

Cambridge, England – Planning for knowledge-led growth in a tightly constrained Sub Region

1. Introduction

The Cambridge Sub Region is experiencing strong pressures for housing development, a major stimulus for which has been the rapid expansion of high-technology firms under the 'Cambridge Phenomenon'. Until quite recently, the locations of the new housing have had to reflect the existence of a tightly drawn green belt that has restricted the outward growth of Cambridge. This was imposed to protect the historic character of this university city but, in terms of the planning balance between jobs and homes, and today's notions of sustainable development, it has had negative consequences.

In sections 2 and 4, this paper traces the development of this fascinating city, paying particular attention to the periods between 1950 and 2000 on the one hand, and the years of this century on the other. For the millennium marked a turning point, and the development of a new approach to the planning of Cambridge. This is now fully enshrined in the East of England Plan (RSS14)ⁱ. This long awaited regional spatial strategy was finally approved in May 2008.

Following an outline of Cambridge's planning in that first period (section 2), I next describe two major employment centres, the establishment and growth of which has helped shape today's planning. These are the Cambridge Science Park and the Cambridge Biomedical Campus of which Addenbrooke's Hospital forms a part. These are leading centres in their own fields and of national and international importance (section 3).

Section 4 then examines the latest strategies for Cambridge and its hinterland that will result in an almost 50% expansion of the urban area. Section 5 addresses the vital subject of delivery and the special mechanisms that have been put in place to ensure that the relevant plans and policies are put into action. The paper next describes two of the current projects, the new settlement at Northstowe, and the mass transit system, the Cambridgeshire Guided Busway (section 6). Finally, the paper seeks to evaluate the likely effectiveness of the latest strategies as well as the likely success of the various projects in creating new places in which to live and work (section 7).

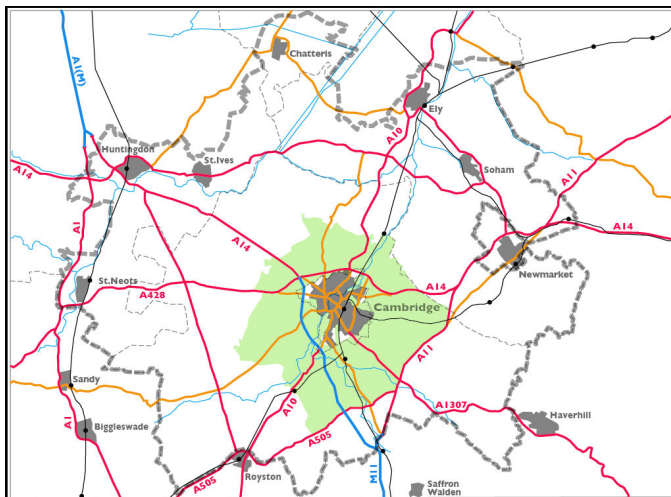


Fig.1 The Cambridge Sub Region

2. Cambridge, its origins and its growth

Cambridge lies some 85 km to the north of London. It was established by AD70 as a Roman town on a hill overlooking the River Cam. Its university had its origins in the 13th century, and is about to celebrate its octo-centenary. Hugely important in the history of learning, its famous names including Newton and Darwin, as well as the discoverers of DNA, Crick and Watson, the university today has some 18,400 students and about 8,600 staff. In part through its links with private industry – which its knowledge has helped to spawn – it remains very much at the cutting edge of research and innovation. That industry has become an important partner, through its funding of new laboratories and the establishment of research groups which complement university research.

However, space in the medieval city core has become very limited and, from the 1960s, research and development activities have been increasingly concentrated within employment sites on the edge of the city and further afield. Under the Cambridge Phenomenon, it is estimated that by 1985 there were some 400 high-tech firms in the area employing 16,000 people; many of these firms originated from university departments or were spin offs from companies that had had university origins. By 1998 the numbers employed had doubled to more than 32,000 and the growth has continued sinceⁱⁱ. It has been concentrated largely in a number of science/ research and technology parks and I look at two of these, in particular, in section 3.

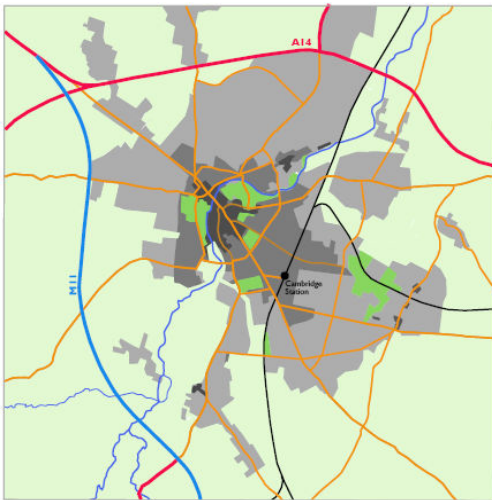


Fig.2 Cambridge in the 1990s

Figure 2 shows the extent of Cambridge in the 1990s. It also shows the M11 motorway and the A14, east to west route; this designated trans-european highway provides the main road link between the east coast ports and the industrialised west midlands. Other infrastructural projects of great relevance to Cambridge comprise the electrification of the rail line to London, and Stansted airport, some 30km to the south. However, the decisions that led to this infrastructure were made at national level and, in terms of land use, the planning of Cambridge remained rooted in the spirit of the 1950 Holford Plan. Thus, as recently as 1995, the Cambridgeshire Structure Plan sought to restrain the outward growth of the city through the maintenance of a tight green belt.

The aim was to protect the historic setting and character of Cambridge. Green belts have been an important planning mechanism in England for over five decades; within them it is very difficult to get planning permission for development unless 'very special circumstances' can be demonstrated. Their purposes are five fold: to check the unrestricted sprawl of large built-up areas; to prevent neighbouring towns from merging into one another; to assist in safeguarding the countryside from encroachment; to preserve the setting and special

character of historic towns; and to assist in urban regeneration, by encouraging the recycling of derelict and other urban land. All of these apply to Cambridge; without its green belt, the city would have sprawled outwards to engulf the surrounding villages, diminishing its distinctive character.

However, that policy was increasingly seen to have a negative side. The rapid growth of high-tech industry embedded in sites on the edge of Cambridge's built up area, and elsewhere within the sub region helped generate a huge demand for new housing. Because of the green belt, there was little building land available within Cambridge, leading to escalating house prices that were increasingly beyond the reach of those seeking accommodation. A consequence of that was the trend for newcomers increasingly to seek their homes within the villages surrounding Cambridge and in the ring of market towns some 15-20km away. Indeed, the planning of the wider county area sought to allocate land so as to meet such demand. But the consequence of this dispersal of development was a massive increase in commuting distances and greatly increased reliance on the car.

The time was ripe for a new approach to planning in the Cambridge Sub Region and I address this further in Section 4 below.

3. The high-tech momentum

In the meantime, knowledge based employment had been growing apace. An important example is the **Cambridge Science Park** on the northern edge of Cambridge. The land involved had belonged to Trinity College, one of the most prestigious of the University's colleges, since its foundation in 1546. Used for military purposes during World War II, the site had become derelict and threatened by planning blight. However, in 1970 a decision was taken to develop it as a science park on the lines pioneered by the USA's Stanford University.

Outline planning permission was granted in 1971, site clearance and landscaping followed and the first company arrived in 1973. By the end of the decade the number of firms had grown to 25, including the UK subsidiaries of multinational companies (for example LKB Biochrom from Sweden). A period of strong growth then followed and the Trinity Centre was opened in 1984 to provide communal facilities, including conference rooms, while starter units and the Cambridge Innovation Centre expanded the range of accommodation available.

By the 1990s, Internet and telecoms related companies had become well represented. However, by the end of the decade the life sciences sector had started to grow to become the dominant technology sector. By December 1999 the Science Park had some 64 companies, employing some 4000 people. In the new century, there have been several further changes which will complete the development of the area. A new conference centre has been opened together with a fitness centre and a child care nursery. And new research sectors are now represented, photonics, nanotechnology and materials scienceⁱⁱⁱ.

At the southern edge of the city lies Addenbrooke's Hospital, a large teaching hospital with strong links to the university. Founded some 200 years ago, it moved to its present site in 1976. The world-famous Laboratory of Molecular Biology was established alongside it and the synergy created by these two institutions has led to a steady build up of leading edge research activity. In total, some 9000 people are currently employed within the site.

Under the 2020 Vision at Addenbrooke's, the intention is to create an expanded **Cambridge Biomedical Campus**. This will embrace enhanced National Health Service and research facilities, together with new transport links, the whole forming part of a master plan for Cambridge's southern fringe^{iv}.

There are a number of other key research centres within and around Cambridge. These include the St John's Innovation Park, to the immediate east of the Science Park, and the Hinxton Hall site, a leading genomics research centre supported by the Wellcome Trust.

4. Planning strategies post 2000

To resume the planning story, initiatives such as 'Cambridge Futures' with its alternative scenario approach for Cambridge^v had begun to change the 'mind set'. By the turn into the new century, the tensions between different elements of planning policy had become very apparent – on the one hand the green belt aims of restraining development, on the other the need to provide affordable homes and to minimise journey impacts in the interests of sustainable development. The planning framework for Cambridge had itself become unsustainable.

As the 2003 Cambridgeshire and Peterborough Structure Plan put it 'A major problem has been the lack of investment infrastructure to support economic and population growth in the (Cambridge) Sub Region. The provision of social, affordable and key worker housing has fallen well behind needs, resulting in skills shortages and recruitment difficulties. Public transport infrastructure has improved but is inadequate to meet current needs and falls a long way short of future requirements. Other service infrastructure will also need to be developed together with future housing development. Consequently the Sub Region is experiencing increasing difficulties that affect its ability to grow and prosper as a leading centre of research and development and to provide an acceptable quality of life for its inhabitants'^{vi}.

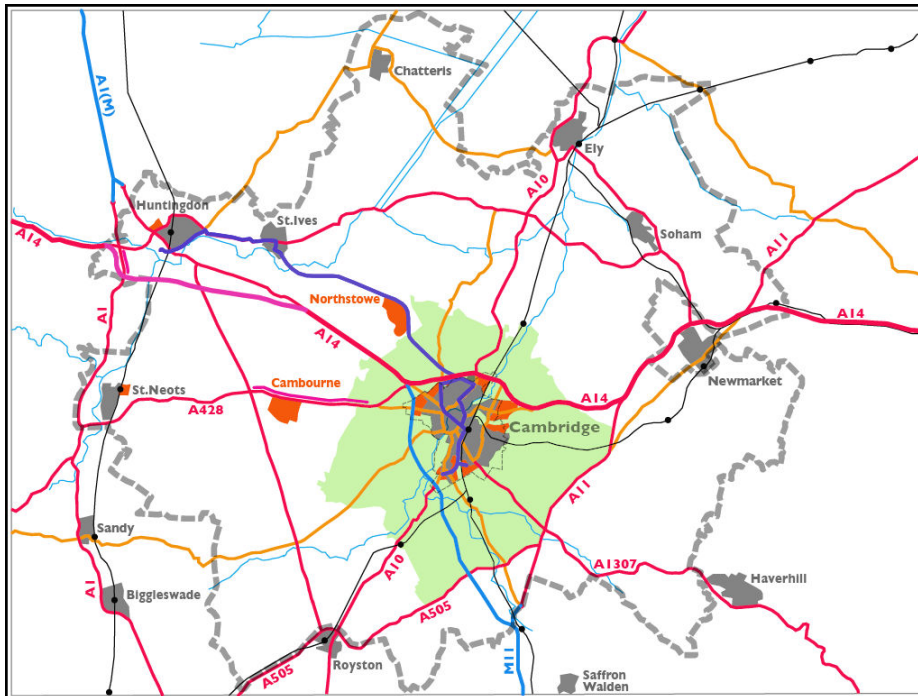


Figure 3 Sub regional Growth strategy (new residential development is shown in red, the green belt in green, the Cambridgeshire Guided Busway route in dark blue)

So a new, more balanced, strategy has been agreed. A green belt is to be retained around Cambridge, although land is to be released from it to permit further development on the edge of the city. Complementing that, a new settlement, Northstowe, will be built beyond

the green belt, this to be linked to Cambridge and other settlements by means of a guided busway. As set out in the newly released East of England Plan (which supersedes the 2003 Structure Plan) the strategy is described as a sequential approach with a focus on Cambridge. The Plan's vision for Cambridge is reproduced in Box 1, and in map form in Figure 3.

CSR1: Strategy for the Sub Region
<p>The vision for the Cambridge Sub Region to 2021 and beyond is to continue to develop as a centre of excellence and world leader in higher education and research, fostering the dynamism, prosperity and further expansion of the knowledge-based economy spreading outwards from Cambridge. The historic character and setting of Cambridge should be protected and enhanced, together with the character and setting of the market towns and other settlements and the important environmental qualities of the surrounding area.</p> <p>A comprehensive approach should be adopted to secure the necessary infrastructure, including green infrastructure.</p> <p>Local Development Documents should provide for development focused on making the most of the development potential of land in the following order of preference:</p> <ul style="list-style-type: none"> • In the built-up area of Cambridge, subject to considerations of environmental capacity; • On the periphery of the built-up area of Cambridge on land released from the green belt following the Cambridgeshire and Peterborough Structure Plan 2003 and through the Cambridge Local Plan and development plan documents prepared by the local planning authorities; • At the new settlement of Northstowe, linked to the guided busway; and • On land within or on the peripheries of the sub-region's market towns and within key service centres (or on the peripheries of key service centres, mainly limited to existing commitments) where such development would contribute to the social and economic needs of the community and good public transport exists or can be provided.

Box 1 Source – East of England Plan

5. Delivery

A particular feature of Cambridge City is its narrowly drawn municipal boundaries. While those boundaries are likely to be extended in the future, for the time being the new emphasis on developing the fringes of the city must necessarily involve joint working with the largely rural district (South Cambridgeshire District) which entirely surrounds the administrative area of the City. To add further complexity, these two districts form part of a broader county area where there is a two tier administrative system.

Thus, there is a third player in decision making which is Cambridgeshire County Council. With the replacement of the 2003 Structure Plan (the product of that Council) by RSS14 (covering an administrative region), the County Council's land use planning role is now much diminished. However, the County remains the highways authority which is responsible for the delivery of most transport improvements, and it has other vital functions such as education and waste disposal.

Added to this, there is also a vital political dimension; Cambridge City has an entirely different political make up from that of the other two authorities. Faced with this complexity, how can anything that is coherent in planning terms be achieved?

The way forward has been to develop partnership arrangements that bring together the necessary interests. Thus, in 2004 **Cambridgeshire Horizons** was established. This is a non profit making company set up by the local authorities to deliver the growth and infrastructure specified in the Cambridgeshire Structure Plan. Another important step has been the establishment in 2007 of **Joint Development Control Committees** for City Fringes and Northstowe; these bring together the relevant politicians who are empowered to make the final decisions.

A Director of Joint Planning was appointed in October 2007 and he reports to those committees. While he is based in the South Cambridgeshire District Council offices, in

effect he works to all three authorities. One of his primary roles is to negotiate schemes with developers so as to ensure compliance with the aims and policies set out in Local Development Frameworks (LDFs), these being the latest type of detailed local plan. There are two main sides to this; one is in terms of the physical development and its quality, the other is in respect of Section 106 undertakings under which affordable housing and other supporting infrastructure can be provided^{vii}.

6. Current Progress

In practical terms, the LDFs for those areas to be developed take the form of Area Action Plans. To date, Area Action Plans have been adopted for the Southern Fringe of Cambridge, for Cambridge East and for Northstowe. Another such plan is in preparation for Cambridge North West. The scale of the development envisaged is considerable. Thus Trumpington Meadows, the latest development planned for the southern edge of Cambridge, is to accommodate some 4000 homes, while three times that number are earmarked for the area's biggest extension at Cambridge East. To the north west of Cambridge, the new settlement of Northstowe is to have 9500 homes. The locations of these are shown in Figure 3. The figure also shows the location of Cambourne to the west of Cambridge. This is an earlier 4000 dwelling new settlement.

Of the new projects, **Northstowe** has gained particular publicity nationally, in that it is seen as a prototype for a programme of government eco-towns that are intended to set new standards on low carbon living. It is to be built on a former airfield and adjacent land about 8 km from the centre of Cambridge. A joint project by the developer, Gallaher and the Government regeneration agency English Partnerships, this development is intended to provide a good range of local facilities alongside excellent accessibility to Cambridge. Some 35% of its homes are to be affordable to accommodate key workers and others on relatively low incomes. It is to have a substantial town centre and employment area while there are also to be five local centres, a secondary school and six primary schools.

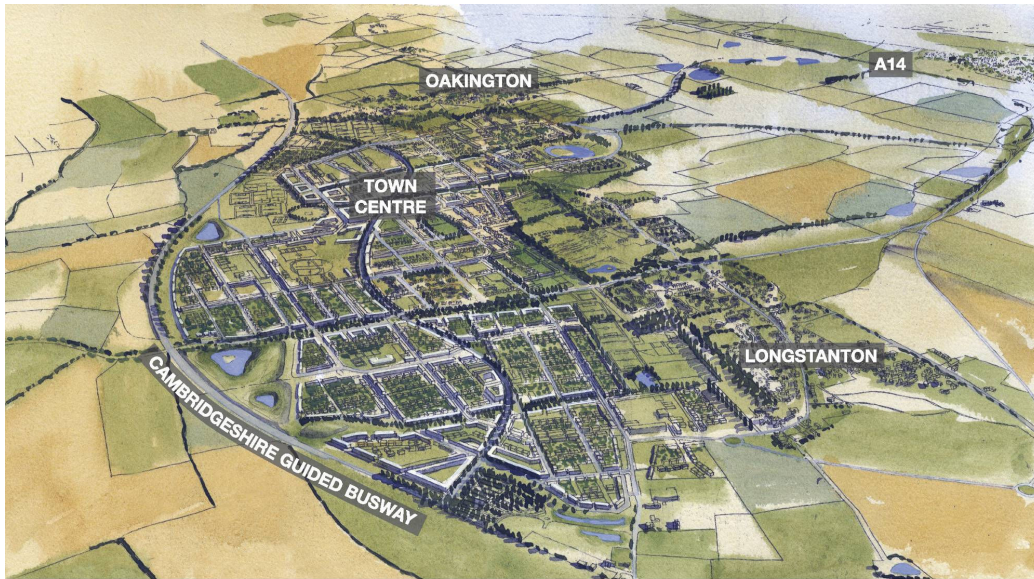
An outline planning application was submitted in the spring of 2008. In his detailed response, the Director of Joint Planning praised the clear structure of the new town which would comprise three distinct neighbourhoods separated by 'green seams' linking with the surrounding countryside. The grid street pattern was also welcomed as forming a sound basis for the growth and development of the town. Overall, however, the scheme was thought to fall some way short of the Government's billing of Northstowe as that prototype new town. It was disappointing that there had been no radical response to the challenge of climate change; in particular the promoters needed to show how the government's target of zero carbon development by 2016 could realistically be achieved.

Among other deficiencies, the development was felt to give insufficient priority to the intended link to the Cambridgeshire Guided Busway (see below). That facility needed to be available from the date that the first occupants of Northstowe move in; otherwise there was a danger that the new residents would rely mainly on the private car, exacerbating congestion problems on the very busy A14.

As the Chief Executive of Cambridgeshire Horizons put it *'Northstowe represents the greatest development challenge we have – it needs to be a new type of settlement – one which embodies the very highest standards of design, planning and environmental credentials and provides a template for sustainable developments across the UK'*.

The promoters of Northstowe undertook to consider these comments with a view to revisions being made to their application. Their revised plans would then be subject to a further period of public consultation prior to further consideration by the authorities^{viii}.

Figure 4 Northstowe – artist's impression



The **Cambridgeshire Guided Busway** (CGB) scheme is an integral feature of the sub regional strategy for Cambridge. The intention is to provide a high-quality, bus based, public transport route, linking Cambridge City Centre with Huntingdon and other settlements to the north west, and with Trumpington and Addenbrooke's Hospital to the south. Along these corridors, specially adapted buses will run on concrete guideways for part of their route, following disused railway formations, and along ordinary roads (with bus priority) for the remainder.

The CGB, which is based upon a concept first developed in Essen, Germany, aims to integrate land use and transport provision. Allied to that, its objectives include: extending the choice of transport modes for all, in particular for private car drivers to encourage a shift to public transport; promoting sustainable development by providing high quality public transport links; improving access to public transport in areas that currently have poor provision; and promoting social inclusion by improving access to employment, retail, community, leisure and educational facilities.

One of the main strengths of this scheme is that it will connect major centres of population, employment, education, health care/research and shopping. Thus, in addition to Cambridge City Centre and the substantial towns of St Ives and Huntingdon, those centres would include Addenbrooke's, together with the Cambridge Science Park and other developments on the northern edge of the city. While the stops would be widely spaced, as befits a rapid transit system, there would be four village stops, as well as several within a link serving Northstowe.

Moreover, the development will be integrated with other forms of transport, both connecting the main line railway stations at Cambridge and Huntingdon and also serving two new 'outer' park and ride facilities, to add to the five that currently border Cambridge. Travelling at up to 100 km per hour, and running at a high frequency, the CGB would offer competitive journey times, for example only nine minutes between Northstowe and the Cambridge

Science Park. The project is currently under construction and is scheduled to open to passengers in the spring of 2009^{ix}.



Figure 5 Cambridge Guided Bus route under construction
(NB the dark blue lines show the guideways within the Cambridge part of the route. The dotted blue lines are the on road sections)

7. Evaluation

While it has been a long time coming, the signs are that Cambridge now has a planning framework able to cope with the combined pressures of high tech development and the provision of the necessary homes. For the most part, those homes will be in reasonably accessible locations where the new occupants will have a choice of transport mode and not reliant entirely upon the use of the car. For many, the Cambridgeshire Guided Busway will add an innovative new transport option offering assured competitive journey times.

For the future, much will depend upon the details of the schemes that come forward and can be negotiated. For those developments on the edge of Cambridge, for example, it will be important to secure the provision of strategic landscaping appropriate to the setting of this historic city. For Northstowe, the potential is there for it to become that prototype eco city, and a test bed for the green design of the future.

But this will require great commitment on the part of both the developers (who will need to look to the long term) and the decision makers (who must continue to insist upon the highest design quality). In turn that will mean continuing co-operation between the three local authorities and the other relevant agencies. And Government must continue to support them where necessary. Those authorities have responded to the challenges through their agreements on co-ordination and delivery. They have made a good start, but the task ahead is to ensure that quality in all its aspects is never sacrificed in the drive to achieve quantity.

Acknowledgements

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