

New Settlements and Sustainability: Lessons from Cambourne

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ABSTRACT: Cambourne is a new settlement ten miles west of Cambridge. Terry Farrell, the master planners, imagined that the traditional character of an English village would give the settlement its image and identity and sustainability was the big idea that would provide a sense of purpose. This evaluation provides a unique insight into the development of Cambourne. The study combined a comprehensive literature review with interviews with over 50 stakeholders. The result is a series of practical lessons that can be applied in the planning and development of other new settlements.

Keywords: new settlements, urban planning, sustainable communities

1. Introduction

There is a whole raft of recent government policy on sustainability in housing and construction. A review for the DTI identified 154 major Government initiatives.ⁱ These initiatives are driven by the Government's concern to create sustainable communities. The ODPM defined sustainable communities: as places where people want to live and work, now and in the future.ⁱⁱ

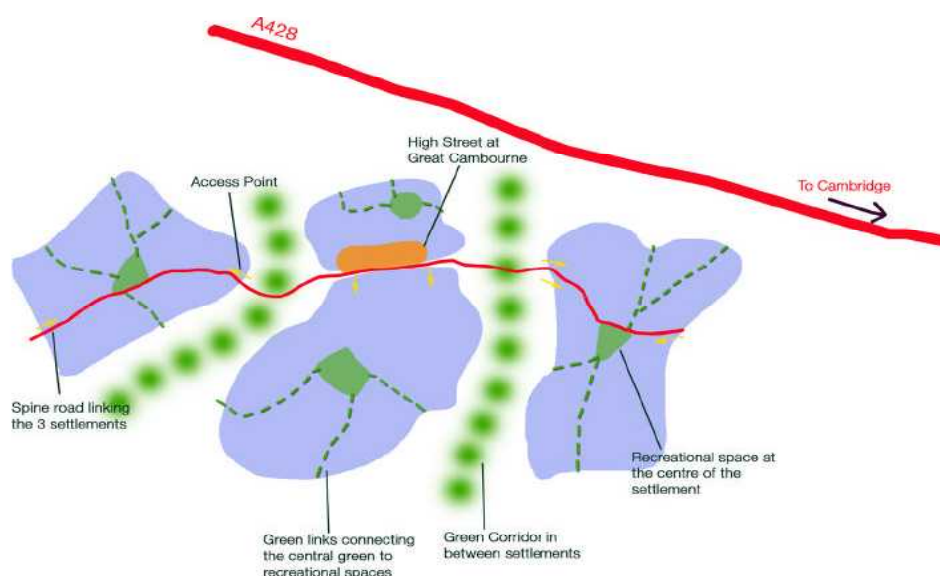
The problem with this kind of definition is that it isn't much help to those planning or designing new settlements.

Gordon Brown has called for 3 million new homes by 2020.ⁱⁱⁱ Let's ignore whether this target is realistic and consider what type of houses we should build and where. Many

of them will be in the South East where the greatest demand is, and many of them, quite rightly will be low carbon. But what about the wider context? What do we mean in practice when we talk about creating a sustainable community? And how are we to assess how sustainable a new settlement is when we've created one?

Two questions underpin the study. Firstly, does Cambourne meet the objectives of the original Master Plan? And secondly, can we learn lessons that can guide future large-scale development? This has relevance for eco towns and ideas about carbon neutral settlements. Finally I want to try and put these lessons from Cambourne in the wider context of the new settlements in Europe.

2. Cambourne



Cambourne Master Plan 1995, Prepared by Terry Farrell & Partners

Cambourne is a new settlement nine miles west of Cambridge. The Master Plan and Design Guide by Terry Farrell and Partners were approved in 1996 and work started on site in June 1998.^{iv}

2.1 Some facts about Cambourne

Three recent surveys provide some facts about Cambourne.^{v vi vii}

Cambourne's current projected size is 4,200 homes and at the time of this study in May 2007 just over half have been built. The total area of the site is 417 hectares (1,030 acres) only 131 hectares of which are for housing.

Over half the residents are local and people give three key reasons for moving to Cambourne – the appearance of the house, the idea of living in a village and lower house prices. But the population is very mobile and 40% of households intend to stay less than three years.

Cambourne has a younger population than the rest of the region – many of the residents are families with young children. Homes are bigger. 70% have 3 or more bedrooms. And house prices are 15-20% lower than in Cambridge. So you get more for your money.

The majority of people travel less than 12 miles to work, not surprising since many work in Cambridge. Only 6% travel to work in London. This pattern is similar to that in the rest of S.Cambs.

Car ownership is particularly high. The proportion of people using their car to travel to work is twice that in Cambridge. Only 8% of people walk or cycle to work compared with 40% in Cambridge.

In contrast over 90% of nursery and primary age children walk to school compared to only 30% in S.Cambs and Cambridge.

2.2 Master Plan vision

The marketing for Cambourne painted an idyllic future where families could get the best of both worlds – a place in the country with urban amenities.^{viii}

This vision harks back to the Garden City movement. The Master Plan also set out a number of very clear objectives, all related to sustainability and I'll come back later to how well Cambourne meets these objectives.

3. Method

This evaluation of Cambourne involved a review of existing reports and surveys, observation by the author and a survey of

over 50 'stakeholders'. 26 people were interviewed, the majority by telephone, and 34 responded to a paper-based survey.

This was a relatively small study conducted in March 2007. The whole study from contract to completion took only three months and was conducted by one person. This speed of delivery was necessary to discover if Cambourne had met the objectives of the master plan in order to provide input to decisions being made about Northstowe and other major developments in the region. Nevertheless, given these constraints, the methodology was rigorous and thorough. There was a high response rate to both the telephone interviews and paper survey.

The approach adopted is ethnographic and the information presented is based on the interviews and paper-based survey with stakeholders, most of whom know Cambourne well, either because they live or work there or because they are responsible for its design or provide a service. The intention has been, with minor editing, to let the stakeholders speak for themselves by reporting their views as quotations.

3.1 Interviews

A list of prompts were used in the interviews. What's your job/role? How well do you know Cambourne? What do you think of Cambourne? What works well? What works less well? If we were to redo Cambourne what should we do differently? What's better about Cambourne than other similar sized villages like Comberton? What are the pros and cons compared with living in Cambridge? If you could magically change Cambourne, what would you do? Is Cambourne any more sustainable than anywhere else in South Cambs? Do you think opportunities were missed to make Cambourne more sustainable?

3.2 Survey evaluation

People were also asked to evaluate Cambourne against two sets of criteria.

- 1 Master Plan objectives: to what extent does Cambourne meet the objectives outlined in the 1996 Master Plan?
- 2 InspireEast's Excellence Framework: how does Cambourne measure up against InspireEast's new Excellence Framework? ^{ix}

4. Findings

4.1 Size and location

There is pressure for Cambourne to grow, possibly to double its present size. This would allow a secondary school to be built, would provide more local jobs and would make facilities like shops and services more viable. ^{xxi}

There is a lack of connection to surrounding villages and Cambourne is poorly integrated into the surrounding countryside, which is a pity since the countryside around Cambourne is the nicest part of the county for walking. Given the attention paid to footpaths within the settlement this poor connection is surprising. The reason was, in part, political – there was opposition from people in surrounding villages and farms.

New settlements need good pedestrian and cycle links to local footpaths and bridleways and these rights of way need to be established well in advance of construction.

4.2 Built form and green space.

The design of the houses tries to reflect that in local villages. But the size of the settlement is much larger and the form and density of the housing and civic buildings is quite different. Compared to other new housing in the region, the design and layout of the housing is good and there are many parts of Cambourne that are very attractive. The houses are popular with new residents and have sold well. The majority are family homes with gardens and room to extend and, in this respect; they may prove more adaptable in the long-term than denser new development in Cambridge.

One of the best things about Cambourne is the ecology. A key objective in the Master Plan was to create three physically separate communities divided by green space. People very much appreciate the areas of woodland that have been retained and the green spaces that have been created. Without this green space Cambourne would feel much less rural and more like any other housing estate.

Something that strikes you as you walk around is the lack of litter and graffiti and how well gardens are kept. Clearly people take pride in the place.

4.3 Environmental design and sustainability

Although Cambourne was planned ten years ago, sustainability was the central aim of the Master Plan. However, apart from some of the social housing developed by Circle Anglia, the environmental design of the buildings is unexceptional. The housing was built to 10% above current Building Regs, so might achieve level 1 on the new Code for Sustainable Homes.^{xii}

Private developers and social landlords are applying different environmental design standards: the social housing being built to a greener agenda than the private housing. This means that the required proportion of affordable housing, typically 30-40% has to be provided separately, thus losing economies of scale and risking demarcating the social housing.

4.4 People and community

The local papers report problems with youths, loneliness and mental health.^{xiii} But the crime figures are lower than other parts of the region and parents think it is much safer for children and allow them greater independence in walking to school and playing out.

Some people find Cambourne lonely, and on weekdays it does seem deserted. Key services must be in place from the beginning before people arrive and the various agencies need to meet regularly to co-ordinate their efforts in providing help.

On the other hand people are more ready to make friends in a new place and for joiners there is plenty going on.

A new settlement needs a place, like a community hall, for people to meet from very early on. It also needs more informal meeting places like pubs and a café.

There is a high turnover of people in a new settlement and we need to be realistic about time scales and perhaps wait twenty years or so to judge Cambourne in terms of community well being.

4.5 Social mix and social housing

It is most important to avoid creating ghettos of affordable housing.^{xiv} Some people I spoke to expressed doubts about the large block of 71 houses north of the shopping centre at Smithy Way. Clearly this is a big issue in settlements with over 30% social housing and I'm not sure that it has been resolved satisfactorily.^{xv}

The social housing, for various reasons, arrived later than the private housing and this caused resentment.^{xvi} Wherever possible it would be sensible to phase the development of the private and social housing in tandem and to inform prospective residents of the scale and disposition of the social rented housing before they arrive.

4.6 School and services

Facilities such as shops, places to meet and sports facilities came later than the houses and this can cause frustration and resentment.

The schools have very good reputations and this has been a strong selling point. But the demand for primary school places was much higher than expected and three schools will be needed inside of the two planned. Cambourne is too small to justify a secondary school, so children go to Comberton Village College, over seven miles away. Unfortunately Comberton is full so new children have to come into Cambridge.

Clearly there is less happening in Cambourne than in Cambridge. On the other

hand there are more facilities and social activities than in most villages. Cambourne is a good place for young children to play and for young families to settle. There are many clubs and societies. So, for some people it offers a lot.

4.7 Employment and transport

The lack of local employment opportunities and the need to travel to work by car are the key issues in Cambourne's failure to be 'sustainable'. But the business park and shopping centre are less than half finished and local employment opportunities will increase with time as the settlement grows.

There is a regular bus service to Cambridge and a train service from St Neots for people commuting to London. As mentioned earlier, cycle routes and footpaths out of Cambourne are not well provided and people in Cambourne are still very car dependent. At first sight it would seem sensible to locate all new settlements near main-line railway stations. But only a small proportion of people travel to work in London.

Live-work and business starter units may need subsidising to woo new businesses from cheaper accommodation in neighbouring villages. The few units also lack scope for adaptation and expansion.

4.8 Planning and development process

When compared with the New Town development corporations the current process using Section 106 agreements seems cumbersome.^{xvii} But people have made it work in Cambourne.

There is a case for retaining architects to oversee the design and procurement process and to try to ensure higher quality design of civic buildings. However, the landscape planners delivered a very high quality green environment that many appreciate.

5. Evaluation Criteria

Evaluation 1: Master plan objectives

Two quantitative methods were used to evaluate Cambourne. The first was in terms of the objectives outlined in the master plan.

Some of the vision of the original master plan has been achieved. In particular Cambourne is rated highly in terms of the plan's ecological objectives and rural character. But it does badly in terms of energy and renewables and, because facilities were late in arriving, it scores badly on community. Nor is it a village as was originally conceived. And isn't big enough to be a town. It is in fact a new hybrid – an 'exurb'.

Evaluation 2: Inspire East's excellence criteria

Inspire East asked me to use their Excellence Framework, which is similar to Egan's sustainability wheel, which tries to take a holistic view of sustainability.

Cambourne does best in terms of three criteria: Equity, Housing and Environment. It does badly in terms of Economic criteria. People think that the lack of local jobs and a thriving local economy are currently Cambourne's main shortcomings.

6. Comparisons

6.1 Local comparison

What is clear is that Cambourne is similar in terms of life styles and transport to the rest of South Cambridgeshire. And the homes, which are all built to current Building Regulations or better, are much more energy efficient than most homes in established villages.

If we compare Cambourne with Bar Hill, the other new settlement in the region built in the late sixties, the first thing that strikes you is that the design of the houses, the architecture of the business park, the road layout and green areas are much better in Cambourne than in Bar Hill. Bar Hill has, however, got time on its side and there is a

strong sense of community. In time Cambourne will settle in a similar way and it is likely to be a popular place to live.

Accordia, designed by Fielden Clegg, is an example of the considerable new development in Cambridge. The main difference is that new housing in Cambridge will be nearer jobs and services than housing in Cambourne can ever be.

But Cambourne has significantly enhanced the ecology and biodiversity of the site. A key to the success of the green space is that the local Wildlife Trust is responsible for maintenance and is based in Cambourne. There is local food production in the two allotments and, being an exposed and windy site, there is the potential for local power generation.

6.2 National and international comparisons

So how does Cambourne perform in comparison with new settlements elsewhere in Britain and Europe. A comparative study by Sebastian Macmillan at the Martin Centre Cambridge last year included Cambourne amongst the 34 new settlements reviewed— 18 in Britain and 16 in mainland Europe.^{xviii} What is most apparent from his paper is the methodological difficulty of assessing sustainability of whole settlements. The findings are organised under nine headings. Here I have chosen three of them that I think are the most important. These are: environmental design and renewables, transport and connectivity and mixed use and the provision of facilities.

Environmental design and renewables

From the data, what is striking is that parts of Europe seem to be taking environmental design more seriously than we are in Britain. For example the Reselfeld and Vauban schemes in Freiburg not only have low energy targets of 65kWh/m² but both have district heating and co-generation electricity. The scheme in Malmo of 800 dwellings has an 80m wind turbine, 2,000m² of PV and ground source heat

pumps and a waste separation plant that burns the organic waste for heat.

Transport and connectivity

On transport, the main strategy in the UK is to encourage people to use buses, and to walk or cycle and Macmillan highlights the bus service in Cambourne. Unfortunately the service only began this year, nearly ten years after the first houses, and after a pattern of car use had been established.

In Europe there seems to be greater restriction of car use, for example by limiting parking provision, and more investment in public transport using high speed buses, trams and light railways to integrate with pedestrian and cycle routes. However, it is not clear if this strategy is entirely successful and Sebastian presents evidence that people still want to use their cars.

Mixed use and the provision of facilities

Finally, perhaps the most important of the three issues, mixed uses and the provision of facilities. If we are to reduce car use, jobs and services need to be closer to where people live. In Britain less than half of the vehicle movements at peak times are journeys to work and outside peak times the percentage of non-work related journeys is much higher. Ideally facilities like schools and shops need to be within walking distance of people's homes. This is easier said than done of course. Cambourne is not self-contained. But despite criticism that facilities arrived later than promised, the settlement does offer a wide range of services and activities and most young children walk to school.

6.4 London and the South East

Solutions is an EPSRC funded project involving five UK universities.^{xix} It grew out of the Cambridge Futures work.^{xx xxi} One aspect of the current project is modelling the impact of different development options for London.

The work is in progress but early indications suggest that the biggest reductions in traffic congestion and land prices is achieved by densification of London. Existing local employment and services reduce travel distances. Densities in London in excess of 80 dwellings/hectare using 10% of existing open space are envisaged.

The growth of over 1 million new homes is necessary to cater for the demand for housing in the SE but the proposals pose challenges in terms of creating sustainable communities and retaining the green spaces that makes London such an attractive capital.

The key finding of a survey for the Joseph Rowntree Foundation about new housing was that people are not averse to building new homes and will support new development in the South East if they are convinced that growth can be achieved without sacrificing quality of life.^{xxii} This means providing the facilities as well as the houses, and as we have seen from Cambourne, green open space.

Overall, the survey suggested spreading new development in the proportions suggested by the pie chart, by building about a quarter of new homes in each of the three favoured options: infill, urban extension and new town and the rest in existing villages and new settlements.

And although the majority of people aspire to live in detached or semi-detached homes, this mix of housing with about half lower density homes, 37% medium density terraces and only about 16% higher density flats would most meet people's preferences. This mix of density would also meet the Government's target of 30-40 dw/ha.

7. Conclusion

In 2007 there was a one-day workshop entitled Lessons from Cambourne. It was in the Department of Mathematics and was attended by about 50 key players in the development of our region. The conference report identified twelve key themes.^{xxiii} I want to touch on just two of them – the

importance of the age structure of new settlements and the difficulty of measuring success of new communities.

It is clear that new communities attract young families. In Cambourne, you will remember that three primary schools are needed rather than the two envisaged. The predicted demographics for Northstowe, a second, larger settlement north of Cambridge, also show few older people, yet the planned density is much higher than in Cambourne. Will Northstowe, with a high proportion of flats and homes with very small plots be a suitable for young families?

The conference highlighted the fact that at the moment there are no agreed measures of the success of new developments. We need clear measures and targets if we are to work towards the achievement of successful communities. Suggestions for these measures included:

- numbers of people participating in local activities or networks.
- mental health of the population.
- proportion of children who walk to school.

It was also suggested that the Cambourne study provided a useful benchmark against which to assess other new settlements, for example by asking how have we built on the positives, and how well have we managed to avoid the negatives.

7.1 Positive things about Cambourne

Cambourne is in some ways a unique type of settlement. This aerial photograph shows that it is neither a village nor a suburb. The spine road is narrow and winds around. This encourages people to use pedestrian short cuts. For example, there is a path to the shops on the edge of these woods. Although the gardens are small there is room to expand. Perhaps most significantly the volume house builders have adapted their standard catalogue to create something more interesting. And remember that most housing in Britain isn't architectural, it's spec built vernacular.

The vision of the master planners was to create a village environment with the facilities of a small town. In many ways Cambourne delivers this promise. You can get to the city fairly easily and you have nice countryside within walking distance. You are relatively close to main line railway stations.

It is less congested than Cambridge and there is less pollution and better air-quality than in the city. It is quieter and there is a better sense of community. Despite the bad press, there is less crime and less antisocial behaviour. It is perceived as a safe place to bring up a family and young children seem to be given more freedom and independence than in Cambridge or established villages. This independence has been shown to be important in child development.^{xxiv} Houses are cheaper, there is more choice and the houses are new. Above all people really appreciate the green space and lakes that have been incorporated into the built form.

7.2 Negative things about Cambourne

But Cambourne can feel isolated, especially for those without children who have less opportunity to make friends or for those who find mixing more difficult. There is an obvious lack of history, a continuity of generations and a sense of belonging. There is less choice of shops; fewer public transport options and facilities were late in arriving.

The key issue in new settlements is the lack of local employment opportunities. In today's highly mobile labour market, many people chose to work a long way away from where they live. But more local job opportunities in new settlements would reduce travel distance to work.

7.3 Final thoughts

In Cambourne, the master planners imagined sustainability as the big idea that would provide this sense of purpose. And the traditional character of the English village, it was imagined, would give the settlement its image and identity. But

Cambourne is no more sustainable, in any real sense, than other parts of the region and Cambourne is an urban community divorced from its surrounding countryside.

This key finding casts considerable doubt on plans for carbon neutral eco-towns. Although it would certainly be possible to make the housing more energy efficient and to generate power locally, much of the carbon emitted by a community depends on life-style choices and behaviour. And it is unrealistic to suppose that the majority of new residents will either work locally or give up wanting to use their cars.

The devil is in the detail. A new development, whether densification, urban extension or new town can be done well or badly. But unless transport and connectivity, local employment and the provision of facilities, including green spaces, are addressed effectively then the best environment design will not make new settlements sustainable.

A six page executive summary and a copy of the full 60 page report can be downloaded as pdfs from the Inspire East website.^{xxv}

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