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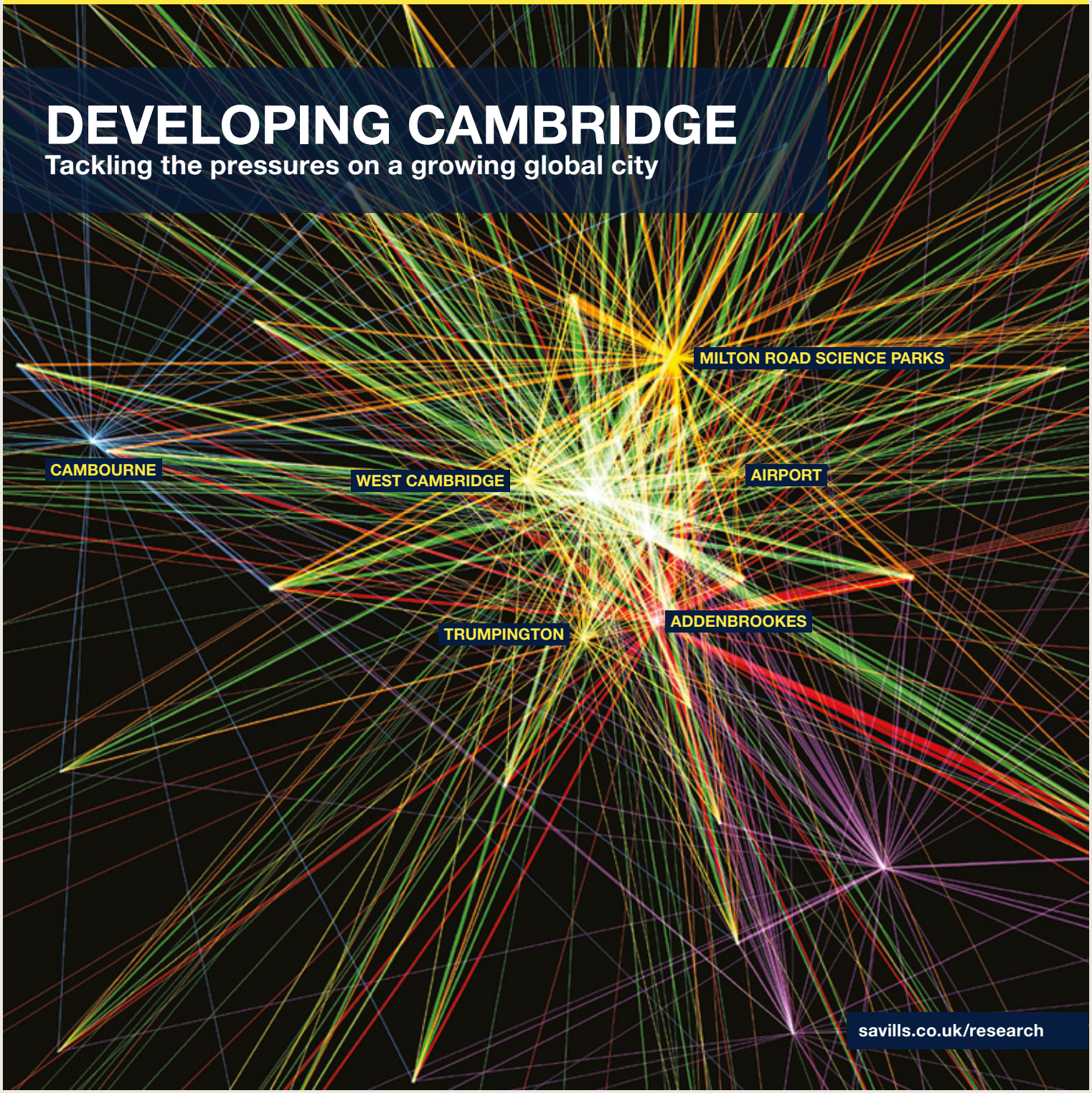
Spotlight
Cambridge Cross Sector

2016



This publication

This document was published in May 2016. The data used in the charts and tables is the latest available at the time of going to press. Sources are included for all the charts. We have used a standard set of notes and abbreviations throughout the document.

▶ Cover image depicts a commuting map of Cambridge

Foreword
CAMBRIDGE AT A CROSSROADS

Big decisions lie ahead for this fast growing city if it is to maintain its world leading status

Cambridge is a global success story but failure to embrace further growth will impact on its competitiveness and ultimately its contribution to the national economy.

As one of the fastest growing economies in the country, this medieval city punches above its weight. Despite a population of just 284,715 across Cambridge and South Cambridgeshire, its influence as a world-leading centre for research and development stretches well beyond its city boundaries, attracting global companies such as AstraZeneca and accommodating over 4,300 knowledge intensive firms.

This activity underpinned strong employment growth of 31.3% in Cambridge and South Cambridgeshire in the 10 years to 2015, far exceeding the UK average of 12.1%. People have followed the jobs, resulting in population growth of 11.8% over the same period compared with the national average of 7.8%.

Yet this growth has come at a price. Cambridge is suffering from significant pressure on housing, workplaces and infrastructure which needs to be addressed if the city is to continue to compete globally.

There is a risk that failure to tackle these pressures could constrain growth of existing companies, impact on the city's attractiveness to future new employers and result in a skills shortage as jobs and talent go elsewhere.

Global competition

Given the global nature of much of the city's knowledge economy, Cambridge could lose out to competitors such as Boston in the US, rather than other UK neighbours, resulting in a loss for the national economy as a whole.

Cambridge and its hinterland has seen strong continual demand for commercial space which is not being matched by supply. Our analysis shows that availability of office and research and development space will have fallen by 90% in the five years to 2017.

A shortage of housing is also adding to affordability pressures despite a significant increase in house building. We calculate that Cambridge and South Cambridgeshire should be building 2,415 new homes a year assuming current policy levels of affordable housing identified as viable in their Local Plans.

This target is 748 homes higher than the current estimate of need. Given the average housing delivery rate over the last four years, this leaves a shortfall of 1,008 homes a year.

Options for growth

Meeting demand for workplaces and homes requires bold decisions and a joined-up approach between Cambridge and regional local authorities. In this report, we not only set out the challenges facing a growing city but also explore options for further growth and the infrastructure improvements needed to link jobs to housing and tackle the city's congestion problem.

These include: further densification within the city boundaries, reviewing the Green Belt to allow for expansion, extending existing satellite towns and developing new settlements in the wider area.

None of these options are solutions on their own but business as usual is not an option if Cambridge is to stay ahead.

EXECUTIVE SUMMARY

Cambridge must meet demand for more workplaces and homes to stay ahead
See pages 04/05

Lack of supply to drive up office rental growth affecting city's competitiveness
See pages 06/07

Cambridge and South Cambridgeshire should be building 2,415 new homes a year
See pages 08/09

Meeting demand for workplaces and homes requires bold planning decisions
See page 11

Development pipeline: where is Cambridge growing?
See page 13

Commercial market

GLOBAL SUCCESS REQUIRES GROWTH

Cambridge has seen strong continual demand for commercial space. But supply will have fallen by 90% in the five years to 2017

Strong economic growth has brought big challenges. Success has placed significant pressure on demand for employment space, housing and infrastructure investment. Our analysis shows that supply of commercial space and housing is failing to keep up with demand.

Following strong take-up of commercial space over the last three years, including by some big international names, we expect the availability of office and research and development space to bottom out next year and this will restrict choice for occupiers of all sizes. (Figure 1)

These challenges risk constraining further growth if not addressed. Without further development, existing businesses may not find the space to expand, new businesses could choose alternative locations and employers will struggle to attract and retain a workforce who cannot afford the cost of local housing.

Employment growth

On a global stage, Cambridge is a science, technology and innovation centre and has attracted some of the largest global companies including AstraZeneca, Microsoft and Gilead Sciences. Innovation is also strong. Cambridge is first with 101.9 patents granted in 2014 per 100,000 people, far above the UK average of 3.6 according to the Centre for Cities.

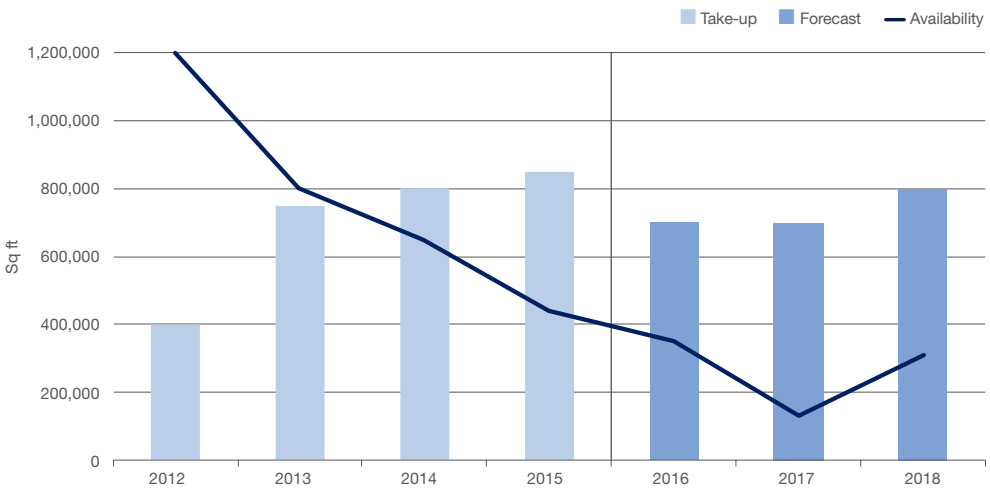
As a result, Cambridge and South Cambridgeshire have seen employment grow by 31.3% in the 10 years to 2015. Data from Oxford Economics also shows that almost 20% of Cambridge and South Cambridgeshire economy is driven by the professional, scientific and tech sectors.

The attraction of Cambridge is for like-minded companies to cluster, which is most relevant for the life science and technology sectors. As technology advances, there is significant opportunity and growth within the dominant sectors in Cambridge.

> "On a global stage, Cambridge is a leading science, technology and innovation centre"
> Savills Research

FIGURE 1

Office/R&D availability will bottom-out in 2017



Source: Savills

Development is required for existing businesses looking to expand

New housing is required for the workforces of these growing businesses

Professional, scientific and technology output per head by 2020 will be over £58,000 in the UK (excluding Cambridge and South Cambridgeshire) according to our calculations using Oxford Economics data. In comparison, Cambridge will be around £70,000, 20% higher, and South Cambridgeshire at approximately £77,000 per employee, will be a third higher. However, this assumes continual growth.

Role of the University

The University of Cambridge has the third most successful university innovation ecosystem in the world behind Stanford and Massachusetts Institute of Technology (MIT Skoltech Initiative Report 2014). The city has been incredibly successful in establishing, nurturing and growing spin-outs from the colleges.

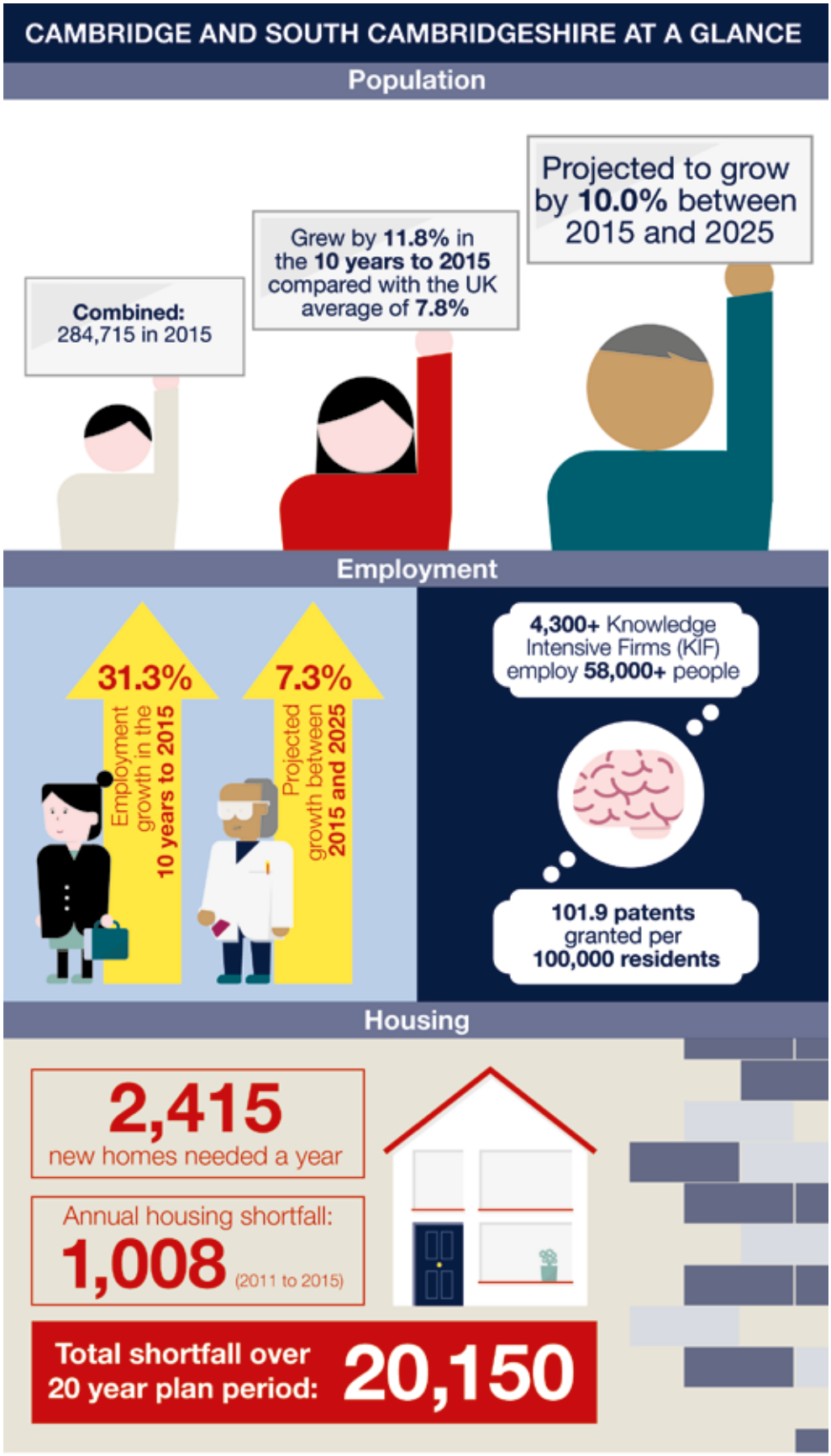
Cambridge University Computer Lab alumni have accounted for over 240 companies alone. Also, recent statistics have shown that the follow-on funding for the University of Cambridge spin-outs has amounted to £1.4 billion. However, there is more that can come from this and the comparison to MIT, with around 11,000 students, shows the potential achievable scale within an appropriate funding environment. A 2011 survey of living MIT alumni found they have formed 25,800 companies and had revenues over £1.2 trillion per annum. This revenue is only 20% less than the UK's total GDP in 2015.

Beyond Cambridge

The 'research triangle' is important but a linear axis of bioscience has emerged between Cambridge, through Hertfordshire and into London, specifically around King's Cross and the Euston Road, where medical research clustering is significant.

South Cambridgeshire remains the most concentrated for the life science sector in the UK and a major cluster in Europe. The strength of this cluster will support further related development to the south of the city.

However, competitive locations exist throughout the UK. Reading, for example, remains the UK number one technology cluster, based upon the number of companies, with one in five enterprises being tech sector companies, more than three times the national average according to KPMG. Of course, Cambridge remains the major bioscience cluster. →



Source: Oxford Economics, Cambridge University: Innovation in Numbers (February 2016), DCLG, Cambridge and South Cambridgeshire Local Plan Examination, Objectively Assessed Housing Need: Further Evidence (November 2015), Savills, Centre for Cities Outlook 2016

Office/R&D property market

Cambridge benefits from the two main sectors of technology and bioscience "colliding". The shift to bioinformatics and the computer modelling of drug discovery places Cambridge in a sweet spot of growth, ahead of the rest of the UK and potentially Europe.

Where is this best accommodated, encouraged and/or developed further? Constraining factors for Cambridge will include the affordability of commercial floorspace.

While uncertainty over Brexit has prompted a slowdown in leasing activity so far this year, the mismatch of supply and demand remains. There is currently anticipated requirement from more than a dozen companies looking for more than approximately 50,000 sq ft each.

For occupiers wanting even more space, only design and build options are available. This entails a wait of around two to three years for the development to emerge which may prompt the company to seek space in competing cities.

Demand from smaller startups and incubator-style occupiers within Cambridge remains resilient and specialist pioneering research in the life science sector has led to pharmaceutical companies and technology firms aggressively acquiring companies and growing.

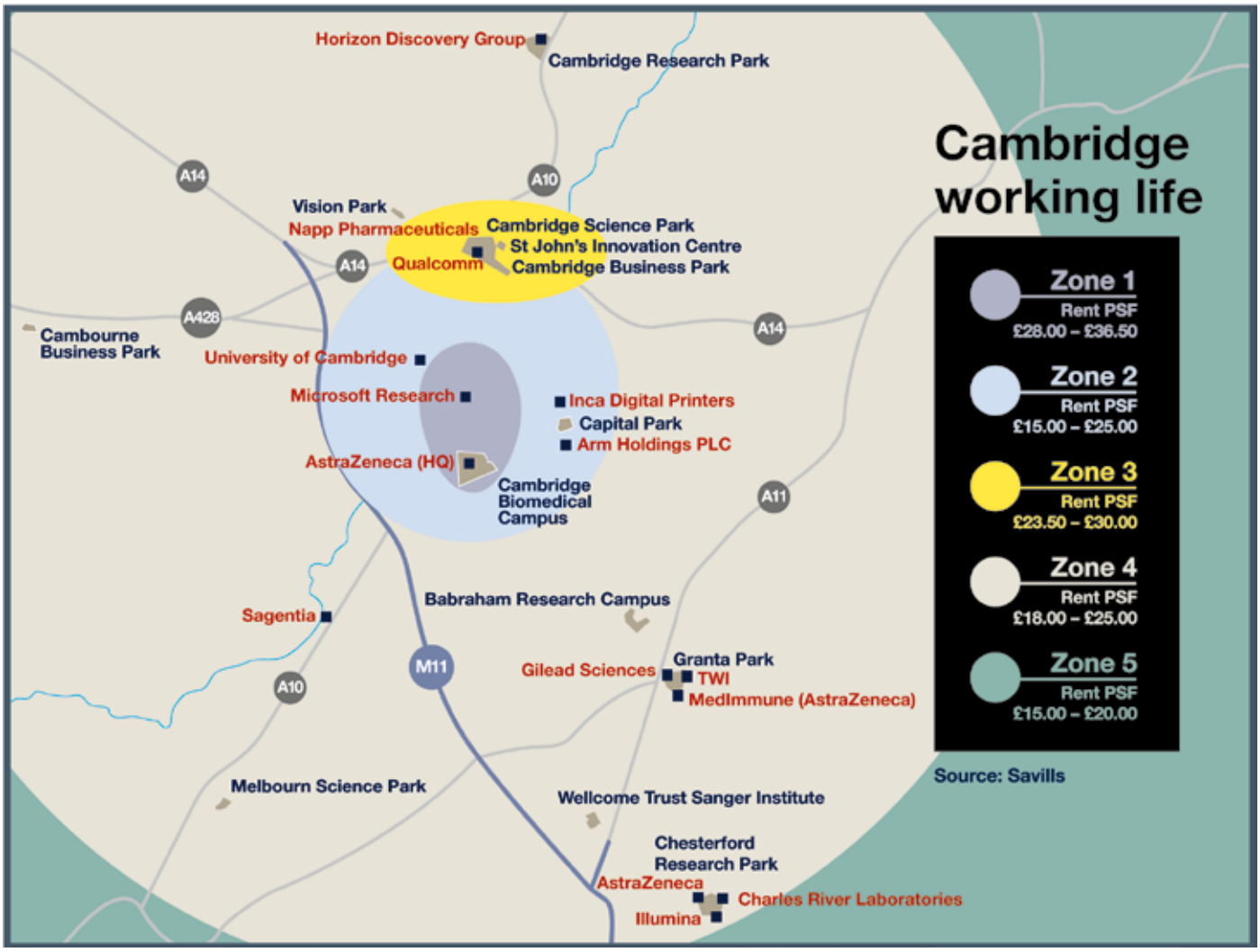
At the same time, a number of established Cambridge and international names are continuing to expand within the city as their business needs change.

Most notably, we have seen a shift in bioscience companies clustering south of the city, with the Science Park continuing to also attract these uses as well as technology firms. AstraZeneca have committed to a complex of circa 850,000 sq ft at the Biomedical Campus to be operational by 2017, and recently acquired a further 55,000 sq ft of office space in the city centre as well as space at Cambridge Science Park and more recently at Chesterford Research Park.

Most recently, Illumina have committed to 150,000 sq ft of offices and laboratory accommodation at

FIGURE 2

Key employers in and around Cambridge



Source: Savills

Granta Park, and Gilead are on-site at Granta Park building out 100,000 sq ft. Without matching supply, availability of space is set to fall by 90% from end-2012 to end-2017 (see Figure 1 on p4).

The northern side of Cambridge, with the Science Park, Cambridge Business Park and St John's Innovation Park, remains the area of highest density of office and R&D occupiers within the City. There remain few commercial development plots suitable or capable of housing significant development.

Rental growth

The consequence is that rents will continue to grow (Figure 3). Lack of supply is likely to drive prime rents even higher and tighten lease incentives, as competition for existing accommodation heightens. Furthermore, the lack of supply in the city centre is forcing some occupiers to look at wider locations, such as the business parks or further afield.

Rising rental levels will resonate throughout the Cambridge office market as it will continue to be driven by smaller companies, which provide the backbone of the Cambridge ecosystem. It is estimated that around 20,000 of the 27,000 companies are employing fewer than 10 employees. These companies will look to grow and continue to establish their base in Cambridge, but, after personnel costs, rent will account for a significant proportion of their annual cost. Appropriately priced and affordable office space, in all locations throughout the market, is vital.

Cambridge rents have been more cyclical than compared to Oxford. In the early part of the last decade, Cambridge rents were 25% higher than Oxford. However, both markets moved in-line between 2002 and 2008. Since then, Cambridge has moved higher relatively quickly. Whilst Oxford rents have remained static, top Cambridge rents are now over 50% higher.

Labour cost

The link between salaries and residential prices is vital for Cambridge. We've compared the salaries of scientists employed by three global bioscience companies with a presence in Cambridge and Boston, US.

The difference in salaries accounting for exchange rate and personal taxation shows that UK based scientists are paid 40% less than their US counterparts. However, the cost of housing is broadly similar in both cities.

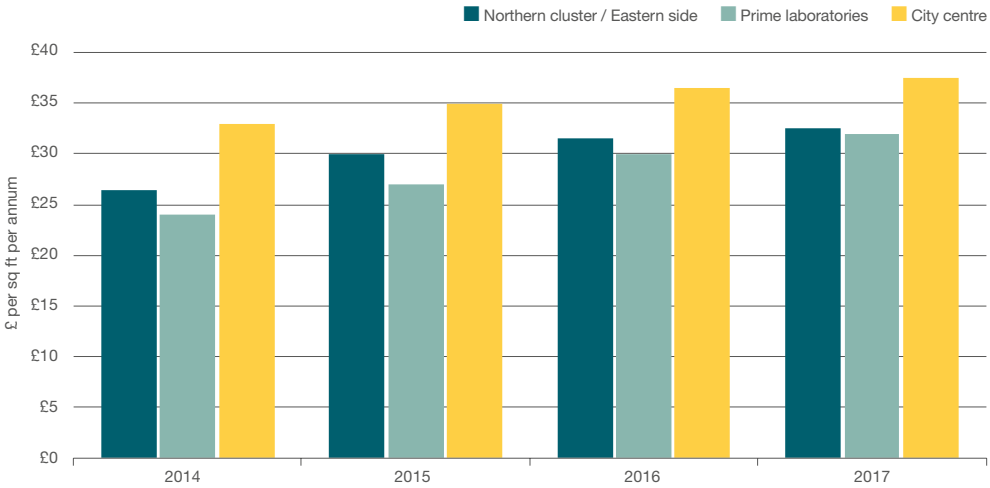
Latest pricing data shows that a home in Boston costs around £500 per sq ft in the city centre and £200 per sq ft outside. This compares with an average cost of about £400 per sq ft in Cambridge and £274 per sq ft in South Cambridgeshire.

Hence, if part of the attraction of Cambridge to global companies lies in the relative cost of the scientists, this competitive edge may recede as housing costs grow and affordability bites further.

▼ The Robinson Building, Chesterford Research Park

FIGURE 3

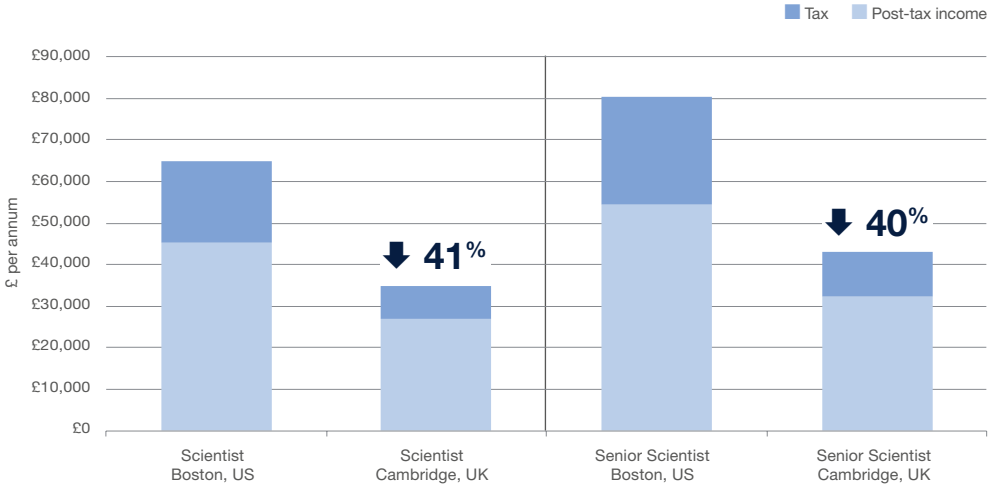
Positive rental growth over the forecast period



Source: Savills

FIGURE 4

UK scientist cost discount



Source: Savills

Residential market
HIGH DEMAND NOT MATCHED

Employment growth has attracted more employees to the city and surrounds, pushing up the cost of housing and leading to affordability pressures

▼ An aerial view of Cambridge

Cambridge is growing at a fast pace. House prices have risen rapidly since 2013, with growth rates on par with London, driven by robust employment growth and a strong local economy.

Our analysis shows that price growth in Cambridge has reached new heights. House prices are now 49% above their 2007/08 peak. Between February 2013 and February 2016, average prices increased by a total of 40.7%. With an overall average property price of £491,387, Cambridge has overtaken Oxford for the first time.

There is also growing evidence that house price growth is extending its reach into South Cambridgeshire, where over 50% of all residential property transactions are valued above £300,000.

Whilst house prices continue on an upward trajectory, affordability pressures are still mounting making it even harder for buyers to get on the property ladder.

Affordability pressures

The median salary in Cambridge is £30,700, whilst in South Cambridgeshire it is £32,680. With a median house price to income ratio of 12.8 in Cambridge (8.4 in South Cambridgeshire), homeownership is increasingly out of reach for many local people.

Even for high-earners, owning a home is becoming difficult. Although upper quartile salaries increased by 2.1% annually between 2008 and 2015 (to £43,000), house prices in Cambridge increased by 7.5% annually over the same time-period. This is in line with London trends, in which salary growth rates are unable to match those of house price growth.

For many, renting privately becomes the only viable alternative. However, with a median rental value of £1,166 for a two-bed property in Cambridge (£860 in South Cambridgeshire), a large proportion of income is required in this market too.

Regardless of tenure, worsening affordability points toward another crucial issue: housing need and supply.

Housing need

According to recent Local Plan evidence, Cambridge and South Cambridgeshire require 1,667 new homes a year, of which 799 ought to be affordable. Current policy levels of affordable housing identified as viable in the Local Plan suggest that affordable housing tariffs should be set at 35% and 30% for Cambridge and South Cambridgeshire respectively.

Based on our own analysis, we therefore calculated that in order to deliver the required number of affordable housing and the appropriate tenure mix, the combined housing target should be set at 2,415 per annum.

This target is 748 homes higher than the current estimate of need. Given the average annual housing delivery rate over the last four years of 1,407, this leaves a shortfall of 1,008 homes a year or over 20,000 across the whole 20 year plan period.

Government policy

In last year's Autumn Statement, George Osborne announced proposals for 400,000 affordable new homes focused on low-cost homeownership over the term of this parliament. This will include 200,000 Starter Homes, Help-to-Buy equity loans, broader eligibility criteria for 135,000 new shared ownership homes, and an expansion of the definition of affordable housing to include innovative rent-to-buy models.

In Cambridge, values are so high that home ownership is likely to remain out of reach despite the Government schemes. Discount rental products are therefore increasingly important for the Cambridge workforce. Developers and the councils may need to think creatively about how best to meet this

sub-market need, and there are signs this has already started with 1,500 new homes at NW Cambridge only available for University employees under a key worker scheme.

Residential demand

Cambridge has established itself as a global city, and as such consistently attracts people for its employment opportunities. The knowledge economy continues to thrive, with employment playing a significant role in driving demand across Cambridge's sales and lettings market.

Savills data highlights that employment has been a major driver of demand in the prime lettings market over the last three years. Two-thirds of tenants stated their reason for renting as employment relocation, with a further 29% stating lifestyle relocation.

Employment, particularly in science and technology, is also a principal driver across the sales market. Our data shows equal demand from buyers employed in this sector across all price-bands, reflecting the spectrum of salaries in the science and technology sector in Cambridge.

Meanwhile, in the high value market, most buyers of properties worth over £1million work in the finance and insurance sector. These buyers are more likely to commute further afield, with 33% between 2013-15 stating London as their employment location, according to our data.

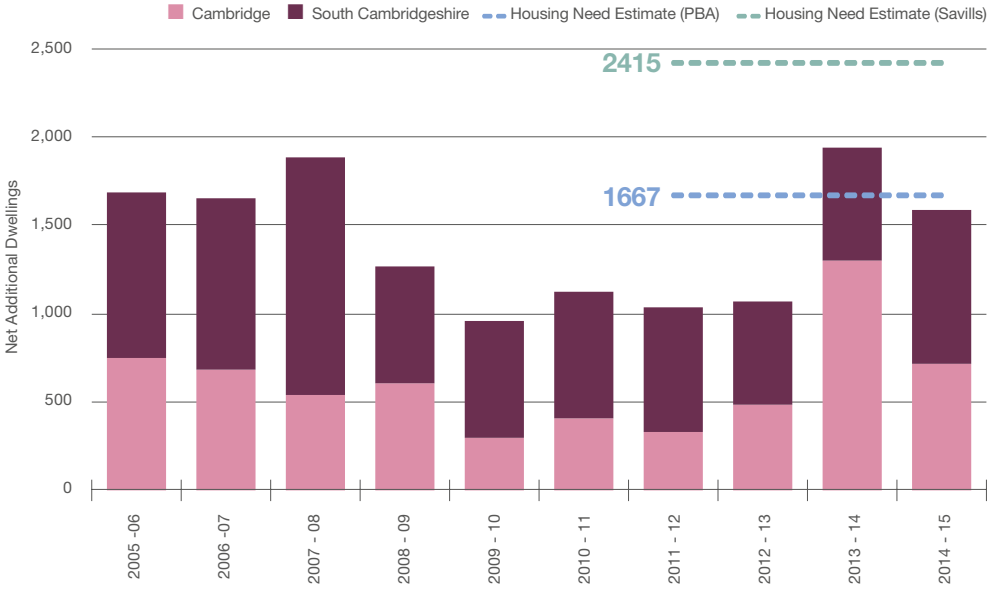
This ripple effect of money moving from the capital is consistently bringing wealth into the Cambridge market, pushing up values in sought-after neighbourhoods. As a result, Newnham, the most expensive area, had an average sale price in 2015 of just under £1million.

Although Cambridge remains predominantly a home-grown market, over the past five years the proportion of international buyers purchasing prime property has been increasing. Most significantly, the nationalities of these buyers have diversified, with the most prominent internationals now Western Europeans and North Americans, accounting for 8% and 5% of all prime purchases in 2015.

With Cambridge's status as a global city and a world-class University, it is unsurprising that the market is attracting an increasing level of international interest. ➔

FIGURE 5

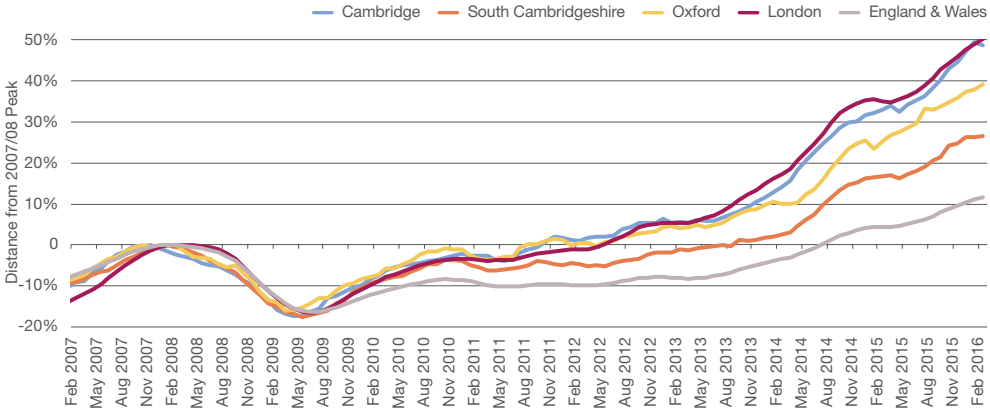
Housing need: what is the correct target?



Source: DCLG, Savills, Peter Brett Associates

FIGURE 6

Strong house price growth



Source: Savills using HM Land Registry Data

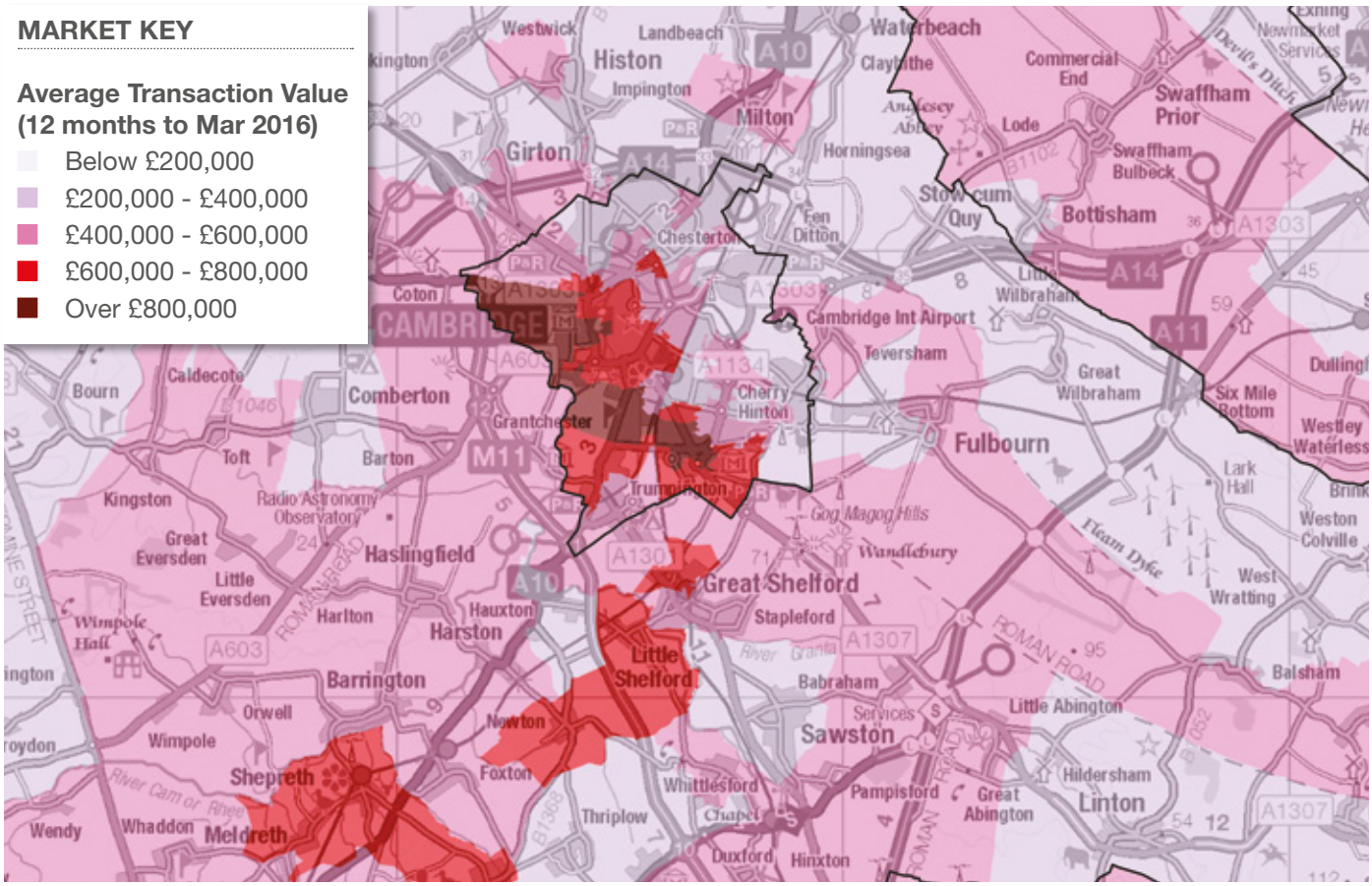
FIGURE 7

Tenant reason for renting

Source: Savills Research

FIGURE 8

House price heat map



Source: Savills Research

FIGURE 9

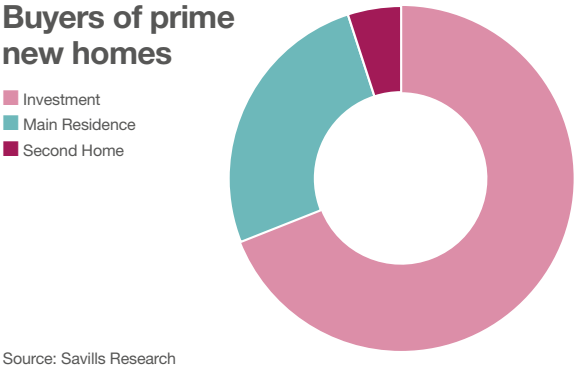
Average cost of new build homes

Number of Bedrooms	Average Price
1	£301,217
2	£377,805
3	£480,199
4	£786,024
5	£1,049,576

Source: Savills Research (Note: Cambridge city only)

FIGURE 10

Buyers of prime new homes



Source: Savills Research

New build residential

Beyond the city centre, uncertainty over Brexit, affordability pressures and changes in government policy aimed at buy-to-let investors, have all dampened demand for new build homes in the short term.

Our data shows that the prime new build market in Cambridge has been heavily reliant on investor buyers. Between 2014 and 2015, 69% of purchasers were buying for investment, with 26% purchasing their main residence and 5% buying a second home.

The recent introduction of an additional 3% surcharge on top of stamp duty rates for investors and second home buyers, the phasing out of mortgage interest tax relief for landlords and the fact that residential property was exempt from plans to cut Capital Gains Tax, has all had a calming effect on investor demand. Likewise, the upcoming EU referendum is creating uncertainty for potential investors.

Affordability pressures are also reflected in the higher demand for smaller units, with more affordable one and two bedroom properties making up 76% of our sales in 2014 to 2015.

Whilst moderate demand remains for the smaller, more affordable units, the demand for properties of all types may return once the market has had a chance to settle, and the popularity of the area with families and young professionals is expected to continue underpinning this demand.

The prime new build market in Cambridge has been heavily reliant on investor buyers

Planning and policy

GETTING OVER THE GROWING PAINS

Meeting demand for workplaces and homes requires bold decisions. We explore options for further growth

Business as usual is not an option. To remain competitive on the global stage, Cambridge must embrace growth and provide both new commercial space for its thriving industries and affordable residential properties for the workforce of the future.

Without bold action, successful existing businesses will not be able to expand, new ones will go elsewhere, and attracting and retaining staff will become increasingly difficult due to a lack of affordable housing.

In this section we set out three options for growth, looking at how they could be achieved and the potential barriers to delivery. We believe that only by using a blend of all three can the growth needs of the city be fully met.

In no particular order, the first option is to increase densities in existing locations. The second is to expand the urban area of the city, by altering the inside edge of the Green Belt boundary again. Finally, expansion could be delivered through extending surrounding towns and villages and developing new settlements in the wider area.

The Cambridge sub-region (stretching from Huntingdon to Bury St Edmunds and Ely to Saffron Walden) has an enormous role to play in accommodating the city's housing needs. According to our database, which monitors the development pipeline, we expect to see almost 12,000 new homes delivered in Cambridge and across this area over the next five years, with the potential for a further 59,000 new homes in the longer term (see p.13).

Building up

First, some myth-busting: high density does not mean towers and skyscrapers, and densification does not mean demolishing existing stock. Using space more efficiently in the city could mean adding storeys to office and laboratory buildings, or infill development of lower density residential suburbs.

This approach is likely to work best with commercial developments, as tech and science occupiers derive a lot of benefit through clustering together and there is scope to densify science parks by adding new buildings.

There are limited examples of this approach being put into practice, particularly in the area south of the city centre around the station, with the Botanic House office building and the 10-storey Marque apartment scheme on Hills Road the tallest in the area.

Building out

Expanding outwards is the default option for urban areas without a Green Belt or a tightly drawn local authority boundary. But Cambridge has both of these issues. Dealing with them is a political problem more than anything else – the land is there, developers want to build on it, and people would happily move there.

One method for expanding a constrained city was put forward by URBED in their successful 2014 Wolfson Economics Prize entry, suggesting Britain needs to "take a confident bite out of the Green Belt" and allow successful cities to grow up to twice their current size. This would be carried out through a series of urban extensions, all served with new amenities and public transport links.

The last major review of the Green Belt was under the Cambridge Local Plan in 2006. Land for 6,000 homes in the Green Belt was released, mainly to the north west and south of the then urban area. The latter is now known as the Southern Fringe, where new residential districts totalling thousands of homes are currently under construction, providing new homes at a more affordable price point compared with the traditional prime city centre locations. But despite the obvious pressure on the housing market local opposition to further releases is fierce. →

▼ The heritage city is a global success story

In some parts of the city expanding the urban area would increasingly involve developing in South Cambridgeshire, adding complexity to the situation. The neighbouring councils have set up a Joint Strategic Planning Unit and their Local Plans are being jointly examined. They are also working together as part of the Greater Cambridge City Deal, and further devolution of powers is mooted too.

Building elsewhere

This final approach is the main one being pursued at present: a combination of expanding existing satellite towns and villages and creating new ones. Many of the sites in the pipeline are former RAF airfields, fulfilling criteria for brownfield redevelopment and efficient use of surplus public sector land and avoiding the opposition faced by Green Belt proposals.

The benefits of satellite towns, Garden Villages and new settlements are clear. Homes are much more affordable than those in Cambridge, with the average value of the towns listed opposite, approximately 50% lower. There are also positives in terms of capacity – sites at various stages of planning or construction include 9,500 homes at Northstowe, 8,000 at Waterbeach, 5,000 at Alconbury and 3,750 at Wyton.

But there are barriers to successfully creating new places. Although the total capacity is high the projects are often very long term, due to a combination of long lead-in times and slower sales rate in comparatively weaker markets. In conjunction with the large costs involved in bringing forward such schemes this results in a lot of risk.

Homes in satellite towns cost on average 50% less than in Cambridge

COMMUTING IN CAMBRIDGE

The dominance of car commuting

As we've seen earlier in the report, most major employers want to be based in central areas, leading to a lot of commuting into the city. This has implications for the local transport infrastructure.

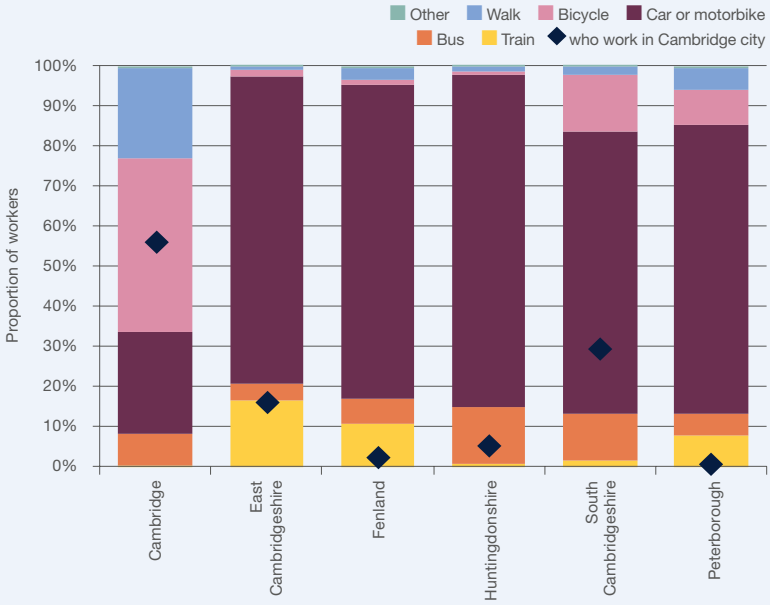
The chart below shows both the proportion of working residents in each district who commute to Cambridge (black diamonds) and the main method they use to travel to the city. The dominance of cars is overwhelming, even from neighbouring South Cambridgeshire.

In the 2011 Census Cambourne had a working population of over 3,000 people, of which 33% worked in Cambridge and 37% in South Cambridgeshire. Over 75% of both groups typically travelled to work by car, an indication of the need to make sure infrastructure – in particular transport – is planned and delivered in parallel with housing.

The guided busway, improvements to the A14, a new Cambridge North station, and the proposed reconstruction of rail links to Bedford are all steps in the right direction for increasing capacity and opening up new sites for development.

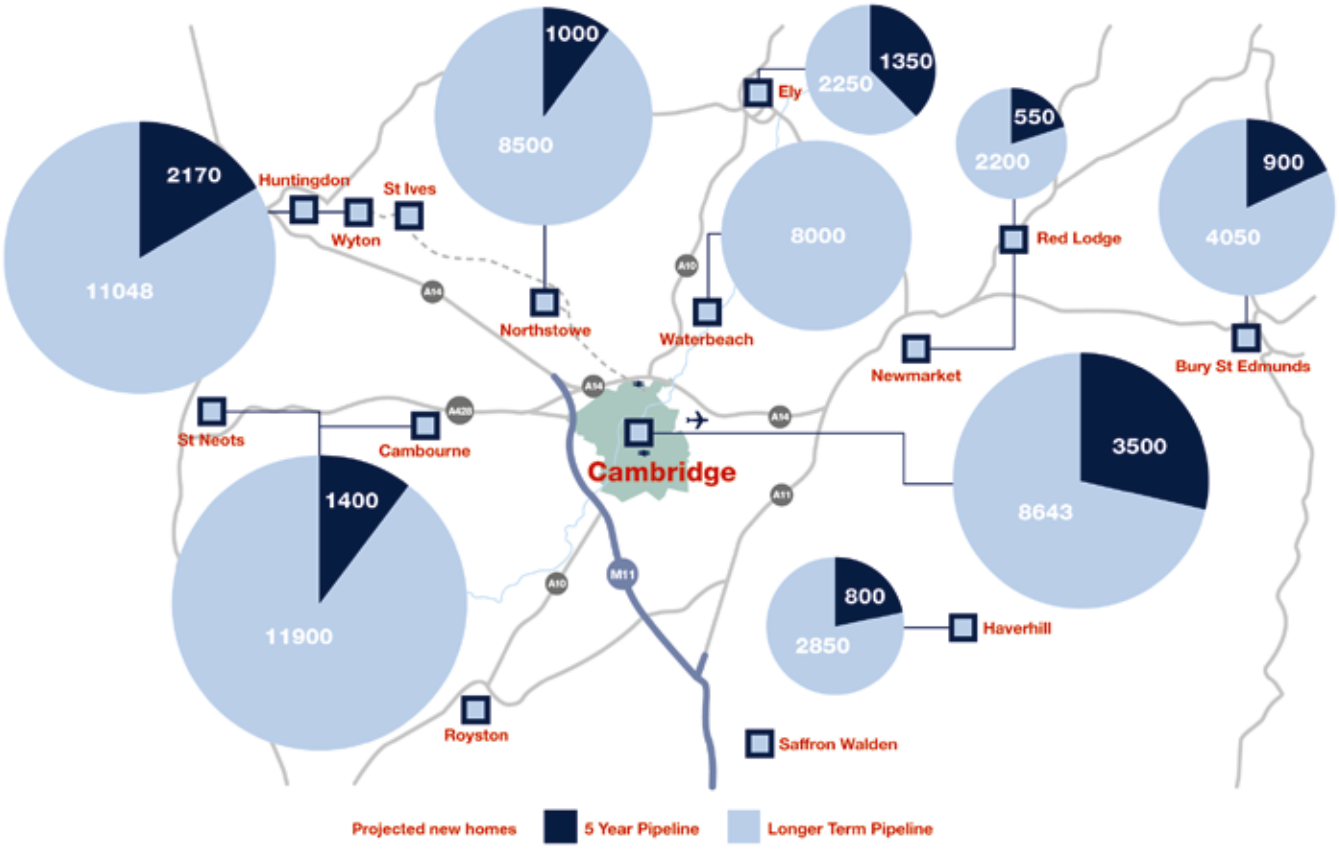
FIGURE 11

Travel to work breakdown

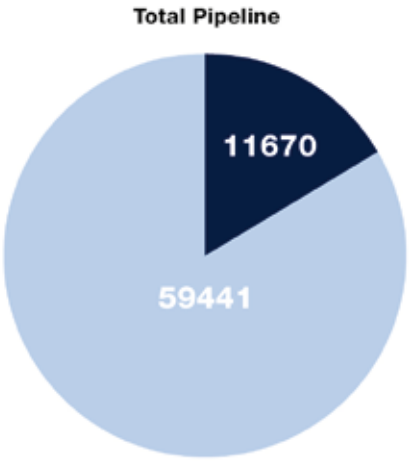


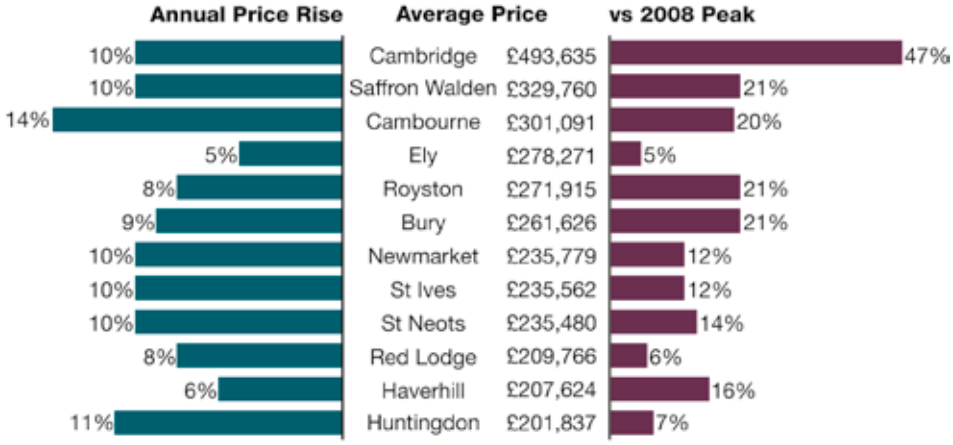
Source: Census 2011

Anticipated housing **development**



The **Market** at a glance





Source: Savills development database (schemes over 300 units), Land Registry

OUTLOOK AND RECOMMENDATIONS

The need to plan for further growth

1. Invest to attract investment. The scale of recent inward investment is significant with global corporates choosing Cambridge and new businesses starting up and expanding. But Cambridge must plan for further growth if the city and sub-region is to continue to benefit from the two main sectors of technology and bioscience colliding.

2. More employment space needed. There are opportunities for the commercial property market to absorb some demand from current and in-coming companies on existing sites with redevelopment or densification of existing science and business parks. Looking forward, more employment land should be brought forward, including out-of-town and fringe locations.

3. Deliver a greater mix of housing. Despite a growth agenda, there is still an undersupply of housing in and around Cambridge, particularly at lower price points. Addressing affordability pressures requires not only a significant increase in housing delivery but also a wider mix of homes including a variety of tenure.

4. Local councils need flexibility to react to specific needs. Changes in Government policy regarding affordable housing will have an impact on tenure mix with a greater onus on homes for sale. This could make it harder to address affordability concerns. Starter Homes could compete with other forms of tenure and leave a gap at the bottom of the market.

5. Upgrading infrastructure is key. Cambridge's sphere of influence stretches well beyond the city and the South Cambridgeshire boundaries, with workers commuting into the city and the surrounding business parks. More in-commuting is not sustainable with current infrastructure. Value uplift in satellite towns could be used to pay for upgrades but capturing this requires joint working across the local authorities and a strategic vision for the 'city region'. A pro-active approach is essential.

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