type: none"> Develop strategy for new access and links to rail in discussion with NR Need a transport strategy for tackling Watford congestion issues 	<ul style="list-style-type: none"> New link road £5m+ Tackling local highway congestion £5-10m

Ref	Potential Site	Strengths	Weaknesses	Opportunities	Constraints	Transport and Infrastructure				Phasing	Actions	Costs (ballpark estimate)	
						Proximity		Accessibility					Infrastructure
						Private Transport	Public Transport	Private Transport	Public Transport				
				Uni bus services provide good local bus network coverage					Capacity Electricity Supply Gas Supply				
12	Croxley	<p>Good connections to Metropolitan Line.</p> <p>Existing LU links at Croxley / Watford</p> <p>Impact of Croxley Rail Link?</p>	<p>Congested local highway network.</p> <p>Constrained highway access ?</p> <p>Potential barrier effect of surrounding rail lines?</p>	<p>Croxley Rail Link enhances connectivity to London Underground and Watford Junction. New station planned at Ascot Road.</p> <p>Ebury Way cycle network? Croxley Rail Link?</p>	<p>Poor local highway network and possibility of adverse rat running along Tolpits Lane.</p> <p>Complex local highway network? General local peak period congestion?</p>	✓	✓	✓	✓	<p>Flood Risk Surrounded by/adjacent to flood plain</p> <p>Water Supply Three Valleys Water</p> <p>Groundwater Constraints Inner GWPZ</p> <p>Aquifer designation</p> <p>Potential for use of infiltration No Infiltration within Inner GWPZ</p> <p>SW/FW Network Minor historical foul flooding.</p> <p>Sewage Treatment Capacity Minor historical foul flooding.</p> <p>Electricity Supply</p> <p>Gas Supply</p>	<ul style="list-style-type: none"> Phasing subject to DfT approval of Croxley Rail link (likely to be determined over next 1-2years) Also dependent upon improved road access If local congestion can be tackled provides for dispersed trips onto strategic trunk road network which might make growth easier to deliver Medium term 	<ul style="list-style-type: none"> Progress strategy for site in conjunction with Major Scheme Bid Need a transport strategy for tackling Watford congestion issues 	<ul style="list-style-type: none"> See Croxley Rail Link bid and note need for significant local funding (£130m + total scheme with approx. 25% local contribution) New road access and local highway improvements to tackle congestion £5-10m



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