Uxcester

garden city

Second Stage Submission for the
2014 Wolfson Economics Prize

urbed

Credits

Wolfson Economics Prize 2014 – Second Stage Submission:

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Contents

Summary

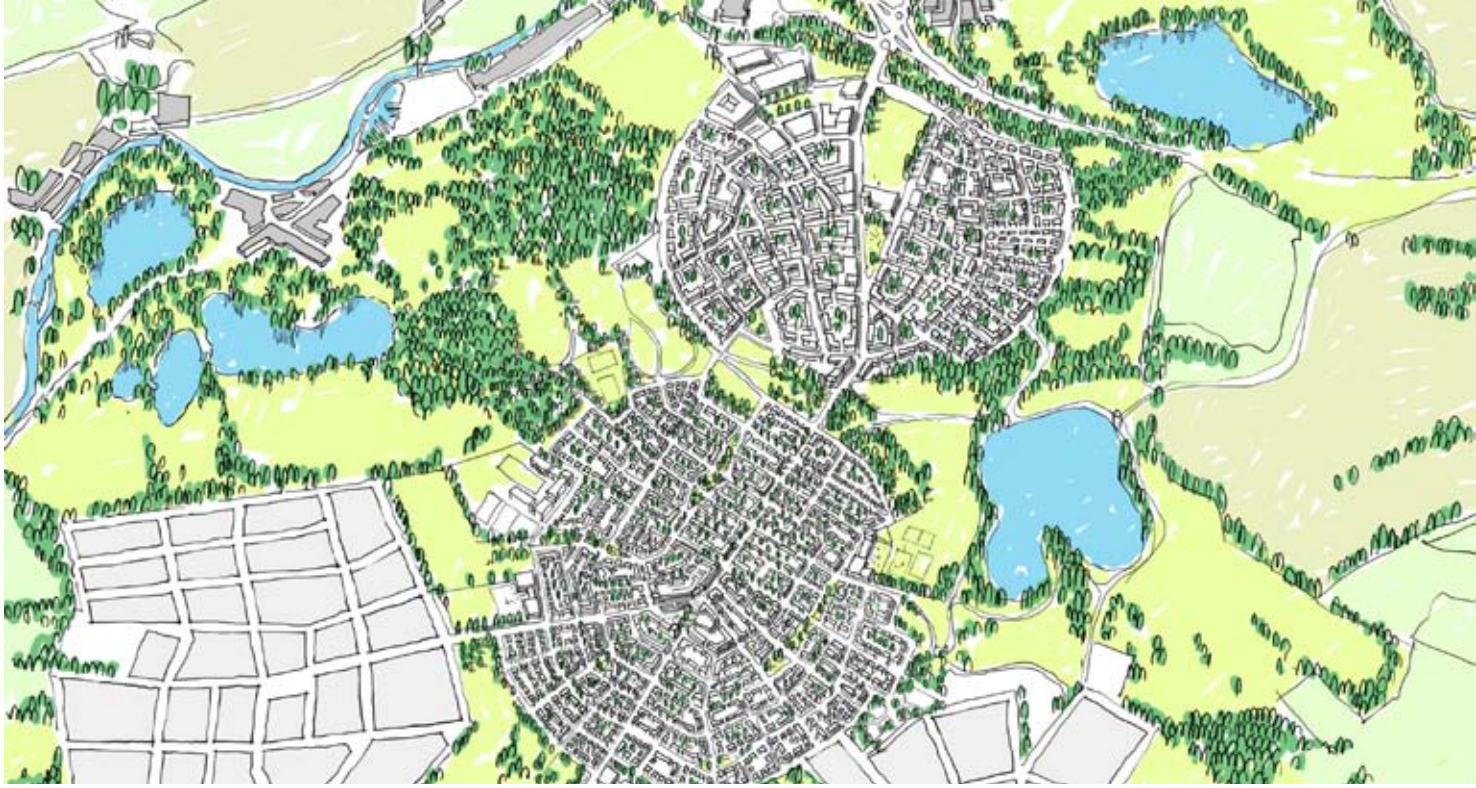
We describe in this essay a plan to create a *Garden City* of almost 400,000 people by doubling the size of an existing city. We are proposing a 'new town', but it is one modelled on Edinburgh rather than Cumbernauld. As with our original essay we have explored this idea through the fictional city of Uxcester, a place that we have constructed as an amalgam of a number of cities, all places with populations nearing 200,000, with long histories, established institutions and settled communities.

We have continued to use Uxcester in this expanded essay because our proposals are not specific to one place. We have identified at least forty small cities in England that have some similarity to Uxcester and where the ideas in this essay could apply. However, we are also aware that by working in a fictional place we are avoiding some of the complexities, both political and practical, that each of these forty small cities face. The danger is that each will say 'that's all well and good but wouldn't work here'. We have also therefore tested the idea on one of the most contested, and constrained versions of Uxcester in the country – the city of Oxford. Using Uxcester as cover, we have had a series of conversations and meetings with the councils and local civic and amenity groups in Oxfordshire – where the leader of the County Council has recently accepted that there is a need to build 100,000 homes in the period up to 2031. On the basis of these discussions, which are described in Appendix 1, we have drawn up plans to show how the Uxcester model might be applied in Oxfordshire. It is clear from this exercise that Oxford is more constrained than Uxcester and that its immediate scope for expansion is slightly more limited. However the model still applies and has the potential to unite the main interests in the city to secure the expansion that most agree is necessary.

The quality of what we build is, at its heart, an economic rather than a design issue

Nicholas Falk leading a study tour to the Vauban urban extension in **Freiburg**

The Uxcester model draws on our work as urban designers and economists in the UK as well as the many years that we have spent studying the experience of house building in Germany, Holland and Scandinavia. Over these years we have led many study tours for professionals and politicians to places like Freiburg – which is as good a model as any for Uxcester. This experience is documented in the book *Good Cities, Better Lives: How Europe Discovered the Lost Art of Urbanism* [1] published earlier this year by the late Peter Hall with Nicholas Falk. The book documents how major housing schemes in Northern Europe consistently produce better quality, larger housing, with higher environmental standards, in greater quantities and with far greater spending on infrastructure than we do in the UK. The response of many of the people on our study tours is to despair that we could ever produce development of this standard. This essay suggests something different.



The ability of these countries to build to such high standards and to plan so effectively is not because they have better designers, planners and developers. It is rather because they operate with a different economic and regulatory framework. The quality of what we build is, at its heart, an economic rather than a design issue and is the focus for the first part of this essay. In the UK most of the money and talent in the housebuilding industry is focused on unlocking the land through a contested planning system; on the Continent it is focused on what is built on that land. In this essay we propose a *Garden City Act* in the new parliament to reform our system to create the conditions that exist in Germany and Holland. This will initially be for a programme of *Garden City* building, but thereafter, it could be a model for wider reform.

Key to these reforms is to redirect the huge sums that are invested in the purchase of housing land in the UK into the provision of infrastructure and the development of quality homes. However, large as these sums may be, they are not enough to build an entire *Garden City*. Even the unlocked value of the land is insufficient to build the infrastructure required for a *Garden City* if, that is, we are serious about the word 'city'. In a modern world where the economy is based on knowledge and technology rather than the manufacturing that supported the new towns, then the idea of a *city* is something that we should be very interested in. Places without major institutions of learning, that are unable to attract and retain the brightest and best young people, are destined to become dormitory suburbs, however good their garden might be. We have therefore concluded that it is better to graft a *Garden City* onto the strong root-stock of an existing city. This is the basis for our answers to the competition question:

Vision: We illustrate how the city of Uxcester could double its size by adding three substantial urban extensions each housing around 50,000 people. These lie within a zone 10km from the city centre, which is a 20 minute tram ride, but is also of course solidly within the green belt. Our argument is that rather than nibbling into the fields that surround the city and all its satellite villages, we should take a good confident bite out of the green belt to create sustainable urban extensions that can support a tram service and a range of facilities. This will mean building on farmland, but much of the land around Uxcester is not accessible to the public and is of little ecological value. The *Garden City* vision is that for every hectare of land developed another will be given back to the city as accessible public space, forests, lakes and country parks – the garden in which the city will sit. In this way the whole of Uxcester will become the *Garden City.*

The *Garden City* extensions are based upon some simple geometry; tram stops that are within 20 minutes of the city centre, neighbourhoods that are within 10 minutes walk of these tram stops, each of which supports a secondary school and its feeder primary schools, and urban extensions made up of five neighbourhoods

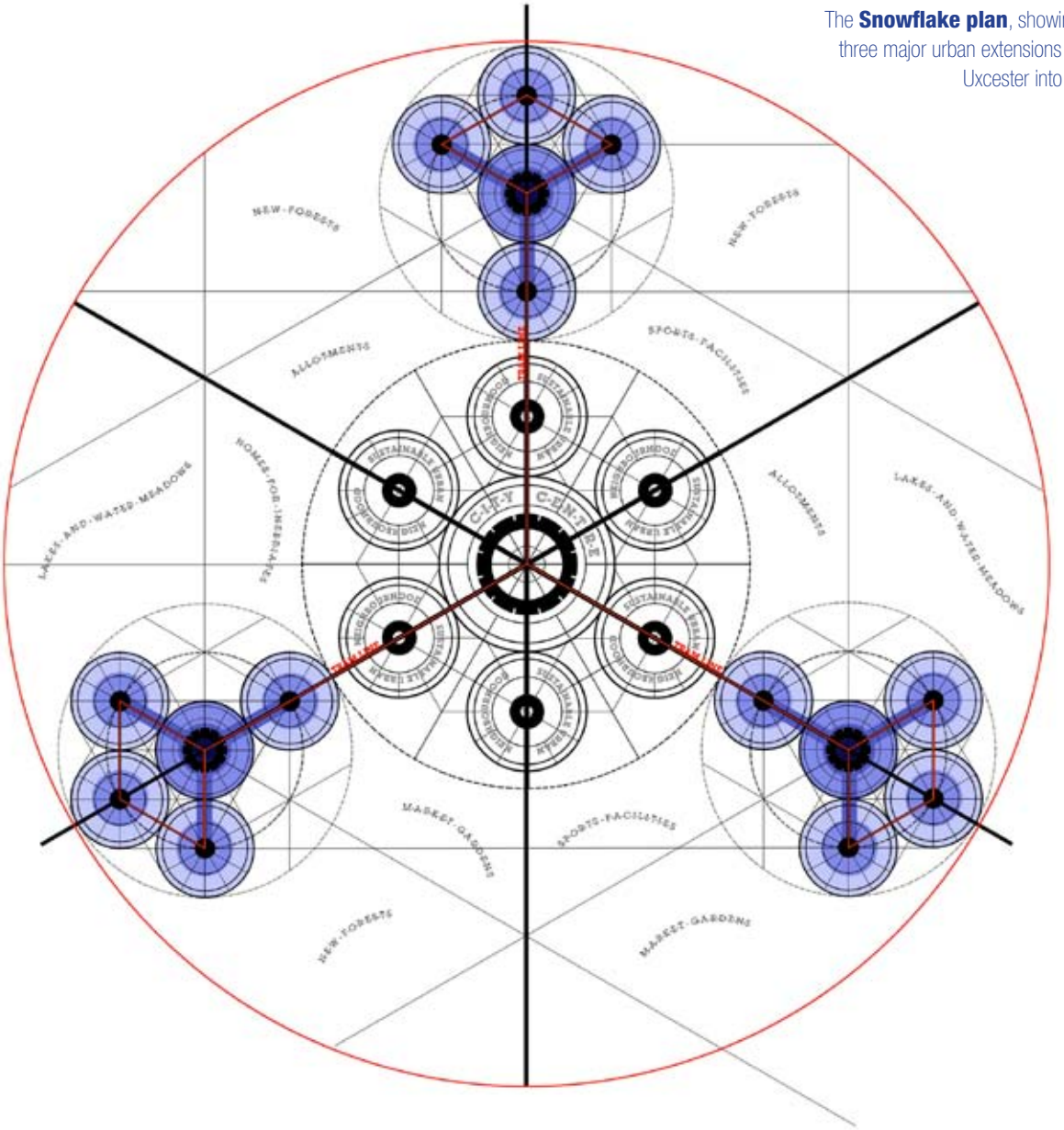
that have sufficient scale to support a district centre and employment uses. The overall plan is described in our Snowflake diagram which we have developed into a set of proposals to show how it would be applied to Uxcester. In doing this we are proposing a housebuilding process in which the *Garden City* creates a masterplan with serviced plots – that we call the 'trellis'. The plots will then be sold either individually or in small parcels to self-builders, custom-builders and small-scale builders. In this we create a process of incremental development on which the 'vine' of the neighbourhood can grow onto its trellis. It is a process that recreates the way in which places like Edinburgh New Town were built.

Popularity: Extending an existing city solves some problems, but might create others, particularly when it comes to winning over the people of the city and its surrounding villages who have not always had a reputation for being pro-development. We propose a 'deal' by which we lift the threat of development around all of the city's existing suburbs and villages by concentrating growth in a few large urban extensions. This is what we believe the polling undertaken for the Wolfson Economics Prize tells us, that people support the idea of a *Garden City* provided that it is built somewhere other than their back yard. This deal will be backed up with a 'Social Contract' which undertakes that the *Garden City* extensions will be built in areas where their impact is minimised. This contract will also cover the creation of 3,000HA of accessible public open space and investment in new transport infrastructure and city centre facilities to benefit the whole of the community. Our aim is to reframe the argument by making the *Garden City* an attractive solution to a set of problems that the city cannot solve on its own. In this way cities will want to bid to be designated as a *Garden City*.

We propose a 'deal' by which we lift the threat of development around all of the city's existing suburbs and villages by concentrating growth in a few large urban extensions

Economic Viability and Governance: In the absence of large scale subsidy the only solution to the economics of the *Garden City* is what Ebenezer Howard called the 'unearned increment'. The new *Garden City Act* will provide powers to acquire land for the *Garden City* frozen at its existing use value plus compensation. Because much of the land we are acquiring is in the Green belt, it actually has minimal hope value and we are assuming that we would pay on average £200,000/HA, or £1.16B for 6,000HA. We are assuming that half of this land is developed for just under 70,000 new homes, 1.7M sqm of employment space along with retailing and community facilities. We detail infrastructure spending of £4.1B which together with affordable housing and financing costs means that we will spend a total of just over £6B to acquire and service the land. This compares to an income from the sale of land of £6.27B. These figures are based on today's prices and make no provision for rising values over the life of the *Garden City*. We have developed a cashflow for one of the three urban extensions over a 15 year period showing that with an initial investment of £50M and a peak borrowing facility of £150M the development is viable without public subsidy.

In the final part of the essay we describe the process by which Uxcester *Garden City* would be built through its seven ages. This starts with a *Garden City Act* being passed by the new Parliament as enabling legislation to create the planning



The **Snowflake plan**, showing the form of three major urban extensions that will make Uxcester into a Garden City

and compulsory purchase powers that each *Garden City* would need. Cities would then be invited to bid to be designated as a *Garden City* in order to get access to these powers. The successful places like Uxcester would establish a *Garden City Foundation* as a partnership between the local authorities, the Local Economic Partnership, the community and other partners. This would be vested with the *Garden City* powers and would be responsible for masterplanning, acquiring the land and acting as planning authority. The land would be vested in a *Garden City Land Company*, the majority shareholder of which would be the *Foundation* but a minority shareholding sold to investors.

We follow the Uxcester *Garden City* as it grows through infancy and adolescence to maturity, middle age and eventually retirement. We describe the investment in infrastructure and the process by which plots are prepared and sold. Over time the role of the *Foundation* will evolve as it moves from the development stage to the management phase where it will be structured to enable the local community to take on the stewardship of their neighbourhoods.

This is not a new model. It is the modern-day equivalent of the way that the great estates were built, and indeed the way that the schemes visited by our European study tours were developed. The process addresses the weaknesses in the system that have made it so difficult to match the quality of these schemes that we admire on the continent. It is a process that is replicable across the country and together with the continued development of our great cities, has the potential to radically alter the quality and quantity of housing development in the UK.

Introduction

As human beings we are both brilliant and inept when it comes to building cities. When we are not really trying, when we are just providing somewhere to live, to trade and feel relatively safe we have built some of the most sublimely beautiful towns and cities in the world. Yet in the era of the modern town planning system, when we have focused the best minds of the age on the problem, the results have been at best mediocre and at worst a complete disaster.

The task of building a *Garden City* makes this issue particularly pressing because nowhere is this more true than in post-war new towns, urban extensions and private suburbs[2]. Something that we once found relatively easy when building Bath or Edinburgh New Town, and that they are able to achieve with reasonable success elsewhere in Europe, seems to elude us completely. We seem largely unable to build a new settlement or neighbourhood that comes even close to the richness, diversity and character of an ordinary, one might even say bog-standard, English market town. In the face of this failure our response has tended to be that it is probably better not to build than to build badly. The planning system has become focused on resisting development and local communities, branded as NIMBYs, have come to see new housing as a threat to be resisted at all costs. It is no wonder that we are building only half the homes that we need.

You need good root stock to grow your city, a mature town that can be expanded into a 21st century Garden City.

There are many reasons for this failure as we explore in the first part of this essay. URBED have spent many years studying the factors that underpin the best examples of new residential development[3]. Some of these can be found in the UK but most are in Europe, particularly Germany, Holland and Scandinavia. There are many reasons why these countries consistently produce better quality housing than we do. Generally this is not because they have better designers, planners or developers. The fundamental reasons are economic which is why it is so appropriate that they should be addressed through an economics essay. They relate to the workings of the housebuilding industry, to the economics of housing production, the problems of the land market and the functioning of the planning system. Practitioners in the UK have spent years trying to apply the lessons from European best practice. However, by focusing on design rather than these fundamental issues they have been doing so with one hand tied behind their back because the economics are stacked against them.

These economic (and political) issues lie at the heart of this essay. **Part 1** explores the challenge that we face and the ways in which the interaction between the housebuilding industry and the planning system in the UK undermines the quality of new development. We look at the workings of the UK economy as it relates to the production of housing, at the organisational problems of building new settlements, and at the way that all of this impacts on planning and design.

We come to a radical conclusion in the context of this competition, namely that you cannot build a *Garden City* from scratch – the problems are insuperable. This may seem to be at odds with the views of most of the other essays. However, while we do acknowledge that it is possible to create a new settlement that covers the cost of its infrastructure without recourse to public funds, our contention is that this settlement would not be a Garden *City*. The fundamental problem is that you can not fund the infrastructure and facilities of a city from the value generated by the construction of its homes, business premises and utilities. You can fund schools, local facilities and some transport infrastructure, but a general hospital? A college and university? A library, art gallery and theatre? A main line train station and town centre with

a good range of retail and leisure uses? Even a cathedral - which for many years was the mark of a city? Only Milton Keynes, the largest new town and the only one to call itself a city[4], has come close to ticking off all of this list. This is important because today economic growth is based on cities. It is no longer enough for new towns to provide industrial units on a motorway junction to attract employment. In the subtitle of his book *Who's Your City*[5] Richard Florida suggests that 'the creative economy is making where you live the most important decision of your life'. Successful places will be those that can attract the 'creative class'. These highly qualified young people are looking for job opportunities and a lifestyle that can only be found in cities.

Rather than a free standing *Garden City* that will spend decades as a vulnerable sapling we therefore suggest that we need good root stock from which to grow our *Garden City*, a mature town that can be expanded into a 21st century *Garden City*. An existing place with a thriving town centre and all of these facilities already in place - something that a freestanding *Garden City* could never hope to achieve in the lifetime of its first residents. You need an existing city like Uxcester.

To explore the viability of our vision we have created the fictional city of Uxcester (pronounced *uss-ter*). We have used a fictional city to create a generic proposal that can be applied to a range of places. However, to ground our proposals in reality, we have based Uxcester on a real place, disguising its plan so that it is not immediately recognisable (although some people have guessed). This is an historic city with a population of just under 200,000 living in around 85,000 homes. It is currently growing at around 1% a year meaning that, within 30 years it will have a population of just over a quarter of a million. To achieve this it needs to build just under 30,000 new homes at an average rate of 1,000 a year – a process that will cause much conflict and soul-searching amongst its relatively affluent population.

Part 2 of this essay describes how we might double the population of Uxcester over the same 30 years. We start by creating a struc-

Growing existing places: Most of the places that we turn to for inspiration in Europe such as Vathorst in Amersfoort are extensions of existing places.

ture for the *Garden City* based on a 'snowflake' diagram inspired by Ebenezer Howard's original Social City diagram[6]. We then show how this might be applied to Uxcester before exploring how it could secure the support of local people and how the business case would stack up.

In order to double the population of Uxcester we will need to build 85,000 new homes, at a build rate of 2-3000 homes a year. This is a huge task but is commensurate with the challenge that we face. It compares to Milton Keynes that achieved an average build rate of just under 3,000 homes a year during the life of its development corporation (it has continued to build 2,000 homes a year since the corporation was wound up)[7]. However, outside the new towns – with their strong planning frameworks, public land ownership and up front infrastructure – this is not a level of growth that can, we believe, be achieved within our existing system. We therefore sketch the outlines of a new system that would need to be put in place to make the *Garden City* possible.

Rather than grafting development on to every existing suburb and village we will set a 30 year vision that takes the pressure off all of these places and concentrates it on low-impact, undeveloped land between existing settlements

Development on the scale we are suggesting will transform the whole city. Our proposition is that Uxcester as a whole will become the *Garden City* through the addition of a series of substantial *Garden Neighbourhoods*. Our vision therefore applies to the whole city rather than just the extensions. The aim is not to create a series of dormitory suburbs but to harness the wealth creation potential of housing development to create a dynamic city economy.

We are aware that in choosing an existing city we may have made it more difficult to answer the question about how to make the *Garden City* popular. Unlike Milton Keynes, Uxcester has a substantial existing population who have not always been particularly enthusiastic about new development. We therefore pay special attention to the way in which we can win the support of the local population. We are suggesting a 'Social Contract' with the good people of Uxcester to ensure that the benefits of the *Garden City* are spread across the whole population. For every acre of land developed for housing they would get back an acre of publicly accessible green space; the new development would fund a new tram system as well as the upgrade and expansion of existing services and facilities. It would increase the range and affordability of housing for people currently priced out of the town and it would pay generous compensation for those directly affected. However, this alone is unlikely to be enough and, at its heart, our argument on popularity is based on striking a 'deal' with the local community that will win wider support. This would say; 'rather than grafting development on to every existing suburb and village around the city we will set a 30 year vision that takes the pressure off all of these places and concentrates it on low-impact, undeveloped land between existing settlements'. We are suggesting an alternative to a future that many residents and civic groups currently fear. To paraphrase what one participant in Oxford told us 'it is not our job to help Oxford grow, we are not interested in trams or new parks, but if you can guarantee that our village will be spared development for the next thirty years you have our support'.

One of the problems with development on this scale is that the vision is based on a finished product that will not be completed for decades. Much more important for the people of Uxcester (both existing and those moving in to the new housing) is the journey from the present to that beautiful future. **Part 3** of this essay therefore charts this journey through the seven ages of a *Garden City*, from conception through birth, infancy and adolescence to maturity, middle age and eventually retirement.

The essay is written in two strands. The white pages make the case for building a 21st century *Garden City* and describe how it would be planned, managed and financed. The greeny-brown pages show the development of Uxcester, from its Roman origins to its inauguration of the UK's first *Garden City* for 100 years. We have debated since being shortlisted whether we should ditch Uxcester and apply the model to an identified place. In doing this we would have been drawn very quickly into the peculiarities and local politics of a particular city. Soon the essay would become a proposal for that city rather than a generic plan that could be applied to a range of places. We have therefore retained Uxcester, a place that we have come to know and love.

However, to make it real we have also imagined how the model might be applied to Oxford (light blue pages). This is a city we know well, having produced a report on Oxford's future growth with the Oxford Civic Society early in 2014[8]. A *Garden City* proposal would go a good deal further than we were able to do in this previous report. However we have had a range of discussions with local civic groups and stakeholders in Oxford to pitch the Uxcester proposition and gauge reaction. This culminated in a workshop on 31st July, the results of which are summarised in **Part 3** of the essay, and a fuller Oxford Case Study is included as an Appendix.

It is clear from our work in Oxford that some places are more constrained than Uxcester (which remember is also based on a real place). Our *Garden City* model therefore needs to be flexible enough to adjust to local circumstances but our Oxford case study gives us confidence that this can be done. This emboldens us to suggest that there are scores of places to which the Uxcester model could be applied (see plan), some in areas with intense pressures for growth and others in places where a *Garden City* might be promoted as a stimulus to economic growth. Uxcester, we believe, has the potential to create a replicable model for building *Garden Cities* in the UK on a scale that could make a significant contribution to the UK's housing needs.

As good urbanists we also would argue that this should sit alongside policies for urban infill and consolidation along with the continued growth of London and the great regional cities. The type of *Garden City* that we suggest does not stand in opposition to urban infill or to brownfield development. Indeed by growing Uxcester along transport links from the heart of the town, it synthesises the urban and the suburban in a way that overcomes the decades-old stand-off between the two opposing camps.

How many potential Uxcesters are there in England? Based on population size and history there may be as many as 40. This is in addition to the expansion of the larger cities that is already underway.

Bradley Stoke near Bristol, planned in the 1980s as a private sector new town in Northavon District Council. Reputed at the time to be the largest private sector housing scheme in Europe it became associated with many of the problems of volume housebuilding, lacking a clear identity or a town centre, with poor public transport. The area was dubbed 'Sadly Broke' in the recession of the 1990s.

Part 1

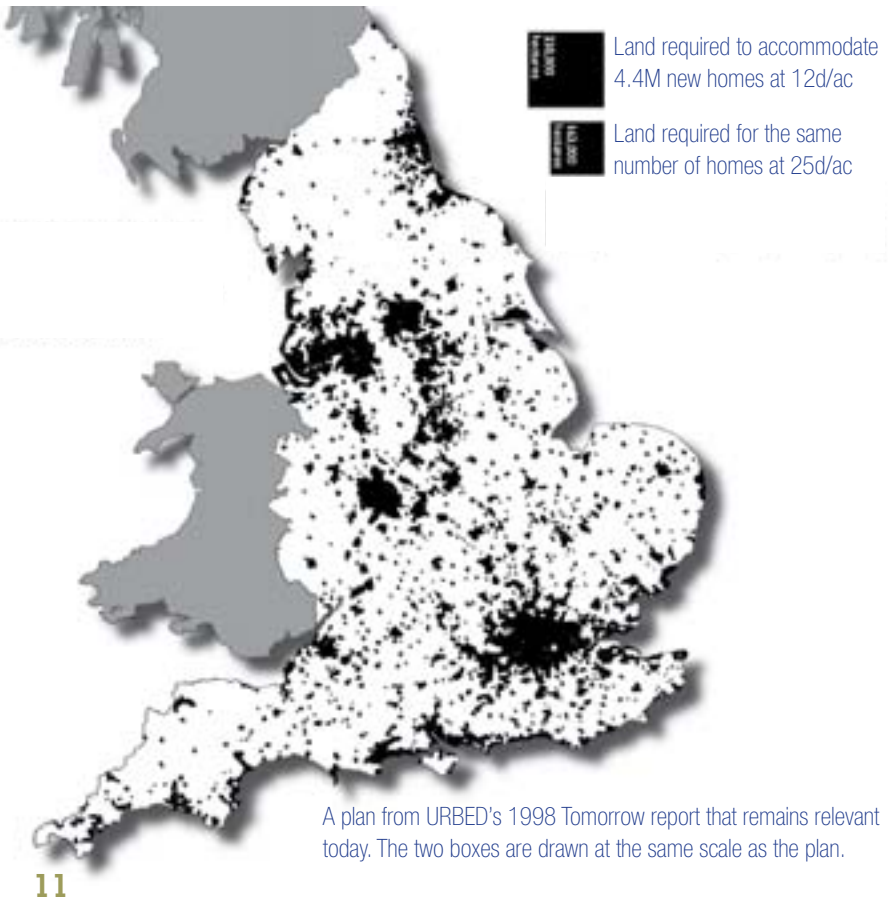
The challenge that we face

1a. The Bigger Picture

URBED entered the debate about housing numbers in the 1990s when we tested the idea that 75% of all new housing could be built in urban areas. Our report, *Tomorrow a peaceful path to urban reform*[9] was published a hundred years after Ebenezer Howard's original book *Tomorrow a peaceful path to real reform*[10]. In our report we assembled data to show that it was possible to build the majority of homes within urban areas but that it would require some fundamental changes in our attitudes to urban living.

At the time the great national debate was over the accommodation of 4.4 million additional households that were being projected to 2016[11] and where they were to be accommodated. The Major government published a Green Paper in 1997[12] suggesting that 60% of housing should be built within urban areas. This target remained in place until the publication of the NPPF in 2012[13].

220,000 homes a year has been achieved only twice in recent times, once just before the 1990 recession and again just before the recent recession



A plan from URBED's 1998 Tomorrow report that remains relevant today. The two boxes are drawn at the same scale as the plan.

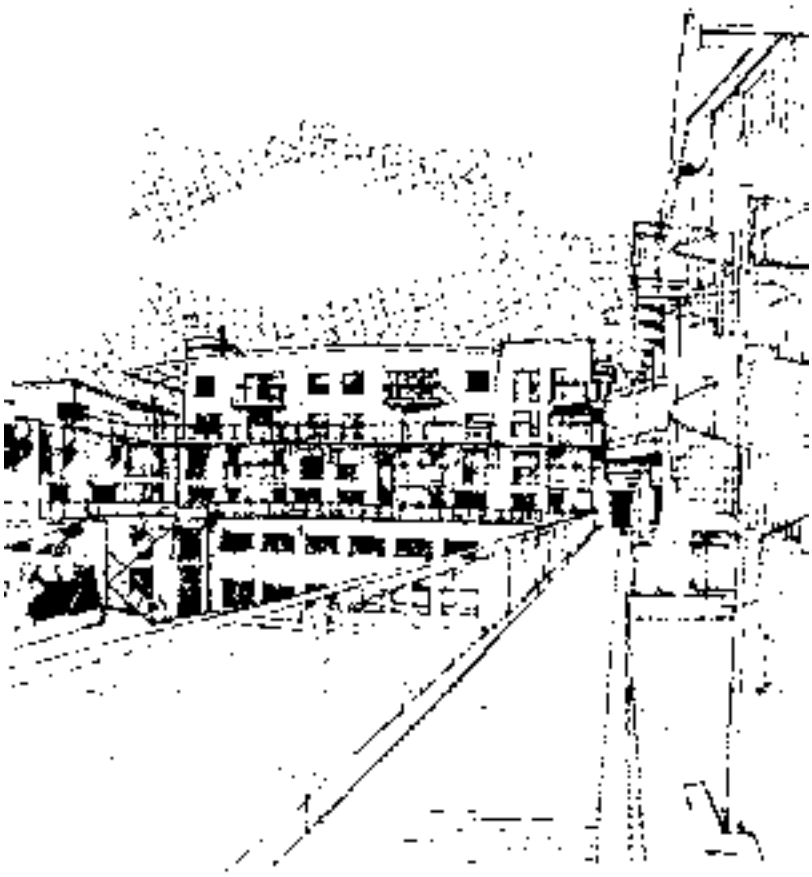
This closely mirrors the debates that we are having today. The new household projections published in 2013[14] expect an additional 2.2 million households between 2011 and 2021, – the same rate of growth as the 1995 projections. The established long-term trend is therefore a requirement for around 220,000 homes a year. This is something that we have achieved only twice in recent times, once just before the 1990 recession and again just before the recent recession. While the recent drop in output is the result of the recession, we clearly have a longer term problem of low housing output.

National Land Use Change Statistics[15] shows the apparent success of the brownfield first policy. At its peak in 2008, 81% of new homes were built on previously developed land. This had dropped to 68% in 2011, the last figures available. This may reflect the removal of the 60% target in the NPPF. However, the proportion of housing built on green belts remains negligible at 2%. A more likely explanation has been the fall in the number of apartments. Housing output figures[16] show that almost half of new homes were apartments in 2007/8, a figure which has fallen back to around a third today (most of which are in London). We must accept that the brownfield first policy has played a part in reducing housing output. It was very effective at constraining housebuilding on greenfield sites. In the strong market of the mid 2000s this housing transferred to urban areas in the form of apartment blocks. In many respects this was a great success. It heralded the renaissance of many northern cities. However many of the apartments were bought by investors and some were not even occupied[17], contributing to a property bubble. When this burst in 2008, the shortfall in house building (as opposed to apartment building) was exposed.

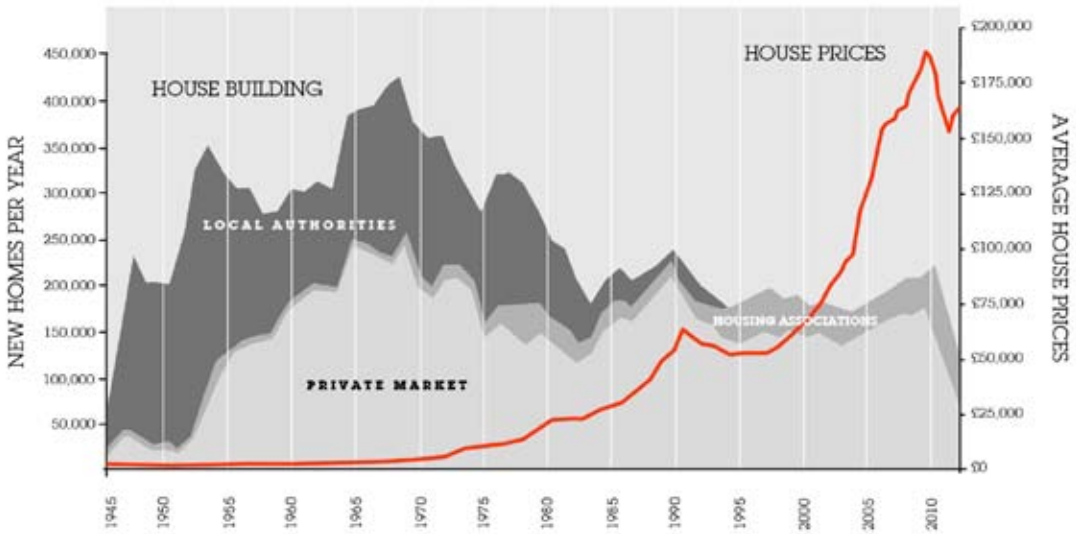
There are those who argue that we

should be relaxing planning controls to unleash development. But, we should not forget that it was the concerns of those living in the Shire Counties that caused a Conservative government to introduce the 60% target and the Countryside March of 1997 that persuaded New Labour that they should do the same. The relaxation of planning would lead to speculation, uncoordinated development without the necessary infrastructure and further conflict with local people. What we need is not less planning but better planning. A study by the Cologne Institute for Economic Research found that the German system released 50HA of housing land annually per 100,000 population compared to just 15HA in the UK[18]. We need a more proactive, flexible planning system to give clear guidance about where and how to build without trying to micro manage the process.

At URBED we remain strong advocates of the brownfield-first approach as a way of supporting the continued renaissance of cities. In a recent article commenting on the new interest in *Garden Cities* Lord Rogers[19] argued that 'we don't need to overflow into new towns on greenfield sites; doing so would damage the countryside and – more importantly – wreck our cities'. We don't believe that this is the case. In our judgement, the 60% target for brownfield development is about right. However, we also need a clear plan for the other 40%. This plan needs to protect the countryside as well as the character and setting of existing towns and villages. It also needs to ensure that new housing can be served by facilities and public transport and that the quality of design and construction is improved. This is the role of our Uxcester model. It shows how greenfield development can take place in a way that reduces its impact, maximises its potential for sustainability and reinforces an existing place.



So let us for a moment assume that the 60% target is still in place and run the clock forward for the next 30 years. During this period we will need as many as six million homes based on current projections, of which 3-3.6 million will (or should) go into existing urban areas, something which the larger cities are gearing up for. The balance of 80,000-100,000 homes a year will need to go onto greenfields - the equivalent of building a Milton Keynes every 15 months. This is why the *Garden City* concept is so important to avoid ruining our 'green and pleasant land.'



Top: The Urban Renaissance: In the last 20 years we have made huge strides in the quality of urban housing in areas like Hulme in Manchester. This has, however, been largely at the expense of greenfield housing.

Left: Housebuilding 1945-2010: Source Parvin et al. A Right to Build – University of Sheffield School of Architecture – 2011

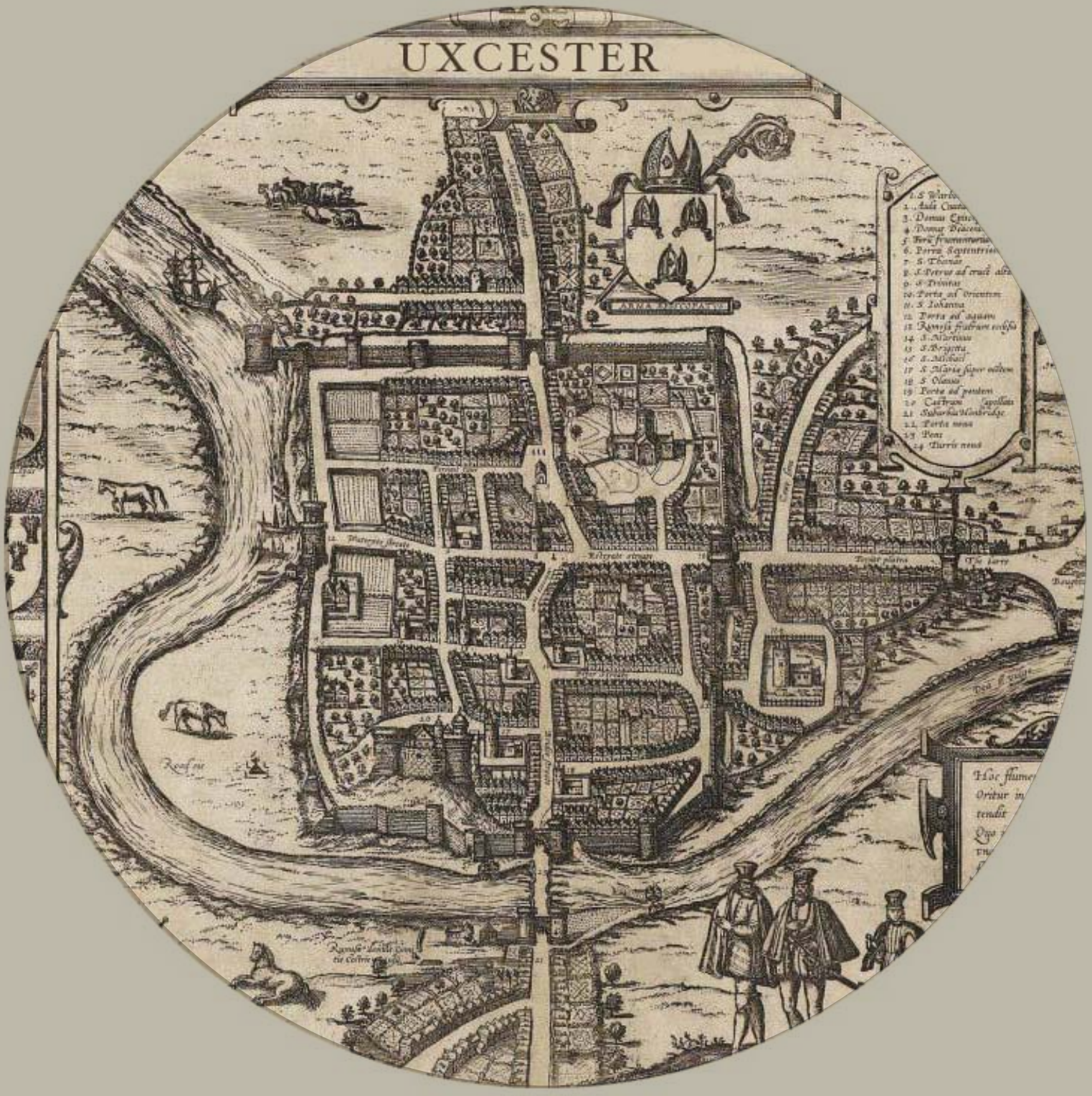
Uxcester's coat of arms is particularly appropriate in its bid to become a *Garden City*

Uxcester's History

Uxcester is a small city with ancient roots. It was founded by the Romans and as a fortified river crossing. It later became a Saxon Burth when its walls were rebuilt and its Cathedral consecrated. Its monastery operated a busy inland port trading in the local produce of the surrounding church lands. The Normans built a castle on what was then the edge of the town to ensure the loyalty of its inhabitants.

The Monastery was dissolved by Henry VIII but the ecclesiastical college developed as a university making it one of the oldest learning institutions in the country. In the 1960s the university relocated to a peripheral site creating a landscaped campus specialising in science and technology.

In the 19th century the town was bypassed by the worst excesses of the industrial revolution. However, its historical importance meant that it has an imposing mainline station. The town did develop specialities in leather-making and shoe manufacture as well as food processing and milling. The 19th century industrialists left a legacy of fine factory buildings and mills which are now obsolete.


UXCESTER

1b. A Flawed System

Over the last few years various reports have outlined the dysfunctional nature of the UK housing market[20]. The broadly-accepted conclusions are that we have some of the most expensive new housing in Europe in terms of how much it costs to buy, but spend the least on construction.

The issue of house prices is displayed starkly on the graph to the right which was created by the Economist[21]. This shows that house-prices in Britain just before the credit crunch had risen by 230% since the 1970s compared to Germany where prices had been virtually stable over the same period. It is more difficult to pin down construction costs. International construction price comparisons from Turner and Townsend[22] suggest that construction costs per square meter for a typical home are broadly the same across the UK, Germany and Holland at around £1,000/m². This is an average rate and most UK housebuilders currently build at around £600/m² including infrastructure and fees[23]. It is also important to factor in the size of the home. The RIBA's *Case for Space* report[24] found that we have the smallest new homes in Europe – in Ireland new homes are 15% larger, in the Netherlands 53% and in Denmark 80%.

The Dutch system allows the value generated by development to be invested in infrastructure rather than to residualise in the land

Even though we have some of the most expensive houses in Europe much of the housing that we build is not very good. It is better than it was in terms of energy efficiency and design but it is still smaller and built to a lower standard than homes elsewhere in Europe. It is not just the design of the houses; new estates can be soulless places dominated by cars and lacking in basic facilities. In CABE's audits of new housing schemes between 2004 and 2006 only 18% of schemes were rated as 'good' or 'very good'[25].

These factors mean that only 1 in 4 housebuyers would consider a new home[26] with many people expressing a preference for second-hand property[27]. The fact that new housing is appealing to only a quarter of the population is likely to impact on sales rates and the output of the volume housebuilders. The poor quality of

Derwenthorpe in York

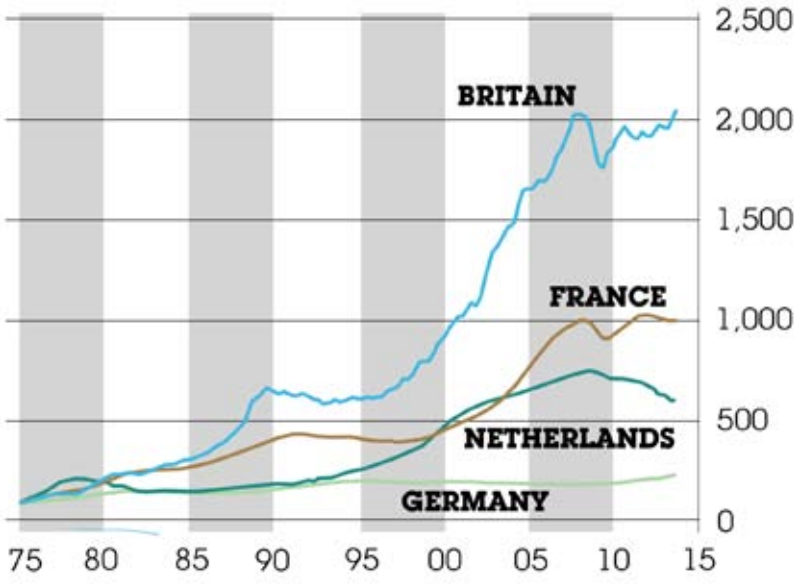
The Derwentthorpe scheme in York promoted by the Joseph Rowntree Housing Trust is an example of how difficult innovation can be. It is one of the few UK schemes that URBED has written up as an exemplar project, having been conceived as a test bed for many of the ideas emerging from the Joseph Rowntree Foundation. Despite being designed to promote environmental and social sustainability, the scheme proved very controversial being opposed by local residents and wildlife groups. It was mired in the planning system for ten years and subject to a public enquiry. Following its eventual approval in 2007 work started in 2010 with the first phases being undertaken by David Wilson Homes.

new housing is behind some of the hostility with which much new housing is viewed by planning authorities and local communities who view the prospect of a new housing estate on their doorstep as a threat to be opposed with all means at their disposal.

At the heart of this dysfunctional market is the price of land. Agricultural land in England is currently around £15,000/ha[28] compared to housing land that peaked at £3M/ha in 2008[29]. This is where the money is to be made in the housing market. The main beneficiaries are not just the lucky farmers but the whole industry of land agents, planning consultants, lawyers and barristers who exist to unlock this value (or what Ebenezer Howard called the 'unearned increment') by securing a planning consent for housing.

Set against this array of highly motivated professionals is the beleaguered planning authority fighting to resist the pressure for development. This resistance, of course, is what creates the scarcity that drives up the price of the land. It also justifies the existence of all the professionals ranged against them who have a vested interest in perpetuating the system. This makes it impossible to plan. Rather than planning positively for housing growth the system is geared to resisting development, making it risk averse and leading to bad decisions.

This artificially-inflated land value directly impacts on the poor quality of housing in the UK. Land value is based on a residual valuation system – what remains after all other costs have been covered. The problem is that the costs that developers calculate when appraising their schemes do not cover the full costs of building new housing. The developer is responsible for on-site costs, but the wider infrastructural costs such as schools and transport are something to be negotiated and are therefore captured very inefficiently. Public sector investment in this infrastructure therefore inflates land values to the benefit of landowners who have made little or no contribution to the costs. The Community Infrastructure Levy (CIL) is an attempt to address this but as our report *Beyond Eco-towns: The Economic Issues*[30] suggests, it captures less than a third of infrastructure costs. The rest is left to an acrimonious negotiation of Section 106 contributions. Developers wanting to submit competitive bids for land make assumptions that they will be able to negotiate down their S106 contributions.

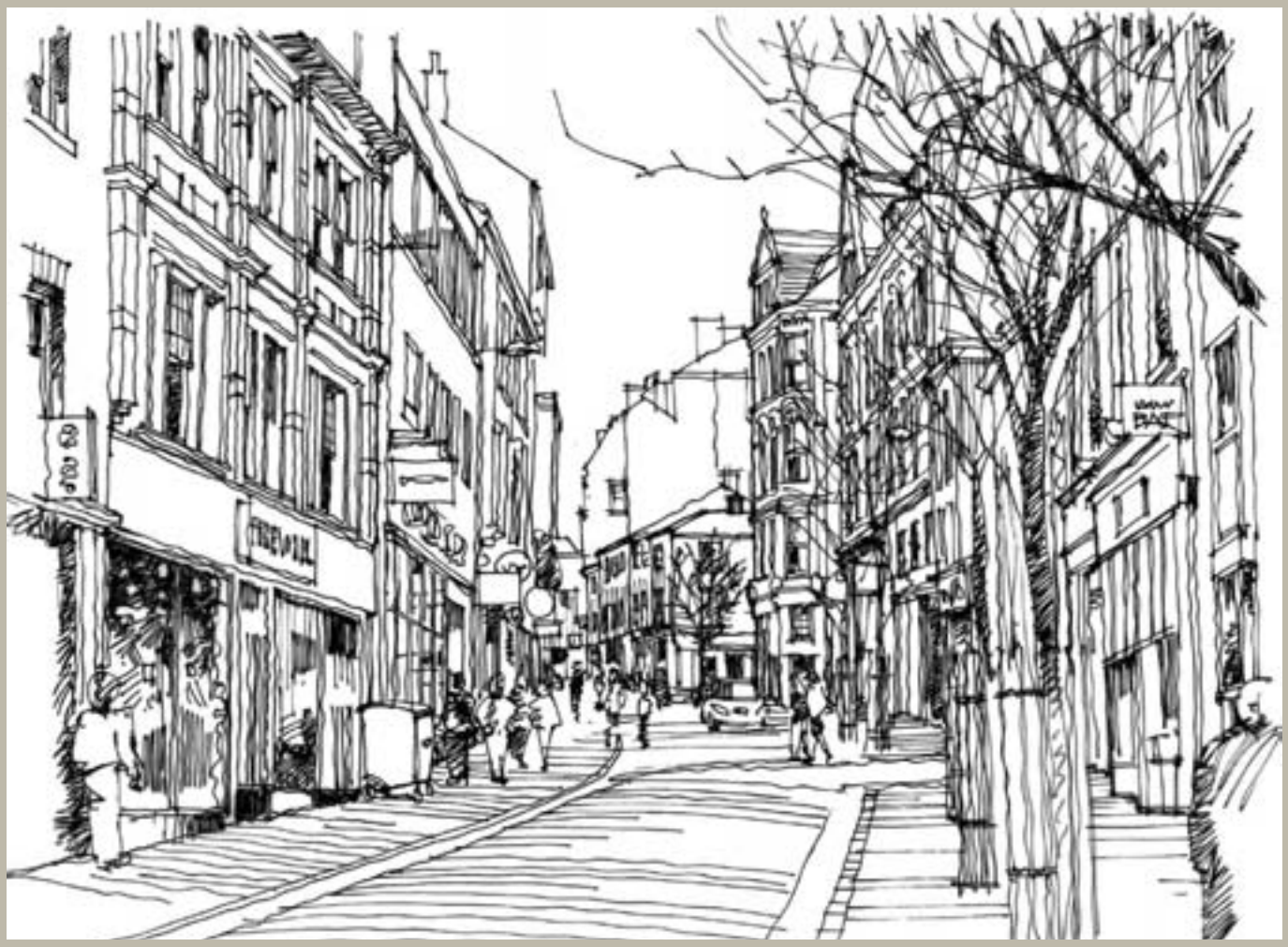


The Economist house-price index: 1975-2014 (Q1 1975=100) Source OECD, Office for National Statistics, Statistics Netherlands

Once the inflated land value has been crystallised the pressure through the rest of the system is therefore to cut costs.

Housing is the only product where price inflation is seen as a positive. The success of initiatives to stimulate the housing market are measured by the rise in house prices, much of which passes straight through into the land value. This creates a market where investing in the quality of the product makes little economic sense.

The workings of the planning system as it affects the cost of land is the fundamental issue that needs to be addressed if we are to reform the UK housing market. Various models have been put forward such as a 'betterment tax' to capture the unearned increment; these are beyond the scope of this essay. We do, however, believe that it is possible, with the right legislative framework, to capture the land value at the local level and that this is the key to making a *Garden City* viable. Our model is based upon Dutch and German systems where housing land is substantially cheaper than the UK despite it being no less scarce and in Holland often being reclaimed from the sea! The difference is that the Dutch and German systems allows the value generated by development to be invested in infrastructure rather than to residualise in the land. Their systems mean that competition between developers focuses on the quality of their product, rather than the acquisition of sites. It is this simple fact that explains why we turn so often to Germany and Holland housing when looking at good practice in housing design.



Uxcester Today

Uxcester's population is currently 190,000 although the catchment population of its city centre is twice that. It is experiencing pressures for growth with house prices around ten times average household incomes. This has caused the population to become skewed towards older people and students, while families have been squeezed out to surrounding towns and villages. The most affluent areas are to the West while students live in sub-divided housing to the east and there is a series of social housing estates around the edge of the city.

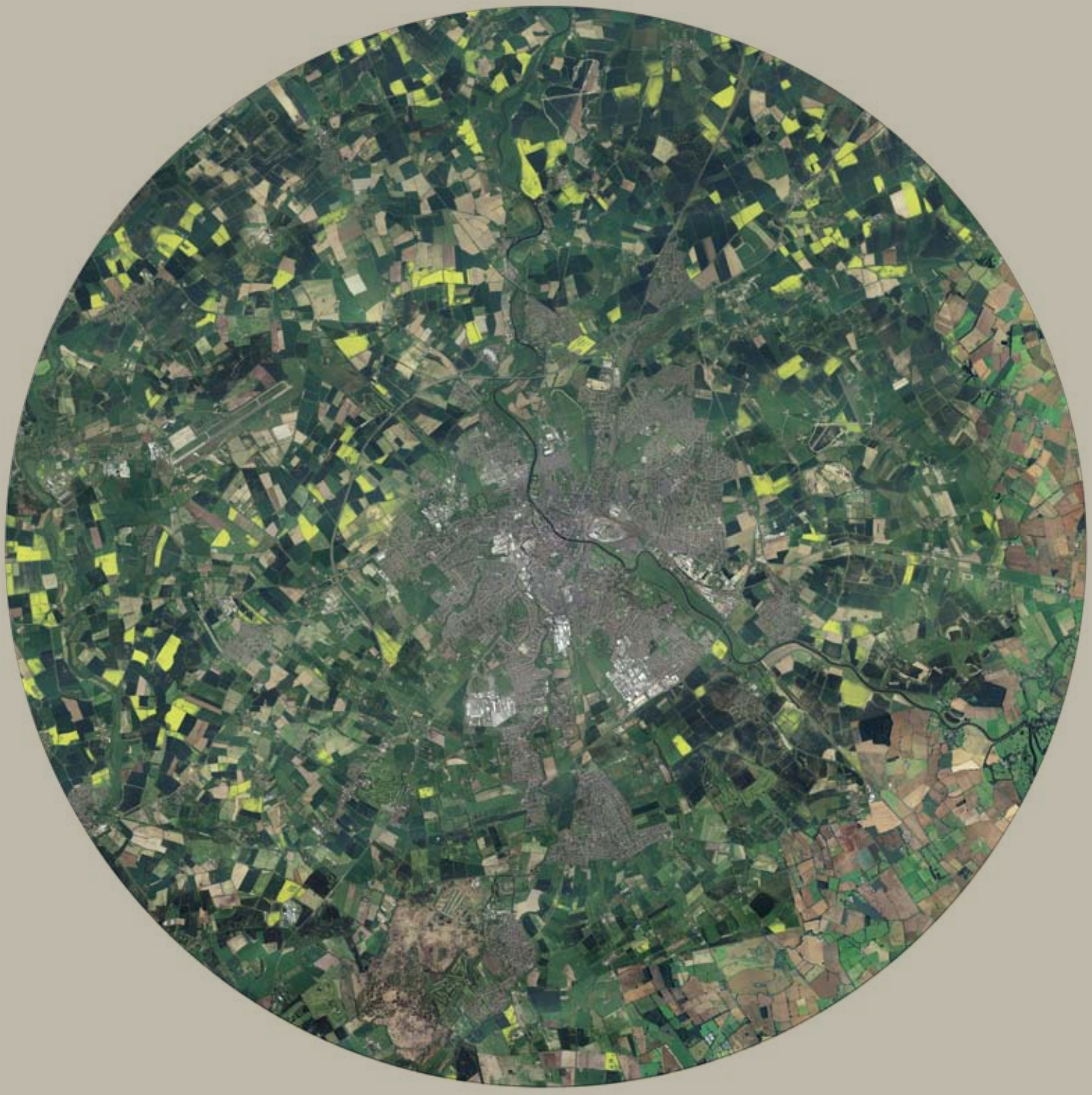
The city is growing at around 1% a year which represents around 1,000 new homes. A number of housebuilders are pursuing sites around the edge of the town or in surrounding villages and there is an acrimonious argument going on through the local plan process. The city has a vocal and active community with a range of voluntary groups who have traditionally opposed development. There are a number of groups seeking to reduce carbon emissions and promote environmentally conscious lifestyles.

The city centre remains relatively strong with a full range of national retailers. There is, however, a worry about the increase in shops catering to tourists while the local population drifts away to out-of-town retailing and other towns that have improved their offer. Meanwhile plans for a new retail development are stalled.

The growth of the surrounding villages has caused problems with congestion which in turn has affected air quality. There is an established public transport system but the fleet of buses is intrusive in the tight historic centre. There is a well-connected mainline railway station and a network of park-and-ride facilities; however most people travel to work by car and the ring road that encircles the town is nearing capacity.

The town's manufacturing base was established in the 19th century and has largely disappeared. The University is a major employer with science-based specialisms that have spun off a number of successful tech companies in its science park. This is reaching capacity and a number of companies are considering relocating.

Uxcester's valley location makes it vulnerable to flooding and its climate is wet with a limited wind resource. Most of the surrounding land is designated as green belt but generally it is of poor agricultural quality. The local water company has indicated that there will be a need for a new sewage works if the town is to continue to grow at its current rate. The city is governed by a city council and surrounded by rural district councils of a different political persuasion. The one thing they can all agree on is their mistrust of the County Council, also based in the town, who retain responsibility for transport and education.



1c. New Town Blues

If the current housebuilding financial model is already failing to fully cover the costs of the infrastructure of a suburban housing estate how will it cover the costs of an entire new town or city? Here we are talking not just about roads, schools, service connections, open space and a local bus service. The infrastructural kit of parts required to service even a modest city includes the full range of educational institutions from schools to colleges and preferably a university. Similarly health facilities need to range from doctor's surgeries to a hospital large enough to be run efficiently within the NHS. A full public transport system is required including a mainline railway station (something that is going to be difficult without a mainline railway). Then in the private sector we need shops and offices, preferably in a diverse town centre with a mix of businesses rather than a couple of large supermarkets on the edge of the town. We also need places of culture and community; theatres and community centres, art galleries, places of worship, pubs, scout huts etc...

When do we create the infrastructure... Before it is needed or once it is too late?

This 'stuff' is expensive but it is also vital. It is what makes a difference between a dormitory suburb and a town let alone a city. In existing towns and cities this social capital has been built up over centuries and the costs have been borne by generations of people living in the town. It cannot be funded in a single generation from the construction of the homes, commercial buildings and utilities that make up the town.

Our approach in Uxcester is modelled on the work that has been done in Cambridge. The *Cambridgeshire Horizons Long-term delivery plan*[31] included plans for 73,000 new homes and estimated the cost of infrastructure at £4 Billion (£55,000 for every home). This is probably the most comprehensive attempt in the UK to link housing growth to its infrastructure requirements. 57% of the costs were for transport, including a new guided bus system, 14% for health, 12% for utilities and 10% for education. These costs related to the expansion of Cambridge and its surrounding towns that, of course, already included the facilities listed above; the cost which is close to incalculable, but certainly many times more than £4 Billion.

A further problem with infrastructure is phasing. A *Garden City* will take many years to build, which raises the question of when we build the infrastructure? When do we lay the tram tracks – before the housing is built when they will be underused or after when alternative travel patterns will have been established? Similar problems arise with schools, health facilities and other public services. The answer, of course, is that all of these things need building before they are needed with the initial losses and inefficiencies being borne as part of the costs. However this is less easy with commercial and voluntary activities; shops that will not be occupied (even with discounted rents) before they have customers, pubs before they have drinkers, a church before it has worshipers or a scout troop before there are eager young people wanting to be scouts?

This is not just a cashflow problem – it goes to the heart of the way that towns and cities develop. In the summer of this year the Academy of Urbanism visited Clonakilty in

Traditional towns like **Clonakilty**, or in this case **Calne in Wiltshire** support far more shops and facilities that do modern developments of a similar size and spending power.

Cambridge Futures

Cambridge Futures was established in the late 1990s as a partnership between Cambridge University and the City Council. It undertook an innovative modelling exercise led by Professor Marcial Echenique that assessed different growth scenarios against agreed objectives; including a new town, urban infill, the expansion of villages etc... A political consensus emerged in favour of an ambitious but carefully-managed growth strategy.

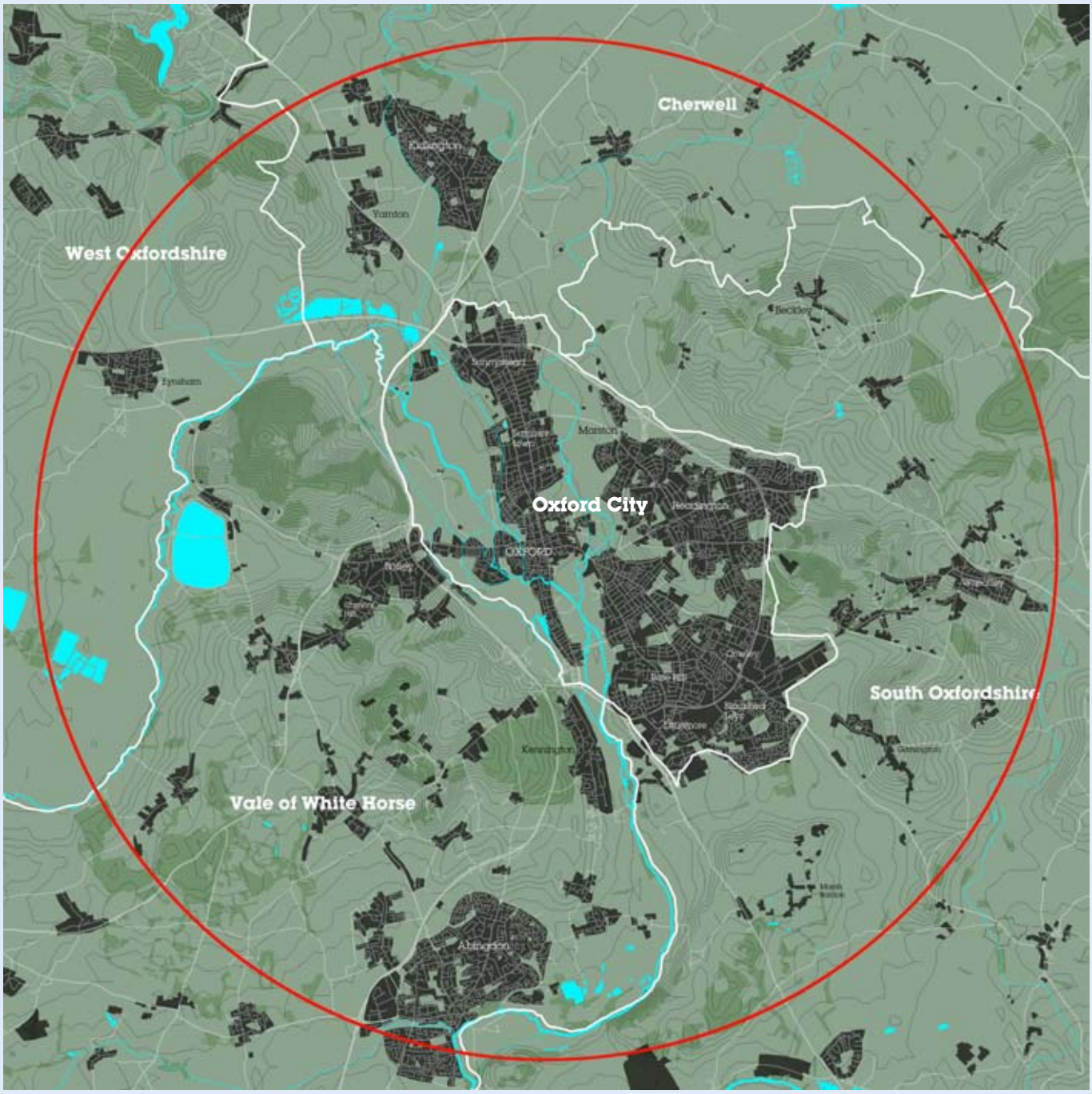
This fed into Regional Planning Guidance for East Anglia in 2000 and subsequently into the County Structure Plan in 2003. The latter brought together the different Councils to agree where growth should be located including a green belt review. This led to the preparation of Joint Area Action Plans for the new settlement at Northstowe and a series of major urban extensions in the green belt (some of which straddled administrative boundaries).

Cambridgeshire Horizons was set up under an independent Chairman to support the local authorities in managing the implementation and funding of the growth strategy. A lasting legacy is the Cambridgeshire Quality Charter for Growth, and a Quality Panel which advises the local authorities and helps ensure standards are maintained. Peter Studdert who has been closely involved in the Cambridge process (including being City Planning Officer) believes that Cambridgeshire Horizons could have provided better value if it had taken on ownership of key sites as a locally-controlled development corporation. This might have avoided the delays caused, for example by split land ownership in Northstowe.

The process is based on building 73,000 new homes with £4B of infrastructure spending, including a guided bus (left). These are similar figures to those we are proposing in Uxcester.

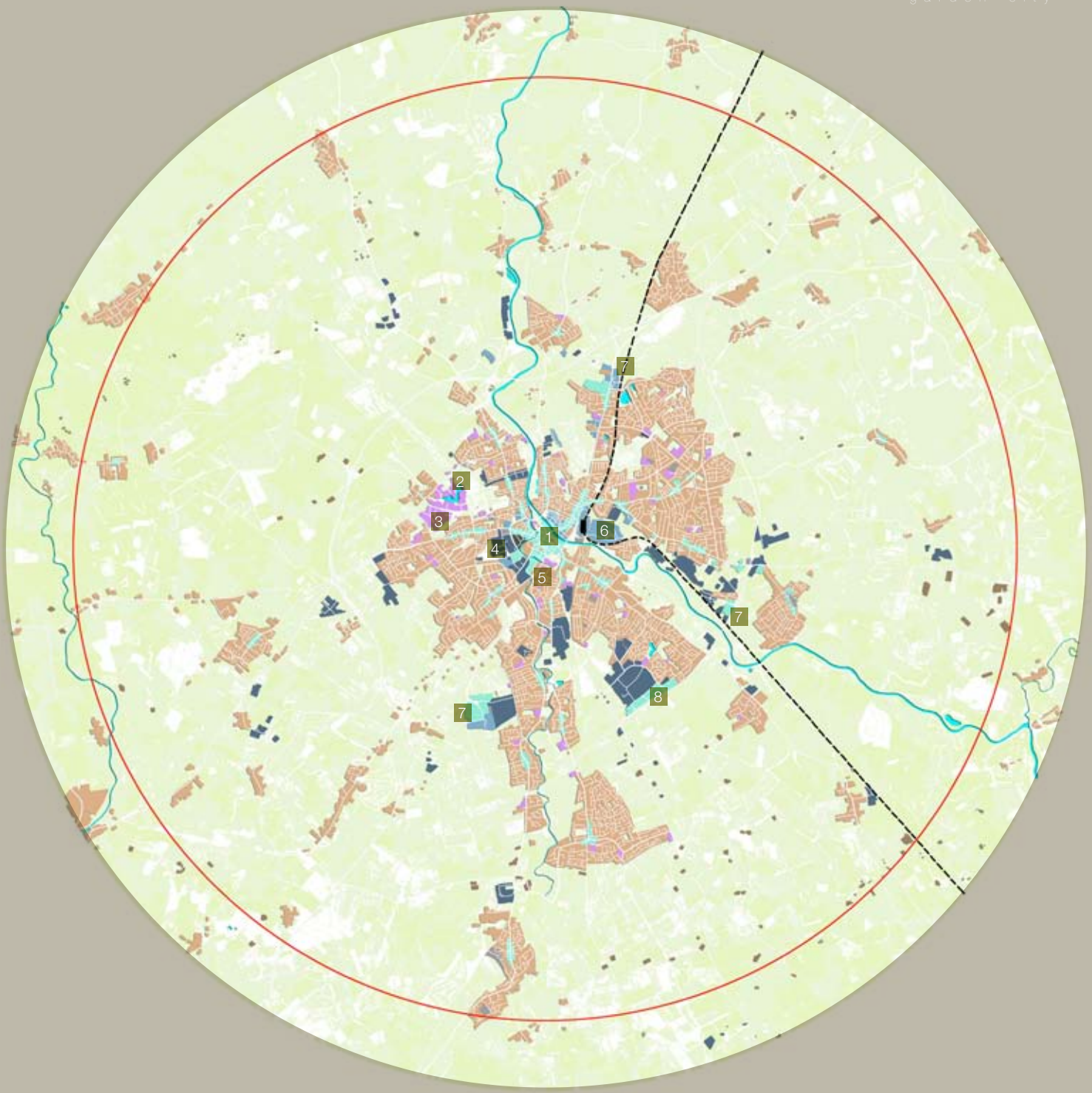
County Cork[32]. This is a tiny town of fewer than 5,000 people but has a high street with around 60 shops, pubs and other uses. Yet new housing developments for the same number of people struggle to support a handful of shops despite them having greater spending power. This is not something that will be solved over time. Having been unable to create an infrastructure of local services in its early years the housing scheme never will, even if it lasts as long as Clonakilty. If a new *Garden City* is not to become a residential dormitory suburb it needs to find a way to address this issue.

This reinforces our conclusion that our *Garden City* should grow as part of an established city with existing facilities and a mature economic ecosystem. This overcomes many of the problems such as the creation of a town centre, and the provision of higher order public facilities. Because these already exist they can be expanded incrementally as the city grows. However the problem of establishing a mix of facilities and services will remain at the local level. How can we create substantial urban extensions without running into all the problems that we describe above (albeit at a smaller scale because the facilities needed for a lively neighbourhood are a good deal less than those needed for a city)? Part of the answer is to do with cash-flow and up-front investment. As in places like Freiburg[33] the tram, schools and other public infrastructure ideally need to be built in advance of the housing and the costs of running them inefficiently in the early years need rolled in with the costs of the development. However, another part of the solution is something that we explore in more detail in this submission, namely the creation of 'open source' neighbourhoods that can evolve over time. Places where people can develop their own plots, work from home, develop these businesses into shops and extend and develop their home. This draws on URBED's work on Balanced Incremental Development[34] that explores the 'natural' process by which traditional cities are created. This work suggest that the process by which neighbourhoods are created, and their ability to change and evolve over time, is more important than their initial design. These are the processes that allow masterplans to evolve into real places as we explore in the next section.



Oxford Case Study

In order to test our proposals for Uxcester on a real place we have undertaken a case study of Oxford as part of this second stage submission (as described in Appendix 1. The two plans on this page are drawn at the same scale (the red circles being 10km from the centre). Oxford has a population of around 150,000 within its administrative boundary. However the population within the 10km circle is similar to Uxcester.



Uxcester today

Key	Use	Area (HA)	Yield	Density	People
	Housing	3,500	86,000 homes	25 d/HA	190,000 population
	Industry	400	1.3M sqm	1:0.4 plot ratio	30,000 jobs
	Office	100	750,000 sqm	1:0.8 plot ratio	30,000 jobs
	Retail/leisure	270	120,000 sqm		4,800 jobs
	Community	132	300,000 sqm		32,000 jobs

1. City Centre
2. University
3. Hospital
4. Former factory complex
5. Cathedral
6. Modern office park next to station
7. Supermarkets
8. Retail Park

NB: The plan of Uxcester above is based on a real town, twisted and reversed to make it difficult to recognise. The areas in the table are measured from the plan and the yields, population and job figures are cross referenced with the town in question.

1d. Creating a real place

We started this essay by asking why the process of town building, which the British once found so easy, now escapes us? Britain has some of the most beautiful historic towns and cities in the world but there are few places built since the birth of the modern town planning system that will be cherished in the future. This is especially true of new towns, despite the fact that they were designed by some of the country's best architects and planners. The problem lies not with the quality of the initial design but the process by which the town has developed and evolved.

Disillusionment with 'modern' town planning has caused many urban designers to turn for inspiration to traditional places. Prince Charles's promotion of Poundbury in Dorset is perhaps the most influential of these schemes, being designed very skilfully to resemble a small market town, a style that many housebuilders have adopted, often with less success. However, creating a masterplan for a new development that looks like a traditional town is a bit like designing a sand dune. No matter how beautiful the design of the dune, it somehow feels wrong. The difference between the artificial dune and the real thing is the process by which it is created. This is why the problem of creating beautiful places belongs in an economics essay - because it is about process as much as design.

This is why the problem of creating beautiful places belongs in an economics essay - because it is about process as much as design

The traditional towns and cities that we love were not designed and built over a few short decades. They were built one building at a time and then allowed to evolve over centuries. They were often promoted by land owners with a long-term interest in the success of the place and many of their buildings were erected by people and businesses for their own use[35]. This is the history of many market towns as well as being the method by which London's great estates were developed as well as Haussmann's Paris, Nash's Bath or even the early garden cities. The process of incremental growth does not negate masterplanning. All of

Figure Ground Plans: These two plans are drawn at the same scale. The plan to the left is Milton Keynes city centre while the plan to the right shows the West End of London, the latter being largely built by the great estates

these places were masterplanned; however they were planned in a way that created a framework for incremental development - a trellis onto which the vine of the town, city or neighbourhood could grow. The masterplan created serviced plots that were sold either individually or in small packages to people who would commission buildings either for their own use or as an investment. The promoting land owner would retain the freehold and would control development through covenants on the land.

By contrast new towns were conceived on paper in their entirety as fully functioning efficient places with a balance of uses and the requisite number of schools and shops etc... Even when completed as their planners had intended, they found that society had changed over the course of their construction. Many were designed with an idea of family life and work patterns from the 1960s and struggled to adapt and evolve. A further problem with such end-state masterplanning is the risk that the town only makes sense when complete. When an engineer designs a bridge it must be strong not only when it is complete but also when it is at its most vulnerable during construction. This is even more the case for a town that may never really be finished and will have to survive for years in its partially complete state.

We cannot compress centuries of growth into a few decades, but we can rethink the way places are built to plan for incremental growth:

Older towns do not have these problems, having evolved over centuries with each generation adding to them and adapting to changing economic conditions and technologies. This is not just because they are old, and overcame their teething problems centuries ago. Old towns, of course are not without their problems and many have faced challenges far greater than their ability to evolve. However, the inherent structure of an old town, the fine grain of its sites and adaptability of its buildings makes it like open-source software that anyone can download and develop. This makes these towns more robust and adaptable but also changes the way they look. They have idiosyncrasies that do not always

Traditional towns like **Hastings** were not designed and built over a few short decades. They were built one building at a time and then allowed to evolve over centuries.

make sense but which contribute to their character. We cannot compress centuries of growth into a few decades, but we can rethink the way places are built to plan for incremental growth.

As we have said the first step is to start with one of these 'open source' old towns. You need time to grow a real place, just as you do to grow an oak from an acorn. It is easier to promote new development in a way that adds to the diversity of a place that already has a patina of history that cannot be faked or created in a few decades. But we also need to replicate the conditions to create this diversity and adaptability in the new development. In doing this we need to learn from the past:

- We need to create a land ownership structure with a long term interest in the quality of the place.
- We need to put in place strong masterplans that give shape and coherence to the development but...
- We need to allow development to proceed plot by plot in an incremental fashion.
- We need to put in place a clear set of development rules that give certainty without being overbearing or petty.
- We need to create incentives to invest in the quality of what is built and instil a sense of pride and ownership.
- We need to allow plots to evolve both during and after construction, encouraging extensions, live work units etc...
- We need to create long-term secure income to ensure the upkeep and management of the neighbourhood.

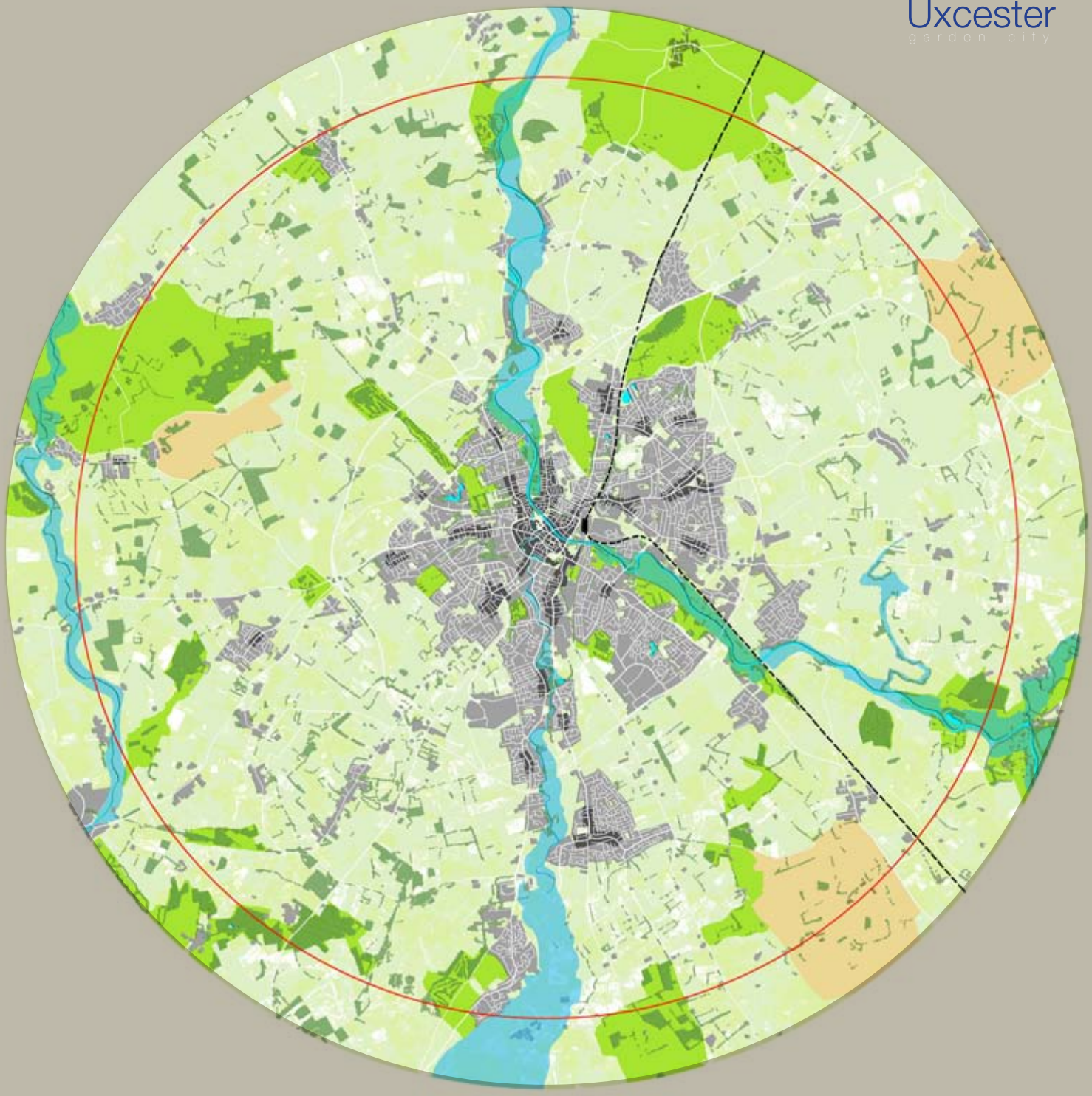
Such as system would allow development to grow over time, shaped by a plan but also able to evolve and change. It would create a place that learns from the past, not in terms of aesthetics but in terms of the traditional way in which towns were built. This is not speculation; it is already being done in Almere Poort in the Netherlands (see box). The *Garden City* is an opportunity not just to reform the large scale economics of housebuiling and new settlements but this small scale economics of creating real places.

Custom-build housing:

Above: Almere Poort in the Netherlands
Below: An illustration by URBED of a Custom-build site being explored by igloo in Nottingham.

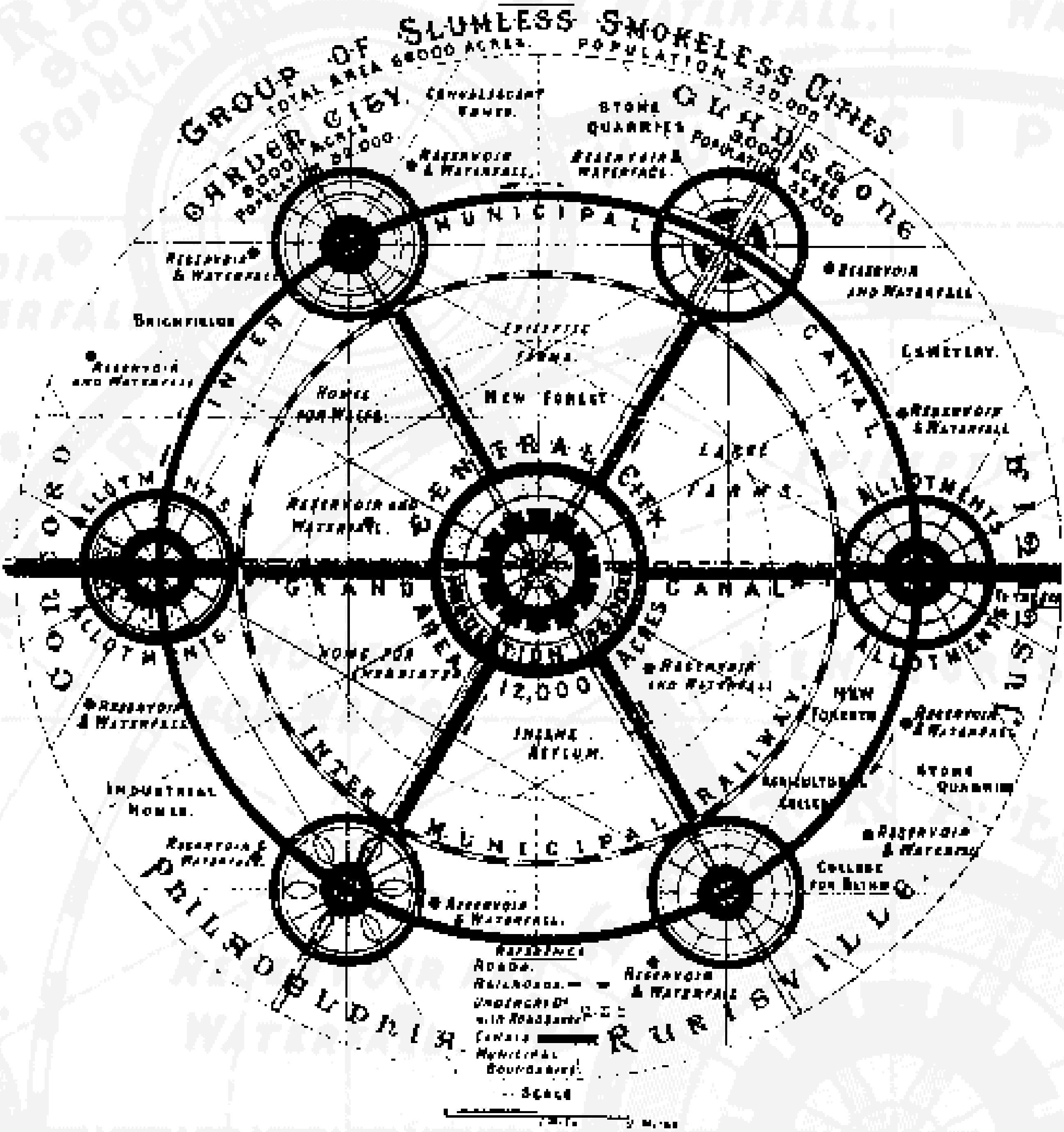
The Almere Poort development covers 100ha and will eventually accommodate 3,000 homes of which 1,000 have been completed. This has been built using a system similar to that which we are proposing for Uxcester. Each home buyer selects a plot (at a fixed price of €375/m^2) which comes with a 'plot passport' setting out what development and uses are permissible. They then either self-build their home or buy one of the 'Home Manufacturer' products.

URBED are currently working with Carillion/igloo on the first Custombuild housing scheme in the UK. This is happening on a site in Cornwall, while igloo explore a number of other potential sites across the country. The first six home manufacturers for the UK have recently been short-listed by igloo. Plot purchasers in Cornwall will be able to choose between these six manufacturers and then work with them to customise their home. Eventually the customisation system will be linked to data on the cost and value of their home as well as its energy performance to aid their decisions.



Uxcester Constraints

Key	Use	Area (HA)
	Area liable to flooding	1,500
	Protected green space	4,000
	Other unavailable sites	900
	Built up area (darker areas show local centres)	4,500
	TOTAL area within 10km circle	31,000
	Potentially available land	20,000


Group of Slumless Smokeless Cities
Total Area 66000 Acres.
Population 250,000
Garden City
9000 Acres
Population 32,000
Convalescent Homes.
Stone Quarries
Reservoir & Waterfall.
Municipal
Brickfields
Cemetery.
Epileptic Farms.
New Forest
Homes for Waifs.
Large Farms.
Central City
Grand Canal
Canal
Allotments
Home for Inebriates
Insane Asylum.
Inter Municipal Railway
Agricultural College
Industrial Homes.
College for Blind
Philadelphia
Rurisville
Concord
12,000 Acres
Reference
Roads.
Railroads.
Underground Rlwy with Roads above
Canals
Municipal Boundaries.
Scale

Ebenezer Howard's original vision for *Garden Cities* was not for freestanding new towns, but a network of settlements in a garden, which he called the **Social City**. This has been the inspiration for our proposals.

Part 2

A vision for Uxcester

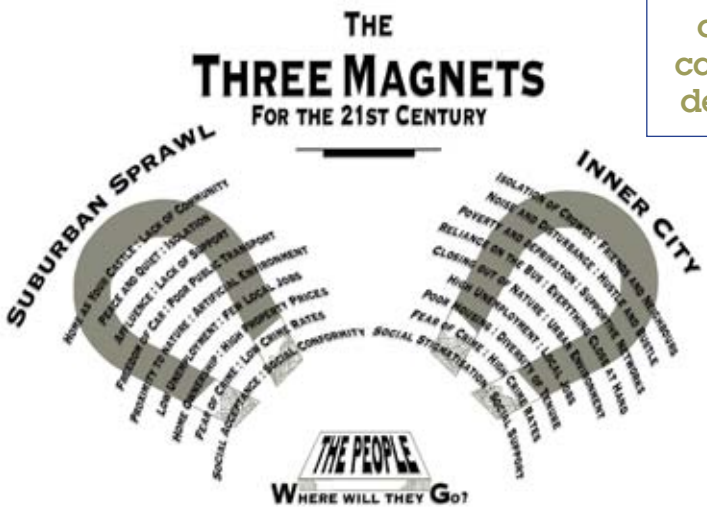
2a. Grow your own city

What is our vision for a *Garden City* fit for the 21st century? How should it be designed and how should it relate to its host city? What does it need to do to respond to the social, economic and environmental challenges that we face? How can it gain political support and be attractive not just to the people and companies who will occupy its new neighbourhoods but to the existing population of Uxcester who have less to gain and a lot more to lose? How can it be built, at a time when public money is not available, in a way that is viable, attractive to the market and yet also funds all the necessary infrastructure and facilities? These are the questions that we address in part two of this essay.

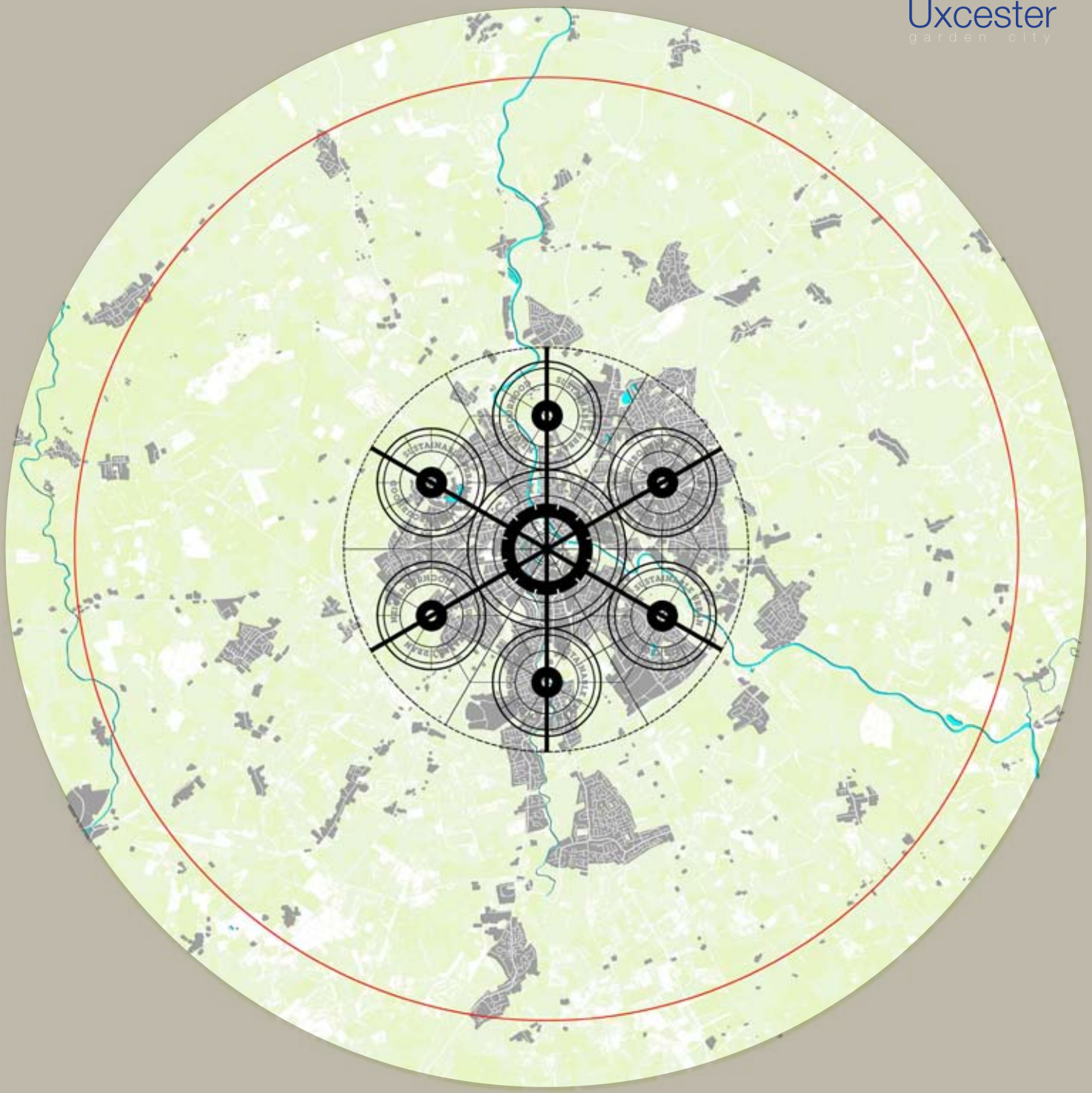
They are also questions that Ebenezer Howard addressed in his original essay - *Tomorrow: A Peaceful Path to Real Reform* in 1898[36]. However, the image of a *Garden City* that has been passed down to us – the curving, tree-lined streets with

wide-frontaged, semi-detached houses behind clipped hedges – owes as much to the early developments like Hampstead Garden Suburb, as it does to Howard's original book. This idea of the *Garden City* retains a deep emotional appeal as a synthesis of town and country illustrated by Howard's Three Magnets diagram. Since that time both the town and the country have changed beyond recognition. The original *Garden City* was born in an age when there were no cars, when energy was delivered by the coal man and when the nuclear family was the main form of household, with husbands that went out to work, and wives that stayed at home. It was a time when people worked near to where they lived and rented their home, when land was cheap and when environmental problems could be left behind in the cities. Everything has changed in the century since then, everything that is except the suburban home.

Howard was writing in an age when there were no cars and when energy was delivered by the coal man



In our work for the Joseph Rowntree Foundation on the shape of the 21st century home[37] we took it upon ourselves to redesign the Three Magnets. Our version reversed their polarity combining the best aspects of the inner city and suburbia to create the Sustainable Urban Neighbourhood (or SUN). In an argument that we expanded in our book for the Architectural Press[38] we suggested that the forces of change at the turn of the Millennium were even greater than those that forged the *Garden City* at the end of the 19th century. Today, for example, the nuclear family makes up only 21% of households and 80% of net household growth is for households that include no children. We live in an age of mass car ownership, unsustainable levels of



Uxcester's urban structure

Like most towns Uxcester does not really correspond to the neat diagrams of urban theorists. It grew initially within the confines of its walls before developing suburbs to the south and west and over the river to the east. It grew along the main roads leading into the town which developed as strings of local centres. Later the gaps between these were filled with housing estates and some of the surrounding villages were engulfed by the expanding city.

However, our idealised diagram, overlaid on the plan and inspired by Ebenezer Howard, makes the point that, like all towns and cities, it consists of an urban centre containing higher order functions and urban housing while being surrounded by neighbourhoods that replicate a similar form on a smaller scale.

energy use, ubiquitous information technology and economic uncertainty. New urban models have emerged to address these changes, such as the Urban Village in the UK[39] and the Pedestrian Pocket in the US[40] and indeed our own Sustainable Urban Neighbourhood model[41] that has been adopted by the city of Birmingham as the basis of its local plan[42].

Whereas the SUN model was designed to darn the frayed urban fabric of existing cities, the 21st century *Garden City* is a more ambitious project, since it must weave new urban fabric. Our vision for the *Garden City* therefore needs to be multi-layered to encompass a vision for the shape of the whole settlement, together with the structure of each of its component neighbourhoods as well as the design of its houses, streets and facilities – the snowflake, the trellis and the vine:

- **The Snowflake:** The first layer, at the scale of the whole city, shows how the city of Uxcester can grow, as a crystal grows into a snowflake, in a way that creates symmetry and beauty at every stage. This we set out in our 'Snowflake plan' on page 34.

- **The Trellis:** Each of the component neighbourhoods of the *Garden City* needs a trellis to give it a clear, legible structure as well as balance and beauty. This is the masterplan that gives shape to its streets and spaces as did the original plans for places like Bloomsbury or Edinburgh New Town.

- **The Vine:** The buildings of the *Garden City*, the homes, shops, schools and workplaces are the vine that grows onto the trellis. They are shaped by its structure but there is also room for serendipity, allowing the plan to evolve and shape itself to its growing community.

Thus our vision is as much about process as it is about form. It is summed up in these six principles:

1. **From fractured to organic growth:** Most places grow by accretion, one field at a time and each of these fields is developed without any certain knowledge of what will happen to the next field. As a result the urban periphery becomes a fractured mosaic of dendritic estates, poorly connected to the town and to each other and difficult to serve with public transport. This is not how places grow organically. Historically towns grew out along their radial routes, absorbing villages that became the heart of new neighbourhoods. Today this is prevented by green belts that are used to maintain a separation between settlements. However there is another traditional way in which towns and cities have grown; the planned extension (often called a new town). This is the inspiration for our proposals.

2. **From light green belt to deep green grid:** Uxcester is surrounded by a green belt that is made up of farmland and villages. The approach in the past has been to preserve the core of the green belt by attaching development to the edge of the town and the villages thereby annoying everyone. It is true that the green belt includes areas of natural beauty and ecological value but much of it consists of ploughed fields with no public access and little ecological value. So rather than nibbling around the most visible edges of the green belt our suggestion is that we take a large and confident bite out of its centre. In doing this we would undertake that for every hectare developed at least one other hectare would be transformed into publicly accessible open space. While there would clearly be a net loss of open land, there would be an increase in public open space. This would include a swathe of forests and lakes, providing flood attenuation, ecological habitats, public recreation and allotments. This resource will be a key benefit for the existing community.

3. **From a fat city to a fit city:** The Snowflake plan is based on some critical dimensions. The neighbourhoods are designed to be served efficiently by a tram (or Bus Rapid Transport - BRT). The distances mean that the tram can link efficiently to each extension as it is developed, stopping at the heart of each of the sub-neighbourhoods. It also means that none of these stops are more than a 20 minute tram ride from the city centre. The neighbourhoods are 800m in diameter (10 minutes walk), with the higher density housing being within 400m (5 minutes walk) of these stops. At the same time in the other direction no home is more than 10 minutes walk from the swathe of public space that surrounds the neighbourhoods which will also include walking and cycling routes. The aim is to make walking, cycling and public transport the most convenient and economic ways of getting around.

4. From urban sprawl to Sustainable Urban Neighbourhood: The component neighbourhoods of our diagram for Uxcester have evolved from URBED's Sustainable Urban Neighbourhood (SUN) Initiative[36]. This was developed in the 1990s as a model to create attractive urban housing and has since been widely adopted. The SUN Model is based on a set of simple urban design principles: a mix of uses, a hierarchy of walkable, permeable streets, the enclosure and animation of public space, density and variety of housing and a set of sustainability targets described (see Section 2c). These are designed to create urban neighbourhoods that are economically, socially and environmentally sustainable and are equally applicable to the type of urban extension proposed in Uxcester.

5. From consumption to co-production: There should be something idealistic about a *Garden City*. It should attract people looking for an alternative to an identikit housing estate. It should therefore be built and managed through a process of local cooperation and collaboration. This could range from custom-build and self-build housing, to community energy schemes, to allotments and sports clubs and community facilities. Neighbourhood management should be delegated to local people. These are central to the economic model for the city but also designed to fast-forward the process of building the social capital that creates the best places to live.

6. From speculation to long-term stewardship: Along with this goes a new way of building that taps into the value created by the development of the *Garden City* and creates incentives to invest in quality and for the long-term. In short to create a new business model to which we will return to in a moment.

Hammarby Sjöstad

The redevelopment of part of Stockholm's waterfront to create Hammarby Sjöstad (Water City) has become a widely-visited exemplar scheme. The development includes 11,000 homes and incorporates a new tram line linking to the city centre. Its development was based on generous standards for open space, as well as communal systems for segregated waste collection (using vacum pipes) and a district wide CHP. The aim (that has been achieved) was to halve the environmental impact of the development compared to a typical scheme in Stockholme in the late 1990s when it was being planned.

2b. The city plan

The diagram opposite shows how the population of Uxcester could be doubled in a way that minimises the impact on the city and the surrounding countryside. On pages that follow through this section we show how this diagram could be applied to a real place, making assumptions about avoiding flood plains, ecological features, historic landscapes, existing settlements and where possible taking advantage of opportunity sites such as disused airfields.

The Snowflake plan is diagrammatic, but it is also drawn to the same scale as the plan on page 38. The outer red circle is 10km from the centre of the town and based on the timetables of existing tram systems; this broadly translates into a 20 minute tram/BRT ride. In practical terms this 10km ring contains the optimum zone for the expansion of the city, although much of it, of course, is green belt and in political terms it is likely to be the most contested.

In practical terms this 10km ring contains the optimum zone for the expansion of the city, although much of it, of course, is green belt

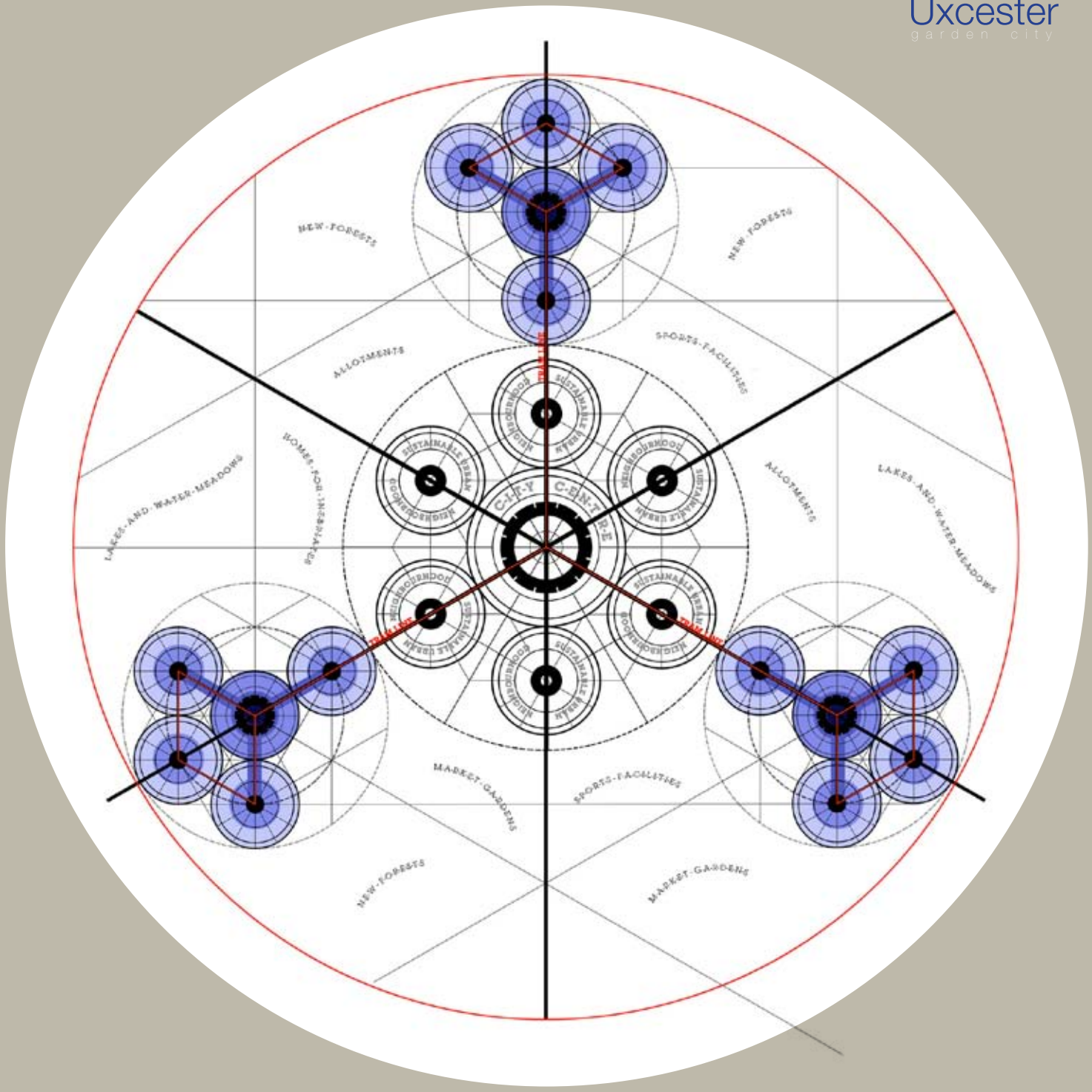
Within this circle there are just over 31,000HA of land. As we have seen on Page 26, the existing city of Uxcester, with its 190,000 people and 100,000 jobs covers just 4,500HA or 15% of this area. Another 6,500 hectares are unavailable due to various forms of protection or because they are in the flood plain. This leaves 20,000HA of land, of which only 3000HA (also 15%) would be required to double the size of the city. The worked example of Oxford that we describe later in this essay is more constrained than Uxcester, but even Oxford has substantially more unconstrained land within this 10km zone than would be required to double the size of the city.

The city of Uxcester is currently growing at the rate of 1% or just under 1,000 homes per year. This is fairly typical of the build rates across the cities like Uxcester that we have examined (including Oxford). There is however a recognition in many of these cities that this is not enough. Pressures are building up, houseprices are rising, the university and other local employers are starting to worry about their ability to attract talented people because of the shortage of housing. So, for example, the leader of Oxfordshire County Council has accepted that there is a need to build 100,000 new homes in the county over 20 years[43].

In Uxcester we are proposing that we double the size of the city over 30-35 years, which would mean 86,000 new homes. This equates to a growth rate of more than 2% or up to 2,800 homes per year. This figure is not directly comparable to the Oxford County figure because it is over a longer period but relates just to Uxcester and not to the surrounding towns. Part of our argument is that we should focus growth around the main urban centre to allow infrastructure to be provided more efficiently.

Urban Infill: The next question is what proportion of these new homes should be accommodated within the existing urban area. As we described in Section 1a, our assumption is that 60% of the current growth rate of Uxcester should be accommodated through urban infill. This equates

Cities like **Freiburg** have successfully used trams to link urban extensions to their historic centre



The Snowflake plan

Housing	Density (u/HA)	Mix	Numbers	Land take (HA)	Infill	Extensions
	20	20%	17,200	860	0	860HA 17,200 units
	30	40%	34,400	1,147	150 HA, 4,500 units	997HA 29,900 units
	45	30%	25,800	573	200 HA, 9,000 units	373HA 16,800 units
	65	10%	8,600	132	46 HA, 3,000 units	86HA 5,600 units
		100%	**86,000**	**2,412**	**396 HA, 16,500units**	**2,316 HA 69,500 units**

Figures are rounded so may not total exactly as shown

to 16,500 homes over 30 years, something that will be challenging but which can be achieved through the redevelopment of former industrial premises, infill development and intensification.

Urban Extensions: If we are to double the size of Uxcester we would therefore need to accommodate just under 70,000 units elsewhere. This is a huge task, comparable in every way to the to the task of building a new town. Yet for cities like Oxford this is not a hypothetical problem but a very practical challenge that the city faces today. It is doing so without the powers or resources that were available to the new town development corporations, without the ability to plan beyond its borders and without the mechanisms to plan strategically for infrastructure. We are proposing to address all of these issues, so allowing towns and cities to plan strategically for this growth.

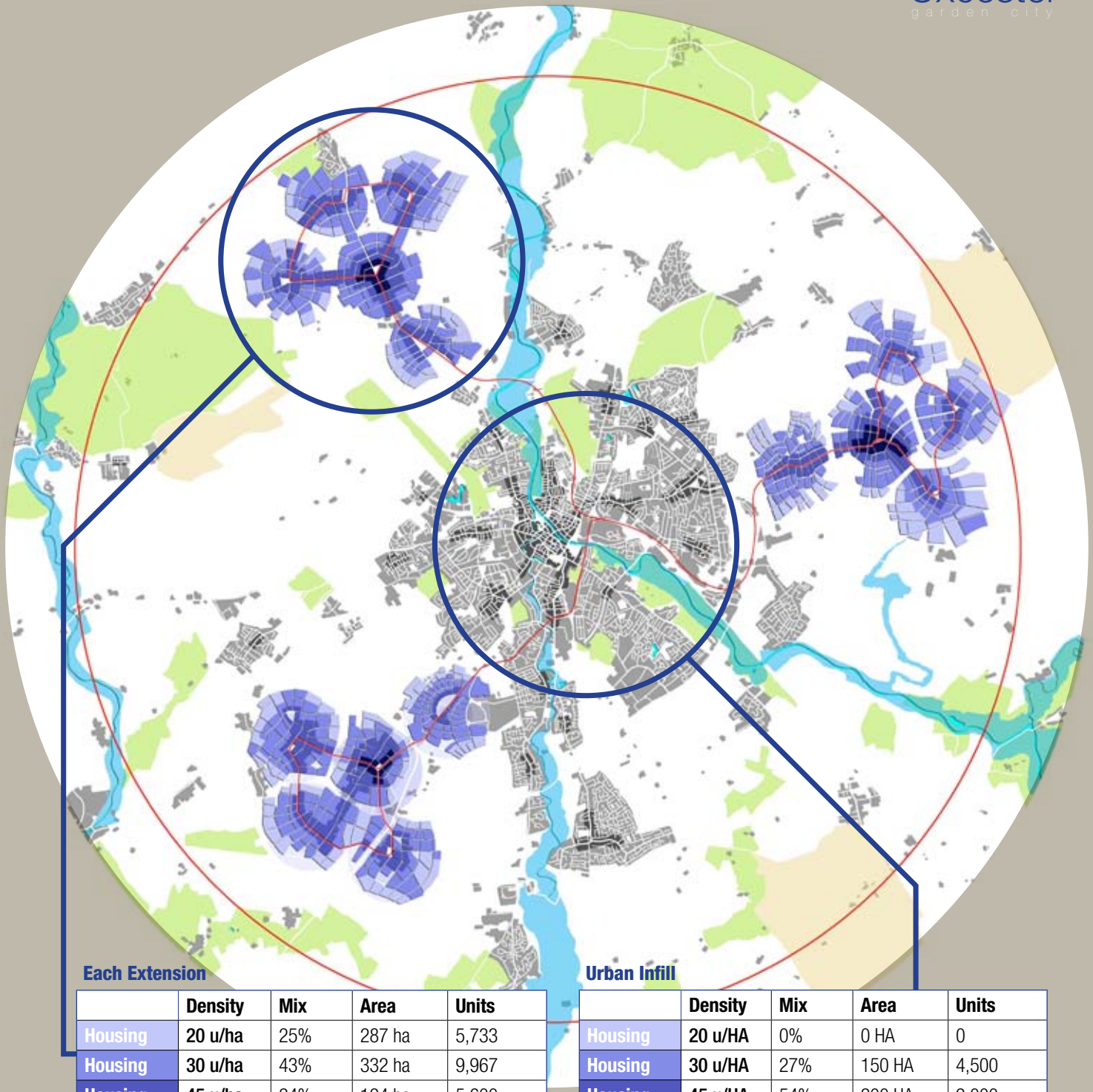
This will get away from the current situation where the response is for each town and village in the county to share the pain. This is simply not a process that has the capability of achieving the sort of housing numbers that we need. It is, rather, a recipe for years of acrimonious argument and bureaucratic wrangling. Our suggestion is that we need to use the concept of a *Garden City* to cut through this and to accommodate the housing growth in a small number of significant urban extensions - large enough to be served by a tram or equivalent and to sustain a local centre as shown on the Snowflake plan. The plan opposite shows what this might mean in practice for the City of Uxcester.

This Snowflake plan is based on three substantial urban extensions each with a population of around 50,000 people and 23,000 homes. Each is made up of a central neighbourhood with around 6,000 units and four *Garden Neighbourhoods* with 4 -5,000 homes. Each of the neighbourhoods has a radius of around 800m, which equates to a 10 minute walk and therefore cover 200HA of land. Each neighbourhood would be served by a secondary school and three feeder primary schools as well as local services, health centres, nurseries and local shops, while higher order facilities would be located in the central neighbourhoods.

Public Transport: Each of the extensions would be serviced by a tram line (or BRT). This runs from the station, through the city centre (on street) and then through the suburbs (where possible on old or under-used railway lines). Then, once clear of the built-up area, the line runs on the new streets of the extensions through each neighbourhood. We have shown this as a loop, although the transport experts on our sounding board suggest that a single line

The Freiburg Model

Freiburg in Germany is a historic university city of around 218,000. It has developed two large urban extensions: **Vauban** and **Rieselfeld**. Both were on publicly-owned land, the former having been a military barracks and the latter a sewage works. The city took the lead in preparing the land, working with local communities to design the masterplan and then selling serviced sites to developers. An initial bond allowed investment to be made in infrastructure, including the tram which links to the historic centre, which was completed in advance of most of the development. This corresponds closely with the model that we are proposing in Uxcester.



Each Extension

	Density	Mix	Area	Units
Housing	20 u/ha	25%	287 ha	5,733
Housing	30 u/ha	43%	332 ha	9,967
Housing	45 u/ha	24%	124 ha	5,600
Housing	65 u/ha	8%	29 ha	1,867
		100%	**772 ha**	**23,167**

Urban Infill

	Density	Mix	Area	Units
Housing	20 u/HA	0%	0 HA	0
Housing	30 u/HA	27%	150 HA	4,500
Housing	45 u/HA	54%	200 HA	9,000
Housing	65 u/HA	19%	46 HA	3,000
		100%	**396 HA**	**16,500**

Figures are rounded so may not total exactly as shown

Housing Mix and density

The size and land take of the extensions are based on the housing densities shown on the tables above which show a typical urban extension and the figures for urban infill. We have used relatively low densities for the extensions. This is partly to allow a margin for error particularly for the self-build and custom-build areas which can get complicated if densities are too high. It is also designed to counter criticism that we are proposing high density urban development in areas that are currently rural. The densities shown range from detached units at 20/HA to semi detached homes and short terraces at 30-45u/HA to more terraced housing and apartments in the small areas of 56u/HA. They will allow generous gardens and open space along with extensive tree planting to create a modern version of the *Garden City.*

with a terminus would be better[44]. The tram would pass through each neighbourhood so that everyone will be within 10 minutes walk (and most within 5 minutes walk) of a tram stop and every tram stop will be less than 20 minutes away from the city centre.

Housing: The neighbourhoods are based on the housing densities set out on Page 36. The majority (70%) will be built to suburban densities in the range of 30-45 units/HA. 20% of the homes will be developed at 20 units/HA allowing for detached units on the periphery of the neighbourhoods while 10% will be built to much higher densities of 65 units/HA in the central neighbourhood consisting of terraces and some apartments. Within this mix there will be a diversity of housetypes, including family accommodation but also older people's accommodation, smaller units, rental property and social housing.

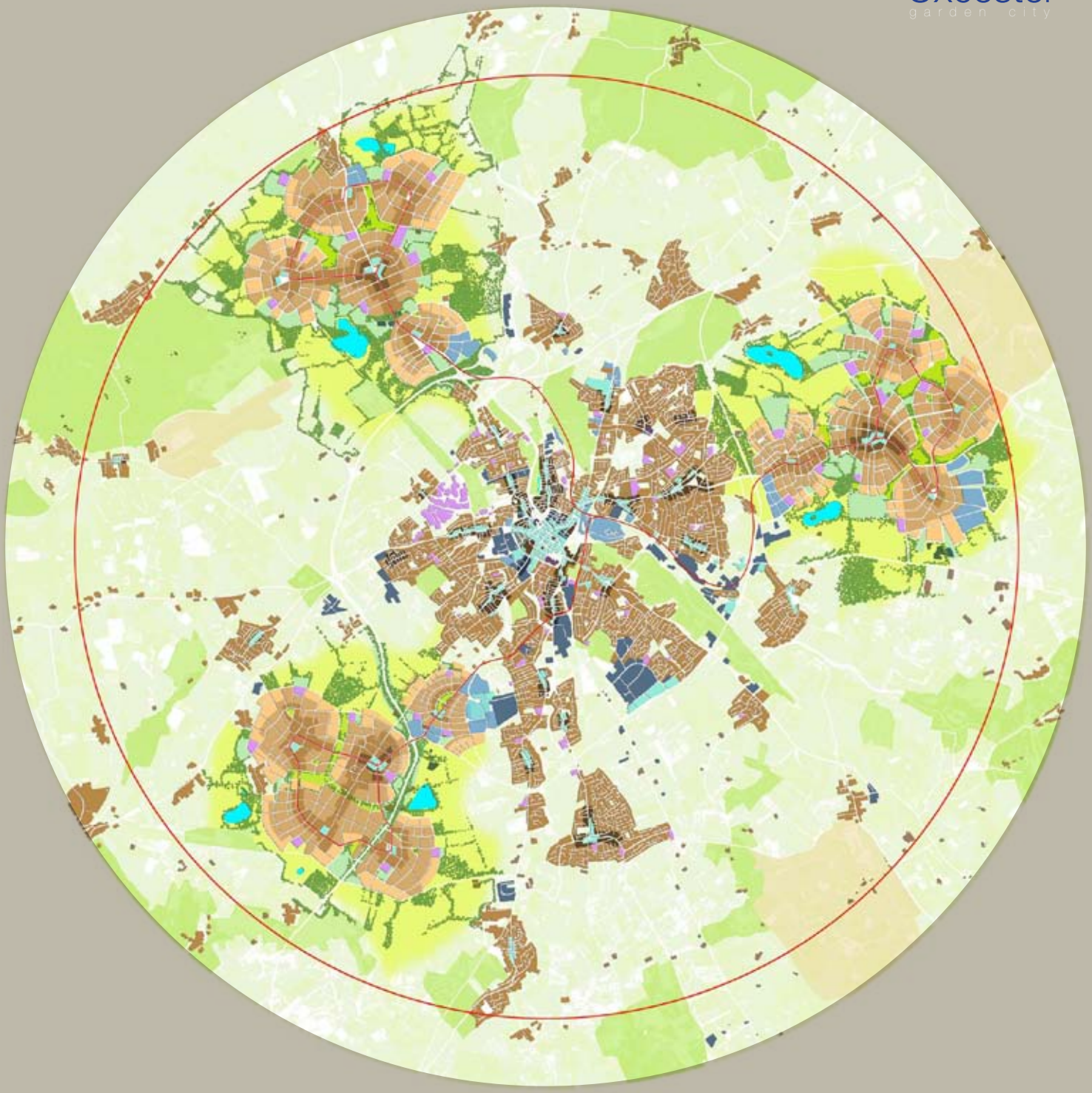
Employment: The scheme includes 1.7M sqm of employment space, sufficient to house one job per new home built. We have assumed a plot ratio of 3:2[45] so that this employment space requires 263HA of land. Part of this would be located in large footprint employment areas, such as a science park with high-tech business linked to the main university. We envisage that new employment would be located in and around the existing city centre as well as on a much smaller scale within the neighbourhoods in mixed-use buildings and homeworking offices/workshops.

The Garden: The scheme is based on the notion that 3,000HA of open space will be created to match the 3,000HA of development. This is the garden in which the city is to be set. When we first drew the Snowflake plan we imagined this entirely filling the gaps between the extensions. However the reality is that, like the neighbourhoods themselves, the green space would fill only part of this area. Our notion is that the new public open space would be acquired by the *Garden City* promotor and would be developed as a rich resource for the whole of the city. It would include ecologically rich woodland planting, sports facilities, country parks and market gardens. It could also include lakes for flood attenuation.

Everyone will be within 10 minutes walk (and most within 5 minutes walk) of a tram stop and every tram stop will be less than 20 minutes away from the town centre

The Nottingham Tram, that is currently being extended, illustrates that a new tram system can be inserted into a historic city centre.

The masterplan to the right illustrates the potential impact of this expansion of Uxcester. The act of drawing this plan gives us comfort that development on this scale is possible. There is no disguising the scale of the extensions, but they still occupy a relatively small part of the zone around the town and can be positioned and built in a way that preserves the setting of the town. Some of the residents of Uxcester will undoubtedly view this plan with horror. However, for most cities like Uxcester, the question is not whether but how it should grow. Carefully planned development of this type is likely to be less intrusive and more sustainable than the 40 years of piecemeal development which is what the city would otherwise face.



Proposed land use

Key	Use	Area (ha)	Yield
	New Housing	2300	69,500 homes
	Commercial	260	1.7M sqm
	Retail/leisure	40	120,000 sqm
	Community	400	

Total for all three extensions

2c. Sustainability

It is incumbent on the developers of a *Garden City* to rise to the environmental challenge that we face. This is not as an exemplar, or a demonstration project but just as a sensible response to the standards that all new housing will need to achieve during the lifetime of the *Garden City*. The 2008 Climate Change Act requires that we should be achieving an 80% reduction in carbon emissions by the time the *Garden City* is complete (in 2050, compared to a 1996 base). This not something that we can put off until future phases, it needs to be embedded in the plan from the outset. Indeed given the difficulty of achieving an 80% CO_2 reduction in Uxcester's existing housing stock it could be argued that the *Garden City* extensions should be aiming to be carbon neutral from the outset. We have been working on these issues for many years through the Sustainable Urban Neighbourhood (SUN) Initiative[46]. This suggests two possible approaches to sustainability:

Neighbourhood-based: Much of our work on the Sustainable Urban Neighbourhood is based upon the notion that sustainability systems can most economically be provided at the neighbourhood scale. These include energy and heating systems through Combined Heat and Power (CHP), district heating and renewable energy. They also include water treatment systems through reed beds and 'bioworks', neighbourhood waste collection, food growing and car share schemes. In each case there is an opportunity for community controlled provision generating jobs and savings for local people. It does mean that the infrastructure budget needs to include the kit to support these systems including heat pipe networks, waste collection systems, vehicle charging points etc…

What is needed is a clear set of minimum standards that everyone understands and can factor into their business planning.

House-based: An alternative approach focuses on the design of the home. It includes super-insulation and air-tightness together with passive design and roof-mounted photovoltaics to meet the energy needs of the home. Indeed it is possible to create homes that produce more energy than they use, and storage technologies are increasingly making it possible to meet electrical requirements and car charging loads in this way.

A choice needs to be made between these approaches because the home-based approach reduces the household energy requirement to the point where neighbourhood systems become unviable. However there is the potential to pursue different solutions in different neighbourhoods, the communal systems in the neighbourhood centres, the home-based systems in the lower density suburbs. Certainly in the areas where we are promoting significant amounts of self-build and custom-build it will be difficult to coordinate neighbourhood systems.

Ecolonia

Despite being commissioned as long ago as 1989, Ecolonia remains a model for the kind of sustainable urban extension that we propose for Uxcester. Commissioned by the Dutch National Environmental Agency in Alphen aan den Rijn to gain experience of ecological town planning, the scheme is designed to test different approaches. These include: rainwater utilisation; passive and active solar energy; energy saving; reduction of water consumption; use of durable materials and healthy living.

Indeed on a development over this time period it is not sensible to be specific about the technologies to be employed. In the next thirty years there will be huge changes in sustainability technology and the costs of different solutions. What is needed is a clear set of minimum standards that everyone understands and can factor into their business planning. The table to the right sets out a possible list of targets covering energy, materials, waste water and green infrastructure. Over the last few years we have worked for both igloo and Grosvenor on calibrating environmental standards for new development[47]. The standards suggested in the table are slightly less than the levels being achieved in the best European schemes, like the urban extensions in Freiburg. The carbon emissions, for example are the equivalent the UK's current Code for Sustainable Homes Level 5. This is a standard achievable within the housing viability figures that we quote on page 50. It also allows a degree of flexibility with the custom-build and self-build schemes.

Ideally there would be a programme to retrofit Uxcester's existing housing stock alongside the new development. This could happen through a programme based on the Community Green Deal[48] which would allow work to be done collectively, coordinated by the *Garden City Foundation* and funded through the reduction in utility bills.

The sustainability standards set out in the table would be incorporated into a *Garden City Sustainability Charter*. This would be enshrined in the ground leases on the land that sets these targets in perpetuity. This needs to be managed and monitored by the *Garden City Corporation* who would assess the performance of new housing proposals, undertake survey work to assess issues such as car use and recycling, and undertake post occupancy work to ensure that targets are being met. The *Sustainability Charter* needs to be managed in this way if it is to have long term influence on the way that the *Garden City* is built.

Uxcester Environmental Targets

ENERGY	
Passive Design	Neighbourhoods designed according to bioclimatic parameters (shelter from cold, wind, sun, daylight etc)
Low carbon energy supply	50% of energy demand from renewables or low carbon energy.
Carbon Emissions	10kg $CO2/m^2$ for detached, 11kg$CO2/m^2$ for attached homes
Energy Fabric Efficiency	Apartments + Mid Terrace: <39KWh/m^2/year, End terrace, Semi-Detached and Detached: <46kWh/m^2/year
Energy Management	All buildings to provide real-time metering
MATERIALS	
Specification System	BRE certification and LCA of materials.
Sustainability	All natural materials fully certified - e.g. FSC/PEFC. Local materials preferred.
Reuse and recycle	No demolition materials removed from site, 10% reclaimed materials, use of recyclable materials
WASTE	
Site waste	Residential <9 m^3 per 100m^2
Recycling	Provision of individual and communal recycling facilities integrated into masterplan.
Composting	Dedicated composting space in each dwelling
WATER	
Efficient water use	Domestic: < 80 l/p/day, Non-Domestic: 50% improvement over EA best practice benchmark for building type.
Recycling and Harvesting	Rainwater harvesting across the site, at individual household or communal levels.
SUDS	Scheme designed for water attenuation with green roofs, permeable surfacing and a fully integrated SUDs system.
GREEN INFRASTRUCTURE	
Biodiversity	Ecological enhancement and protection of ecological features.
Green spaces	Every home to be 300m from an accessible natural greenpace and within 1km of a 50HA greenspace,
Air quality	Air quality impacts fully considered and mitigated as part of overall masterplan and green infrastructure strategy
Food growing	Fully developed food growing strategy across site, with resources set aside for managing this.

2d. How to be popular

By extending Uxcester, we have not made life easy for ourselves in gaining public support. Uxcester and its surrounding villages are full of active citizens who are well-organised and have not always had a reputation for being pro-development. It is an unfortunate fact that most new housing development provokes opposition from people living nearby. These objectors have been branded NIMBYs but their opposition is not entirely unreasonable. New housebuilding does not have a very good reputation for building quality places, while it adds to congestion, blights cherished views, and overloads local facilities.

On the other hand market research commissioned as part of the Wolfson Economic Prize[49] found that three-quarters of Britons recognise that we need to build new housing and support the notion of *Garden Cities*. Furthermore support was greater among older people, homeowners, those in rural areas, and Conservative and UKIP voters. In one respect this suggests that the *Garden City* is a powerful brand to detoxify the image of housebuilding. However 54% of people, while supporting the idea of a *Garden City*, did not feel that the area where they lived was a good place to put one. In other words most people support a the idea of a *Garden City* provided it is built somewhere else.

Uxcester is full of active citizens who are well-organised and have not always had a reputation for being pro-development.

We know from bitter experience that if a local community feel able to challenge the principle of a development their tendency will be to oppose it. If by contrast there is an acceptance that the principle has been agreed, there is much more scope for a constructive discussion about how it is developed. It is therefore significant that the market research shows that people overwhelmingly accept the need for new housing. In our discussions with civic groups in Oxford through our *Oxford Futures* work[50] it is clear that this extends to an acceptance of the need for substantially more housing locally. This being the case, there is the opportunity for a constructive discussion about where this new housing should go.

The first part of this discussion is based on the notion that, rather than spreading new housing around the edge of every town and village in the district, it should be gathered together in a small number of larger developments. This is likely to gain the support of all of the communities in those places spared from development, if not of those affected by the few large developments. Careful location of these larger developments away from existing villages can minimise the numbers of people directly affected although we do need to avoid the temptation to

Lightmoor: Telford

Lightmoor is the first major development by the **Bournville Village Trust** outside its base in Birmingham. The scheme is a joint venture with HCA to develop 72HA of land – the last of the sites allocated as part of the original Telford New Town masterplan. Because the site took so long to develop, local people had become use to it being open land. BVT have however worked hard to overcome local opposition. The scheme includes a new school (£3.5M) together with a 22HA park. These, along with a new village square with shops and a pub, have been completed as part of the early phases of 192 homes. A resident-controlled management company has also been established with an annual income of £71,000. The scheme is being developed in partnership with three housebuilders, with 25% of the stock being returned to BVT.

UXCESTER
Consultation process

As part of the bidding process for *Garden City* designation Uxcester and its surrounding authorities held a major public consultation exercise. This included a series of workshops with residents and local civic organisations to discuss the options for growth. The backdrop to these discussions was a requirement that Uxcester substantially increase its rate of housebuiling. So, as in the Cambridge Futures exercise (see Page 20), the consultations were based on a series of growth scenarios.

These initial discussions included some masterplanning work to illustrate the impact of the different scenarios. However, the real design work started with the appointment of masterplanners following confirmation that the bid had been successful. Each of the *Garden City Extensions* was the subject of a community planning exercise as illustrated on this page. These included intense workshops discussing the form and nature of development. Through this process residents explored the location of development, created collages of images representing the type of development they wanted and masterplanned the whole thing in plasticine.

The workshops were valuable because they exposed the community to the practical implications of developing the extensions, highlighting the difficult choices that needed to be made. While not all participants agreed with the decisions, they at least understood why they had been made. This consultation started to build trust and confidence by drawing the community into the decision-making process.

Pictures from the Design week for the Telford Millennium Community organised by URBED (see page 69)

The Consultation Process:
Top: A marquee on site is used as a venue for the Design Week.
Middle: A round table format allows residents to work in a hands-on manner with the design team.
Bottom right: Creating 'mood boards' using photographs of exemplar developments.
Bottom left: One of the Plasticine models showing new housing and open spaces.

allocate a far-flung corner of the county (which is what happened when Milton Keynes was built in a sparsely-populated part of Buckinghamshire thereby relieving pressure on all the surrounding villages). We do not believe that a *Garden City* can be built in an isolated location but should be an extension of an established city – Uxcester. Much of this land will be green belt, some of it may have been mooted as a possible housing allocation and will therefore have been optioned for development and large areas are likely to be in a neighbouring authority. However we have shown in Uxcester, and confirmed in Oxford (See Page 57 and Appendix 1), that it is possible to locate significant urban extensions within a 10km zone of the city on open land that is well-connected and relatively unconstrained.

Most of the people of Uxcester and its surrounding villages will be relieved that the Garden City is going to be built somewhere else

The Social Contract: Most of the people of Uxcester and its surrounding villages will be relieved that the *Garden City* is going to be built somewhere else. However they will have other concerns. Top amongst these is likely to be congestion since Uxcester's roads are already near to gridlock in rush hour. Local groups are also likely to worry about the erosion of open countryside and ecological assets, the loss of key views of the cathedral spire or the setting of the river valley. There is also likely to be concerns that are less easy to pin down about the change in Uxcester's character, about it being flooded by incomers, whoever they may be.

Some of these concerns may be well grounded, others are a fear of the unknown. All need to be taken seriously in the debate so that fears can be allayed and concerns addressed. To do this the community needs to be given a meaningful role in the development of the *Garden City*. This we suggest takes the form of a *Social Contract* that includes the following undertakings:

- **Minimal impact:** The location of the *Garden City* extensions will be chosen to minimise their environmental impact. The extensions would avoid both flood plains and higher land and be designed to be largely invisible to existing residents who will therefore have their green outlook saved for posterity. This is possible because much of the land around Uxcester is low-lying ploughed fields and pasture and past green belt policies have been very effective in ensuring that few people live there!

- **Accessible open space:** For every hectare developed another will be allocated for open space that is publicly accessible to the whole community. This will enhance and provide access to a huge area of countryside that was previously in private hands. This will be developed as country parks, ecological areas and recreational facilities and will be subject to a restrictive covenant meaning that it must be retained as open space in perpetuity.

- **Compensation:** People directly affected will be fairly compensated. A number of the first stage submissions suggested generous compensation schemes for people both directly and indirectly affected. This is not something open to us given the large number of people living in Uxcester and its surrounding villages. We have made provision in the land acquisition budget to generously compensate people whose property needs to be purchased.

- **New infrastructure:** The development would increase the capacity of existing infrastructure and provide new infrastructure to cater both for the new development and to relieve existing pressures such as congestion. The expansion would fund new facilities including schools, health facilities and sports pitches, available to everyone. It would also include sustainability infrastructure such as renewable energy schemes, car share schemes and food growing. Most importantly it will fund a modern town-wide tram/BRT network that will serve existing and new residents.

- **Greater catchment spend:** New comparison retail development will be concentrated in the city centre. The centres of many towns like Uxcester have been struggling to maintain their retail offer as people turn to the Internet or shop out-of-town. The expansion of the city will significantly increase the

spending power of the catchment population. The money that would have been spent on creating the town centre of a new town can be spent on upgrading the existing town centre to the benefit of local traders and property owners.

- **A community stake:** That the community would be given a financial stake in the body that develops the *Garden City*. This is described in more detail later in this essay, but the purpose of this community ownership is to give local organisations a seat around the table when decisions are made about the *Garden City* and to allow them to benefit financially from the value created. This could fund a Community Chest that can be applied to projects across the city.

Building Support: Together we believe that these measures have the potential to build a wide base of support for the *Garden City*. However this potential will only crystallise into expressed support if the process is handled carefully which causes us to draw three conclusions about leadership:

1. **The process cannot be imposed from a national level:** The people of Uxcester, by which we mean the various local authorities, the civic and community groups and the business community, need to take the initiative. The Government's role is to create the environment where it is in the interest of Uxcester's people to do this. This is partly about requiring them to address their housing needs so that housing growth is not seen as optional, and partly about giving them the tools to address these issues if they seek *Garden City* status.

2. **A local referendum should be used with care:** Tempting as this might be, we are concerned that a referendum might serve to highlight divisions rather than building consensus. Referenda may be a very good way of demonstrating support for an idea where such support exists, but they can also make it more difficult to build that support by polarising and politicising the debate. This

happened with the unsuccessful referendum on the Manchester tram/congestion charge[51]. The *Garden City* will need local leadership prepared to take on and win the arguments and to build support locally. Therefore rather than asking voters for permission to build a *Garden City* we want to reframe the debate by inviting them to bid for one.

3. **Local areas should be invited to bid for *Garden City* Status:** As we will describe in the first of the 'seven ages', we propose that local consortia be invited to bid for *Garden City* status and the benefits that come with it – land acquisition powers and investment guarantees etc... Similar bids take place for all manner of things from hosting the Commonwealth Games to being granted city status or becoming European City of culture. Many of these accolades bring with them considerable cost and disruption but the nature of the competition means that they are a source of pride to local people.

This we believe is a formula for building local support because it would be seen as the best possible way to address the inevitable pressures of growth that many towns face. The arguments will be difficult and there will be many detractors. However our encouraging discussions in Oxford, where these issues are particularly intense, suggests that there is a deal to be done.

2e. The unearned increment

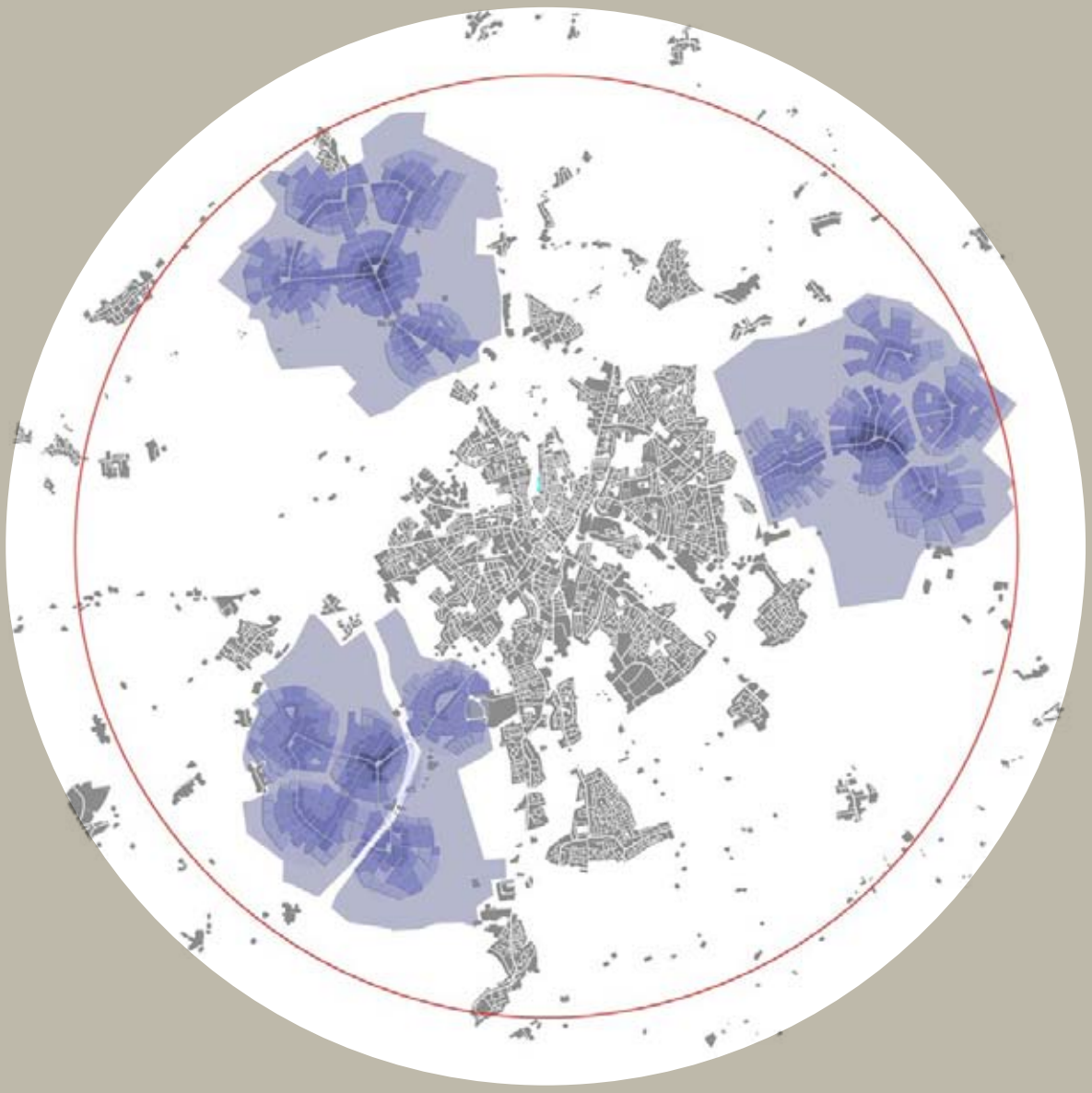
Before we turn to the process by which the *Garden City* would be built we need to address head-on the fundamental issue of land. For 60 years the planning system has failed to find a mechanism to tap the huge increases in land value created by publicly funded infrastructure and publicly granted planning permission. The great estates that have provided us with our inspiration, of course, were often gifted their land by a king. This allowed them to create a development model whereby the estate retained the freehold of the land, could develop it incrementally and benefit from the increase in value over time.

Our proposal is to go back to an earlier model for inspiration - the great estates that developed large parts of London

The New Towns were able to acquire land at existing use value, plus compensation determined by the Lands Tribunal. After a legal challenge in 1974 this compensation was expanded to include hope value defined as part of the hypothetical development value of the land, had the New Town not been designated. In reality this was not a huge amount and in the later years of the New Towns as house prices rose, the Government made a substantial profit from its land holding. A similar system is used in Germany where the basis of land valuation is frozen at the point at which it is designated by the planning authority, with owners either being able to develop their land in line with the plan or to sell it at an agreed level of compensation[52].

A new wave of *Garden Cities* needs to benefit from a similar mechanism. The New Towns Acts remain on the statute book and some have argued that it could be used, but we believe that a new *Garden City Act* should be passed in the new parliament to create a legislative framework for the compulsory acquisition of land and the compensation arrangements. This will start with existing use value, plus a sum for disturbance and recognising hope value. In our assumptions we have make provision for an average acquisition cost of just under £200,000/HA to acquire the land. This assumes that much of the land would be in agricultural use with virtually no prospects of development if the *Garden City* were not designated so that we would pay little more than existing use value plus compensation. However some sites may already have been allocated for development and other areas will be occupied by higher value uses so we allow for a range of land acquisition prices..

The overall financial equation for the Garden City is therefore set out on the table to the right. These figures are based on the purchase of 6,000HA of land at a cost of £1.16B. Half of this would be allocated as public open space leaving 3,000HA of development land. We have assumed infrastructure, social housing and other costs of just under £4.9B in order to build 69,500 new homes. This together with commercial and retail development together with half of the CIL contributions generates a land receipts of just under £6.3B creating a small crude balance of £284M before cashflow effects. This is as far as we got in the Stage 1 submission demonstrating that the *Garden City* just about broke even at today's prices and values without public subsidy. This has been confirmed by the more detailed work described overleaf.



The Land Deal

	HA	Rate	Total (£M)
Total land acquired	6,000	£200,000	1,160
...allocated as open space	3,000		
...allocated as development land	3,000		
Infrastructure costs			4,115
Affordable Housing Budget			423
Financing costs			293
TOTAL		**TOTAL Cost**	**5,989**
Foundation Receipts			
Housing plot sales	2,300	£2.34M	5,421
Commercial development	260	£1.5M	390
Retail development	40	£1.0M	40
CIL Share		50%	423
		TOTAL Receipts	**6,273**
		Balance	**284**

Figures are rounded so may not total exactly as shown

2f. The business case

In order to explore the business case we have modelled one of Uxcster's three urban extensions. This includes a neighbourhood centre of up to 6,500 homes and four satellite neighbourhoods of 5,500 homes with a total population of just over 50,000 people.

Land Acqusition: Each of the urban extensions will require 2,000HA of land, half of which will be open space. We have assumed that *Garden City* designation will give *The Foundation* the ability to acquire this land, by compulsion if required, the costs of which will be spread over the life of the development. The site of this extension has been selected to lie within an unconstrained, sparsely-occupied part of the green belt. This may create certain political issues, but it does at least have the advantage that the land has minimal hope value. As we describe in section 3b, the *Garden City* will be promoted by the *Garden City Foundation* which will be established by statute with planning and compulsory purchase powers, while its land will be vested in the *Garden City Land Company* which will be funded by a degree of tradable equity and working capital secured on the consented land.

Most of the land will effectively be optioned, allowing it to continue in its current use until it is required

We have assumed that 80% of the land will be agricultural and will be purchased for £40,000/HA. This is made up of £15,000/HA for agricultural land, an additional amount for farm buildings and 20% compensation. The balance of the land is assumed to be occupied by commercial uses, housing or to have a degree of hope value. This we have budgeted £800,000/HA to purchase. This gives us a total acquisition cost for each neighbourhood of just under £348M. The land for the initial phases would be bought outright and elsewhere owners wanting to dispose of their land will be able to sell to the *Garden City*. However, most of the land will effectively be optioned, allowing it to continue in its current use until it is required. This will be done in one of three ways:

- **Loan Stock:** Land will be transferred to the *Garden City Land Company* at existing use value and a fixed redemption date of five to ten years. The Loan Stock will be secured on all the *Land Company's* assets and interest will be paid at an indexed real interest rate that is slightly in excess of yields on agricultural land. Meanwhile the farmers (or other occupants) of the land can continue to use it until the stock matures and the land is developed.

- **Equity Deferral:** This is similar to the way that some option agreements are used by the housebuilding industry. Land is retained by existing owners until the *Land Company* exercises the option which will be 'kept alive' through an annual consideration at a rate slightly higher than Loan Stock interest payments to reflect the uncertainty of timing of purchase. In both these options the land owner will receive the future value based on the land use at designation.

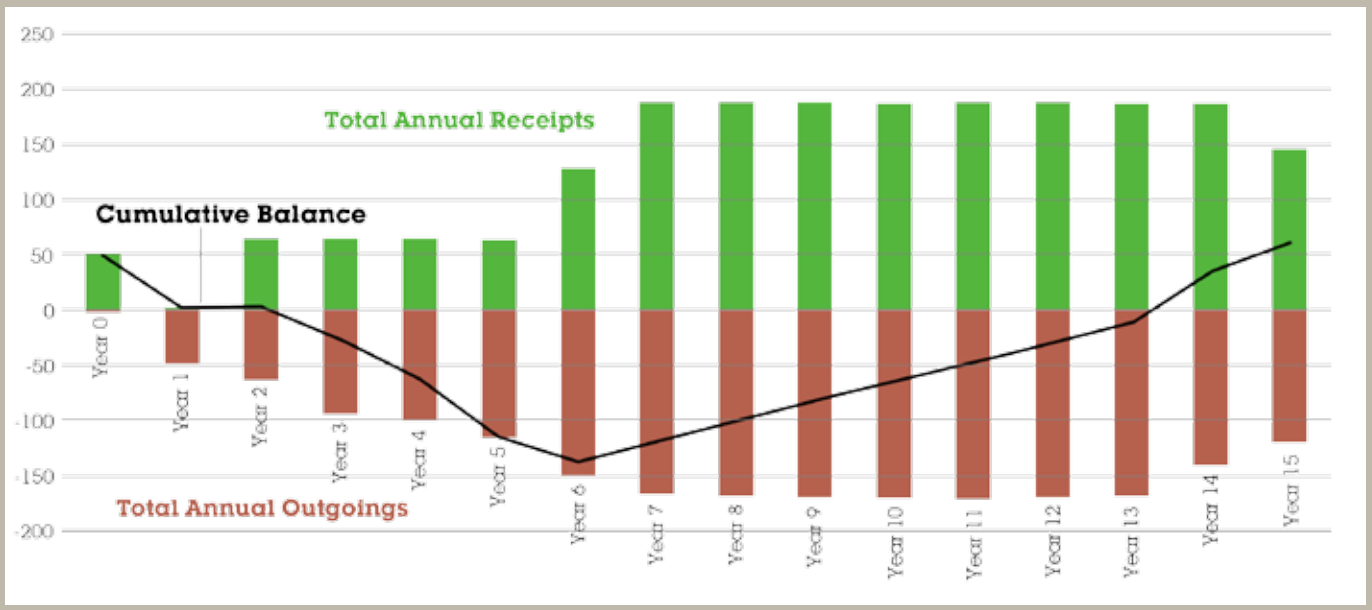
- **Equity Investment/Joint Venture partnerships:** Landowners will also have the option of investing their land in the *Garden City Land Company*. This will mean that they will get no annual payment and indeed will need to contribute to infrastructure costs commensurate with the size of their land holding. However, in return they will be due a proportion of the development value of the land once it is sold for development. Most of these owners would sell their land in return for shares in the *Garden City Land Company* allowing their land value to be pooled. Larger landowners (such as one of the colleges at the University) might want to become Joint Venture Partners by retaining the ownership of their land, ceding control to the *Garden City* and contributing to investment costs and then selling the land directly for development. This third option would substantially reduce the working capital requirement of the *Foundation*, but to be prudent we have not modelled this effect in the cash flow.

Infrastructure

Item	Unit	Quantity	Rate	Total
EDUCATION				
Primary	No.	12	£10M	£120M
Secondary	No.	4	£25M	£100M
Other	Various			£35M
			sub total	**£255M**
Open scape/land-scape/recreation	HA	1,000	£250,000	**£251M**
TRANSPORT				
Minor Roads	Km	12	£7.5M	£90M
Major Roads	Km	4	£22.5M	£90M
Tram to city centre	Km	6	£20M	£120M
Tram within N'hood	Km	6	£10M	£60M
Other Public tran	Various			£50M
				£410M
HEALTH				
Primary	No.	5	**8**	£40M
Hospices/nursing homes	Part	2	**10**	£20M
				£60M
Land preparation	HA	2,000	£50,000	**£101M**
Distinctive Quality	Various			**£100M**
Admin / marketing	**Years**	**15**	**£3M**	**£45M**
Contingency				**£100M**
			TOTAL	**£1,372M**

Figures are rounded so may not total exactly as shown

Cashflow



See figures on pages 51 and 52

Infrastructure: The assumed infrastructure associated with this single urban extension is listed on the table on the previous page. This is based on three primary schools and one secondary school for each of the sub-neighbourhoods, plus five health centres and elderly care provision. Funding is made for the preparation of the land and the landscaping of half of the area as public open space. The tram includes the tracks from the city centre to the neighbourhood but not the rolling stock, which would be funded by the transport operator from fares. The roads include the strategic infrastructure but not the local roads that are included in the housing viability figures.

Housing viability: The table on the opposite page shows a housing viability assessment based on the land value of £2.34M/HA that we have assumed in the overall viability assessment. Based on a 20% social housing provision (see below) and a density of 30 units/HA, this generates a plot value of just over £97,000. Based on the same land values the housing built at 45d/HA would generate a plot value of £65,000 and at the higher densities of 65d/HA the plots would be £45,000 (although we may be able to achieve higher values in the neighbourhood centres).

These values would be the basis on which sites are sold to developers and individuals on a fixed price basis. It is not suggested that the *Garden City Foundation* would develop any housing itself but would, rather, lay out the strategic infrastructure for each neighbourhood and parcel up the land for sale to developers. These parcels are likely to include some large opportunities attractive to the volume housebuilders. However the majority will be small parcels and individual plots targeted at local housebuilders, housing associations, PRS developers, group and individual custom and self-builders.

The Housing Viability Table shows a typical example for a housebuilder purchasing sites in the 30d/HA zone for £97,000 per plot, building houses for around £100,000 per unit and selling them for £265,000. Taking account of financing and CIL costs this gives a 17% profit. On the same plot a self-builder would be exempt from CIL and would not need to pay for marketing or for development risk and profit (although they would still need a contingency). A self-builder would therefore be able to build a home for not much more than £200,000 that would be worth £265,000.

A self-builder would be able to build a home for not much more than £200,000 that would be worth £265,000.

Affordable Housing: The housing viability model assumes a 20% low rent social housing provision. Each of these social housing units will have no land cost and will require a subsidy of just over £30,000 per unit. Because most of the development parcels will be too small to provide social housing, the usual model that requires a developer to provide the social housing will not work. Instead the sales value of each plot takes account of the costs of the social housing. This amount will be collected by the *Garden City Land Company* and made available to social housing providers to undertake direct development. This will include housing associations as well as cooperatives and other subsidised housing forms such as co-housing and affordable forms of group custom-build. Designed carefully this will allow a graduation of affordability rather than just having 20% low rent social housing.

Cashflow and finance: The above figures illustrate that there is, in principle, a viable scheme for building Uxcester *Garden City*. The devil, of course, lies in the detail, or the cash flow as it is otherwise known. We have mapped out a cashflow on the following page for one of the three *Garden City* extensions over a 15 year period. The cashflow is based on today's costs and values, taking no account of land value uplift over the life of the development.

We have assumed that 30% of the land will be purchased outright, that another 30% will be loan stock and 40% will be invested as deferred equity. The infrastructure is also phased through the 15 years while plot sales start in year two. We have assumed a £50M initial investment in the *Garden City*, which earns a 3.5% real rate of return over the life of the scheme. This could be provided by the local councils or a patient long-term investor. This money at the margin leverages the social and economic gain. On this basis the *Garden City Foundation* would have a borrowing requirement for this urban extension over 10 years with a peak debt of £150M in year six. Our assumption is that the medium-term borrowing would be covered by an unsecured Retail Bond of around

£75M with the remainder being covered by a banking facility at State Aid compliant commercial rates. Both would need to be covered by a Government guarantee but not a subsidy. This process would be repeated for each of Uxcester's other two *Garden City* extensions. The development of these extensions will overlap with the first, as far as the cashflow allows, so that the peak debt will rise to around £350M.

The whole proposal depends on smart cash-flow management so that infrastructure costs are followed as soon as possible by sale of serviced land. Infrastructure placed too far ahead of housing development is wasteful. For relatively low cost infrastructure such as parkland these can be provided in advance to provide amenity and allow the landscape to mature. For relatively high cost elements like the tram then a bus service can be provided until the tram is viable. There is also potential for the *Foundation* to own long-term income generating infrastructure assets, such as waste recycling and district energy systems. These long-term assets would be suitable for a long-dated Bond issue in addition to the figures shown here.

All investment appraisals incur some, project optimism bias, especially for those with long and uncertain timescales. We have mitigated this in two ways: Firstly by excluding any expectation of real house price increases over the development period and secondly by keeping land purchase and infrastructure costs closely tied to serviced site sales.

Our sensitivity analysis shows that the *Foundation's* financial health is most sensitive to small percentage changes in the house prices – The margin is easily eroded if real prices fall. The sensitivity to funding costs is much lower, as is the sensitivity to delay in serviced land sales. Smart cash-flow management would mitigate real house price reductions by adjusting land purchase and infrastructure spend rates along with reduced build out rates. Funding costs are harder to mitigate but the expectation is that a higher cost of money would also reduce land purchase costs to compensate in part for higher infrastructure costs and lower house prices. The key to success is to ensure that most land cost outgoing is deferred until at least a year or two before serviced site sales, and that infrastructure costs are incurred incrementally and directly relate to the timetable for these sales.

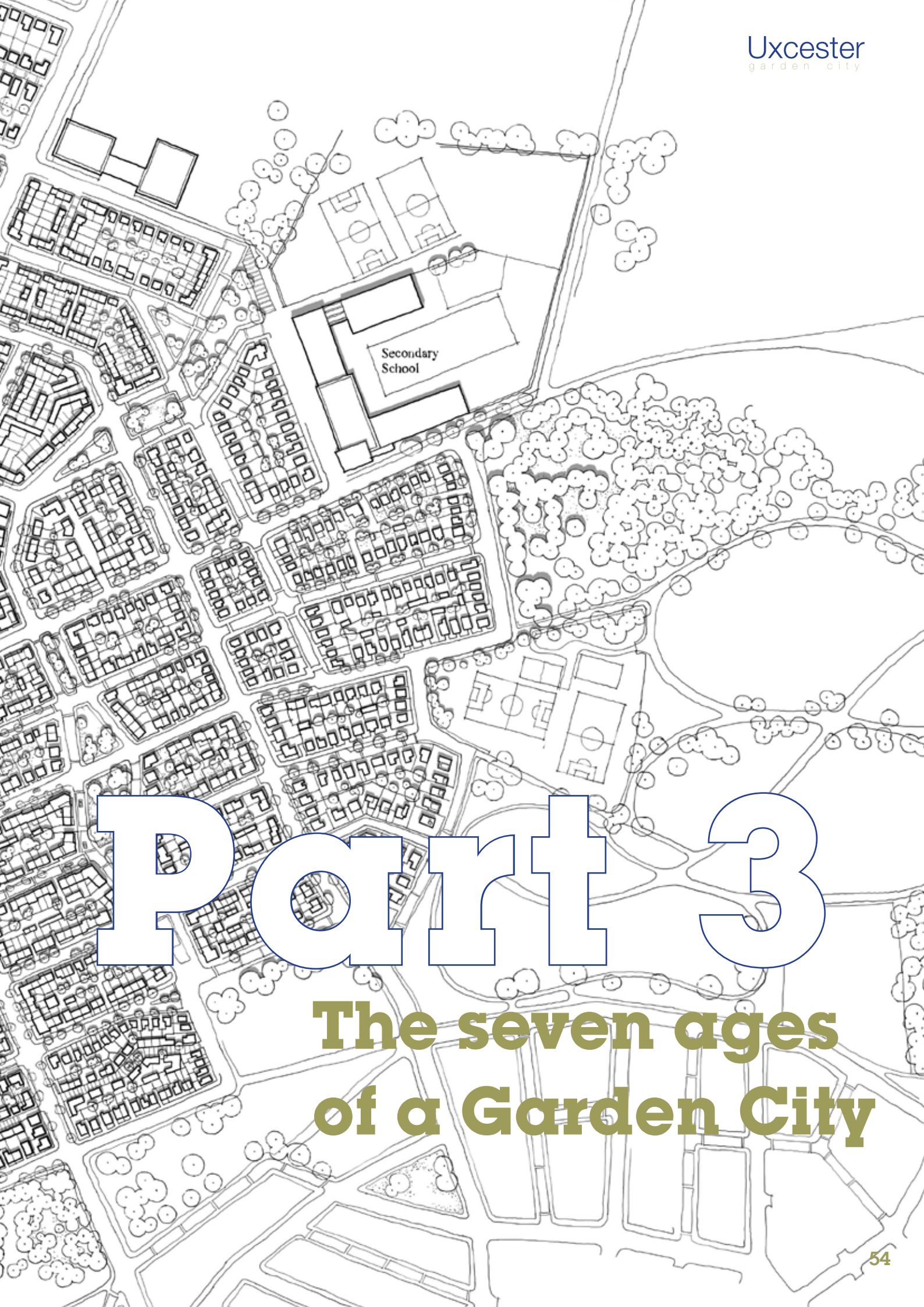
Housing viability

Dwelling value (av. market housing)		£265,000
Development costs		
Floor area internal	76m²	
Build area gross	84m²	
Build cost	£950/m²	£79,420
External works	5%	£3,971
Estate roads and landscape	10%	£7,942
Fees and on costs	7%	£5,559
CIL £pm²	£100/m²	£7,600
Marketing	2%	£5,300
Development risk and profit %	17%	£45,050
Development sub-total		154,842
Gross residual		£110,158
Development finance	8.00%	£9,361
Land fees and on-costs	3%	£3,305
Land		97,492
As % of dwelling value		37%
Density dpHA		30
Affordable housing % of total		20%
Market housing dwellings per Hectare		24
Land per Hectare		2,340,161
Dwelling value (affordable housing)		**172,250**
Open market rental yield	5.5%	9,474
% of market rent	65%	6,158
Subsidised rent pw		118
Development costs		
Floor area internal	70m²	
Build area gross	77m²	
Build cost	£850/m²	£65,450
External works	10%	£6,545
Estate roads and landscape	10%	£6,545
Fees and on costs %	7%	£4,582
CIL	0	0
Marketing %	0%	0
Development risk and profit %	5%	£8,613
Development sub-total		**91,734**
Development finance %	5.00%	£1,835
Total development cost		£93,569
Price paid by housing association		£63,159
Affordable housing subsidy required		£30,410
Affordable housing % of total		20%
Affordable dwellings pHA		6
AH subsidy required pHA		£182,488

			Years	0	1	2	3	4	5	6
LAND PURCHASE	**HA**	**Total**								
Outright	30%	603			60	60	60	60	60	38
Loan stock redemption	30%	603							60	60
Land equity deferred	40%	804								80
Equity or JV partners	0%	0								
Total		**2011**			**60**	**60**	**60**	**60**	**121**	**178**
Dwellings completed	No.	23167				695	695	695	695	1390
Cummulative						695	1390	2085	2780	4170
Total land cost	£m	386			11.6	11.6	11.6	11.6	23.2	34.3
INFRASTRUCTURE		**Total**								
Education		255					21.3	21.3	21.3	21.3
Open space, sport and recreation		251			25.1	25.1	25.1	25.1	25.1	15.7
Social Infrastructure		50					4.2	4.2	4.2	4.2
Transport		350				10.5	10.5	10.5	10.5	21.0
Commuted sums (roads)		60						1.8	1.8	1.8
Health		60					5.0	5.0	5.0	5.0
Land preparation		101			6.0	3.0	3.0	6.0	8.9	8.9
Distinctive quality or amenity		100				3.0	3.0	3.0	3.0	6.0
Directorate (admin and marketing)		45		2.8	2.8	2.8	2.8	2.8	2.8	2.8
Contingency		100								10.0
Total		**1372**		**2.8**	**33.9**	**44.5**	**74.9**	**79.7**	**82.6**	**96.7**
Affordable housing subsidy		141				4.2	4.2	4.2	4.2	8.5
Total expenditure before funding		**1899**		**2.8**	**45.6**	**60.3**	**90.7**	**95.5**	**110.0**	**139.4**
INCOME		**Total**								
Housing sites		1807				54.2	54.2	54.2	54.2	108.4
Commercial		130				3.9	3.9	3.9	3.9	7.8
Retail		13				0.4	0.4	0.4	0.4	0.8
CIL share		141				4.2	4.2	4.2	4.2	8.5
Total income before funding		**2091**		**0.0**	**0.0**	**62.7**	**62.7**	**62.7**	**62.7**	**125.5**
Balance from capital programme		132	A	-2.8	-45.6	2.5	-28.0	-32.8	-47.2	-13.9
Revenue activities										
Community services					0.4	0.8	1.3	1.7	2.5	3.7
Administration and facilities					0.1	0.2	0.3	0.4	0.6	0.9
Ground rents						0.5	1.0	1.6	2.1	3.1
Balance			**B**		**-0.5**	**-0.5**	**-0.5**	**-0.5**	**-1.0**	**-1.5**
Land loan stock outstanding					603.3	603.3	603.3	603.3	542.9	482.6
Loan stock interest	0.25%		C		-1.5	-1.5	-1.5	-1.5	-1.4	-1.2
Land equity partners uplift for deferral	0.75%		D							-3.7
EQUITY										
Major stakeholders (councils)				50						
Crowd funders				0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total equity			E	50.1	0.1	0.1	0.1	0.1	0.1	0.1
Balance sub-total	A+B+C+D+E			47.3	-47.0	1.1	-29.4	-34.2	-48.5	-18.7
Funding required				47.3	1.7	2.9	-26.4	-61.4	-111.7	-133.8
Loan interest at	3.00%		F	1.4	0.1	0.1	-0.8	-1.8	-3.4	-4.0
Total funding cost	C+D+F	108								peak debt
Maximum government guarantee exposure at any one time							50	100	150	150

7	8	9	10	11	12	13	14	15		Totals
38	38	38	38	38	38	38				603
60	60	60	60	60	60	60	60			603
80	80	80	80	80	80	80	80	80		804
178	**178**	**178**	**178**	**178**	**178**	**178**	**141**	**80**		**2011**
2056	2056	2056	2056	2056	2056	2056	2056	2548		23167
6226	8282	10338	12394	14450	16506	18562	20618	23167		
34.3	34.3	34.3	34.3	34.3	34.3	34.3	27.0	15.4		386.2
21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3			255.0
15.7	15.7	15.7	15.7	15.7	15.7	15.7				251.3
4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2			50.0
31.1	31.1	31.1	31.1	31.1	31.1	31.1	31.1	38.5		350.0
1.8	3.6	5.3	5.3	5.3	5.3	5.3	5.3	17.3		60.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			60.0
8.9	8.9	8.9	8.9	8.9	8.9	7.0	4.0			100.5
8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	11.0		100.0
2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8		45.0
10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		100.0
109.6	**111.4**	**113.1**	**113.1**	**113.1**	**113.1**	**111.2**	**92.5**	**79.6**		**1371.8**
12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	15.5		140.9
156.4	**158.2**	**159.9**	**159.9**	**159.9**	**159.9**	**158.0**	**132.1**	**110.5**		**1898.9**
160.4	160.4	160.4	160.4	160.4	160.4	160.4	160.4	198.8		1807
11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	14.3		130
1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.5		13
12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	15.5		141
185.6	**185.6**	**185.6**	**185.6**	**185.6**	**185.6**	**185.6**	**185.6**	**230.0**		**2091.0**
29.2	27.4	25.7	25.7	25.7	25.7	27.6	53.5	119.5		192.2
										Long run pa
5.0	6.2	7.4	8.7	9.9	11.1	12.4	13.9	13.9		13.9
1.2	1.6	1.9	2.2	2.5	2.8	3.1	3.5	3.5		3.5
4.7	6.2	7.8	9.3	10.8	12.4	13.9	15.5	17.4		17.4
-1.5	**-1.5**	**-1.5**	**-1.5**	**-1.5**	**-1.5**	**-1.5**	**-1.9**	**0.0**		**0.0**
422.3	362.0	301.6	241.3	181.0	120.7	60.3				
-1.1	-0.9	-0.8	-0.6	-0.5	-0.3	-0.2				-12.8
-4.3	-5.0	-5.6	-6.2	-6.9	-7.5	-8.2	-8.9	-9.5		-65.8
0.1	0.1	0.1								
0.1	0.1	0.1	0	0	0	0	0	0	-85	3.5% Real
23.9	21.6	19.4	18.8	18.3	17.8	19.2	44.7	25.0		
-113.9	-95.6	-79.1	-62.6	-46.2	-29.7	-11.4	32.9	57.9		
-3.4	-2.9	-2.4	-1.9	-1.4	-0.9	-0.3	1.0	1.7		-18.9
										107.8
150	150	150	100	100	100	100	50	0		


Primary School
Primary School
Nursery



Part 3

The seven ages of a Garden City

3a. Conception

Uxcester will be one of the first of a new wave of *Garden Cities* across the UK. The proposals that we have described will provide more than 50,000 additional homes in Uxcester over 35 years (compared to the city's rate of growth prior to the *Garden City*). This is not going to solve our housing crisis. Uxcester therefore needs to be part of a campaign that sees scores of similar *Garden Cities* developed across the country. More than that, it needs to become a model for the way that all cities and large towns expand and, in doing so, provide an impetus for the reform of green belt policy and the planning and land value capture system in the UK.

Change on this scale will not happen by voluntary arrangements between developers and land owners. There may be a few locations where there are sufficiently large sites in sympathetic ownership to develop modest *Garden Cities*, but this will not address the scale of the problem we face. For a movement to be born Government needs to pass enabling legislation to create the environment in which scores of *Garden Cities* can flourish.

A Garden Cities Act: The first step is therefore legislation. As KPMG have suggested[54] the next parliament needs to pass a *Garden City Act* as a matter of urgency. There are some who have argued that the New Towns Act remains on the statute book and could be used for this purpose. However we believe that a new act is important to give impetus to a new *Garden City* movement and is a priority. The act would do the following:

- Establish a process by which new *Garden Cities* would be designated through a bidding process and set out the criteria by which bids would be assessed.
- Put a responsibility on local authorities to have a long-term plan for projected housing growth rather than just a five year housing

Peterborough

Peterborough and Northampton were Partnership New Towns where councils lobbied to be granted New Town status. The following quote is from the Council chief executive at the time (the Wyndham in question being the Chair of the New Town Corporation):

"The original New Towns had been built in open country but when it came to Peterborough they realised that they'd got an existing cathedral city and they just couldn't ride in rough-shod. So we were the first of the partnership New Towns. The Development Corporation were far and away the important executive arm but nevertheless had to take the City Council with them and the County. And I had some extremely able chief officers who meshed with Wyndham's chief officers to produce the Masterplan."

Peter Sidebottom, Peterborough City Council

supply based on past building rates. This is the stick that will be required to enhance the appeal of the *Garden City* carrot.

- Give statutory powers to the *Garden City Foundations* who would promote each *Garden City*. This would include development control and revised compulsory purchase powers with longer timescales to serve notice to treat.

- Set out the democratic basis for the *Garden City Foundations* including the legal and ownership structure, democratic representation and step in powers in case of governance failures..

Identifying the locations: Many of the entries to the Wolfson Economics Prize spent a great deal of time suggesting national and regional strategies for the location of new *Garden Cities*. The problem with this is that it inevitably becomes a top-down imposed process that is unlikely to be supported locally. It is difficult to imagine how civil servants in Whitehall could require Uxcester to plan for 50,000 additional homes; the people of Uxcester would not stand for it and the local authorities would be resistant. The *Garden City* would therefore need to be promoted by a government-appointed development corporation, as happened with both the new towns and the urban development corporations. This will inevitably tend to favour locations where there are few people to object, not existing cities like Uxcester. There may be a few unpopulated locations opened up by infrastructure investments such as HS2 or Cross Rail. However, by definition, most areas without people will be poorly served by existing infrastructure.

We therefore believe that the initiative needs to come from the town or city, led by a local authority, with the support of the neighbouring authorities, the LEP, local civic groups and other stakeholders. There is a precedent for this in the so-called 'Partnership New Towns' of Peterborough and Northampton, designated in the late 1960s, where the local councils actively sought new town status. This being the case we would not set any national criteria for the location of *Garden Cities*. If bidding consortia are able to show a viable business case, a workable plan and buy-in from all parties, then we see no role for Government to say 'your bid is fine but we don't want a *Garden City* there'.

The bidding process: Once the *Garden City Act* becomes law local consortia would be invited to bid for *Garden City* status. These consortia will almost certainly require the cooperation of a number of local authorities. This cooperation will be on a voluntary basis but will be essential to the success of the bids. For local authorities to agree to this, designation will need to bring with it significant benefits, such as the power to acquire land, to act across administrative boundaries, to assume planning powers and to raise development finance supported by loan guarantees. It needs to be seen as an attractive solution to a problem that the authority has no choice but to address.

The way in which the Garden City is designated can do much to influence the way that it is received.

Each bid would be assessed on the strength of its vision for the expansion of the city, the extent to which it achieves a significant increase in housebuilding, the buy-in of local people and civic groups and the viability of the proposals. However, unlike the bids that cities make to host events, or to receive a share of a grant pot, with a *Garden City* there is no need to limit the number of successful bids. Rather than compete to be one of ten designated *Garden Cities* there is no reason why every city who met the criteria shouldn't be allowed to proceed. In this way the process would eventually change the way we plan for housing expansion across the country rather than just in a few special places.

Attendees at the workshop 31st July 2014

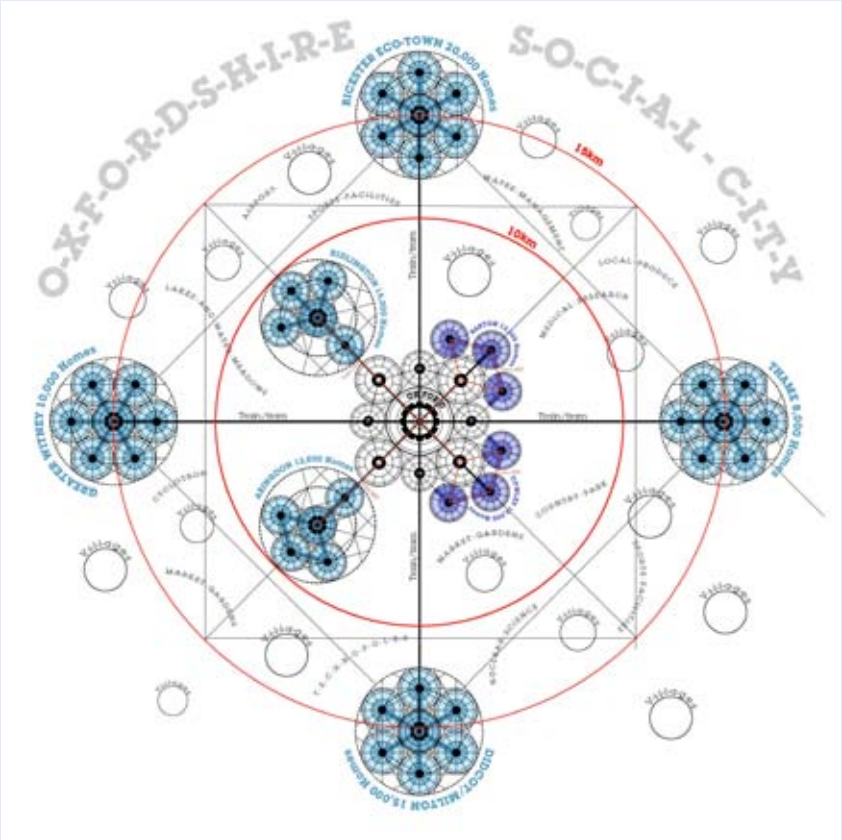
Neil Maclennan – Oxford Civic Society (OCS), Summertown Neighbourhood Forum, **Liz Wade** – Summertown Neighbourhood Forum, **Sam Clarke** – Oxford Low Carbon Hub, Dep. Lord Lieutenant, **Tony Turton** – OCS, Headington. **Tim Treacher** – OCS Planning, **Vernon Porter** – OCS Secretary, **Ian Green** – OCS Transport, SENDRA, **Mike Ratcliffe** – Headington, **Gillian Argyle** – OCS Planning, Heritage, **Van Coulter** – City Councillor, Oxford, Barton, **Charles Young** – Headington, **Tony Dale** – Ramblers, **Peter Thompson** – OCS Chairman, **Peter Headicar** – OCS Transport, **Richard Dodd** – OCS Treasurer, **Micheal Gibbard** – District Cllr, Cherwell, **Graham Jones** – ROX, Wolvercote Neighbourhood Forum, **Hugh Jaeger** – Bus Users, Foxcan etc., **Margaret Ounsley** – Oxford University, **Liz Reason** – Sustainable Charlbury, **John Gordon** – South Oxfordshire Sustainability, **Paul Sandford** – Radley, **Alice Kennedy** – Oxford Brookes University plus **Cara Law**, **Christopher Law**, **Adam Hazell** and **Joe Carr**

Oxford Case Study

The issues that we explore in this essay are particularly relevant in central Oxfordshire. The city of Oxford is facing intense pressures for growth that it is struggling to accommodate. The problem is partly to do with the physical constraints that the city faces – topography, the floodplain, sensitive ecological areas etc. However it is also administrative, given that the City's boundaries are so tightly drawn.

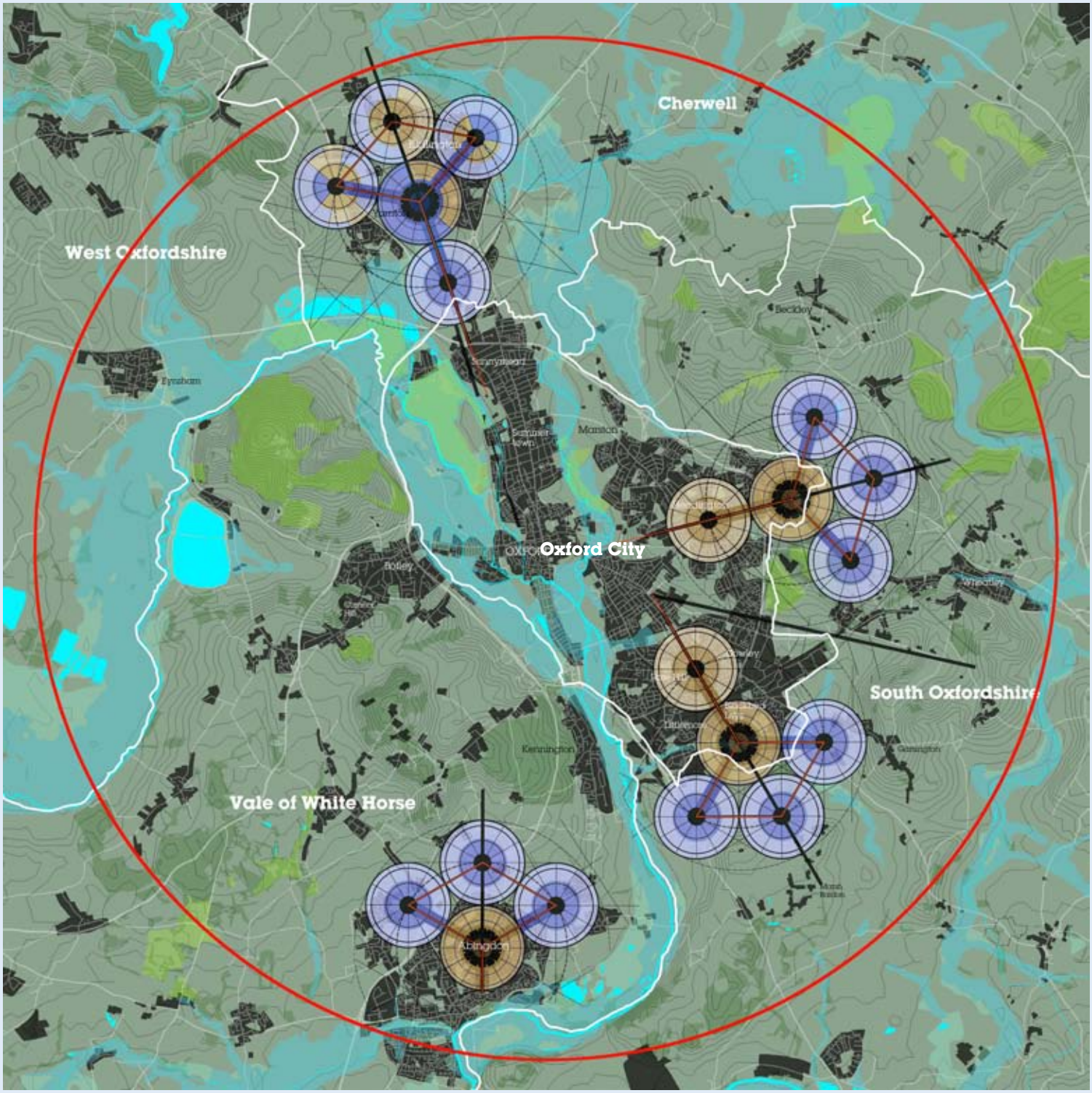
At an Oxford Futures workshop that we organised earlier this year[8], Danny Dorling, Oxford's new Professor of Geography, pointed out that, if nothing is done, Oxford will become like Santa Barbara, a university in a town where lecturers cannot afford to live and which therefore ossifies in terms of its academic life. This is an issue that Cambridge sought to address ten years ago through its Cambridge Futures Initiative (See Page 20) and Oxford now fears that it is falling behind.

In the preparation of this essay we have held a series of discussions in Oxford, including a workshop with local stakeholders and civic groups on 31st July. From this it is clear that the seriousness of this situation is recognised in Oxfordshire where the Leader of the County Council has accepted the need for 100,000 new homes by 2031. There is also a growing acceptance that this will necessitate a radical review of the green belt – as set out in a recent newsletter from Oxford Civic Society[73]. In this context there was a ready appetite for the ideas raised in this essay. Indeed a number of people assumed that Uxcester was Oxford and hoped that it had been written about them. We have applied the Uxcester model to Oxford at three levels:



1. **The Oxfordshire Social City:** Showing how the expansion of Oxford, can be combined with the development of the satellite of Bicester and Didcot and then later Thame and Witney to provide the 10,000 homes required linked through investment in heavy rail - The Oxfordshire Snowflake.
2. **The expansion of Oxford:** How within 10km of the city there is the scope for a few confident bites out of the green belt (map opposite) to provide up to 50,000 of these homes linked by a new tram.
3. **Kidlington Garden City Extension:** How the first of these extensions could be at Kidlington – part of which is already known as a *Garden City* – with up to 15,000 new homes.

Our conclusion is that Oxford is more complicated than Uxcester and the scope for new housing within its 10km zone is a little less. However the 'deal' that we are suggesting, that takes pressure off most of the county by concentrating growth in a few major urban extensions is potentially very appealing. This will, however, not happen without the legislative backing and powers that we propose for a *Garden City Foundation*, particularly the ability to work across borders and to access the value uplift in the land to invest in new infrastructure.



New Garden City extensions

Existing settlements

(shades indicate housing density)

3b. Birth

It is the morning after the letter was received from the Secretary of State confirming that Uxcester has been selected as one of the first round of *Garden Cities* and there is work to be done. It is front page news in the Uxcester Chronicle in a piece that gives a fair amount of space to the critics of the scheme but can also not resist a celebratory note, reflecting the broader public mood. The task now is to move the *Garden City* forward and the key early tasks will be to establish the local *Garden City Foundation* and agree its governance structure, powers and staff team, to commission a masterplan and consult widely on the form of the *Garden City* in order to move an order to secure the land and raise the initial finance. Best get on...

The organisational structure of the *Garden City* needs to balance a number of factors. Many of its functions are subject to democratic control so that, while it needs to be efficient, it must also fairly represent the views of local people and the democratic responsibilities of its constituent local authorities. This is not a new problem; it was faced by New Town Development Corporations, Urban Development Corporations and most recently the Olympic Delivery Authority. All of these examples have tended to lean towards the needs of efficiency at the expense of democracy.

the process will allow the Garden City Foundation to acquire significant assets, the value of which needs to be made available for investment in the development

In the case of the *Garden City Foundation* we are also seeking a structure than can attract investment and raise borrowing without recourse to public funds. Our initial submission suggested a company with tradable shares owned in part by the local authorities and Government, partly by the local community and partly by private investors (with legal structures such as a golden share in place to prevent it being taken over). The advice of our sounding board is that we need to be careful not to confuse these different functions, so we are now suggesting a three tier structure:

The *Garden City Foundation*: We envisage that each *Garden City* would be governed by a Foundation with a not-for-profit social purpose established by statute. The Uxcester *Garden City* bid was the result of an alliance between the city and three neighbouring rural authorities along with the County Council. This was supported by most (but not all) of the local civic and voluntary organisations along with the University and two key local employers. All of these groups need to be represented in the *Garden City Foundation* without it becoming subject to institutional inertia if disagreements arise (as they inevitably will at some point). The *Foundation* will therefore have a board that represents all of these interests through a structure of nominations from the local authorities, community groups, local business and investors, with an independent, high profile chair.

This will be the key organisation that will drive the scheme forward and in which its powers will be vested. This organisation will need to be able to acquire land (including compulsory purchase powers), to raise finance, to undertake public works (both inside and outside its area) and to take on statutory planning powers.

The *Garden City Land Company*: We are suggesting that the investment vehicle be a separate company into which the *Garden City's* land would be vested. The financial equation on which the *Garden City* is based is the differential between the cost of acquiring land and the future value that the land will have when sold for development. The land company would be the mechanism for unlocking this value. The Foundation would own a controlling share in this company. This controlling share would, over time, generate an income which would accrue to the partners in the Foundation (including the community). The minority share of around 30% would be made up of tradable shares owned by:

- Landowners in the designated *Garden City* area who wished to invest their land in the venture rather than have it acquired.

Peterborough is a historic cathedral city as well as a new town. It also provides a precedent for the creation of a community-managed country park. The Nene Park is a three-mile-long country park, created as part of the New Town and then transferred to the Nene Park Trust with an endowment.

- Institutional and smaller investors who would be invited to buy shares through a major share issue and the *Land Company's* Retail Bond.
- Individual investors through crowd funding who would be invited to invest in the new *Garden City*; in return they would become part of the process and receive preferential access to plots when they are released.

Both the *Foundation* and the *Land Company* need to protect themselves from the fate that befell Letchworth Garden City Company that was subject to a hostile takeover by Hotel York Limited in the 1960s[54]. The size of the tradable shareholding will prevent this from happening. The key issue is that the process will provide for the acquisition of significant assets and allow the value of these to be made available for investment in the provision of infrastructure.

***The Garden City Executive*:** The day to day management of the *Garden City* would be undertaken by staff accountable to an Executive board appointed by the *Foundation*, and who would be responsible for delivery. The Executive board will include key stakeholders and development expertise. It would appoint the staff team, some of whom would be seconded from local authorities to ensure that local knowledge and existing relationships are maintained. Administrative matters and the secretariat could be managed by an existing accountable body such as the County Council.

The Masterplan: The *Foundation* would commission a masterplan for the *Garden City*. It is likely that the bid will have included a plan as the basis for the agreement between all parties. It may be that the commission to draw up this plan allowed for the masterplanners to be retained to develop the detail of the proposals. The key tasks for the masterplan at this stage are:

- To define the designated *Garden City* area. In Uxcester's case this means drawing a line around 6,000HA of land (half of which will be open space). This will be the area to be acquired by the *Foundation* and within which its powers will apply.

- To identify the infrastructure requirements and costs of the *Garden City* such as the route of the tram.

- To decide the phasing of the scheme and the critical path of infrastructure investment and the release of development phases.

- To set parameters and quality standards for the development through a *Garden City Design Code*. This will set *Garden City*-wide standards for sustainability, community provision, design, drainage and parking. This code would be enforced through the planning process but more importantly as a condition on the sale of sites.

This plan would be subject to an extensive process of consultation of the type we describe on Page 42. However we do not envisage it becoming a statutory plan (such as an Area Action Plan) because it will delay the process by years. It is also unnecessary because the main power by which the *Garden City* will be implemented is through land ownership. The masterplan will be submitted to each of the local authorities for approval.

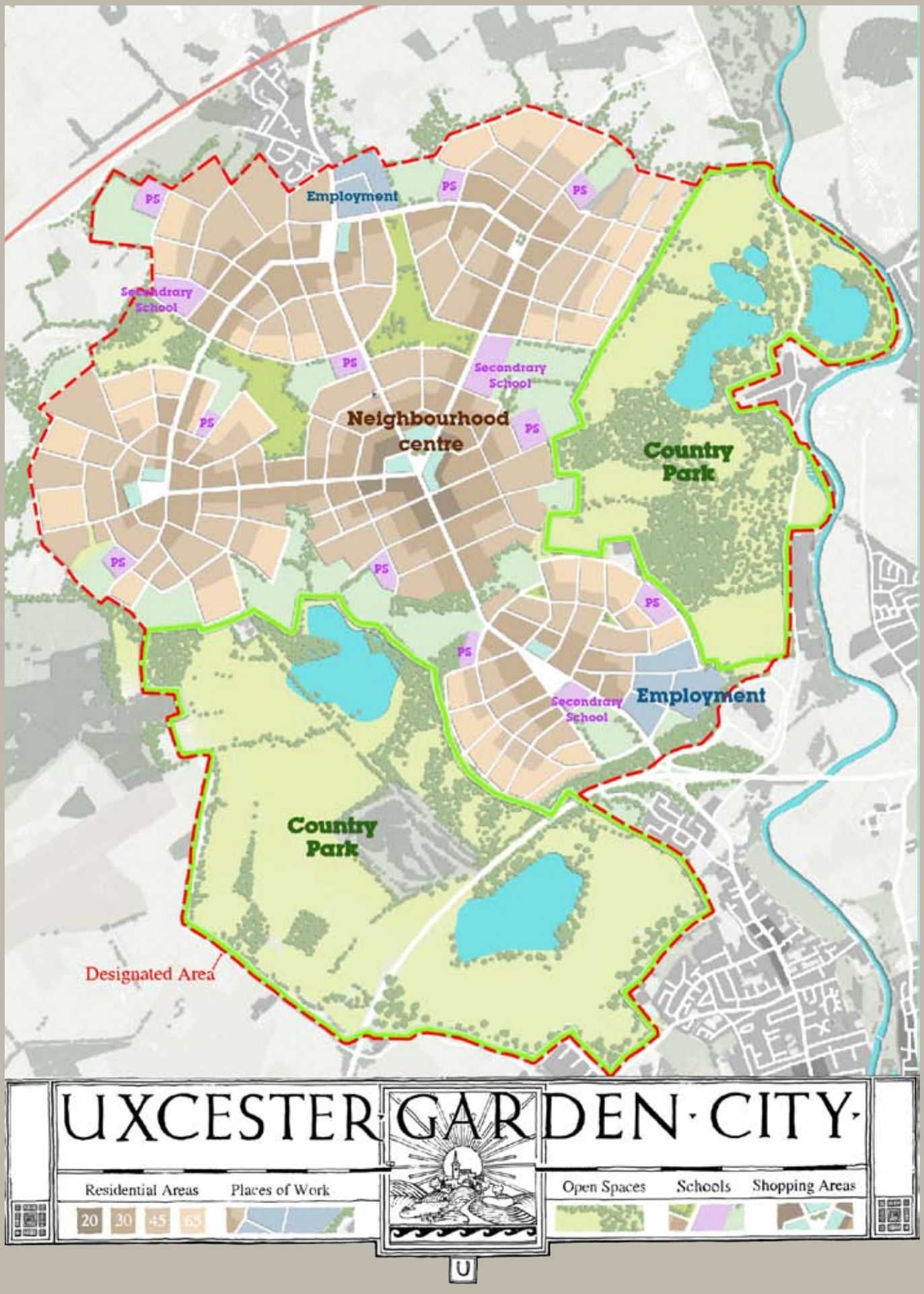
Planning powers: It will be necessary for the *Garden City Foundation* to assume planning powers within the designated area. This was a fundamental part of the New Town and Urban Development Corporations and, in the case of the *Garden City Foundations*, the powers would be created through the new *Garden City Act*. It is likely that a planning committee will be established as a subcommittee of the *Foundation*. The planning officers are likely to be seconded from each of the local authorities or in some cases it may even be appropriate to subcontract development control work to the local planning authorities[55].

Land Acquisition: The final item on the initial to-do-list is assembling the land. Uxcester *Garden City Foundation* will acquire 6,000HA of land at an average level of compensation of £200,000/HA. This is an average figure; some of the land may have planning consent for housing or involve extinguishment costs of existing uses and so will be more expensive. The key to avoiding years of negotiation on each land parcel will be a clear formula set out in the *Garden City Act*. This will be similar to that set out in German Federal Law[56] that freezes land value at existing use value plus compensation. In our case it will be the valuation basis that is frozen and determined by existing use and hope value plus compensation, uplifted in price to the eventual date of purchase. The freeze will probably need to relate to the moment when the act is passed, to avoid speculation as a *Garden City* bid is being prepared.

We have assumed that the cost of acquiring the land will be £1.26B. There will, of course, be a need to cash flow such a large sum, particularly since much of the land will not be required immediately. We have therefore suggested various ways in which the land acquisition costs can be deferred: by land owners becoming equity partners, by land being used as loan stock, and by buying options. The initial finance will therefore only need to fund the cost of the initial phases (although the owners of future phases would be able to sell to the *Foundation* if they wished to).

This setup phase of the *Garden City* will take at least two years. It is based on a strong degree of certainty being provided through the *Garden City Act* so that all parties, local residents, sceptical councillors and recalcitrant land owners are left in no doubt that the principle has been agreed and the scope for discussion relates to the details. In an ideal world there will be some land available in public ownership where an initial phase of the process can get underway on a deferred purchase basis whilst these foundations are being put in place. However, at the end of the birth phase we will be left with a organisation with access to more than £6B of assets and the powers to transform the rate and quality of housebuiling in Uxcester.

UXCESTER: The Northern Neighbourhood



3c. Infancy

Having established the framework for Uxcester *Garden City* we want to get to the point where homes are coming out of the ground as soon as possible, avoiding a hiatus for years as everything is put in place. Hopefully there will be a number of easy sites in friendly ownership where the process described in the following sections can get underway. However development of this scale requires enabling infrastructure and the focus for the infancy phase will be to put this in place.

The infrastructural requirements fall into a number of areas. There are basic issues like the capacity of water, sewage and power utilities. There may also be a need to address flooding for the whole city and to start structural planting of open space areas. However the main area of investment will be transport.

Like most cities Uxcester is congested to the point where people cannot imagine how new housing can be built without causing it to gridlock. Fundamental to the *Garden City* 'deal' when the bid was being prepared was therefore the provision of new transport infrastructure. This is likely to involve some new strategic road improvements. However the centrepiece will be a tram or its equivalent. The key attributes of the system are that it should be able to bypass the traffic, be frequent and efficient and have an integrated ticketing system (not bought from the driver). The Campaign for Better Transport estimates that trams take one in five existing commuter cars off the road[57]. The aim with the *Garden City* will be to double this for new residents (with a significant proportion of the remainder commuting by bike or working locally) to minimise the impact on traffic. To do this the *Garden City* would ideally have a tram line in place before significant housing is built. The reality, however, is that trams take time to build, particularly through historic cities, and without major up-front public investment the costs need to be spread over the life of the project. We will therefore need to be creative in the early years, by creating a brand for the transport system, (The Uxcester Streetcar?) together with a ticketing system and branded buses to serve the early phases.

Development of this scale requires enabling infrastructure and the focus for the infancy phase will be to put this in place

We have assumed that each of the *Garden City* extensions will require 6km of tram through the existing city (at £20M/km). This will run on-street through the city centre or double up on national rail to the central station and then hopefully along old rail lines to the edge of the city. Once within the new development, the track can be built much more cheaply as part of the construction of the new streets (£10M/km). These figures are comparable with recent tram systems in the UK like Manchester and Nottingham[58] that have been funded partly through subsidy, partly through borrowing based on fare income and partly through Tax Increment Finance. We have assumed that the *Garden City's* financial contribution will replace the subsidy element of this.

In addition to this there will be a need to create infrastructure in each of the new neighbourhoods, roads, open spaces, schools and other facilities, allowing for the sale of serviced plots. This will require cashflow finance because much of this will need to be in place before plots can be sold. In Vathorst for example[59] the Development Company raised a €250M Bond, which it invested in a rolling programme to procure 10,000 housing units plus related facilities resulting in an investment of €750M in infrastructure. In a recent report Nicholas Falk has argued for a Municipal Investment Corporation, modelled on the Dutch BNG Bank to facilitate this type of investment[60]. This would be owned by Government and Local Authorities and provide finance to *Garden City Foundations*. However in the absence of this we have sought to model the cashflow to minimise the level of borrowing and up-front investment. As we described on Page 49, our model is based on an initial investment of £50M and a peak borrowing level of £150M for each of the 23,000 home extensions.

UXCESTER: Trellis Plan

3d. Adolescence

Five years in, with the first communities becoming established in the early phases, the *Garden City* will enter its next age. The target build rate for the Uxcester is more than 2,000 units a year and, given the preparatory work in the early years, there is some catching up to do.

The problem is that the UK housebuilding industry is very constrained in its build rate. Most housebuilders can count the sales per month from each of their sites on the fingers of one hand. The reasons relate to capacity and cashflow rather than demand for housing or even availability of sites. Almost a third of our housing output comes from just four housebuilders[61] whose business models are based on increasing margins rather than sales. This contrasts with most of Europe; in France, Germany, Italy, and Scandinavia more than 60% of homes are built by their future occupiers - so much so that it is not called self-build, it is just the way that housing is built[62]. To achieve the build rates that we need in the UK, we must diversify the process of housing production.

Development of this scale requires enabling infrastructure and the focus for the infancy phase will be to put this in place

The first thing that Uxcester will need to do is open up a second front – raise further finance and start work on the next *Garden City* extension and then within a few years do the same for the third extension. Each of these will serve slightly different markets and develop different identities increasing choice and the pool of potential new residents. In addition to this we need to diversify the housing offer to include the following options:

- **Private housebuiling:** There will always be a role for the housebuilder although in Uxcester they will not be the majority provider. Land sales will be structured to create opportunities for the volume housebuilders, but also to create niches for small local builders, very much as happened in the development of the original great estates.
- **Custom-build:** This is a housebuilding model that is being adapted in the UK by igloo (see Page 25). Customers buy a plot and then choose from a list of home manufacturers to build their home. Group custom-build can also allow groups of people to collectively build their homes including apartments.
- **Self-build:** In which customers buy their plot, commission an architect and either build their house themselves or employ a contractor.
- **Private Rented Sector:** There is significant investor interest in private rented housing. By doing a deal with the university or hospital we could build significant private rented schemes.
- **Social Rented Housing:** By suitable land allocation and land price adjustment we can recycle over £400M per extension of subsidy to deliver affordable housing through a variety of means. We can turn this to our advantage by re-engaging the housing association sector to design and contract the building of their own stock rather than be dependent on the residue of S106 agreements.

The plan for the *Garden City* would see each of these sectors being developed in parallel. The masterplan would identify building plots (as described in the next section). The plots would be released to the market at a fixed price. Plot values have been set to achieve an average serviced land value of £2.3M/HA and we have made no assumption in the business plan about these values rising over time. The sales would range from individual plots available to self/custom builders to larger multi-plot parcels that would appeal to volume builders and a range of sizes in between. Fixed price bidding for sites as happened in Crown Street in Glasgow[63] will enable sites to be allocated based on the quality of the scheme rather than bidding up values and therefore reducing the amount that can be spent on the housing quality.

UXCESTER: Plot Plan

3e. Maturity

Learning from the great estates, the *Garden City* would rethink the process of large scale residential development. At present large sites require such significant up-front investment that only a small number of masterdevelopers[64] or housebuilders can afford. A site will typically be masterplanned, broken into phases and then either developed directly, or sold on to other housebuilders (who will redesign the masterplan). Most of the large housebuilders prefer sites of at lease 300 units to create sufficient scale to cover the infrastructure and marketing costs.

In the alternative system that we are proposing each sub-neighbourhood would be masterplanned to establish the shape of the development, the layout of the streets and open spaces, the density zones and the location of schools shops and other uses. This is the 'Trellis' plan that we described earlier. This masterplan will also set out the rules to guide the way that the vine of development grows onto this trellis. This will include:

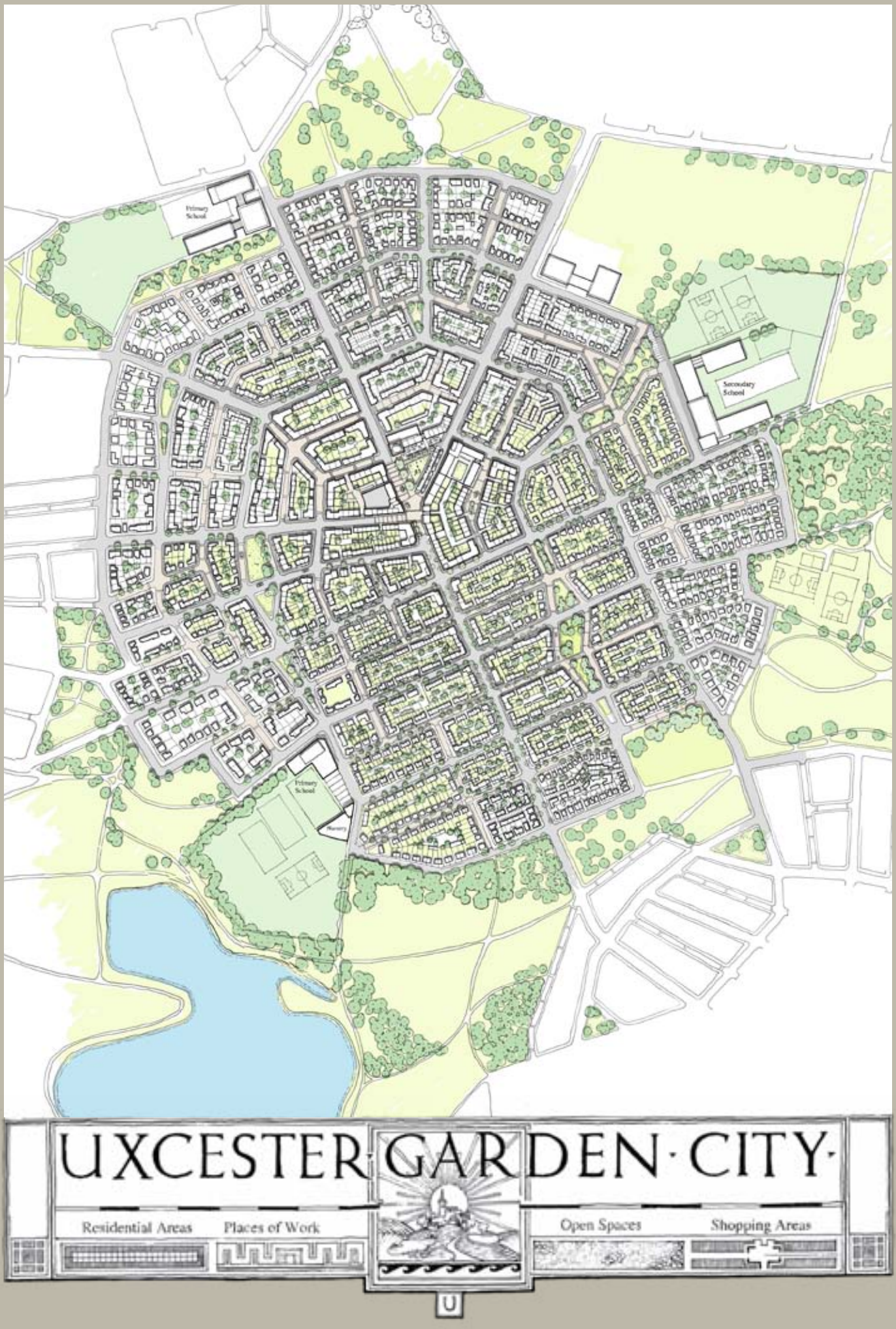
A masterplan will set out the rules to guide the way that the vine of development grows onto this trellis

- A set of parameter plans setting the position, massing, access arrangements, parking standards and mix of uses across the plan.
- A plot plan showing the division of the masterplan into development plots reflecting the different housing density bands.
- A passport for each plot setting out what development is permitted. This will include a three dimensional volume into which the plot holder can build, relationship to adjacent plots (whether it is terraced or detached) and any restrictions on use.

The plot purchasers, whether they be individuals or larger developers will therefore have a very clear indication of what they are able to build on the site prior to purchase. In the great estates the plot passport (not that they called it that) was written into the deeds of the plot when it was sold, generally on a long lease. In the *Garden City* it is proposed that the freehold of the plots be retained by the *Garden City Land Company* so that the plot passport could also be implemented in this way setting out clear parameters for the way that people would be able to change their home in the future.

This begs the question of how this process relates to the planning system (given that the *Garden City Foundation* will have planning powers). Currently the UK planning system is ill-suited to this type of development. The masterplan can be covered by an outline planning consent, but every individual development would then need to be subject to a reserved matters application including each individual self/custombuild plot. This would just clog up the system. In framing the *Garden City's* planning powers, we should therefore redesign the system. This would probably involve consent being granted for the masterplan and the plot passports, with deemed consent granted for development within these defined parameters. The approval mechanism for each plot would therefore be done through land ownership controls.

The masterplan would form the basis for planning the strategic infrastructure for each phase of development. This would include a phased programme of school building to match the build rate, laying out the green space and recreational facilities and the provision of the streets and services to each plot. Because of the number of smaller plots this will need to include marketing facilities, including a base for the sale of plots and a shared marketing suite for the smaller builders. This process may seem radical, but it is the way that large scale development was done in the past in the UK and continues to be done on the Continent.


Primary School
Secondary School
Primary School
Nursery
UXCESTER·GARDEN·CITY·
Residential Areas
Places of Work
Open Spaces
Shopping Areas

3f. Middle Age

As the *Garden City* matures, management will become the focus for activity. The new neighbourhoods will look and feel very different to most new housing estates. Their residents will have been attracted by the innovative ethos of the *Garden City* and many will have had a hand in building or designing their own home. This spirit of innovation and self-help should carry through into the management of the *Garden City*.

Most new housing is designed to remove the need for ongoing management. Housebuilders want to build, sell and move on. Estates are therefore designed so that all responsibilities are transferred either to the housebuyers or to an adoption agreement with the council. This limits the scope for innovative public realm design because it has to conform to adoptable specifications. It also rules out communal facilities and activities. To overcome these restrictions a number of recent housing schemes, such as the East Ketley in Telford (see box) have set up local stewardship arrangements. In the early years these are run by the developer, their housing association partner and surrounding residents. As the scheme is occupied, local residents are brought into the management organisation, often through elections, until eventually they form a majority.

This spirit of innovation and self-help should carry through into the management of the Garden City

East Ketley Millennium Community

This was the forth Millennium Community and was developed in Telford by **Taylor Wimpey** with the **Beth Johnson Housing Association** (to a masterplan by URBED and Jon Rowland). A neighbourhood management group was established based on a £250/year service charge for all properties. Together with a donation from Beth Johnson this created an annual budget of around £45,000 from the first two phases of 120 homes. This funds part-time posts for a community warden and a neighbourhood manager plus the maintenance of the new square. The scheme will eventually have 800 homes allowing these activities to be expanded.

These local arrangements will often take on the management of green spaces, allotments and other parts of the public realm. This doesn't mean that residents do the work, but rather that they control the budget, set the maintenance specifications and become the client that commissions the management company (which may be the council). Some groups have sought to do this via a service charge although there is often resistance from people living in houses (as opposed to flats) to pay a service charge and tenants may not be able to claim the charge on Housing Benefit. A better option is a combination of ground rent for communal facilities and an endowment for public realm maintenance (equivalent to the commuted sum) as happened on URBED's scheme for the development of Shenley Hospital[65].

Once this type of elected, resident management is in place other activities become possible. Because the *Garden City Land Company* retains the freehold it will be able to exert a degree of control over residents' property. We would not envisage 'Seaside' levels of control over the painting of white picket fences[66] and our inner anarchist makes us wary of a charter for neighbourhood meddlers. However, the experience of the great estates and the early Garden Cities like Hampstead Garden Suburb[67] is that a level of control is one of the secrets of their success. This is a role that could be devolved to neighbourhood groups through the administration of the plot passport system that allows for extension of homes.

The neighbourhood management groups can also get involved in activities; organising fetes, and social events, running local facilities such as allotments and providing services. In effect each of the sub neighbourhoods would develop its own parish council which may be an umbrella for a series of more local groups. This is a way of helping to establish the social capital that exists in established neighbourhoods, the congregations, clubs and societies that would otherwise take years to develop. In addition to the commuted sums, mentioned above, the activities could be funded from the ground rent paid on each plot and over time from the community's ownership of shares in the *Garden City Foundation*.

3g. Retirement

There will come a time in thirty or forty years when the *Garden City* masterplan is largely complete. This may seem like a long way off, but we do need a credible answer to the question of what happens next. By this time the *Garden City Foundation* will be a mature, asset-rich organisation with extensive land holdings and a long-term income from plot ground rents. We will, in effect have created a new Great Estate. The *Foundation* will have a long-term role in the management of the *Garden City*. However, its long-term stable income may also allow it to take on other further projects, as the Bournville Village Trust have done with their development of Lightmoor in Telford. The existence of the *Foundation* will, of course, also be a valuable tool for planning the future expansion of Uxcester from that point onwards.

But what of that expansion? There are those amongst the objectors to the original *Garden City* designation who argued that it was not a permanent solution but just a temporary respite from the pressures of growth. In thirty years time, when the population of Uxcester has doubled, will the pressures for growth be any less? Probably not; indeed the success of the *Garden City* may only serve to increase growth pressures. We therefore need to answer the question of what happens once the *Garden City* is 'complete'. This is a issue faced by all growing cities and has three potential answers:

We need to answer the question of what happens once the Garden City is 'complete'

- **Limiting growth:** The first would be to say that the Snowflake Plan represents the limits of Uxcester's growth. The *Garden City* would incorporate a new green belt to set the limits of the settlement – something that cities like Brighton have had imposed upon them by topography. Future growth would therefore happen through intensification and redevelopment at higher densities. The extent to which this is possible will depend on planning policy. If restrictions prevent intensification the economic growth of the city may stall. However, the 'open source' plot-based structure that we have proposed is much more capable of being intensified than traditional housing estates. We have therefore built-in capacity for future expansion.

- **From small to large city:** All large cities grew from small cities. The initial growth takes place along transport corridors – the arms of the Snowflake – which continue to expand outwards based on the capacity and efficiency of the transport system. Then the gaps between these arms start to fill with development. Whether to allow this would be a decision for the future residents; although the *Garden City* 'deal' would, probably rule it out. There may, however, be scope to extend the arms along the transport corridors.

- **The Social City:** The third response is to develop Ebenezer Howard's vision of the *Garden City* not as a single settlement but as a network of connected cities integrating town and country. In Uxcester this might mean the introduction of new tram/train services to smaller neighbouring towns allowing their expansion to be linked to that of Uxcester.

Inevitably the solution will be a mix of these responses depending on local circumstances. In Uxcester there is likely to be some scope to expand the snowflake outwards together with intensification. In our case study of Oxford (see Appendix 1), the *Garden City* plan probably represents the limits of the city's growth so that the Social City model would become even more important through the expansion of Bicester, Didcot, Witney etc...

Whatever the solution, the legacy of Uxcester will be that it has recast the process by which we build new housing and the workings of the market that underpin it. In doing so we will have started to change the negative perceptions of new housing and hopefully made these issues a little easier to address in the future.

3h. Conclusion: A day in the life...

Rob and Ani moved to Uxcester *Garden City* ten years ago. They bought a 2 bed basic core/shell house through the custom-build scheme, not being able to afford anything fancy at the time. They were, however, delighted to secure a plot and to be amongst the pioneers in the early days of the *Garden City*. They have a 125 year lease on the plot, and pay a ground rent of a couple of hundred pounds a year. In return they became members of the Neighbourhood Forum which has taken on responsibility for the maintenance and upkeep of the local public realm.

Their membership gave them access to a loan at preferential interest rates from the *Garden City Credit Union*, something that they used to expand their home when the twins arrived. Their right to expand their home was set out in their 'plot passport' which is enshrined in their lease. This sets out the parameters relating to the height and size of their extension to ensure that it is compatible with the overall development of the neighbourhood.

Rob and Ani are not radicals or eco-warriors. They don't even read the Guardian.

They decided to create an office space in the garden for Rob who works as a child psychologist. This freed up the spare room for the children and gave Rob a space where he could be visited by clients in privacy. The plot passport positively encouraged live/work units and many of the neighbours have similar workspaces creating a lively mixed-use character. Next door their neighbour's core house has been expanded, with the owner using his front room for his hair salon while his partner, a designer, also has an office at the rear. In the local centre there is a privately run work hub, including meeting space and shared facilities for homeworkers. Rob pays a monthly membership and uses the facilities whenever he needs a larger meeting space.

Ani works for one of the university research facilities on the recently completed Technopole. Built as a partnership between the *Garden City Foundation* and the University of Uxcester – which lacked expansion space on its science park – this has led to a huge growth in its commercial operations generating a global research brand for the city. She gets to her lab in the northern neighbourhood through a combination of cycling and the tram (they allow bikes). One day a week she teaches at the local college which takes her about 20 minutes on an inter-urban cycle route (It used to take 45 minutes by car).

The twins Sam and Poppy both cycle or walk to school on the safe route for kids - overlooked by lots of houses. At the weekend they go for long walks in the country park that starts five minutes from their home. The trees and lakes are becoming really well-established and every year they are delighted to see the return of wildlife to an area that they remember as just ploughed fields.

Rob and Ani get most of the bulk shopping delivered by Aldirose supermarket;

but they often cycle to Delifresh which is close by and sells organic produce from one of the *Garden City's* three market gardens. Other shops sell locally sourced cheeses and meats and there is a small cafe/bar that does a brisk lunchtime and evening trade. There is also a convivial bar which Ani uses to meet up with friends after work.

At the weekends Rob and Ani get the tram to the city centre where there is a range of facilities that they would never find in a new town. They enjoy the productions at the Victoria Theatre and at Christmas the carol services in the 12th century Cathedral are magical. Sam has also started to support Uxcester Town and insists that Rob takes him to home games. This year they are challenging for a play off place in League Two.

Ani's parents moved into one of the nearby older person units, developed by a national housebuilder. They were not sure that they would like it at first, having left a large semi in a nearby town. However, they find the neighbourhood much easier to get around and there is so much more going on. Her mother has recently been elected to the committee of the neighbourhood forum that meets monthly to oversee the management of the area using the ground rent. Her particular responsibility is handling applications from the community chest which has £5,000 this year to give out in small grants to local organisations.

The family owned a car for the first six years after they moved it. It was easier when the kids were small to get around with buggies. But when it failed its MOT they decided that they could do without it and joined instead the local car club. They have also added photo-voltaic panels to their house, not being in one of the neighbourhoods with a CHP system. The minimum energy performance of their house was in any case specified in their plot passport and their energy bills are only a few hundred pounds a year.

The family are delighted that they decided to move to Uxcester. Rob and Ani are not radicals or eco-warriors. They don't even read the Guardian. At the same time they could never really see themselves living on a new housing estate in a dormitory suburb. Their ideal house would once have been a period property in one of Uxcester's Victorian suburbs, but that was always going to be out of their price range. The *Garden City* has created a neighbourhood which offers many of the same attractions along with a feeling of belonging and control. Indeed they sometimes wonder why all new housing is not built this way?

Appendix 1

The Oxford Test Case

Dr. Nicholas Falk

1. Introduction

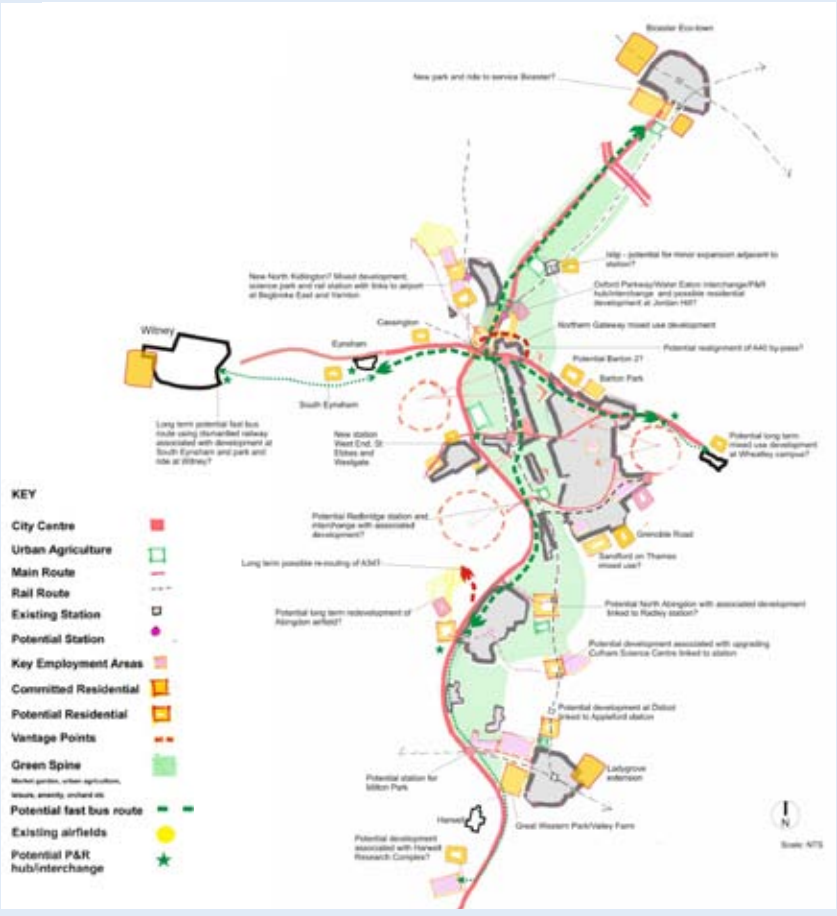
To ensure Uxcester *Garden City* would meet all the tests set by the competition, we decided to see how the proposals would be received in a specific place. We picked central Oxfordshire, though with almost 40 possible cities to choose from, we could have developed the case in York, or Bristol (where Mayor George Ferguson supports our idea of raising bonds to fund the infrastructure), or even Stroud on the edge of Gloucester, where a garden city could be linked to a new railway junction and make use of flat land that the County Council own. But in Oxfordshire, the case for growth is stronger than almost anywhere else with house prices now eleven times average earnings[68].

The leader of Oxfordshire County Council has recently set out the need for 100,000 new homes by 2031, along with a greatly upgraded transport system. As he says 'Doing nothing is not an option.' [69] This is the first precondition for the 'deal' that we suggested in Uxcester, an acceptance that the question is not whether there is a need for growth but how it should be accommodated.

In Oxford there is the added need to tap the wealth-creating potential of its knowledge workers, what has been called the 'Oxford Innovation Engine'[70]. At present, despite the strength of its research base, private sector employment is low, as are average incomes[71]. Furthermore, if the city does not grow, then the University's position as one of the top three in the world, could be lost, as the new Professor of Geography, Danny Dorling, pointed out at the launch of the Oxford Futures report[72].

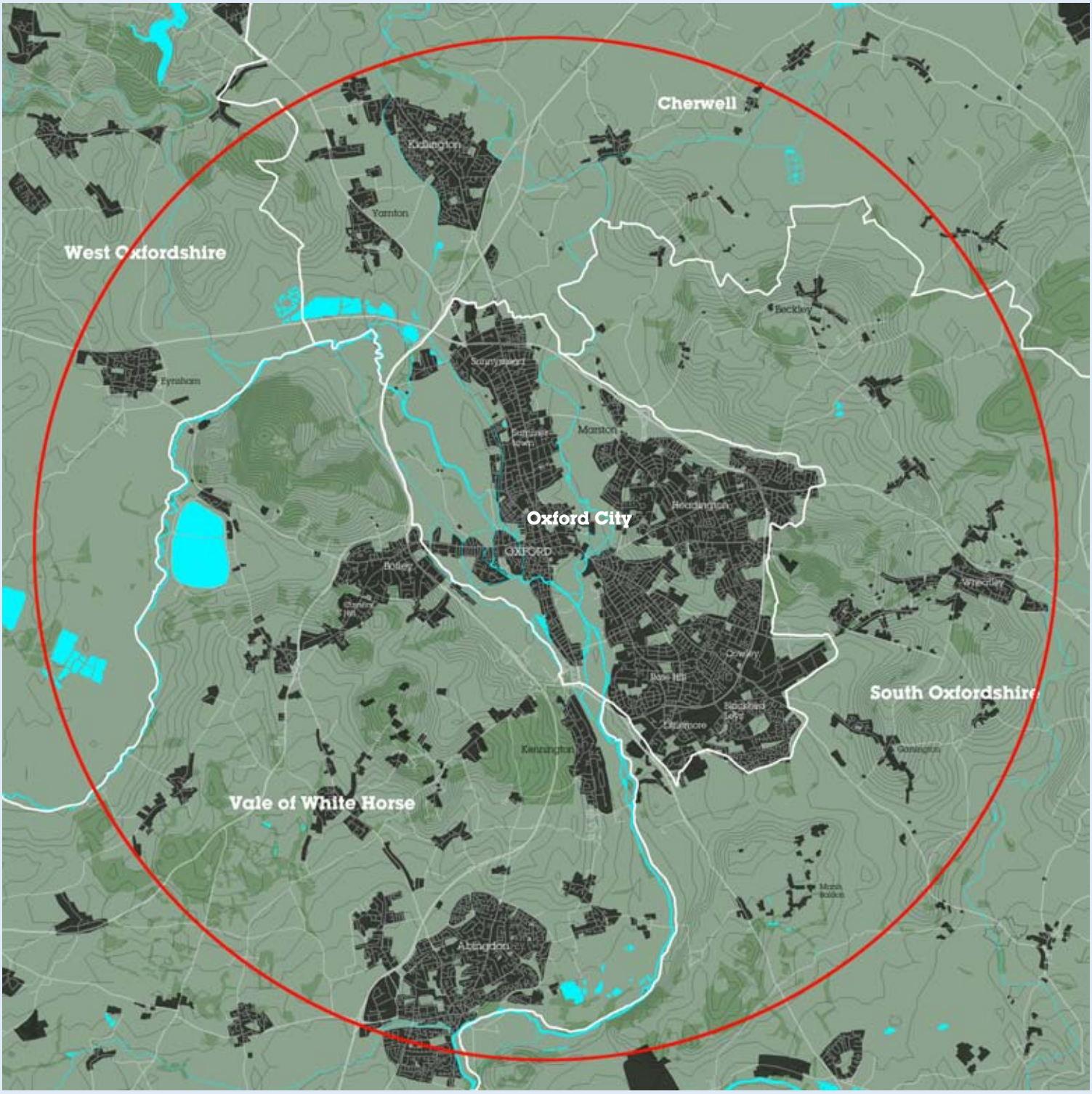
Oxford Futures drew together published research, and the results of four debates led by the Oxford Civic Society, supported by bodies like the Academy of Urbanism, Oxford Brookes University, the Smith School of Enterprise and the Environment and the RSA. The exercise led to broad agreement on the need for growth in Central Oxfordshire and the difficulties of achieving this. It set out a series of principles to guide this growth and proposed an Oxford Futures Commission to 'debate and win support for change'. Following these debates there has been a growing acceptance, as set out in the Oxford Civic Society newsletter[73] that there is a need to question the green belt.

It is in this context that we have undertaken a process in Oxfordshire over the last few months to use our proposals for Uxcester to take the debate in Oxford to the next stage. We have consulted with key stakeholders, including the Chief Executive of Oxfordshire County Council, the Director of the Oxford Preservation Trust and the Civic Society. We held a well-attended meeting with members of the Oxford community as well as discussions with potential developers at the Housing Forum and with planners at RTPI conferences in York and Bristol. All of these discussions suggest that there is an appetite to explore the benefits that a *Garden City* might offer in central Oxfordshire. The viability and popularity of this is summarised in the following pages.



Initial outcomes of **Oxford Futures** promoted by Oxford Civic Society, showing the potential for a more integrated social city that includes Bicester, Didcot, Witney and other towns

Oxford and its surrounding districts



2. Into the green belt?

A report from Savills points out that 'the cost of building an entirely new infrastructure to support a new *Garden City* is an important challenge to their delivery'[74]. Research for our team by Pete Redman, and published in Town and Country Planning[75], made the case for 'piggybacking' on existing infrastructure to get a *Garden City* going in places where land could be acquired without much 'hope value'. This argues for urban extensions, perhaps along the model of South Woodham Ferrers, which Essex County Council had promoted on land they owned near Chelmsford, or the development at Caterham Barracks. But is this at all realistic in a city like Oxford?

Discussions and correspondence with Professor Paul Cheshire on the case for building in the green belt highlighted the financial value from capturing the uplift in land values from building close to an existing city. In a recent blog (9th July) he sets out the arguments for rethinking the green belt and locating development close to jobs and services[76]:

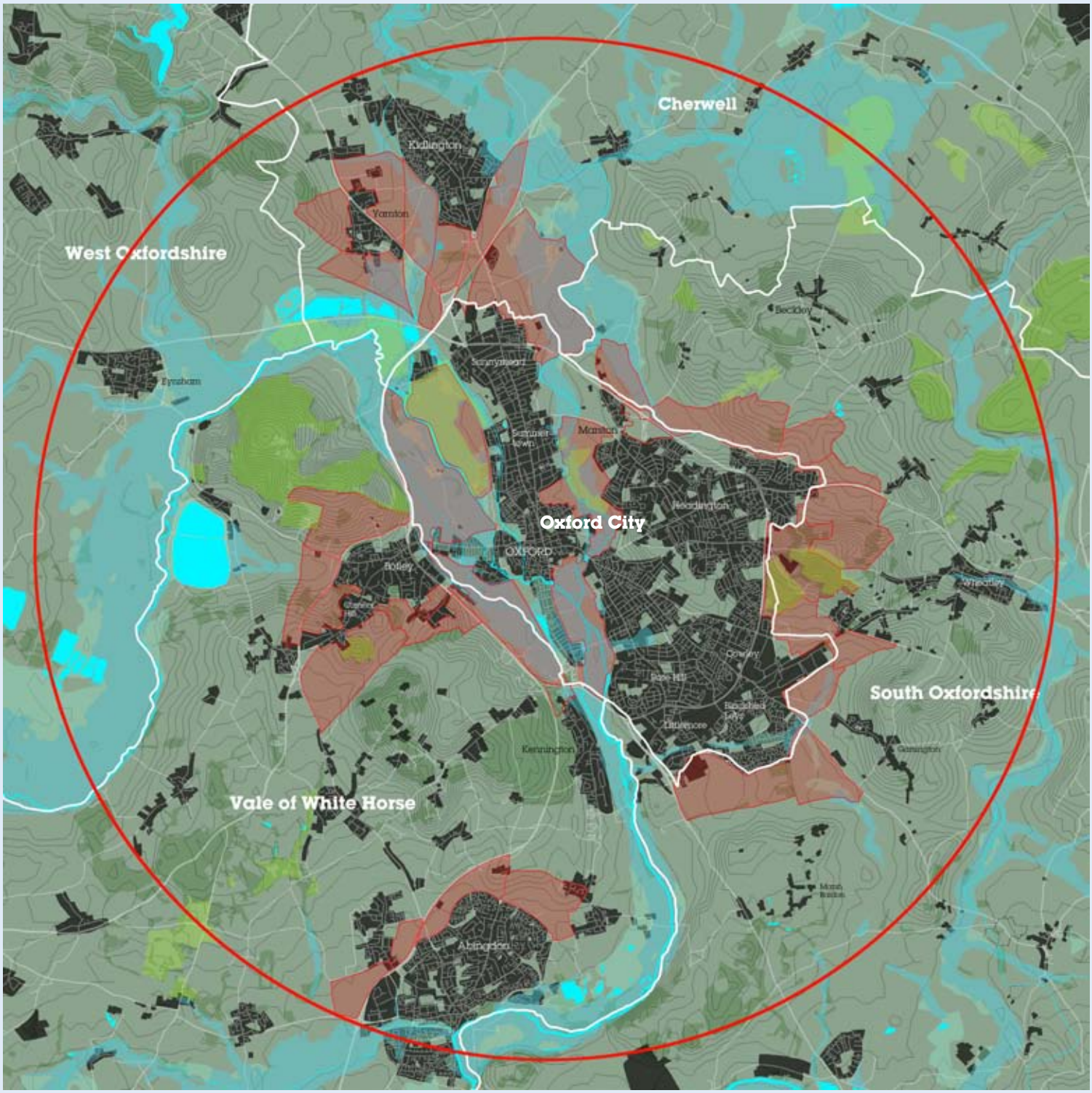
'The policy issue should not be the simplistic designation but the value of the land to the community in its present use over and above any market value of the land. So we need to get rid of these artificial legal designations and instead focus on preserving valuable habitats properly, improving the bio-diversity of land, preserving land with public access - indeed improving access where practicable - and preserving scenically valued land...

The next set of general principles would seem to be first that the land is suitable for building – not in a floodplain or suffering from noxious pollution from past industrial activities. The second would be that the location gives good access to jobs and house prices are high, reflecting a local scarcity. A case on these grounds would be stronger still if the wider community had recently invested in improving local transport infrastructure.'

How would these principles apply to developing a *Garden City* in the tight spaces around Oxford? We mapped the land around Oxford (right), ruling out areas within the extensive flood plain, areas of natural beauty and sites of ecological interest. We also mapped the sites being explored in work recently published by Oxford City Council[77] on areas that might be released from the Green belt (sites in red on the plan). The Oxfordshire SHMAA is seeking land for 28,000 new homes around Oxford (much of it outside the City's boundary). The red circle shows the 10km zone that we have used in Uxcester. While the land within this zone is clearly more constrained than Uxcester, we believe that there is scope to look more strategically at a series of planned garden city extensions that have the potential to raise the scope for new housing in this zone to 50,000. This includes the expansion of Kidlington by 15,000 homes, that will benefit from the new Oxford Parkway Station plus smaller extensions to Abingdon, Barton and Blackbird Lees as described on the following pages.

The Oxford Green Belt

Central Oxfordshire Constraints



Flood plain
SSSI
Woodland
Sites explored through the SHMAA

3. Where to grow?

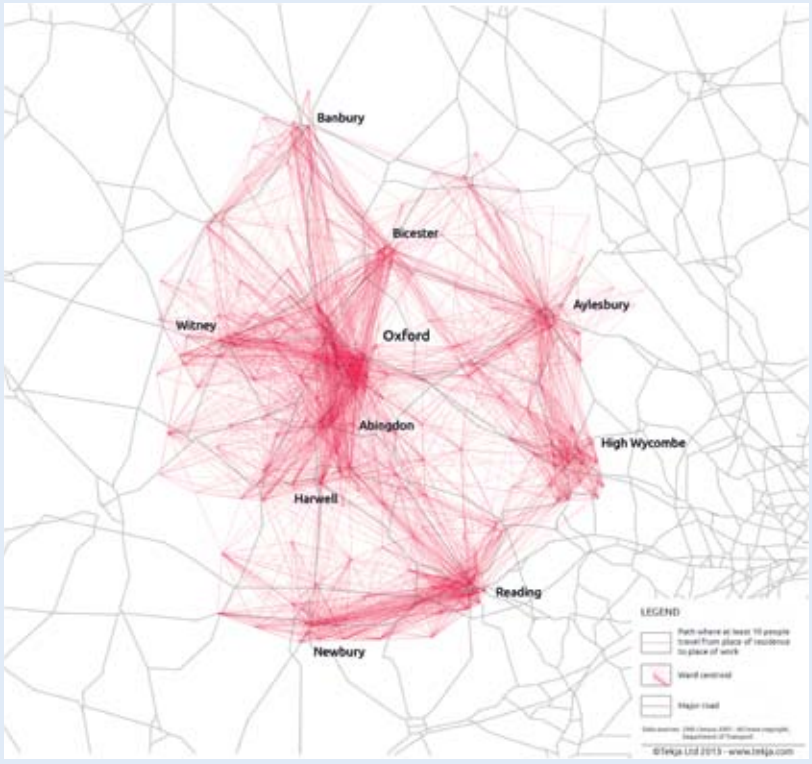
Where should the Garden City grow? Central Oxfordshire is more complex that Uxcester and the diagram is accordingly more complicated. Apparently no two snowflakes are the same, and Oxford's (right) is certainly more complex that Uxcester. As we said on the previous page (and explore further in a moment) the maximum scope to expand the Oxford in the 10km zone around the city is probably around 50,000 at most, half the housing requirement identified by the County.

For decades the County Council and the four rural districts that make up most of Oxfordshire's land area have sought to concentrate any growth in 'country towns' such as Witney, Banbury and Didcot. However most of the jobs lie around the edge of Oxford City as illustrated on the commuting heat map (below). This explains Oxford's notorious congestion problems. The problems are compounded by the Oxford Ring Road, which is tightly drawn around the Eastern edge of the city. Cyclists and buses compete with busy traffic down the main Banbury and Woodstock Roads. Road surfaces are poor as the County Council lacks the funds to repair them while the roundabouts are notorious pinch points.

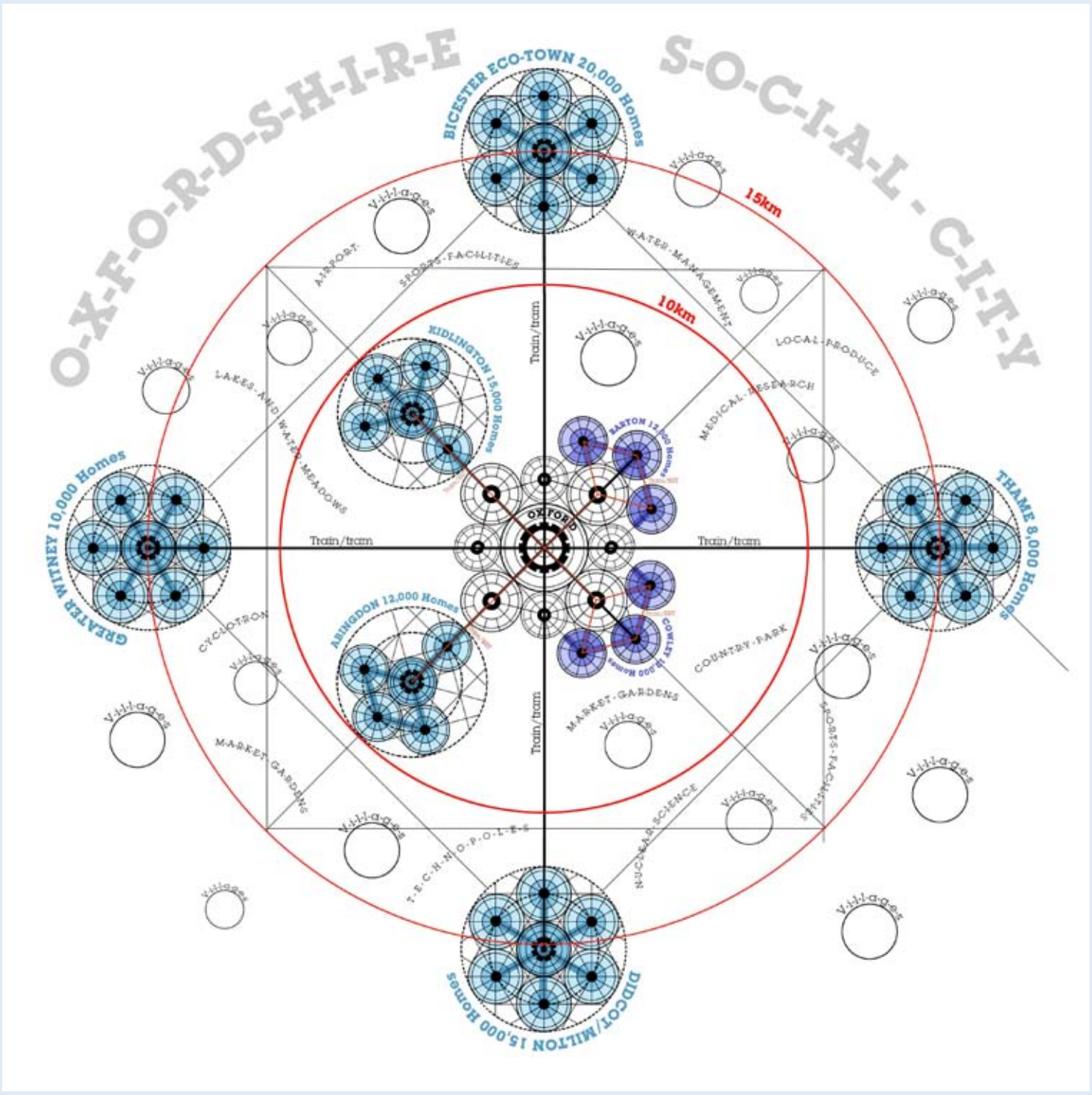
This is the Oxford dilemma; it lacks the capacity to expand, inflating houseprices within the city and pushing growth into surrounding towns that cannot so easily be connected by public transport therefore further aggravating congestion. The solution, as illustrated on the Oxfordshire Snowflake plan is:

- To expand Oxford City by up to 50,000 homes within the 10km zone by taking some confident and well-planned bites out of the greenbelt to create new neighbourhoods linked by a tram/BRT.
- To expand the satellite market towns of Bicester and Didcot, linked by improved train/tram services (based on rail improvements already underway). Then later extend out towards Thame and Witney.
- To relieve all of the villages in the area of the need to accommodate significant housing development.

Transport expert Peter Headicar has examined the situation closely, and come up with plans for an integrated system, which could cut car use significantly. This includes a new tram/train service from Bicester to Didcot with integrated ticketing and frequent services. Then as the Oxford extensions are developed investment can be made in the Oxford tram, based on the financial model that we have outlined for Uxcester.



The Oxfordshire Snowflake - One possible growth scenario showing the Oxfordshire Social City



Garden City extensions

Possible expansions of existing places

Places with no development

(shading indicates housing density)

4. Oxford Garden City

The Chair of Oxford Civic Society points out in their recent newsletter *'we are in something of a Titanic situation in Oxfordshire. The course we have been following for the last few decades is heading for a number of environmental icebergs. These include energy availability and cost, climate change, air pollution, health issues, traffic congestion, social inequality and despoliation of the landscape we hold so dear.'* [78]

The fear in Oxford is that it has fallen behind its great rival Cambridge, which adopted a spatial growth plan after an extensive Cambridge Futures process that evaluated alternative scenarios. For example there are just two science parks in Oxford compared with 18 in Cambridge, as Councillor Van Coulter pointed out at the end of our community event. But now there is a Growth Committee in place, and the councils are under pressure to respond to the county's growth pressures, interviewees felt that the time was ripe for the kind of initiative we were proposing.

What would it look like?

The diagram opposite shows how the expansion of Oxford might work. There is a significant opportunity to expand Kidlington as described on the next page. There are also opportunities to extend Abingdon northwards. The rest of the land to the west is unavailable for a variety of reasons. We do, however, believe there are opportunities to the east at Barton and Cowley/Blackbird Leys. The drawing is diagrammatic and the form of the extensions would relate to the topography of the area to preserve Oxford's setting. However, in both cases the upgraded district centres would be within the existing settlement rather than in the new neighbourhoods.

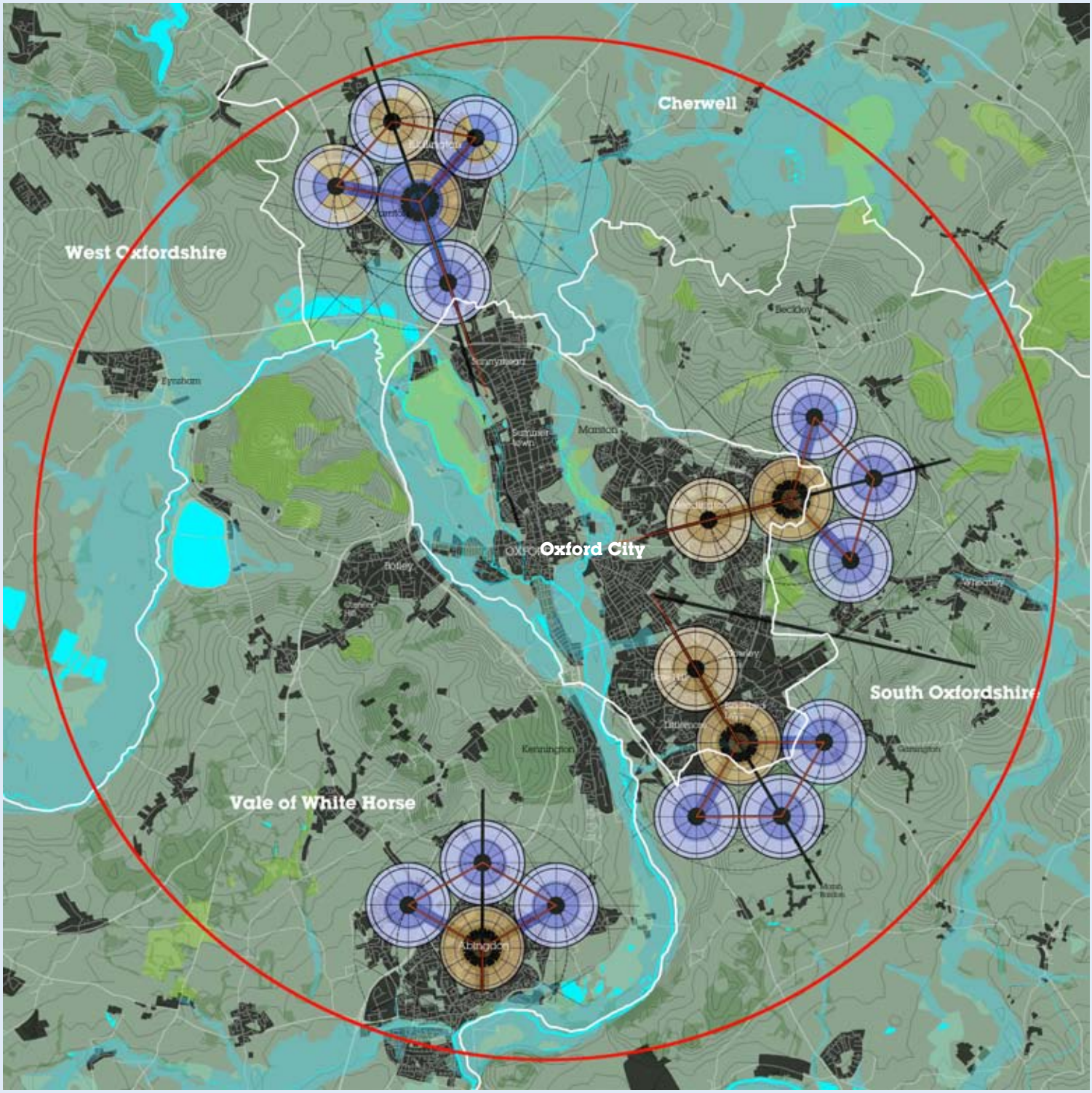
At the meetings we held in Oxford, a number of examples were presented to show that these extensions could be developed in a very different way to the housing estates found around Witney and Didcot (there are apparently 3,000 new homes at Didcot without even a postbox, let alone other facilities). This would include:

- A suburban rail/tram system – the Oxford Metro? – an integrated system combining a tram/train on existing rail lines with the later development of a tram linking new extensions with major employment clusters like the hospital, as in Freiburg.
- A flood attenuation system to address the issues that affect much of Oxford. Surges would be held in a managed system using existing gravel pits and canals, as in the Vathorst urban extension of Amersfoort.
- New country parks in the retained green belt would be enhanced and made much more accessible, as in Nene Valley Country Park in Peterborough, which links three new settlements with the historic city centre.
- Distinctive, varied and mixed housing, as in Derwenthorpe by the Joseph Rowntree Housing Trust in York or Lightmoor by the Bournville Village Trust in Telford.

A number of those attending our community event were excited by the Uxcester vision (thinking it had been written about Oxford!) Focus groups came up with further ideas for what the *Garden City* should offer:

- Travel should be easier, with bike routes along the waterways leading into country
- Current polarisation should be addressed through better social balance or 'classless living'
- The Garden City should be closer to nature (with water seen as an asset not a problem)
- A learning city, with IT combined with meeting places to tackle isolation and ageing.
- Providing over-arching standards (to compensate for fragmented local authorities)
- Protecting quality standards against them being cutback in schemes led by housebuilders
- Integrating the new developments into the surrounding areas (to avoid 'them and us')
- Taking design out of the political arena
- Managing the landscape like the Milton Keynes Parks Trust does
- Boosting local food production with market gardens as well as allotments.

The Snowflake - A potential application to central Oxfordshire



New Garden City extensions

Existing settlements

(shades indicate housing density)

5. Kidlington extension

The first phase of this development would be the development of a major new *Garden City* urban extension at Kidlington. This is a village that has already expanded significantly, the southern part of which, laid out between the wars, is already known as a *Garden City*. Together with its neighbouring villages of Begbroke and Yarnton, Kidlington would become an upgraded district centre, while the open land between the settlements would be developed as a series of new neighbourhoods. This area has the potential to become a sustainable urban extension similar to the Vauban and Rieselfeld extensions of Freiburg model with 15,000 new homes – comparable to the *Garden City* that the government is promoting at Ebbsfleet. This has a number of advantages:

1. It is well located, within easy reach of a range of jobs and services near an area of relatively high house prices (50% higher returns than South of Grenoble Road).

2. The development will benefit from the new Oxford Parkway Station on the line to Bicester and Marylebone, and also from the new intersection between the East West A40 and North South A34, which the government is funding under the City Deal agreement.

3. The surrounding land is flat and inaccessible and generally considered poor quality from an environmental point of view, with large parts subject to flooding.

4. It adjoins the University's Begbroke Science Park and nearby airport, and is therefore in an area that is ideal for attracting private investment.

5. The idea has been tried out in the past (though the quality was poor), and many believe that Kidlington could only benefit from well-planned development that could also improve the balance of nearby North Oxford.

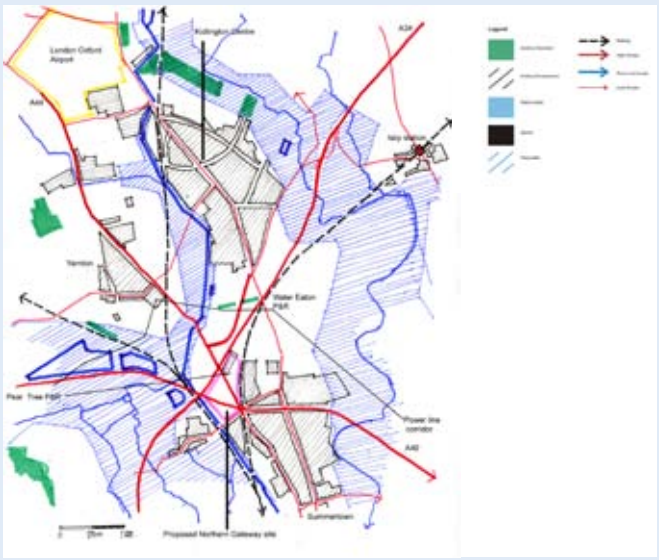
6. A *Garden City* here could provide the necessary funding to transform the traffic situation to the north of the City through better public transport and safer cycling.

7. The land is largely owned by a couple of colleges and the University, and a surveyor has been appointed to advise them on what might be done with their land.

As a senior officer in Oxfordshire County Council told us, developing there is a 'no-brainer'. But the District Council, which has been showing real leadership at Bicester, is finding it difficult even to get local support for 650 homes and further business expansion in its local plan according to the Chair of Cherwell's Planning Committee. The Social Contract that we described for Uxcester will help to an extent and the 'deal' that we have suggested will help win support across Oxfordshire.

To establish the potential values in Kidlington we asked Gerard Derrick, an economist at the Smith School of Enterprise and the Environment in Oxford, to work out some numbers. Reviewing current market activity from 12 local estate agents, he estimates that agricultural land in the area is selling for £20-25k/ha, depending on the fertility of the land and flood risk. The value of residential land depends on a number of factors including housing density. However his best estimate for the value of land with free and clear residential development permission is £2.44m/ha in Kidlington, which compares to £1.76m/ha in Cowley. This means that the Uxcester financial model could be applied to Kidlington.

Kidlington Opportunities and Constraints

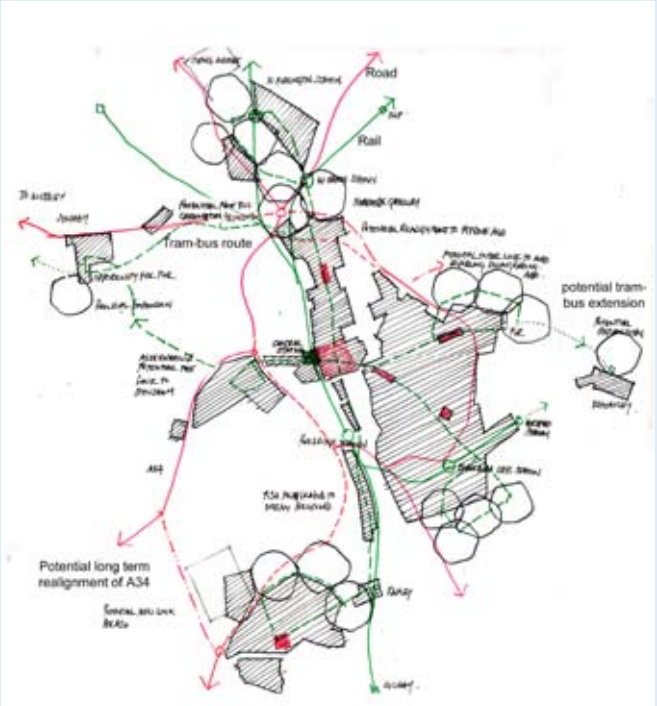


Kidlington – Green Fingers: The Suburb in the garden

6. Conclusions

Wherever a *Garden City* is located with central Oxfordshire it will inevitably arouse a degree of fear and opposition. However our discussions in Oxford suggest that those civic and community groups engaged in the debate about Oxford's future now broadly accept that substantial growth is both inevitable and necessary. There are, of course, a diversity of views, with some wanting to defend the green belt to its last blade of grass. However our suggestion that we should take a few large bites out of the green belt, rather than nibbling away at its edges, was broadly supported. If these big bites could be balanced with more protection elsewhere then the idea of the *Garden Cities* could win popular support.

In Oxford the political differences between the local authorities and the tightness with which the boundaries are drawn around the City are a particular problem. There is an acceptance that Oxford needs to invent a structure similar to Cambridgeshire Horizons to address these issues. Our suggested *Garden City Foundation* would provide such a structure, albeit with greater powers. Once this happens in Oxford, all parties will have a framework to address their differences and to plan for the pressures of growth that the city faces. The solution that they come up with may not be the same as the ideas that we have illustrated here. But it is the principle of using the *Garden City* as a model for the expansion of an existing place that is important.



Possible transport options

The conclusions from our Oxford case study for the Wolfson Economic Prize are therefore:

1. The central Oxfordshire *Garden City* is vital to allow Oxford and its University to maintain its international status.
2. A new *Garden City* for Oxford is fulfilling Ebenezer Howard's great idea for the *Social City* – a connected web of *Garden Cities* working together but targeted at 21st century priorities and lifestyles.
3. The conditions are right in Oxford to build public support because the need for change is accepted. The 'deal' we are suggesting has the potential to win over the majority although we should be under no illusions that there will remain a disgruntled minority.
4. A *Garden City Foundation* is essential to filling the leadership gaps, and overcoming the distrust of all the existing stakeholders.
5. To be effective it will need to be able to invest in substantial infrastructure across the whole city, particularly transport. Without public subsidy this will require careful cash-flow management. However there is sufficient value in the land to pay for this.
6. This can only happen if the *Foundation* has land-assembly powers that allows acquisition at near to existing use value. Ironically this is made easier by building in the green belt because it has very little hope value.

A vision for a Garden City Extension at Kidlington

Notes and references

1. **Hall, Peter, with Nicholas Falk** - Good Cities, Better Lives: How Europe Discovered the Lost Art of Urbanism - Routledge 2014
2. Where is our evidence for this? It is of course our subjective opinion but it is one shared by many commentators including CABE, The Prince's Foundation and the RIBA. It is also a view endorsed by our sounding board.
3. **Carley, Michael and Falk, Nicholas** – Sustainable Urban Neighbourhoods – JRF, 20 June 2011 http://www.jrf.org.uk/publications/sustainable-urban-neighbourhoods
4. Milton Keynes applied unsuccessfully for city status in 2000, 2002 and 2012.
5. **Florida Richard** – Who's Your City – How the Creative Economy is making where you live the most important decision of your life – Basic Books, 2008
6. **Howard, Ebenezer** – To-morrow: A Peaceful Path to Real Reform – Republished by Routledge 2009
7. Past and Future Population from 1967 to 2026- Milton Keynes Borough http://analysis.mkiobservatory.org.uk/web
8. **Falk, Nicholas Ed** – Oxford Futures: achieving smarter growth in central Oxfordshire – Oxford Civic Society March 2014
9. **Rudlin, David** – Tomorrow: A Peaceful Path to Urban Reform – Friends of the Earth 1998
10. See 6
11. **Department of the Environment** - Projections of Households in England to 2016 - London HMSO 1995
12. **UK Government** - Household Growth: Where shall we live? London HMSO 1997
13. National Planning Policy Framework Department for Communities and Local Government 27 March 2012
14. **National Statistics** - Household interim projections in England, 2011 to 2021, Department for Communities and Local Government, April 2013
15. **National Statistics** - Land Use Change Statistics in England 2011 - Department for Communities and Local Government, 2013
16. **National Statistics** - Housing Statistical Release Feb 2014
17. **French, Shaun and Leyshon, Andrew** – 'We all live in a Robbie Fowler house': The UK buy to let market in retrospect and prospect – School of Geography, University of Nottingham, Report for the Financial Services Research Forum June 2009
18. Quoted by **Colin Wiles** - German Lessons, Inside Housing, January 2012
19. **Rogers Richard** – Forget about greenfield sites, build in the cities – Guardian 15th July 2014
20. Such as the Barker Review of Housing Supply published in 2004 authored by economist Kate Barker
21. Global house prices - location, location, location, The Economist Jan 2nd 2014, http://www.economist.com/blogs/dailychart/2011/11/global-house-prices
22. A Brighter Outlook: International Construction Cost Survey 2013, Turner and Townsend 2013
23. It's difficult getting clear build costs from the housebuilders. One of our sounding board **Sue Illman** therefore sought advice from one of their housebuilder clients who responded: 'We tend to operate on a rate for, housing, roads, infrastructure, s106, planning & fees of about £62 sqft standard – plus abnormals'.
24. **Roberts-Hughes, Rebecca** - The Case for Space: The size of England's new homes, RIBA, 2011
25. Quoted in: **Neale, Jon** – Improving Housing Quality Unlocking the Market – RIBA 2012
26. **Graef, Roger** – The British don't want to live in new-build homes. No wonder – Guardian Oct 2012 commenting on the RIBA's Future Homes Commission
27. **Leishman, Chris, Aspinall, Peter, Munro, Moira and Warren, Fran J** - Why do people buy new housing? The Joseph Rowntree Foundation January 2004
28. **Bailey, Ian** - Farmland and residential property forecasts, Savills, January 2013
29. **Valuation Office Agency** - Property Market Report, Homes and Communities Agency, 2010
30. **Falk, Nicholas** (ed) with **PRP Architects** and **Design for Homes** – Beyond Eco-towns: Applying the Lessons from Europe – PRP Architects 2008
31. **Deloitte** – Cambridge Sub-Region Long Term Delivery Plan – Cambridge Horizons August 2007
32. **Academy of Urbanism** – Learning from Clonakilty, 21st June 2014.
33. **Daseking, Wulf** – The Freiburg Charter – Academy of Urbanism 2010
34. See for example - **Falk, Nicholas** – Regeneration and Sustainable Development, Chapter in **Berry, Jim, Deddis Bill and McGreal, Stanley** – Urban Regeneration: Property Investment and Development.
35. **Olsen, Donald** – Town Planning in London: The 18th and 19th centuries – Yale University Press 1982
36. See 6

37. **Rudlin, David Falk, Nicholas** – Building to Last: 21st Century Homes, Joseph Rowntree Foundation 1995.

38. **Rudlin, David, Falk, Nicholas** – Sustainable Urban Neighbourhood: Building the 21st Century Home – Routledge 2009

39. **Aldus, Tony** – Urban Villages: A concept for creating mixed-use urban developments on a sustainable scale – Urban Villages Forum 1992

40. **Calthorpe, Peter** – The Pedestrian Pocket Book: A new sustainable design strategy – Princeton Architectural Press 1994

41. See 38

42. www.birmingham.gov.uk/plan2031

43. He was responding to the Oxfordshire Strategic Housing Market Assessment prepared by **GL Hearn** March 2014-08-05

44. Email correspondence with **Tim Pharoah and Peter Hedicar** as part of the preparation of this submission July 2014.

45. This plot ratio means that for every hectare (10,000m^2) we would build 6,600m^2 of employment space. In other words a 3:2 ratio. This is an average figure; single storey structures would achieve less than this while offices on a number of floors would be considerably higher.

46. See 38

47. **igloo** – footprint policy and guidance notes – developed by URBED – http://www.igloo.uk.net/sites/default/files/documents/footprint-policy.pdf . The Grosvenor document for Barton Park is unpublished.

48. See URBED's work with the **Carbon Coop** – http://carbon.coop/content/whole-house-retrofit-community-green-deal

49. **Populus** – Online poll commissioned by the Wolfson Economics Prize, undertaken 16-26 May 2014, with 6,166 responses.

50. See 8

51. See http://en.wikipedia.org/wiki/Greater_Manchester_congestion_charge

52. The information on this comes from study visits to German and the findings are written up in Good Cities, Better Lives (see reference 1). A good source for the process works is http://www.stadtplanungsamt-frankfurt.de/urban_development_measures_5331.html?psid=2

53. **KPMG in Partnership with Shelter** – Building the homes we need: A programme for the 2015 Government – KPMG April 2014

54. A good account of this affair is available in a speech in Parliament by **Lord Blaniel** in 1962 – http://hansard.millbanksystems.com/commons/1962/mar/20/letchworth-garden-city-corporation-bill.

55. The Central Manchester Development Corporation subcontracted its entire development control function to the City Council as part of their close partnership working.

56. See 52

57. http://www.bettertransport.org.uk/bettertrams

58. There has been extensive email correspondence within our team and the transport experts on our sounding board about this. The Nottingham Tram is currently building two lines 17.5km in total at a cost of £570M which is £32M/km. Manchester is in the process of completing a network which will, when finished be 77.5km (built over 20 years). The most recent 'Big Bang' phase has built 52km cost £1.5B - a third from Government, the balance through borrowing and running costs. This would be £28M/km. The costs depend on the extent of on-street running, the number of new bridges and includes rolling stock.

59. See 30

60. **Falk, Nicholas** – Funding housing and local growth: How a British Investment Bank can help – Smith Institute June 2014

61. In the year 2011-2012 Barratt, Taylor Wimpy and Persimmon built 33,646 homes Source http://www.house-builder.co.uk/issues/index.php?page=article&id=6938&magazine_section=&orig=default

62. **Self Build Portal** http://www.selfbuildportal.org.uk/

63. The Crown Street process was written up in our book p280 (see 38). The original reference is **Wills, Elsbeth, Galloway, Mike and Gough, Piers** – Crown Street Regeneration Project, Glasgow Development Agency 1993

64. For Example at Barton in Oxford Grosvenor Estates are acting as master developer, securing consent, servicing the land and then passing on individual sites to a panel of housebuilders.

65. **URBED and Marilyn Taylor Associates** – Who runs this place: Learning from case studies – Prepared as part of proposals for the management of the Northstowe urban extension in Cambridge. http://www.urbed.com/sites/default/files/Who%20Runs%20this%20Place%20-%20Learning%20from%20Case%20Studies.pdf

66. Seaside is the archetypal US new urbanism development, used as the set for the film the Trueman Show see http://en.wikipedia.org/wiki/Seaside,_Florida

67. **Hampstead Garden Suburb Trust** web site – http://www.hgstrust.org/history/

68. **Lloyds Bank** - Quarterly House Price Review http://www.lloydsbankinggroup.com/globalassets/documents/media/press-releases/lloyds-bank/2013/2303_home.pdf

69. **Hudspeth, Ian** – Connecting Oxfordshire, Oxfordshire County Council, March 2014

70. **SQW** – The Oxfordshire Innovation Engine: realising the growth potential, 2013

71. **Centre for Cities** – Cities Outlook 2013,

72. See 8

73. **Oxford Civic Society** – Newsletter – http://www.oxcivicsoc.org.uk/index.php/newsletters

74. **Savills World Research** – Garden Cities: breaking new ground – Savills June 2014

75. **Falk, Nicholas** – Funding Large Scale Settlements, Town and Country Planning, April 2

76. http://spatial-economics.blogspot.co.uk/2014/07/building-on-greenbelt-land-so-where.html

77. **Oxford City Council** Informal Green Belt Assessment, Oxford City Council, May 2014

78. See 73