

Cambridge Northern Fringe East

- Employment guidance for the Area Action Plan – sector profile

October 2014

SQW

Introduction

- 1.1 This report provides an overview of sector strengths and likely sources of demand for employment space in the Cambridge Northern Fringe East AAP area.

Context for growth

- 1.2 The Cambridge economy – defined to include Cambridge City and South Cambridgeshire District - is highly competitive and productive, and it contains institutions and firms of national, and in some cases global, significance. The area has a resident population of around 265,000 people, 180,000 employee jobs and over 10,000 businesses. Based on the draft Local Plans for Cambridge City and South Cambridgeshire, by 2031 there are likely to be another 65,000 people living locally, in 33,000 more homes, and 44,000 more jobs.
- 1.3 On the basis of constant prices data (£2009), output (GVA) is approaching £7.5bn (over 7% of the regional total) while GVA per job is well above regional and national averages. According to the 2013 UK Competitiveness Index, Cambridge is the most competitive city in the UK.
- 1.4 The primary cause of Cambridge's strong position is the high tech business cluster, combined with the scale, strength and diversity of the research and education base. Supporting the high tech cluster, and Cambridge's role as a regional service centre, is a range of business, financial and professional services, which are also growing in number and scale. In addition, Cambridge is significantly influenced by a strong – and growing – relationship with London (with implications, in particular, for the nature and strength of its labour market).

The Cambridge high tech cluster

Scale

- 1.5 Over the last 50 years, the Cambridge high tech cluster has achieved global significance and recognition. The past growth of the cluster is demonstrated in Table 1-1. In 2008, the core high tech sectors accounted for 16% of employment in Cambridge/South Cambridgeshire and 23% of GVA, indicating that they had much higher levels of productivity than for the economy as a whole¹. Significantly, it appears that the high tech community continued to grow and to innovate during the prolonged period of economic recession and stagnation between 2008 and 2012 (this observation is supported by interviews with the property industry, which indicated that Cambridge office space was hardly affected by the recession, except for demand for small units).

¹ Cambridge Cluster at 50. The Cambridge Economy, Retrospect and Prospect, paragraph 2.35. SQW on behalf of EEDA, 2010

Table 1-1: Growth of firms and jobs in the high tech business cluster around Cambridge

Date	Firms	Jobs	Source
1984	300	14,000	The Cambridge Phenomenon, SQW, 1985
1998	1,250	32,500	The Cambridge Phenomenon Revisited, SQW, 2000
2008	1,400	48,000	Cambridgeshire County Council Research Group
2012	1,500	53,000	SVC2UK - Silicon Valley Comes to Cambridge

Note: figures relate to varying geographies and high tech definitions differ, so are not directly comparable, though they do give a broad indication of scale and trends

Diversity

1.6 One of the reasons for the long term growth of the high tech cluster is its diversity. Specialisms within the cluster include:

- Bioscience and healthcare – major firms include Cambridge Antibody Technology, Horizon Drug Discovery and, now, Astra Zeneca
- IT/telecoms – including major firms such as ARM, Autonomy, CSR and Microsoft
- Printing technologies – for example, Domino, Xaar
- Advanced engineering – examples include Marshalls, AVEVA
- Cleantech, including energy – growing strengths reflected by companies such as GenDrive and The Solar Cloth Company
- Nanotechnology and advanced materials – examples include Owlstone and Azuro
- R&D consultancy – the Cambridge high tech is relatively research intensive compared with many areas (e.g. Thames Valley), but Cambridge also has a particular specialism in R&D consultancy which is unique in Europe (examples include Cambridge Consultants, TTP (the Technology Partnership), Sagentia (formerly Scientific Generics) and PA Technology).

1.7 Before 2000, the Cambridge Phenomenon was regarded as a ‘small firms’ phenomenon’, characterised by its high rate of start-ups but not by the number of large firms. But this is changing. Evans and Garnsey², writing in 2008, suggested that the cluster had grown four firms of scale, at a rate of one per decade: Domino, ARM, Autonomy and Cambridge Silicon Radio (CSR). In contrast, the 2012 SVC2UK work³ claims that Cambridge has two companies with market capitalisation of over \$10bn, ARM and Autonomy, and a further ten with market capitalisation of over \$1bn – Abcam, AVEVA, CAT, Chiroscience, CSR, Domino, Ionica, Marshall, Solexa, and Virata. It also states that, although only half the number of companies scale-up in the UK compared to the US, “*Cambridge has led the way in creating and scaling high-tech companies*”.

1.8 In addition, *inward investment* into Cambridge is increasing. The 2000 Cambridge Phenomenon Revisited report states that “*movement [by firms] into Cambridge has been*

² Evans and Garnsey (2008), The Cambridge Cluster on the eve of the financial crisis, IfM

³ SVC2UK is shorthand for ‘Silicon Valley comes to Cambridge’. In 2012 they published the Cambridge Cluster map.

happening for many years...[but the survey] figures suggest that the importance of in-movers may have been gathering pace, both in terms of the number of firms and their potential for growth” (Part 1, page 42). In 1997 Microsoft Research’s decision to locate their European centre in Cambridge, initially alongside the new University Computer Laboratory on the West Cambridge Campus, was regarded as a major boost for the high tech cluster: although they employed only a handful of staff initially, and around 100 today, it was a significant vote of confidence in the quality of the specialist labour market in Cambridge.

- 1.9 Most recently, Astra Zeneca’s decision to relocate its global corporate HQ and research centre to Cambridge, bringing around 1,500 new staff to the city⁴, represents another step change in inward investment, both in respect of its scale and the fact that Astra Zeneca are moving their HQ functions to the city, not just their R&D. This is the first time a major multinational has considered Cambridge a suitable location for HQ functions, other than those which originated in the city such as ARM. If successful, it could stimulate other major high tech firms to establish research and HQ functions at scale in the Cambridge area.
- 1.10 *Ownerships* are also increasingly diverse, as inward investment through acquisition has increased, and founders and early stage investors have sought to realise the value of their shares through sale of all or part of their companies.
- 1.11 This diversity is important because it creates a more resilient platform for growth, with greater potential for innovation, and better access to funding and expertise. It is more resilient because firms are engaged in a wide variety of markets, many of them global in scope. Crossover opportunities at the interface between technology areas are particularly rich in the Cambridge area and a major source of innovation and business growth. For example, the printing industry in Cambridge is expected to develop commercially viable 3D printing technologies, which could potentially transform some aspects of biomedical research and production (e.g. by dramatically increasing the speed and accuracy of the production of anything from artificial organs to pharmaceutical products).

Networks

- 1.12 The hard and soft infrastructure to support technology-based businesses is generally well developed, with Cambridge being renowned for its strong, diverse and continually evolving networks, including:
- the Cambridge Network, which has over 1,000 corporate members, representing the majority of the technology businesses in the Cambridge area
 - One Nucleus, representing the bioscience community in Cambridge and London, and comprising 470 members
 - Cambridge Cleantech, with 282 members in the areas of renewables, environment and low carbon
 - Cambridge Wireless, with 400 members in the IT and telecommunications areas

⁴ The public announcement states that Astra Zeneca will have around 2,000 staff on its new site on the Cambridge Biomedical Campus. However, around 500 of these already work for Medimmune at Granta Park. Medimmune is an AZ subsidiary company which will move to the Biomedical Campus to co-locate with AZ.

- Cambridge Ahead, which is a business and academic member group dedicated to the successful growth of Cambridge and its region in the long-term.

Business, financial and professional services

1.13 Cambridge has become a regional centre for business financial and professional services for various reasons, including:

- The growth of the high tech cluster, which has generated demand for specialist supporting services such as legal advice, funding, marketing, recruitment, etc
- The rapid growth of the Cambridge sub region's population, giving rise to demand for property, legal, financial and other services
- The emergence of Cambridge as one of the main centres of public and private sector organisations providing services across most or all of the East of England
- The increasing importance of business links between Cambridge and London (with direct connections to both Liverpool Street and Kings Cross). For example, Mills & Reeve's new Cambridge office, near Cambridge station, serves the London as well as regional market
- The continuing demand for professional services from long term major customers such as the two universities, the colleges, the hospitals, as well as a wide range of new ones.

1.14 As a consequence, employment growth in business, financial and professional services appears to have matched or exceeded growth in the high tech cluster over the period 2001-2011. For example, Cambridge and South Cambridgeshire combined experienced an increase of nearly 1,000 jobs in financial, insurance and business services over this period, and a similar scale of decline in computing services. Professional services – which include a mix of high tech (R&D, technical consultancy) and other services (e.g. legal, accountancy) – grew by nearly 6,000 jobs 2001-11.

1.15 The growth of professional services is particularly evident in CB1 and Cambridge Business Park, both of which have unrestricted planning permissions for office use (unlike many sites around Cambridge, including Cambridge Science Park and St John's Innovation Park, which are restricted to high tech uses). In CB1 the two most conspicuous occupiers of new office buildings are Microsoft Research and Mills & Reeve. Both have chosen the location because of proximity to the station, both to help their staff who live outside Cambridge to commute into work, and to facilitate links with London.

Economic forecasts

1.16 Between 1991 and 2011, employment in Cambridge and South Cambridgeshire grew by 42,400 (31%). This includes periods of recession (most recently 2008-11), during which employment fluctuated, but the overall growth trajectory is clear and strong.

1.17 Looking ahead, the most up to date forecasts are those produced by the East of England Forecasting Model (EEFM). The EEFM was developed by Oxford Economics to project

economic, demographic and housing trends in a consistent fashion. This paper considers two versions of the EEFM forecasts: baseline, and high migration (which uses ONS migration forecasts). These can be compared with the Cambridge Econometrics (CE) forecasts produced in 2012 and used as inputs to the Cambridge and South Cambridgeshire Employment Land Review Update (2012). The CE figures include both baseline and policy based forecasts, the latter reflecting the housing growth trajectories for 2011-31, as modelled by Cambridgeshire County Council. The EEFM and CE forecasts are broadly comparable, although there are differences in the sector breakdown and in the time periods for which the forecasts are available.

- 1.18 Table 1-1 provides relevant figures from the different forecasts. Total employment is expected to increase by between 36,400 (EEFM baseline forecast) and 42,700 (CE policy based forecast) between 2011 and 2031. This is an increase of between 20% and 23%. This suggests a slower rate of growth than that achieved between 1991 and 2011 - which probably reflects primarily expectations about growth of the national economy and its implications for local areas - but it is nevertheless a substantial increase.

Table Error! No text of specified style in document.-1: forecast employment change 2011-31 – comparison of EEFM and CE forecasts

Sector Change in 000s	EEFM baseline	EEFM high migration	CE baseline	CE policy based
Chemicals	-0.6	-0.6	-	-
Pharmaceuticals	0.1	0	-	-
Electronics	-1.0	-0.9	-	-
All manufacturing	-4.0	-4.8	-0.8	-0.8
Computer related	+4.5	+4.9	+5.5	+5.5
R&D	+5.9	+6.3	-	-
Professional services	+9.0	+9.4	-	-
Prof servs incl R&D	+14.9	+15.7	+11.6	+12.0
Business services	+3.4	+3.6	+4.6	+4.7
Total employment	+36.4	+40.3	+37.1	+42.7

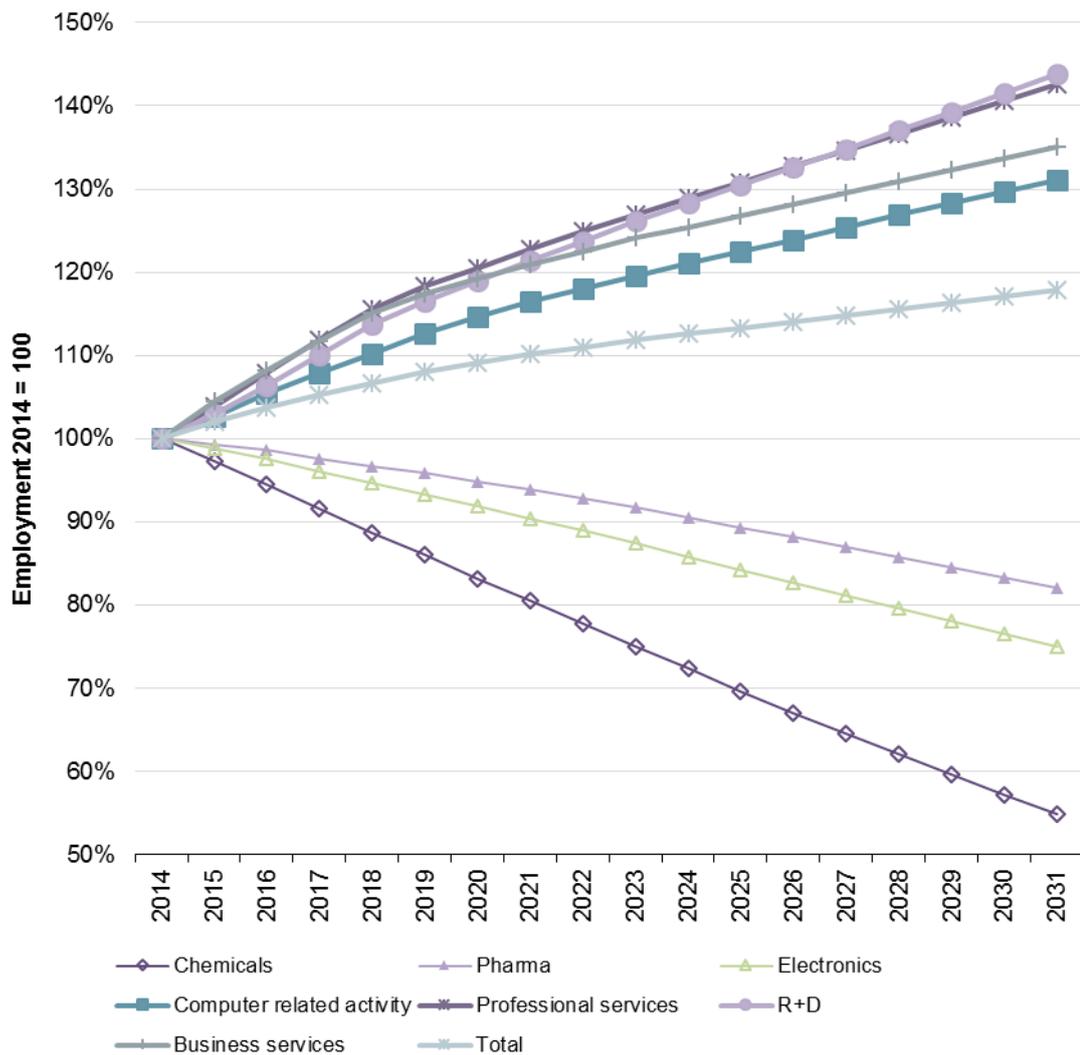
Source: <http://www.cambridgeshireinsight.org.uk/EEFM> and Employment Land Review and Update, Annex A, April 2012

- 1.19 Over the period to 2031, the greatest growth is expected in Computer related services, R&D and professional and business services. The EEFM forecasts suggest more growth in professional services and R&D than the CE forecasts, but lower growth in computer related and business services. Overall, the forecasts for 2011-31 for these four service sectors suggest growth in jobs of between 21,700 (CE baseline) and 24,200 jobs (EEFM high migration). The EEFM forecasts for these sectors are between 1,000 and 2,000 higher than the CE forecasts.
- 1.20 In contrast, both EEFM and CE forecasts suggest that employment in manufacturing will decline 2011-31, although the EEFM forecasts suggest a considerably greater decline (between 4,000 and 4,800 for the manufacturing sector as a whole) than CE (800 for both the baseline and policy based forecasts). Only EEFM provide a breakdown for manufacturing sub sectors: they suggest that employment in high tech manufacturing sectors – including

electronics, chemicals and pharmaceuticals – is likely to decline by between 1,500 and 1,700 between 2011 and 2031. Figure 1-1 illustrates the contrast in forecasts for relative change the high tech manufacturing and service sectors to 2031. The expectation for declines in high tech manufacturing is based on past relative trends in these sectors, but may take insufficient account of local circumstances such as the huge investment by Astra Zeneca and the continued strength of companies such as Domino, Xaar and Marshalls (although this depends on how employment in these companies is classified).

- 1.21 Employment in population related sectors is expected to grow. This includes education and health, where local growth expectations are in contrast to national trends, but are lower than actual growth between 1991 and 2011. In addition, employment in construction, wholesale and land transport – all of which may be expected to generate land requirements in the B2/B8 categories – is expected to grow steadily.
- 1.22 Neither sets of forecasts provide a sufficiently detailed sector breakdown to derive a figure for high tech growth to 2031. The EEFM forecasts suggest that employment in computer related activities and R&D will increase by between 10,400 and 11,200 between 2011 and 2031. If professional services are included, the figures increase to between 19,400 and 20,600. CE's forecasts for the same combination of sectors are for growth in jobs of between 17,100 and 17,500 over the same period. If the high tech manufacturing sectors are included (which is only possible for the EEFM forecasts) then net growth in high tech employment (including all professional services) is forecast to be between 17,700 and 19,100.
- 1.23 These forecasts suggest that employment in the high tech and professional services cluster will grow at a faster rate than total employment, and will therefore form a higher proportion of total employment in the Cambridge area by 2031 than it does now (based on total employment growth to 2031 of 36,400, and assuming that the ratio of high tech business to total employment stays much the same as in 2010, then high tech firms would be responsible for growth of around 6,000 jobs to 2031).

Figure 1-1: Percentage change in employment 2014 to 2031 in the Cambridge area based on EEFM forecasts



Source: ONS/EEFM

The future location of high tech sectors in and around Cambridge

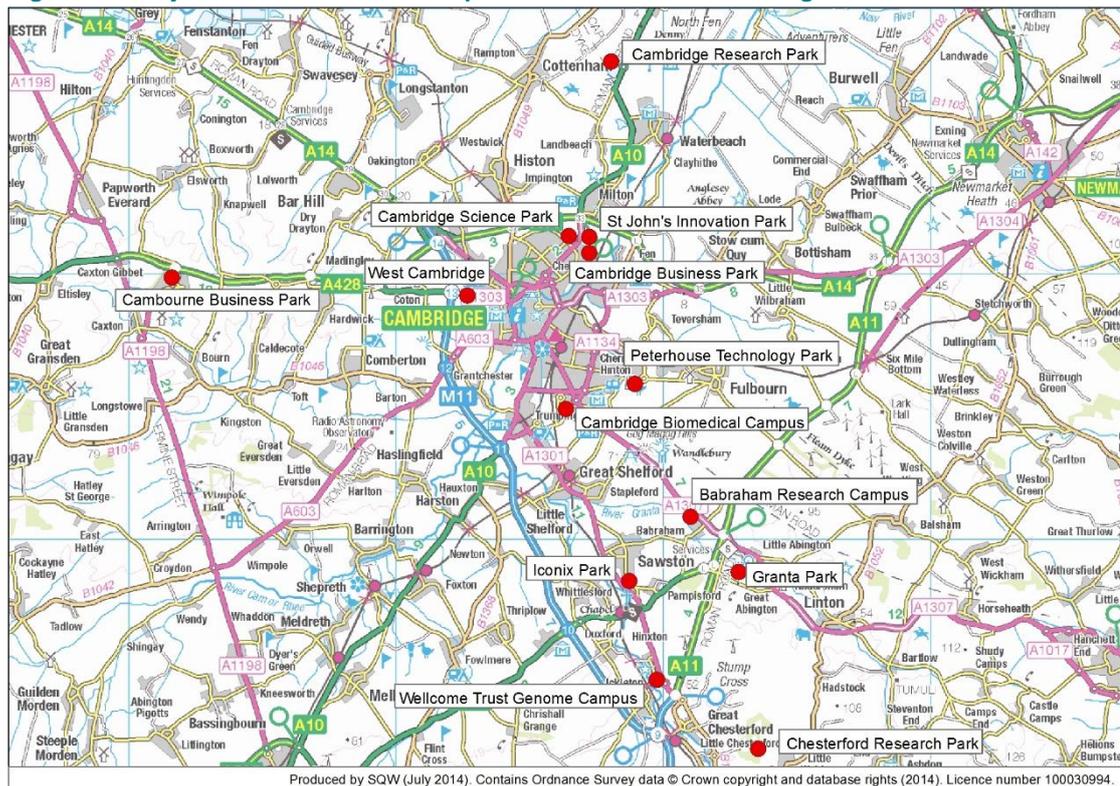
1.24 There has always been some differences in the location of the main high tech sectors in and around Cambridge, reflecting factors such as the distribution of research institutes, specialist property (figure 1-3) and major firms. This differentiation is probably most marked in relation to bioscience, which appears increasingly focused to the south of Cambridge, for various reasons:

- most of the major bioscience research facilities are in or to the south of the city – on the Addenbrookes campus (MRC, Cancer UK, etc), the Genome Campus, Babraham, etc)
- specialist incubators and science parks with laboratory space and related facilities for bioscience firms have been developed to the south of Cambridge, including Cambridge Biomedical Campus at Addenbrooke’s, Babraham Research Campus, Granta Park and Chesterford Research Park, Collectively, these facilities have

planning permission or agreement to development for 175,500 sqm of additional specialist business space (i.e over and above existing commitments, as at September 2014)⁵

- Astra Zeneca is moving to the Cambridge Biomedical Campus, which will inevitably attract other bioscience firms to locate nearby. It will also expand the specialist bioscience labour market, again mainly to the south of the city since cross Cambridge commuting is avoided where possible due to congestion.

Figure 1-3: Major business and science parks in and around Cambridge



- 1.25 The major property schemes exclusively for high tech firms are otherwise located mainly on to the north, east and west of Cambridge, both on the edge of the city (e.g Cambridge Science Park, SJIC, Peterhouse Science Park, West Cambridge) and further afield (e.g. Cambridge Research Park, Melbourn Science Park). These schemes accommodate some bioscience firms (e.g NAPP on CSP, and Horizon Discovery, which is expanding on Cambridge Research Park), but mainly other high tech sectors.
- 1.26 The location of the main high tech incubator facilities such as the Hauser Centre (West Cambridge), SJIC, the new Clean Tech incubator (immediately to the west of CSP) and the proposed innovation centre on Cambridge Biomedical Campus tends to accentuate the differentiation of sectors around the city.

⁵ There are consents for 81,000 sq m of development at Granta and Chesterford. At Addenbrookes, 93,000 sqm for phase 2 of the Biomedical Campus has been taken out of the Green Belt but planning consent has not yet been agreed. Babraham has funding for a further 1,500 sqm of incubator space. The figures exclude land with planning permission which is already committed to specific end users – this applies primarily to the Biomedical Campus, where the whole of Phase 1 is effectively committed (as of September 2014).

- 1.27 The major office developments catering for professional, financial and business services are located mainly within the city (around the city centre, and particularly CB1) and on the northern edge (Cambridge Business Park) and on business parks further out (e.g. at Cambourne, St Ives).
- 1.28 Within the city centre there are severe limitations on new development, due to the historic significance of the central area and land ownerships. The development of CB1, around Cambridge station, has been a major benefit to the city but this will be completed soon. The potential for further new development in the city centre beyond that is limited, although there is scope for some redevelopment and intensification on existing employment sites.
- 1.29 Sites on the edge of the city have potential to add to and complement existing office and high tech provision, including:
- Intensification of development on existing schemes, including the Cambridge Science Park, the early phases of which were built 40 years ago at very low densities, St John's Innovation Park and the West Cambridge development. Estimates provided by Trinity and St John's suggest there is scope for an additional 60,000 sqm on the Science Park⁶, and at least 12,500 sqm on St John's Innovation Park⁷, without affected the quality of the environment provided by both schemes. The West Cambridge development is not yet complete, but the University is considering the scope for changes to the original masterplan to intensify development
 - The NE Cambridge AAP area, which already includes two important office/high tech schemes – St John's Innovation Park and Cambridge Business Park - and which has scope for significant new development of offices, R&D and mid tech business space
 - Other edge of city sites, including NW Cambridge and Peterhouse Technology Park at Fulbourn, both of which include provision for commercial R&D space which falls within both the City and South Cambridgeshire Districts.

The type of business space to be provided in the AAP

- 1.30 Four important and distinctive characteristics of the Cambridge property market are:
- Strong demand over an extended period of time, but apparently particularly intense currently, both from the high tech sector and from professional and business services
 - A large and growing stock of property and land specifically for high tech occupiers (i.e. with a B1b or similarly restrictive planning permission)

⁶ This estimate is for the potential net increase in floorspace over the next 15 to 20 years and includes approximately 20,000 sqm in Phase 1, 9,000 sqm in each of phases 2, 3 and 6, and 14,000 sqm in phase 4. It excludes the proposed hotel in phase 1 as this is not a B Use Class. Only 30,000 sqm of this potential for intensification is under the control of Trinity, as the remainder is on sites which are held on long leaseholds by other organisations.

⁷ This is the additional space provided for in the masterplan produced two years ago, and represents a 50% increase on existing space. However, the Bursar indicated that they would consider higher density development if the local planning authority were more flexible about height restrictions

- Despite the large stock of R&D space, a tendency for some high tech firms to occupy standard office space in attractive locations (e.g. Microsoft in CB1, Redgate Technologies on Cambridge Business Park)
- Over the last 10 years, there has been a net loss of industrial space in the Cambridge area, and particularly in the city, despite policy protection. Much of this loss has been to redevelopment for housing.

1.31 In addition, consultations with organisations involved in economic development and the growth of the high tech cluster in the Cambridge area (including Cambridge Enterprise, Cambridge Network, Cambridge Cleantech, St John’s Innovation Centre, and Greater Cambridge Greater Peterborough LEP) revealed two main concerns:

- a lack of grow on space for firms in the area. There is reasonably good provision of specialist incubator space, but few options for firms moving beyond the incubation phase. As a consequence, firms stay longer than they need in the incubator facilities and ‘bed block’ space which new incubates could take up. This is partly an issue of the terms on which small office and workshop units are available (ie firms want more flexibility than most landlords are willing to offer), but it is also a concern about the overall supply of small units
- at the other end of the scale, a limited capacity to accommodate major high tech inward investments. The issue was expressed as “if another Astra Zeneca wanted to move to the area, where would they be accommodated?”

1.32 Given the forecasts that employment growth to 2031 is expected to be dominated by high tech, professional, financial and business services, and the attractions of the northern edge of Cambridge to all these users, it would seem most appropriate for new employment property provision in the AAP is primarily targeted at office users, both high and mid tech and others. Since high tech firms can occupy space with open B1 permissions, but standard office users cannot occupy space with B1b restrictions, there appears to be a case for offices in the AAP area to be granted open B1a permissions rather than restricting some to B1b. This is particularly so if parts of the Cambridge Science Park are redeveloped at higher densities for high and mid tech users over a similar time period.

1.33 The AAP area currently provides a substantial amount of industrial space (under current use classes this would be described as a mix of B1(c) B2 and B8 uses) along Cowley Road and Nuffield Road. This accommodates a range of functions which are important to the Cambridge economy, and if all of these uses are displaced from the AAP area (through redevelopment for higher value uses) then there are few if any alternative locations near to the city due to the steady loss of industrial space over the last 10 or more years (a trend which appears to be continuing, for example with the redevelopment of the Ridgeons site at Cromwell Road for housing). There is provision further out from the city, but current occupiers may not find this acceptable for their operational requirements.

Conclusions

1.34 Key conclusions from this sector review are as follows:

- High tech, professional, financial and business services have grown strongly in the past and are expected to be responsible for most employment growth in the Cambridge area up to 2031. High tech and professional services in particular are expected to form a significantly greater proportion of total employment by 2031 than currently. All of these activities typically occupy mainly office and R&D/laboratory space, classified within Use Classes B1(a) and B1(b). There is currently strong demand for premises from firms in these sectors, and limited supply of space ready for occupation
- There is also likely to be demand for some industrial and storage space from firms undertaking specialist manufacturing (e.g. precision engineering and prototype manufacture) and providing local services such as builders' merchants, wholesalers, and transport operators. There are a variety of such uses currently located within the AAP area
- The Northern Fringe is regarded as an attractive business location, and this will be greatly enhanced by the new station. The area around the new station could become the next main centre for city centre office uses, since there is limited scope for further growth in the central area once CB1 is completed. It is also likely to be a popular location for high tech activities
- The high tech cluster is diverse, with all high tech services expected to grow. The decision by Astra Zeneca to relocate its global HQ and main research centre to Cambridge represents a step change in the scale and nature of inward investment into the Cambridge area, and could precipitate further growth. However, the main geographical focus on bioscience/biomedical firms is to the south of the city, close to the main related research facilities and specialist property (including commercial laboratory space). The NE fringe is most likely to attract other high tech sectors, which will require a mix of offices and hybrid buildings capable of a mix of uses
- Lower value industrial and storage uses, and users such as creative and cleantech industries, which are important to the Cambridge economy, may be priced out of the AAP area unless specific provision is made, for example in the areas adjoining the Anglia Water site. Alternatively, provision could be made elsewhere for these uses, in order to maximise the development potential of the AAP site, providing the alternative locations meet the needs of current occupiers
- The Cambridge Science Park is currently developed at low densities, and the early stages are 40 years old and ready for re-development. Higher densities could be achieved on that site without destroying its essential character, and this would help ease the supply constraints for high tech firms in the Cambridge area. Policy E/1 of the Proposed Submission Local Plan for South Cambridgeshire supports "appropriate proposals for employment development and redevelopment on Cambridge Science Park". In consultation for this study, Trinity College confirmed its intention to gradually redevelop the site at higher densities as existing buildings reach the end of their design life
- Intensification of use on Cambridge Science park and St John's Innovation Park, both of which are reserved for high tech uses, would enable the employment area closer

to the new station to be designated as open B1, providing for a market led mix of professional, financial and business services and high tech uses. High densities around the station should be achievable to maximise the amount of employment space created

- Increased density will create concerns about parking provision on CSP and throughout the AAP area. Although the area is well served by public transport, existing firms operating on CSP, SJIC and the Business Park have been used to generous parking provision, and may not respond well to much lower levels of provision such as those in CB1.