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INFRASTRUCTURE
STRATEGY

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Quality information

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Contents

1.1 Objectives & Scope of the Strategy

The Oxfordshire Infrastructure Strategy (OXIS) has been prepared on behalf of the Oxfordshire Growth Board to provide a view of emerging development and infrastructure requirements to support growth from 2016 to 2031 and beyond.

At present a strategic view of growth distribution and infrastructure provision is lacking across Oxfordshire. Each local authority is at a different stage of Local Plan preparation and infrastructure is being provided by a host of different providers.

The Oxfordshire Infrastructure Strategy covers all forms of strategic infrastructure supporting the economic, environmental and social needs of the study area. The strategy covers all local authorities in the county of Oxfordshire, however the strategy has also considered the county in its regional context.

The strategy considers growth forecasts and associated infrastructure requirements from 2016 through to 2040. The period from 2016 to 2031 is the core planning period as this aligns with the majority of Local Plans in preparation in the study area (with the exception of South Oxfordshire Local plan which runs to 2033 and the proposed Oxford City plan which run to 2036). The period post 2031 to 2040 has less clarity and weight attached to it as it forecasts beyond the planning horizon of local authorities and infrastructure planning partners.

The Oxfordshire Infrastructure Strategy has been produced for the following audiences:

– Members and officers of Oxfordshire County Council, and the five District and City Councils

– The OXLEP, to inform priorities for investment to support growth objectives at the sub regional level

– Government and Infrastructure Providers to demonstrate the potential distribution of growth, infrastructure requirements and funding gaps

– Residents and businesses to provide a regional view of development and infrastructure requirements and the challenges but also opportunities from delivering infrastructure across Oxfordshire.

The Growth Board has commissioned this Strategy to address the following objectives:

– To set out the priority strategic infrastructure investment needed to support jobs and housing growth in Oxfordshire

– To shape & influence investment strategies and plans at a national, sub- regional and local level

More broadly the Oxfordshire Growth Board has identified a number of roles which the OXIS will also provide which include the following:

– Prioritise the delivery of different types of strategic infrastructure;

– Maximise the use of available and planned infrastructure capacity;

– Make better informed choices about the location of future growth;

– Aligning infrastructure delivery with the timetable of growth and the strategic planning work across Oxfordshire;

– Better position Oxfordshire in funding and investment discussions with government;

– Improve the quality and content of bids for external funding;

– Inform and enhance strategic developer funding negotiations;

– Facilitate dialogue with communities, developers and key stakeholders on the impact of growth.

– Demonstrate the attractiveness of Oxfordshire as a business investment location;

– Sell the Oxfordshire 'brand' within the wider England's Economic Heartland (EEH) context as well as within the sub-national, national and international context.

The OXIS will help inform each district councils Infrastructure Delivery Plan, but that as OXIS focuses on strategic infrastructure priorities the detail of infrastructure requirements for development within each Local Plan will still be needed to set out in respective Instructure Delivery Plans

The OXIS paints a strategic picture of the cost of and risks to growth. It:

– Collates and summarises population, housing and economic growth projections across Oxfordshire

– Sets out a combined understanding of capacity within current infrastructure provision and pipeline infrastructure projects being taken forward by local authorities and other infrastructure providers

– Highlights cumulative costs, funding streams and gaps in infrastructure funding

– Facilitates discussion across partners by highlighting the core infrastructure issues which require attention in order to enable sustainable social and economic growth

– Identifies the infrastructure investment required to promote balanced economic growth and support access to employment

Stage 1 of the OXIS was undertaken between September 2016 and January 2017. A detailed technical report was produced as a result of this work and is available on the Oxfordshire Growth Board website.

Stage 2 of the project has taken place between January and September of 2017 and undertaken the following tasks resulting in this strategy document:

– Consultation on Draft Stage 1 Technical document

– Stage 1 evidence base revisions in light of feedback from stakeholder feedback on Stage 1 technical document

– Development of a Multi Criteria Assessment (MCA) tool to enable a prioritisation process to be explored by the Oxfordshire Growth Board.

– Stage 2 Stakeholder engagement workshops to test the MCA tools underlying assumptions and criteria

– Multi Criteria Assessment of infrastructure projects according to regional, countywide and local scales

– Estimate of infrastructure investment costs, known funding sources and associated funding gap.

– Review of potential funding options for consideration by the Oxfordshire Growth Board and partners.

– Public engagement and communication through online publications and feedback form alongside a targeted public drop in event.

1.2   Stakeholder Engagement

The Oxfordshire Growth Board project team initiated the engagement process with an introduction letter to all identified infrastructure stakeholders to request their assistance in the development of the OXIS and to highlight the plan for stakeholder workshops.

Formal partner engagement for Stage 1 of the project consisted of the following workshops:

- A workshop with Oxfordshire County Council covering all infrastructure related teams, research and intelligence team, funding and delivery and the OXLEP.

- A workshop with representatives from each of the Oxfordshire Local Planning Authorities.

- A workshop with key infrastructure providers including strategic transport operators (i.e Highways England, Network Rail) the utility companies (SSE, Scotia Gas Networks, Thames Water) and the health and emergency services).

- A separate flood risk and drainage meeting between AECOM, Oxfordshire County Council and the Environment Agency

- A separate green infrastructure meeting between AECOM and Oxfordshire County Council

Wider one to one conversation between AECOM and other contacts identified at the project inception and as a result of the above formal engagement have also taken place but are not recorded formally in the Stage 1 document.

Following publication of the Stage 1 technical baseline report on the Growth Board web Pages (at www. oxfordshire.gov.uk/growthboard) comments were invited from the public which have been fed back into the project process in Stage 2.

All technical stakeholders engaged in Stage 1 of the project were also requested to provide feedback on the Stage 1 baseline report.

Formal partner engagement for Stage 2 of the project consisted of the following workshops:

- A full day workshop divided into four working sessions covering transport, utilities, green infrastructure and social infrastructure inviting all participants of the Stage 1 workshop process and a wider pool of attendees who were unable to join the Stage 1 events.

- A half day 'Drop in Event' at the Said Business School to exhibit the emerging findings of the Stage 2 project. Invitations to this event were issued to all stakeholders who had participated in the project engagement to date but also to a wider pool of interested parties, amongst others, environmental groups and representatives of business to attend an event to talk to the project team and review the emerging outputs of Stage 2 of the project.

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The OxIS engagement period was open from 19th July to 10th September 2017. In total, 69 responses were received including feedback from members of the public, businesses, landowners and stakeholder interest groups.

 In summary, the key messages were:

– The majority of respondents stated that they support the development of a countywide infrastructure strategy that examined infrastructure needs beyond the individual Local Authority boundaries.

– Some respondents, although welcoming a joined up strategy, question the timing of its production, and would like to have seen the infrastructure strategy developed up front, ahead of Local Plan major growth allocations.

– Questioning if the growth forecasts are realistic - respondents recognise that housing construction has not kept pace with our ambitions or new jobs growth.

– Concern is raised that some towns risk becoming 'dormitory' towns for commuters heading to London (e.g. Didcot) or, more locally, commuters to Oxford (e.g. Witney) if employment is concentrated in the cities. It is suggested this is not sustainable for the transport network and doesn't build communities.

– Investment in active modes and public transport (including rail and rapid transit) should be prioritised to ensure sustainable and healthy communities, questioning the value of major investment in new highway schemes, such as the Oxford to Cambridge Expressway.

– We should place more emphasis on Green Infrastructure, the historic environment and understanding the economic environmental value of Oxfordshire.

– Questioning the strategy for future electricity grid supply and lack of strategic overview as to how this should develop, in order to meet growth demands sustainably.

A variety of specific comments were also provided on the Stage 1 report (which is the baseline technical report published in April 2017). This has already been finalised but will be considered as part of the next review. There will be an opportunity to do so given OxIS is a live document, whereby the evidence base will undoubtedly change over time.

2.1 Regional Growth

Oxfordshire sits within a key corridor stretching 130 miles from Cambridgeshire, via the south-east midlands to Oxfordshire and contains approximately 3.3 million people. This has been recognised by Govenrment as being of national importance. The Cambridge, Milton Keynes and Oxford corridor covers six Local Enterprise Partnerships (LEPs) and is home to four of the UK's fastest growing towns and cities as well as containing globally significant centres of research expertise, educational institutions and advanced manufacturing. Cambridge, Milton Keynes and Oxford have strong, successful local economies, some of the highest levels of productivity, above average qualification rates and are perceived as highly desirable places to live. This is based on a strong presence of innovation and knowledge-led businesses, research institutes and other key economic assets, a highly skilled labour force, proximity to world markets such as London and a high quality of life. The educational, technology, research and business assets within this corridor are globally renowned and globally competitive.

Within the corridor Oxfordshires Knowledge Spine is home to some of the greatest concentrations of knowledge based employment. This builds on the large research and business parks driven by university and innovation led growth supported by the public sector and infrastructure investment. In terms of travel patterns, there are strong relationships between the corridor's most knowledge intensive employment clusters; Oxford in particular has a strong travel to work relationship with Swindon.

A report released by the National Infrastructure Commission (NIC) however identifies that the economic success of the corridor is threatened by a lack of housing and poor east-west connectivity. There is exceptionally strong demand for housing which has not been matched by supply and therefore both Cambridge and Oxford are characterised by high house prices and low levels of affordability. This increases costs for businesses and diminishes the ability of businesses to attract and retain globally mobile talent. Plans for East West Rail and the Oxford-Cambridge Expressway will however improve connectivity and support the corridors long-term prosperity and growth. The growth opportunities resulting from improved east-west transport links will require a strategic vision and cross-boundary partnerships to deliver the strategic plan for the corridor.

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Figure 1: Regional Growth

LEGEND

- 🔴 MAJOR HOUSING SITE
- 🟪 MAJOR EMPLOYMENT SITE
- 🟣 REGIONAL AIRPORT
- CAMBRIDGE, MILTON KEYNES AND OXFORD CORRIDOR LEPs
- OXFORDSHIRE

LICHFIELD

BIRMINGHAM

LEICESTER

PETERBOROUGH

COVENTRY

WORCESTER

CAMBRIDGE

BANBURY

MILTON KEYNES

GLOUCESTER

BICESTER

LUTON

OXFORD

ST ALBANS

SWINDON

CITY OF LONDON

SOUTHAMPTON

PORTSMOUTH

CHICHESTER

THE SCALE OF CHANGE
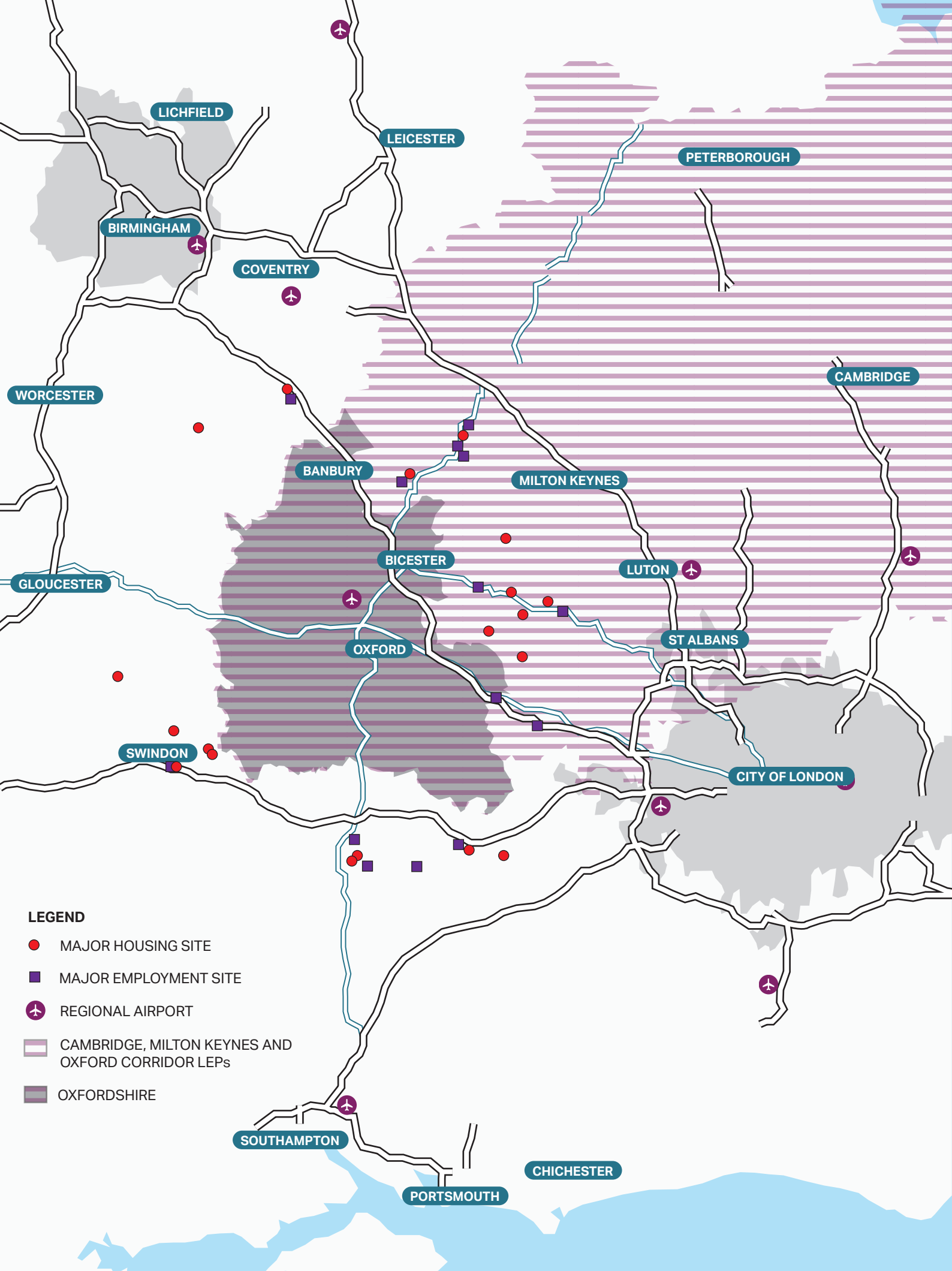
2.2   Oxfordshire Growth

Housing Growth

Oxfordshire authorities are forecast to accommodate housing and economic growth over the period 2016 to 2040 delivering the equivalent to **5,100 dwellings per annum, a total of 123,500 dwellings over the period.** This compares to average annual completions of 2,333 dwellings per year across Oxfordshire from 2011 to 2015. This would represent a significant step change in housing delivery dependent upon the infrastructure presented within this infrastructure strategy.

To be clear, the housing forecasts identified in the OXIS differ from those quoted in the SHMA as the SHMA focuses on the period between 2011-2031 whereas OXIS looks to 2040.

- SHMA Identified Need Figure (2011 - 2031):   c.100,000 homes

- Remaining SHMA figure to be completed (2016 - 2031):   85,000 homes
- 'Rolling forward' additional requirement (2031 – 2040):   38,500 homes
- **OXIS housing forecasts (2016 - 2040):**   **123,500 homes**

Note - Refer to Stage 1 Report for detailed explanation of housing growth figures

Economic Growth

The concentration of knowledge based resources, of national significance, within Oxfordshire are envisaged to drive further significant economic growth over the plan period. Building on the success of the knowledge economy new and existing enterprises are experiencing an increase in access to long-term risk capital.

The primary locations for the provision of new employment within Oxfordshire over the plan period will be within the Oxfordshire Knowledge Spine. This area includes the counties major research centres at Harwell and Culham, as well as Oxford and the primary towns of Bicester, Didcot, Grove and Wantage and the major employment centres such as Milton Park and Harwell. Key science parks such as Oxford Science Park, Begbroke Science Park and as proposed at North Eynsham will also play key roles in supporting the expansion of the knowledge and research economy within Oxfordshire.

Population Growth

Oxfordshire County Council Research and Intelligence team forecast a **population increase of 267,700 people** between 2016 and 2040, an increase of 39%.

This population growth will result in an absolute increase in population number for all age groups. However, the age cohort structure will change considerably in terms of the proportion represented by certain cohorts. The largest proportional growth will be in the over 70 years old cohort with the least growth in working age population.

These two changes will have a significant impact upon the economic and income generating potential of the Oxfordshire population and the need for support services, health and social care to support an elderly population.

5,100

Dwellings per annum

123,500

Additional Homes (2016-40)

25%

Job Growth (2016-40)

101,000

Additional jobs (2016-40)

39%

Population growth (2016-40)

267,000

Additional people (2016-40)

2

BANBURY

Cherwell

CHIPPING NORTON

BICESTER

CHARLBURY

WOODSTOCK

KIDLINGTON

West Oxfordshire

BURFORD

WITNEY

EYNSHAM

Oxford

OXFORD

CARTERTON

THAME

ABINGDON-ON-THAMES

FARINGDON

Vale of White Horse

South Oxfordshire

WALLINGFORD

DIDCOT

WANTAGE & GROVE

HENLEY-ON-THAMES

Legend

Oxfordshire County	Railway	**Housing Total Site Capacity (Units)**	**Employment Site Area (ha)**	
Surrounding County	Railway Station	○ < 50	2 - 5	
LA Boundary	City	○ 51 - 100	6 - 10	
Urban Area	Town / Large Village	○ 101 - 250	11 - 20	
Woodland		○ 251 - 500	21 - 40	
Waterbody		○ 501 - 1000	> 40	
Motorway		○ 1001 - 2000		
A Road		○ > 2000		
B Road				

Figure 2: Oxfordshire Growth

KEY FINDINGS FROM STAGE 1
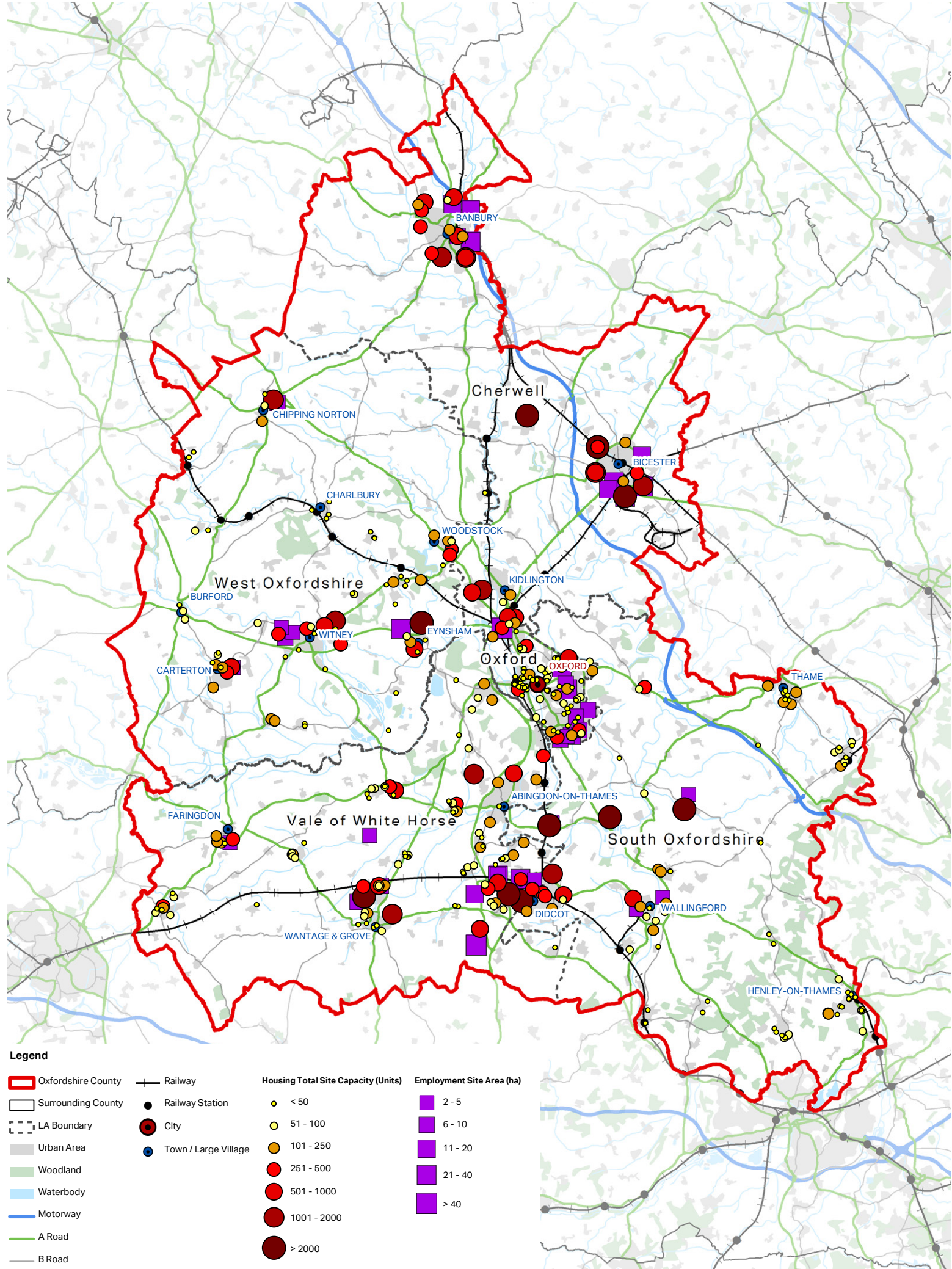
3.1 Transport

Strategic Road Network

Major congestion along the Strategic Road Network across Oxfordshire has an adverse effect on journey time reliability of those using the network. In particular heavy congestion is apparent along the A34 (which forms part of the ring road around the west of Oxford) between the junction with the A423 and the point at which the A34 meets the M40 and along the M40 between junctions 9 and 10.

Technology improvements are due to start in 2019/20 along the A34 between the M4 and M40 which will improve safety and reduce congestion. However, capacity along the A34 is currently insufficient to sustain the level of traffic accessing Oxfordshire and the M40 leading to congestion and delays, which is a key constraint for any future housing development. It is anticipated that pinch point schemes undertaken at junction 10 will not be sufficient to support the future housing growth proposed at Brackley (Northamptonshire). A lack of direct route between the M1 at Milton Keynes and the M40 near Oxford is evident leading to inefficient routes via minor roads. The government has committed to delivering an Expressway which will run between Oxford and Cambridge.

Local Road Network

Key local road corridors in Oxfordshire experience congestion particularly during peak hours. These include the A40, A34, A420, Oxfordshire Ring Road and A44. Congestion in Oxfordshire has a significant impact on bus journeys causing delay along important corridors. Furthermore, there are several Air Quality Management Areas (AQMAs) along the local road network in Oxfordshire.

Numerous local road improvements are proposed to alleviate both existing congestion hot spots and to plan for proposed growth in Oxfordshire up to and beyond 2031. These include;

- Link road between the M40 at Overthorpe Road to the A422 Hennef Way, Banbury
- A link road between the A44 and A40
- Didcot Science bridge and capacity improvements to the A4130 including Didcot North Perimeter Road.
- Wantage Eastern Link Road (WELR)
- South East Perimter Road in Bicester

Rail Network

The capacity available along lines running south of Oxford is anticipated to be fully utilised by 2019, without taking into account future housing growth proposed in the future. The gap between demand and the ability to deliver the infrastructure required is increasingly leading to limitations of growth for both the economy and expected housing. Provision of additional infrastructure and enhancing the rail services available across Oxfordshire will be vital to support the increased demand for both passenger and freight services in the future. In particular improvements between Oxford and Didcot will unlock opportunities to increase connectivity to the North Cotswolds, West of England and Heathrow. Pre 2031 proposed rail improvements include:

- Phase 2 of East West Rail which will reinstate the link between Oxford, Bicester, Milton Keynes and Bedford
- Additional capacity through grade separation at Didcot East
- Four tracking between Oxford and Radley to mitigate conflict at Oxford North Junction

The Central and Eastern section of East West Rail, which includes the construction of a new railway between Bedford and Cambridge, is seen as essential to support growth pre 2031.

Post 2031 additional infrastructure provision is anticipated to include electrification of East West Rail between Oxford and Bletchley, the redevelopment of Oxford and Didcot Stations (associated with four tracking and associated increased frequency of services) and upgrading of the Cowley Line with new stations at Oxford Science Park and Oxford Business Park.

Strategic Rapid Transit

A strong strategic urban bus network exists within Oxfordshire with the provision of high quality bus facilities and bus priority measures. However, the rural and interurban bus network is significantly less developed. Congestion along key roads results in services being delayed and unreliable.

A well-established Park and Ride (P&R) network exists with five current sites; however the close proximity to Oxford ring road means this has the potential to add additional pressure and congestion on the road network.

A key objective in Oxfordshire is the development of three Bus Rapid Transit lines. Significant proposals exist to review the P&R network, including provision of new P&R sites further out of Oxford and exploration of expansion of existing P&R sites.

There are various schemes to improve bus connectivity throughout Oxfordshire these include Bus Priority Lane on A41 approach to the M40, Refurbishment of Gloucester Green bus terminal and expansion to increase capacity in sites in South Oxfordshire and Vale of White Horse.

Options for an Expressway Scheme, linking Oxford - Milton Keynes - Cambridge, are currently under investigation and may in turn provide opportunities for strategic rapid transit connections along this important corridor.

Active Modes

Redevelopment in Oxford city centre is anticipated to generate increased footfall through the main pedestrian routes in Oxford, therefore pedestrian infrastructure in Oxford need to be developed. This is also the case in each of the urban centres across Oxfordshire.

At present cycle routes between Oxford city centre and residential areas outside of the ring road are severed causing commuter journeys by bike to be inhibited. A series of Super Cycle Routes are proposed along key arterial routes including the Abingdon Road and Woodstock Road in Oxford and the A44 and A4260 in south Cherwell. Further investment in cycling infrastructure is also proposed between Witney and Carterton, across Science Vale and Bicester. It is anticipated that additional infrastructure will be required to support the proposed Didcot Garden Town.

Across Oxfordshire as a whole, soft measures will be required to encourage sustainable travel choices, safe active travel corridors (particularly to schools and educational establishments) and utilise smart surveillance of active travel behaviour.

Oxfordshire Cycling Network launched a proposed Strategic Cycling Network for the county in March 2017. This is a vision for a future network based on analysis of population, planned development and potential routes that OCN have developed, with input from cycling groups and cyclists across the county. This has developed a complete strategic network across the county, which will be developed in coming months.

Road Freight

The A34 provides a key route for road freight travelling north from Southampton port, providing a direct link between the M3 and the M40. Key infrastructure required to support growth includes the provision of a Freight Consolidation Centre on the outskirts of Oxford, increasing capacity on the A34 and the provision of secure HGV parking facilities to prevent informal parking on the highways.

Aviation

The existing London Oxford Airport receives private aircrafts, but also provides facilities for freight flights mainly serving Honda in Swindon and BMW in Cowley. There are currently no public transport links between the airport and the surrounding rail stations, meaning it is solely accessed via the A44.

Whilst no infrastructure improvements are proposed, a small passenger terminal will be required to facilitate the potential introduction of commercial flights in the future which could operate out of the airport. If the airport provided commercial flights, bus services operating between the airport and Oxford Parkway could also be served by the proposed Bus Rapid Transit Line 1 (see countywide projects in chapter 5) .

3.2 Education

Primary Education

The planning for provision of schools is no longer under sole control of the local education authority, and national policy has helped to establish an increasingly diverse education system. Since 2011, education providers have been able to establish state-funded free schools, and the Learning and Skills Act 2000 introduced the ability for state schools to convert to academies, which are independent of local authority control.

At January 2017, there were 237 primary schools in Oxfordshire, with a total capacity of 57,345 primary places. Pupil numbers were 50,818, meaning there was a surplus of 6,527 places. However, it is not realistic to assume to plan for 100% occupancy, given that pupils will move in and out of the area during the school year. The Audit Commission states a realistic approach is to plan for 95% occupancy, allowing for some variation around this target. As such, assuming a 95% occupancy rate, there would remain 3,881 spare primary education places in Oxfordshire.

With regards to distribution of places across each of the local authorities, there is a strong level of provision throughout Oxfordshire with existing schools being extended and new schools bein gplanned to support growth. Cherwell in particular has the largest available capacity of the five local authorities. The highest concentrations of primary schools are within Oxford, and the surrounding major urban areas such as Didcot, Banbury and Bicester. In certain settlements (e.g. Witney, Bicester, and Oxford City) there are clusters of schools which either have a current deficit of provision, or have fewer than 10 places available and new schools are being planned.

OXIS modelled forecasts indicate a **gross requirement for 15,800 additional primary education places** between 2016 and 2040, which equates to an additional 75.4 Forms of Entry across Oxfordshire. Alongside primary school requirements a considerable expansion of early year facilities will also be required to support housing growth across Oxfordshire.

Secondary Education

The Education and Skills Act 2008 introduced compulsory education until the age of 18, either in a sixth form secondary or college setting, or through undertaking a vocational qualification or training such as an apprenticeship within a college.

At January 2017, there were currently 39 secondary schools in Oxfordshire, with a total capacity of 45,847 secondary places. Pupil numbers were 36,944, meaning there was a surplus of 8,903 places (or 6,751 if 95% occupancy is to be assumed, as per Audit Commission guidance).

The highest concentrations of secondary schools are within major urban areas such as Banbury, Abingdon, and Oxford City, with fewer schools in more rural areas of the County. There are some areas of the County which geographically show a lack of secondary education providers (e.g.North West Oxfordshire), however given wider catchments for secondary schools, and that secondary age pupils can be expected to travel further to access schools; there is good access to secondary education provision across the County.

Notably, there is very little evidence of deficiency in provision, with only one area (Oxford City) which has a school with a deficit in secondary places, and three others (one in South Oxfordshire and two in Cherwell) which have less than ten places available. All other secondary providers have considerable levels of available capacity (upwards of 600 places in a number of schools). This being said, it is important to note that this 'spare' capacity represents all age cohorts of the school and can potentially mask more acute capacity issues at the initial in-take years.

OXIS modelled forecasts indicate a **gross requirement for 15,945 additional secondary education places** between 2016 and 2040, which equates to an additional 76 Forms of Entry across Oxfordshire as a result of both natural population change and the impacts from new housing developments.

Existing plans for secondary school delivery from 2016-2031 include 9 secondary school projects delivering 7,600 places; equivalent to 36FE.

Special Education Needs

Special educational needs (SEN) provision caters for pupils of all ages; generally pupils who have needs which cannot be accommodated within mainstream education, or which can be better accommodated within a dedicated SEN setting. SEN provision is provided by the County, and similarly to primary and secondary schools, Oxfordshire County Council has a statutory requirement to ensure an adequate supply of SEN places to meet the needs of pupil within Oxfordshire.

There are 15 SEN facilities within Oxfordshire: one pupil referral unit, 13 special schools and the Oxfordshire Hospitals School (John Radcliffe). Unlike mainstream schools, there is no universal methodology for assessing capacities of SEN facilities. It is understood that approximately 1-2% of pupils resident within the County attend special schools (996 SEN pupils).

In addition to special schools, a considerable number of children within mainstream education settings also access some form of additional SEN support within schools, for mild disabilities or learning difficulties (e.g. for dyslexia).

OXIS modelled forecasts indicate a **gross requirement for 320 additional SEN places** between 2016 and 2040 across Oxfordshire. As SEN schools teach in smaller groups than mainstream schools it is not possible to apply a FE equivalent to this number.

Further and Higher Education

Further education refers to provision for children aged 16 years and over. Employer led apprenticeships have been introduced within England over the past five years, and these are predominantly funded by the employer (with some levies available as compensation) and contributions from the Education Funding Agency. Apprenticeships have been growing in popularity since their introduction and consultation with further education providers suggests that this trend will continue in the short-medium term.

Higher education is voluntary and refers to degree level provision, usually in a university setting. There are two higher education colleges in Oxfordshire; the University of Oxford, and Oxford Brookes University (both situated in Oxford City). The University of Oxford accommodates approximately 26,000 students, and Oxford Brookes approximately 17,500.

There are currently 10 FE and 13 adult education facilities in Oxfordshire, with the strongest level of provision within Cherwell. Consultation with further and adult education providers suggests that the existing estates of a number of colleges are due to be consolidated, with the potential to reduce these by up to half compared with 2016 levels. This does not however mean that new facilities and provision for further and adult education will be delivered elsewhere, or within new premises. Rather, feedback has suggested that the availability of funding is projected to decline over this period with little opportunity for new investment into the estates.

OXIS modelled forecasts indicate a **gross requirement for 3,475 additional FE places** between 2016 and 2040 across Oxfordshire, as well as **4,005 Adult Education places** in the same period.

3.3   Health & Adult Social Care

Primary healthcare

The management and operating procedures of the NHS have recently undergone a period of considerable transition. Within Oxfordshire, the Oxfordshire CCG is the relevant statutory body and has six localities within the county. The CCG oversees GPs and other primary and acute healthcare, however does not oversee or manage dentists.

Dental care in England is overseen by NHS England and is not managed at a county or local authority level. Dentists operate surgeries privately and can chose to provide NHS subsidised treatment, contracted by the NHS. As such, they are less regulated and their provision and distribution can be more sporadic.

There were 77 GP practices within Oxfordshire with a total of 314.4 WTE GPs according to 2015 NHS data; the highest concentration of which can be found in Oxford City. Registered patients across all these practices amounted to 715,788, with an average of 2,176 registered patients per WTE GP. Furthermore, there are 86 dental surgeries in Oxfordshire, where again the highest concentration of practices is in Oxford City.

Consultation has revealed that, where possible, there is a desire to deliver primary care services 'at scale' rather than through a number of small practice sites. This offers more opportunities to deliver more services, although it should be noted that there will be strategic sites where a smaller GP practice will be essential. It will also be necessary for the traditional General Practice to change to adapt to the demands of modern healthcare.

Consultation with the CCG has identified that within Oxfordshire an appropriate ratio of patients to GP would be **2,000 patients per GP, and 1,760 people per dentist.**

OXIS modelled forecasts indicate a gross requirement for the equivalent of **133 additional primary healthcare General Practitioners** between 2016-2040 and **153 additional dentists** if there is no change to how primary care is delivered.

Hospitals

There are four hospitals and eight community hospitals in Oxfordshire; the highest concentration is in Oxford City (two general hospitals, one orthopaedic hospital, and one community hospital) and the lowest in West Oxfordshire, which has just one hospital (Witney Community Hospital).

Consultation with the CCG and Hospitals Trust has emphasised that many people within the Country rely on attending John Radcliffe and Churchill Hospitals in Oxford City for both emergency and planned care; with community hospitals only providing minor injuries treatment and non-acute services.

The Oxfordshire Healthcare Transformation Programme estimates a potential £200m funding gap if the CCG does not evolve over the next few years. OXIS modelled forecasts indicate a gross requirement for the equivalent of 523 additional hospital beds across Oxfordshire between 2016 and 2040. It is understood that the Oxford University Hospitals Trust is currently preparing a masterplan for its 3 sites in Headington, and planning for its Banbury Estate.

Adult Social Care

From 1 April 2009 all health and social care services in England are required to be registered and regulated by the Care Quality Commission (CQC). Oxfordshire CCG is involved in the commissioning of adult social care services and in the referral and placement of older people, and people with physical and mental impairments.

There are 43 care homes, and 62 nursing homes which offer older age care in Oxfordshire, and 27 residential care homes for disabled people. One of the biggest impacts on social care services is likely to be from an ageing population Oxfordshire's Joint Health & Wellbeing Board have an aspiration to shift the focus of care from nursing homes to the assisted living (extra care) approach. There are already 13 schemes opened or under construction between 2011 and 2016 delivering an additional 656 extra care flats and a further 18 schemes proposed between 2016 and 2020 at a feasibility stage with the potential to deliver a further 1,238 extra care flats.

Oxfordshire's Joint Health & Wellbeing Board have an aspiration to deliver a considerable number of additional extra care housing places to meet the needs of Oxfordshire residents and to help to shift the focus of care from nursing homes to the assited living approach.

OXIS modelled forecasts indicate a **gross requirement for the equivalent of 3,174 additional nursing care beds, 4,584 additional residential care beds and 3,879 additional extra care beds** across Oxfordshire between 2016 and 2040.

3.4   Emergency Services

Police Service

Police services in Oxfordshire are provided, managed, and coordinated by Thames Valley Police. The Thames Valley Police force area is divided into 12 Local Policing Areas (LPAs) and serves the counties of Oxfordshire, Berkshire, Buckinghamshire, and Milton Keynes. Locally the police service is delivered by Thames Valley Police and is overseen by the Police and Crime Commissioner (PCC) for Thames Valley.

There are 14 Police Stations in Oxfordshire along with 17 Neighbourhood/Police Offices. Thames Valley Police also have their main Head Quarters Building, serving the entire region, located in Kidlington. Thames Valley Police geographically operate three Local Police Areas (LPA), Oxford City, Cherwell & West Oxon and South & Vale.

As a result of continued funding challenges future infrastructure considerations for the force include the rationalisation of the estate and the promotion of smarter ways of working. The police force are also considering the potential for shared spaces with other emergency services and public sector partners along with continued investment and improvements to existing infrastructure and equipment.

Additionally, increasing the ability of police officers to work more flexibly, promoting mobile policing and agile working is seen as a priority, with police undertaking reporting and traditionally desk based activities more flexibly.

Fire Service

Across Oxfordshire there are currently 24 Fire Stations which will increase to 25. These are crewed in different ways depending on the risk in the area, and currently 3 are crewed 24 hours a day, with the other stations all crewed on an on-call basis.

The service is made up of 547 firefighters of which 60% (317) are On-Call Firefighters who work on a part-time basis in their community. With regards to this, consultation highlighted access for on-call staff to stations as a key consideration, with high volumes of traffic preventing staff getting to stations (particularly those which are centrally located within towns) in a timely manner when responding to calls.

The service will need to reconfigure its resources to meet an increase in demand from the growth in infrastructure in order to provide its prevention, protection and response services.

Ambulance Service

Ambulance services in Oxfordshire are delivered by the South Central Ambulance Service NHS Foundation Trust; one of 11 ambulance trusts in England, which also serves the counties of Berkshire, Buckinghamshire, and Hampshire. The area the Trust serves covers approximately 3,554 square miles with a combined residential population of over 4.6 million people.

The trust has 78 sites including resource centres, standby points, ambulance bases, and 279 frontline vehicles.

3.5 Utilities

Electricity

The Regional Distribution Network Operator for the majority of Oxfordshire is Scottish and Southern Energy Power Distribution (SSE). SSE's draft feasibility study concludes that the growth of housing as suggested by the Local Plans and the anticipated increase in employment cannot be supplied by the existing distribution network without reinforcement.

Constraints at the majority of substations and grid supply points across SSE's network in Oxfordshire , mean that further connections of local generation schemes would trigger reinforcement costs. This makes it problematic for new (renewable) schemes to tap into the existing Oxfordshire grid.

Widespread reinforcement works are required in the SSE network going forward at a number of Bulk Supply Points (BSP) throughout Oxfordshire. The earliest reinforcement works are required at the Drayton BSP by 2017. In addition, further investment and innovation is required to develop a resilient SMART energy grid throughout Oxfordshire, which will be driven by Active Network Management and collaboration between the Council, Universities, businesses, Ofgem, and SSE.

Gas

The Gas Distribution Network Operator for Oxfordshire is Scotia Gas Networks (SGN). There is a forecast reduction in demand for gas, which will result in an expected surplus. Regardless, SGN is required to invest in major projects to meet the demand of existing and new customers to ensure safe and high quality of supply.

In their 10 year planning period (2016 – 2026), SGN is looking to invest in major projects on the local transmission system and the below 7Bar distribution system, as well as a full roll-out of smart meters planned by 2020. SGN anticipates the need for system pressure uprating reinforcement in 2018/19 within Oxfordshire and additional Medium Pressure main laying reinforcement will be required in 2021 in line with the proposed phasing schedules for the Bicester area.

There is a large potential and benefit from the development of alternative sources of gas, bio-methane in particular. This will aid in reaching the UK's target of obtaining 15% of its energy consumption from renewable sources by 2020. Opening up the Gas Market, Scotia Gas Networks (Oct 2016) identifies a flexible distribution network that looks to allow a wider set of gas sources into the market. Further investment in the project is required to achieve a flexible distribution network that can adapt to the evolving needs of the UK.

Renewable Energy

Oxfordshire is well positioned to become a low carbon economy leader. This is in part due to efforts from the Low Carbon Hub, the OxFutures Programme and a number of community-led projects.

However, grid constraints across the network mean that some existing renewable energy generation schemes, such as the Ardley Energy Recovery Facility, are running below their potential capacity, and hinder connection and deployment of additional local generation. Grid constraints therefore need to be addressed to realise the full potential for low carbon energy.

Oxfordshire is well positioned to become a low carbon economy leader. An ambitious low carbon investment programme over the next 15 years could add £1.35 billion per year to the Oxfordshire economy by 2030, according to Oxfordshire's Low Carbon Economy Report. This requires a minimum of £100 million per year of investment until 2030 within Oxfordshire to achieve this target and to meet the county's commitments to reduce greenhouse gas emissions by 50% of 2008 levels by 2030.

Potable Water

The provider of potable water for Oxfordshire is Thames Water. Since the publication of the Stage 1 report, Thames Water has been continuing to assess the long-term water supply and demand balance in its area. This work forecasts a deficit starting in 2022, growing to 22 Ml/d by 2045 and reaching 34 Ml/d by 2100 in its Swindon and Oxfordshire water resource zone. The growing deficit is driven by population growth and climate change impacts on supply. Areas of concern relating to water supply are identified around Abingdon, Hagbourne Hill, Faringdon, Wantage, Shrivenham and Stanford in the Vale.

To address the deficit, Thames Water is proposing a twin-track approach of reducing demand for water and increasing the supply of water through new resources. The deficit will initially be managed through demand management programmes, including tackling leakage and helping business and domestic customers save water. However, demand management measures cannot offset all the increase in demand and a major new water resource is needed in the 2020s. Thames Water are assessing large water resource options to determine which provides the best value. These include two within Oxfordshire; a new storage reservoir near Abingdon, and the transfer of water from the River Severn to the Thames via a pipeline. The abstracted flow from the Severn would be backed up by water from a 'supporting' reservoir and potentially spare water capacity from other water companies. Thames Water will publish its draft Water Resource Management Plan for consultation early in 2018, setting out its preferred plan for balancing supply and demand.

Waste Water

The statutory undertaker for waste water drainage in Oxfordshire is Thames Water. Thames Water has undertaken an assessment, which shows that a large number of Waste Water Treatment Plants (WWTPs) in Oxfordshire will have capacity issues up to 2031. Additional to plant capacity, it must be ensured that growth will not have a detrimental impact on water quality. It must be ensured that there is sufficient environmental capacity within the receiving water environment to accommodate the resulting increased flow and pollutant loads from WWTPs due to growth. It is important to note that the Environment Agency may tighten discharge permits as they are reviewing their permit process under the WFD. In some instances, the degree of tightening required to prevent deterioration may be beyond current limits of

technology. In such cases, growth or pollutant loads may need to be partially relocated to an area with more environmental capacity.

Thames Water intends to implement a number of measures to mitigate the future pressures on pipes, treatment works and the natural environment to move towards long-term resilience. This includes upgrades to treatment plants and networks, adapting treatment processes and reducing flows entering the system, for example through sustainable drainage systems.

Broadband & Telecommunications

The shift to online services has been remarkable across the UK economy over the last ten years, and the importance of good digital infrastructure in planning economic growth at least matches the relevance of traditional transport infrastructure. In enabling economic growth in Oxfordshire, digital infrastructure carries an elevated importance given the focus on high GVA sectors typified by the Knowledge Spines, both North and South.

The county council led programme for improving broadband infrastructure has already achieved its December 2017 target of achieving 95% of premises having access to superfast broadband, and is set to out-turn 97% coverage by 2019. A barometer of how important this is to Oxfordshire is evidenced by very high adoption of fibre broadband in the county, where 50% of premises enabled by the Better Broadband programme have already taken up new fibre services. Early planning is now underway to find solutions for the remaining very rural premises, focussing on enhancing the fibre footprint to reach agricultural businesses, as well as enhancing the availability of cost effective very high speed fibre services for businesses and public sector across the county.

Strategic convergence of mobile and fixed data networks is expected to develop commercially over the next five to ten years, as 5G mobile data standards are confirmed. This very high speed mobile data capability depends on pervasive fibre access, and will be important in developing IoT (Internet of Things) products and services, as well as facilitating growth of smart cities, more efficient highway management, environmental management, & machine-to-machine communications in general. Oxfordshire is well prepared for this future and the opportunity this affords to assist in sustainable regional growth.

KEY FINDINGS FROM STAGE 1

3.6 Waste

Waste:

Oxfordshire County Council is a Waste Planning Authority (WPA), which means that it must plan for future waste needs in the County. Housing and employment growth will cause corresponding increases in household and commercial & industrial waste.

In 2014, Local Authority Collected Municipal Waste (LACMW) which includes household waste, was expected to increase to 376,000 tonnes in 2031, now this is projected to be 392,000 tonnes. Commercial & industrial waste is expected to increase to 583,000 tonnes in 2031.

The district councils are responsible for the collection of household waste from the kerbside, Oxfordshire County Council as a statutory waste disposal authority (WDA) has a duty to dispose of the controlled waste collected in its area by the waste collection authorities and provide facilities for residents to deposit their household waste.

Oxfordshire is currently meeting existing statutory recycling targets for household waste and performing very well with respect to its recycling rate, and has the infrastructure capacity to manage existing and future waste in the middle of the waste hierarchy (recycling, composting, energy recovery, and disposal).

However, Oxfordshire's infrastructure does not have sufficient capacity to handle, process and distribute or repair, refurbish and re-manufacture waste for reuse and repair. Future Household Waste Recycling Centre (HWRC) infrastructure will need to support repair and reuse. This wider function could facilitate social outcomes by utilising third sector organisation skills and experience.

Assuming there is zero percent waste growth due to other factors (i.e residents continue to create approximately one tone of waste per household and recycle at 60%), housing growth alone will lead to an additional 133 thousand tonnes of waste to manage per year by 2040 at an approximate additional cost of £10.6m per year.

Additional capacity is expected to be required to recycle non-hazardous waste (including municipal and commercial & industrial).

Depending on how LACMW waste (including household waste) and commercial & industrial waste is managed, existing infrastructure projections suggest that there will be a deficit in 2031 of 326,800 tonnes per annum of recycling capacity for facilities to recycle non-hazardous LACMW and commercial & industrial waste.

Embedding the circular economy (in which products are designed to maximise repair, reuse and recycling rather than disposal) is central to the authorities approach to waste management and will be of great environmental and economic benefit to Oxfordshire.

3

3.7 Flood Defences & Drainage

Flood Defences

There are 4,500 properties in Oxford at a 1% or higher annual risk of flooding. This figure could rise to nearly 6,000 by the year 2080 with the predicted effects of climate change. The main source of flood risk is fluvial, however; surface water flood risk is becoming more prevalent with the additional demand of new development. There is also an element of groundwater flood risk due to the underlying chalk geology in the south of the County.

In 2012 a significant project was completed with the opening of the Banbury Flood Alleviation Schemes. looking forward, to further reduce flood risk for some parts of the County there are two major Flood Alleviation Schemes (FAS) undergoing appraisal/design, namely the Oxford FAS and the Abingdon FAS.

The Oxford FAS proposal includes a four mile two stage channel and flood bunds to divert flood waters away from the city centre, protecting up to 1,200 homes and businesses. Construction is estimated to start in 2018 with a forecast cost of £120m.

The Abingdon FAS has two potential options under consideration: (a) St. Helen's Mill, consisting of a small flood defence wall; or, (b) an upstream flood storage area on the River Ock. The latter is a much larger project with an estimated cost of £3.55m, which would reduce flood risk across Abingdon.

Sustainable Drainage

Surface water is prevalent in topographic lows, particularly where development has increased the extent of impermeable surfaces. Recently, there has been a shift in the use of 'hard engineering' solutions to Sustainable Drainage Systems (SuDS). There are two hierarchies in which to implement SuDS, the first being at a site-specific level and the other at a wider more strategic level.

Under current legislation new developments should introduce SuDS to mitigate the impact of the proposals. Therefore, most SuDS will be linked to specific development proposals and should be guided by site-specific assessments to determine the most suitable technique. Often, the responsibility for maintaining SuDS is not well defined; therefore it recommended that a system to record and monitor these assets is put in place to help ensure the level of protection offered is maintained.

On a more strategic scale it is recommended that Oxfordshire County Council operates in conjunction with Thames Water and the Local Planning Authorities to address existing surface water flood risk by improving drainage infrastructure and implementing county-wide sustainable solutions. There are several examples of Environment Agency schemes in Oxfordshire which take a

softer, more sustainable approach, including:

- Northway & Marston Flood Risk Alleviation. Estimated cost £1,5m

- Bloxham Flood Alleviation. Estimated cost £79k

- Wheatley West Flood Attenuation Scheme. Estimated cost £40k

Long-term, the future of flood mitigation is looking towards Natural Flood Management (NFM), which is the use of land management techniques that recreate natural processes with the aim of enhancing water storage, increasing floodplain capacity to ultimately reducing flood risk. The key advantage to this alternative flood risk management technique is its low-term sustainability and relative low-cost. The EA has begun exploring opportunities to apply NFM around Oxfordshire.

3.8 Green Infrastructure

With a reputation for a high quality natural landscape, Oxfordshire has a wide range of green infrastructure assets. Although green infrastructure is important at a variety of scales, the focus of this study is strategic green infrastructure. As such, green infrastructure has been grouped into three themes: landscape-scale, strategic ecological resources, and strategic recreational resources. While these theme are used here for convenience, all green infrastructure can be multifunctional, attracting investment through high quality spaces, ameliorating social costs such as by improving health and environmental regulation through a range of ecosystem services.

There are a number of existing and planned projects that will add to the green infrastructure of Oxfordshire, including flood alleviation schemes; ecological projects including those that maximise woodland value, and recreational projects. The Strategic Environmental and Economic Investment Plan for Oxfordshire (SEEIP)' also outlines 21 green infrastructure projects, to support the value of Oxfordshire environment. These projects are not, however, necessarily associated with the impacts of growth.

Landscape-scale

Green infrastructure at a landscape scale focuses on the character and macro functions of the environment including the Areas of Outstanding Natural Beauty (AONB), the green belt and the 'blue' river networks. AONBs are national designations to conserve and enhance the natural beauty of the landscape. The three AONBs in Oxfordshire: the Cotswolds, the Chilterns, and the North Wessex Downs make up about 26% of the county's total area, and attract numerous visitors. Although not designated for its environmental function, the green belt designed to restrain development and preserve the setting around Oxford is a large tract of open space that could be an important ecological and recreational resource. The blue network of rivers and streams across the county, are not only important for ecology and tourism, they provide vital water management functions as both a water source and in treating waste water.

New development, for example around Didcot, may have an impact on the setting of the AONBs. Similarly, the impact of increased visitors to AONBs needs to be assessed and provisions made to accommodate and mitigate potential impacts. The blue network is likely to be increasingly utilised for recreation and could suffer from over abstraction. The green belt, however, could play and increased role as a natural resource for recreation.

Strategic Ecological Resources

Oxfordshire has a wide range of habitats and significant biodiversity. Some sites are legally protected such as seven European-designated Special Areas of Conservation (SAC) towards the southern half of Oxfordshire. There are also 111 nationally important Sites of Special Scientific Interest, four National Nature Reserves, 14 Local Nature Reserves and 362 Local Wildlife Sites. Elsewhere in the country, high quality habitat, including ancient woodland, is more fragmented and, as such, the country has identified 36 Conservation Target Areas (CTAs) as well as a number of nature restoration sites as the focus of ecological enhancement activities.

Habitat Regulations Assessments carried out to assess the impacts of growth on the SACs (as set out in the stage 1 report) concluded that, significant impacts from development designated sites are likely to be limited and manageable. The impact of development on the wider ecology is, however, less well understood. New infrastructure, particularly linear infrastructure such as road and rail, has the potential to further fragment habitats. Further work is needed to understand the ecological mitigation that will be required to mitigate these impacts and identify the potential of new growth to support improved ecological connectivity and the objectives of the CTAs.

Strategic Recreational Resources

Oxfordshire has two country parks and a number of historic parks and gardens of note, including the UNESCO World Heritage Site of Blenheim Palace. An assessment of available spaces against Natural England's Accessible Natural Greenspace Standards (ANGSt) concluded that most households in the county did not meet accessibility levels for strategic sites, with particularly inadequate provision in Vale of White Horse and West Oxfordshire. Access to the countryside via rights of way can also provide an important recreation resource, with paths often stretching across the county linking communities with our attractive countryside. However, although accessible land such as down land and common land also provide the opportunity for those living in cities to access natural greenspaces, it only makes up a small portion of the county. Woodland across Oxfordshire also attracts a large number of visitors, and can provide significant value from ecosystem services including climate regulation and for the timber industry.

With a recognised deficiency in strategic recreational green infrastructure assets, growth is likely to increase pressure in the existing space and wider countryside. New green space associated with development will be required through planning, however, coordinated efforts will be needed if new, more strategic assets are to be provided. Furthermore, a large number of assets are in private ownership and have constraints to accessibility and Woodland could potentially be managed to maximise recreational value.

4.1 The Need to Prioritise Investment

Purpose

As has been demonstrated through the stage 1 technical baseline report and through the area based profiles of infrastructure requirements presented in this document, a wide range of infrastructure issues and opportunities exist across the county and the wider South East. The OXIS has identified numerous infrastructure projects required between 2016 and 2040 in order to support the economic, social and environmental development of the county. As the OXIS is taken forward and used as a tool by the Growth Board a focus is required on which projects represent a priority for partners in order to:

– Identify and promote the critical investment supporting sites that will deliver the greatest contribution towards the economic and housing growth targets of Oxfordshire.

– Demonstrate to government and funding providers that the investment priorities are clear for Oxfordshire, having been established through an evidence based process and consulted with stakeholders.

– Extract the most value and efficiencies from the limited funding the Oxfordshire authorities have available, in the context of fierce competition for increasingly limited public sector funding and the limitations of developer contributions to fund large scale infrastructure projects.

It should be noted that OxIS is based upon a snapshot in time and growth sites, infrastructure projects and policies will continue evolving, and more info may become known about projects over time. The assessment of projects and subsequent ranking is similarly not fixed and will continue evolving but provides a useful reference point to help inform decisions at this point in time.

Process

The OXIS has developed a bespoke Multi-Criteria Assessment (MCA) tool in order to assess the multiple infrastructure projects identified through the stage 1 technical report. The MCA tool has collated all identified infrastructure projects from Stage 1 of the project into scale based groups from regional to local infrastructure (as explained in more detail on the following pages). The process by which the MCA tool has been designed, its underlying criteria chosen and the tool applied in practice is set out below:

– MCA core components (Infrastructure project list, Infrastructure scales and draft assessment criteria) drafted by the OXIS project team and reviewed by project steering group

– MCA Core components presented and tested with technical stakeholders at full day workshop.

– Infrastructure scales and associated project lists agreed based on feedback from workshop

– Assessment criteria and associated scoring and weighting developed further and tested in workshop setting with project steering group

– MCA tool shared with Oxfordshire Local Authorities and OCC service leads to undertake initial assessment of projects against criteria.

– OXIS project team consolidated feedback from partners, reviewed and sense checked for consistency across different services and local areas.

– MCA results presented in draft form to Growth Board EOG in July with specific areas of refinement highlighted

– Finalised MCA tool shared with Oxfordshire Local Authorities and OCC service leads to undertake final refined assessment of projects against criteria.

4

4.2   OXIS Multi Criteria Assessment

Multi Criteria Assessment

Multi-Criteria Assessments can vary in complexity and the OXIS tool has been designed to be as logical and transparent as possible. The assessment has focused on the following areas:

– The type of project being assessed

– The scale of housing and economic growth associated with its implementation

– The delivery implications of the project

– The social and economic impacts of the project

Under each of these broad headings a number of sub criteria have been chosen with associated scoring. The descriptions of those criteria are presented in the tables below.

Appendix 1 presents the associated scoring from each of these criteria which is useful when reviewing sections 5 and 6 of this document.

The chosen criteria and weighted scoring is based on a balanced score card approach which represents the broad remit of the OXIS Scope and intended use of the strategy. The MCA criteria and scoring could be adapted for specific parallel assessment exercises but the OXIS MCA should be seen as a baseline assessment, from which bespoke prioritisation exercises can be produced for specific purposes such as:

– Funding bids related to housing growth (such as a Housing and Infrastructure Funding Bid)

– Generating priority actions plans to support enabling and unblocking infrastructure projects

Table 1.1: Multi Criteria Assessment Criteria

Project Type	
Criteria name	**Criteria definition**
Unblocking Stalled Development	Projects that address existing infrastructure capacity issues and unlock stalled development sites to enable growth.
Enabling New Development	Projects that address existing infrastructure capacity issues and enable new development sites to enable growth.
Mitigating Development	Projects that address the additional infrastructure burden generated by a proposed development site on existing infrastructure capacity through mitigation (either by expanding or improving existing infrastructure or providing new infrastructure).
Safeguarding Development	Projects that safeguard existing homes or jobs

Growth Supported	
Criteria name	**Criteria definition**
Homes Supported	What scale of housing delivery is enabled by the implementation of this infrastructure project?
Jobs Supported	What scale of economic development (employment sites) is supported by the implementation of the infrastructure project

Deliverability	
Criteria name	**Criteria definition**
Level of Commitment	Projects that are committed to, in terms of funding and schemes which are at an advanced stage (i.e. Part funding in place) or a notable stage (i.e. published in plans (submission draft and above) would be considered a higher ranking as opposed to those that are initial ideas or the result of modeled need only).
Complexity of Delivery	The extent to which the infrastructure project has issues (outside funding) which may also require resolving prior to Delivery. Examples might include number of delivery partners involved, complexity of land assembly, length of construction period.
Interrelationships	The extent to which the infrastructure project has adverse or beneficial interrelationships with other projects

Associated Impacts	
Criteria name	**Criteria definition**
Social Benefits	Extent to which project impacts upon health of population, employment opportunities, learning and skill development opportunities
Environmental Benefits	Extent to which project impacts upon natural and or urban environment and local air quality and noise

INFRASTRUCTURE PRIORITISATION

4.3 Infrastructure Scales

The OXIS has identified a large number of infrastructure projects considered necessary to support the growth expected across Oxfordshire to 2040. In order to identify and appraise these projects in a logical approach, a series of scales have been identified, to which each of the projects has been assigned. The three scales are summarised below and set out in detail over the following pages of the document.

Regional Infrastructure

Infrastructure projects have been categorised as regional where they satisfy one of the following criteria:

– Project is of national or regional importance

– Project crosses through or adjoins Oxfordshire

Countywide Infrastructure

Infrastructure projects have been categorised as countywide where they satisfy one of the following criteria:

– Project is of national or countywide importance

– Project crosses more than one local authority within Oxfordshire

Local Infrastructure

Infrastructure projects have been categorised as local where they are required to deliver or safeguard specific sites (or group of sites) within an identified growth corridor within a local authority of Oxfordshire.

The OXIS has identified a series of Corridors (with the exception of Oxford which is a City) which the local infrastructure projects are grouped by. The boundaries of each corridor are indicative and would overlap in many cases. For the purpose of the assesment, development sites and infrastructure projects are allocated to only one corridor.

This approach builds on work previously undertaken to support the Oxfordshire authorities work exploring options for Devolution. The nine focused areas are as follows and presented on the facing page:

– Knowledge Spine North

– Knowledge Spine South

– A44 Corridor

– A4074 Corridor

– A40 Corridor

– A420 Corridor

– A4260 Corridor

– Oxford

– M40 Corridor Eastern

Legend

Oxfordshire County	Railway	**Housing Total Site Capacity (Units)**	**Employment Site Area (ha)**
Surrounding County	● Railway Station	○ < 50	■ 2 - 5
LA Boundary	◉ City	○ 51 - 100	■ 6 - 10
Urban Area	◉ Town / Large Village	○ 101 - 250	■ 11 - 20
Woodland		● 251 - 500	■ 21 - 40
Waterbody		● 501 - 1000	■ > 40
Motorway		● 1001 - 2000	
A Road		● > 2000	
B Road			

Growth Corridor

1. Knowledge Spine North
2. Knowledge Spine South
3. A44 Corridor
4. A4074 Corridor
5. A40 Corridor
6. A420 Corridor
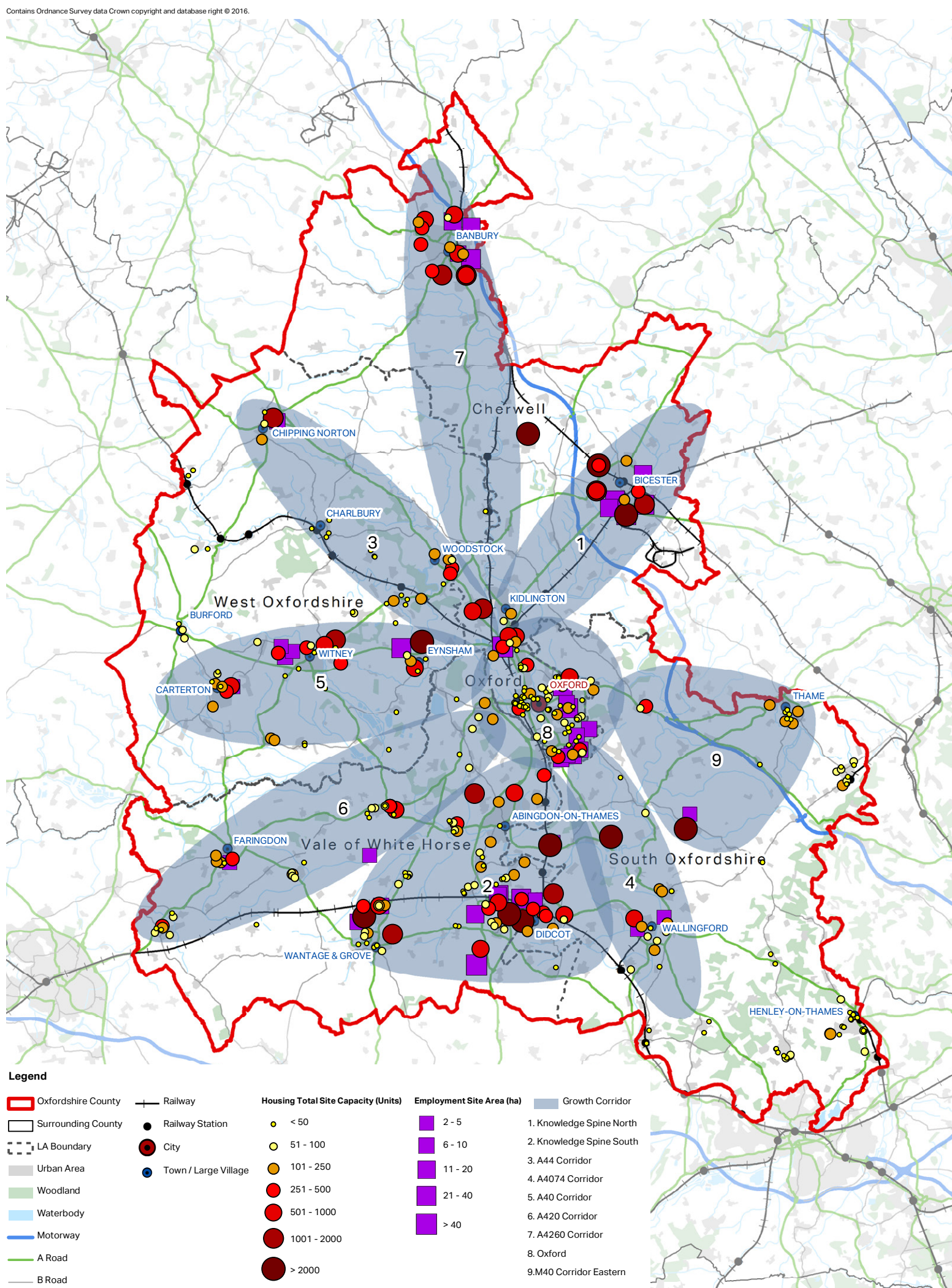7. A4260 Corridor
8. Oxford
9. M40 Corridor Eastern

Figure 3: Local Infrastructure Corridors

5.1 Regional & Countywide Infrastructure

The following pages present those projects identified within the regional and countywide infrastructure category alongside the following associated information:

– Estimated infrastructure costs and known funding

– Phasing from 2016 to 2040

– Ranking according to Multi Criteria Assessment Score

Those countywide or regional infrastructure projects which have a defined geographical location or route have been illustrated in the countywide infrastructure plan on the facing page which also highlights the known major growth areas alongside the main environmental constraints.

Legend

Oxfordshire County	
Surrounding County	
LA Boundary	
Urban Area	
Known Growth Area (Major)	
Woodland	
Environmental Constraint	
Green Belt	
Flood Risk	
Flood Alleviation Scheme	
Motorway Junction	
A Road Junction	
Motorway	
Strategic Road	
HS2 Phase 1 Alignment	
Railway	
Railway Station	
City	
Town / Large Village	

Employment Site Area (ha)

- 2 - 5
- 6 - 10
- 11 - 20
- 21 - 40
- > 40

Housing Total Site Capacity (Units)

- < 50
- 51 - 100
- 101 - 250
- 251 - 500
- 501 - 1000
- 1001 - 2000
- > 2000

Utilities Projects

- Network Substation Improvement
- New Electricity Substation (2022)

Transport Projects

- Oxford Rapid Transit Line (1)
- Oxford Rapid Transit Line (2)
- Oxford Rapid Transit Line (3)
- Super Cycle Route
- Gloucester Green Bus Terminal (Cycle Hub)
- Park and Ride

Strategic Road Projects

1. A40 Strategy - Dual Carriageway from Witney to Eynsham P&R
2. Culham to Didcot River Crossing
3. Didcot Science Bridge & A4130 Capacity Improvements
4. A40-A44 Link Road
5. A34 Upgrades: (Short Term) Traffic management systems
6. A34 Upgrades (Longer Term) - Oxford to Cambridge Expressway
7. A34 Upgrades: (Short Term) On-slip improvements to Botley and Pear Tree interchanges
8. A41 Bicester to Aylesbury

Rail Projects

9. Cowley Branch Line
10. East West Rail Phase 2
11. Didcot to Oxford Capacity Improvement
12. Oxford Station Redevelopment Phases 1-3
13. Wantage & Grove Station and new inter-regional service
14. Cotswold Line Upgrade (inc. Hanborough Station)
15. Freight Interchange at Graven Hill
16. Western Rail Link to Heathrow - facilitates new direct services from Didcot and Oxford
17. Didcot East Grade Separation

Note - Projects mapped on facing page and listed above are in many cases proposed future projects as opposed to current investments

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Kilometers
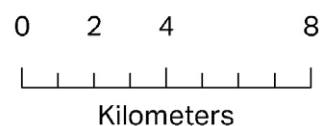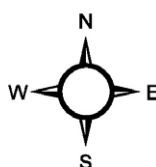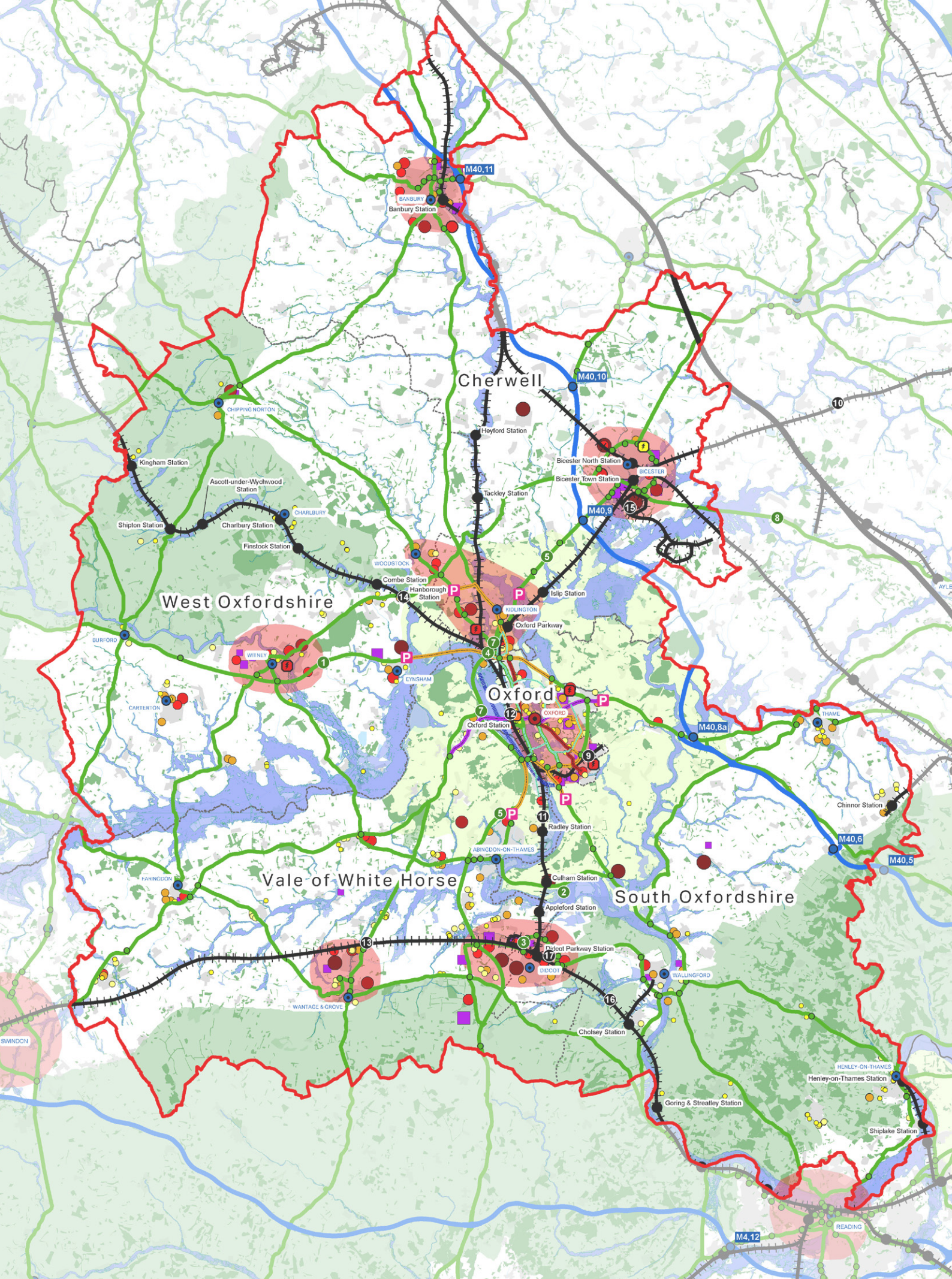
Figure 4: Regional and Countywide Infrastructure Projects

Regional Infrastructure

The table below and on the facing page present the results of the ranking process undertaken during Stage 2 of the OXIS project in collaboration with project stakeholders and the six local authorities.

It is important to note that the order in which these regional projects are presented is simply by the score achieved by each project against the OXIS Multi Criteria Assessment. This ordering does not necessarily represent the order in which investment would be prioritised but provides a basis upon which decisions of that nature can be progressed from an evidence based position.

Refer to Appendix 1 to follow the specific scoring for each criteria
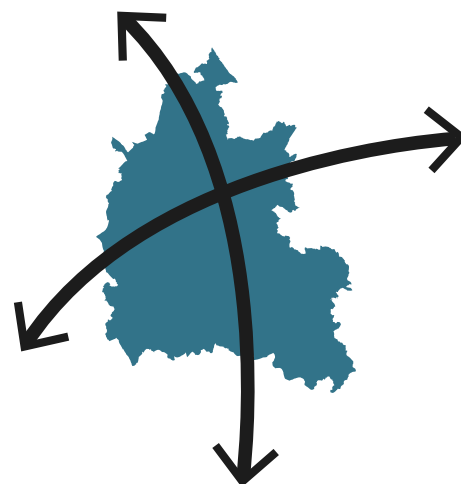
Table 1.2: Regional Infrastructure Projects

Regional Infrastructure Projects					
Infrastructure Type	**Description**	**2016-2021**	**2021-2026**	**2026-2031**	**Post 2031**
Rail Network	Didcot to Oxford Capacity Improvement	�	▪	▪	
Rail Network	East West Rail Phase 2	▪	▪		
Road Network	A34 Upgrades: (Short Term) Traffic management systems	▪			
Road Network	A34 Upgrades: (Short Term) On-slip improvements to Botley and Pear Tree interchanges	▪			
Rail Network	Oxford Station Redevelopment Phase 1 - Infrastructure for Chiltern Railways (East West Rail Phase 1)	▪			
Rail Network	Oxford Station Redevelopment Phase 2 - Infrastructure for East West Rail (Oxford – Milton Keynes)		▪		
Rail Network	Oxford Station Redevelopment Phase 3 - Infrastructure to include new station building and Botley Road Bridge		▪		
Rail Network	Western Rail Link to Heathrow - facilitates new direct services from Didcot and Oxford	▪	▪		
Rail Network	Didcot East Grade Separation		▪		
Rail Network	Cotswold Line Upgrade, including Hanborough Station	▪	▪		
Road Network	A34 Upgrades (Longer Term) - Oxford to Cambridge Expressway				▪
Rail Network	Wantage & Grove Station and new inter-regional service		▪		
Water Supply	Abingdon Reservoir Project (Option 1) / Severn-Thames Transfer (Option 2)		▪	▪	
Freight	Freight consolidation centre(s)		▪	▪	
Freight	Freight interchange at Graven Hill			▪	

Note - projects with shaded text are identified as fully funded and would therefore not represent future investment priorities

Table 1.3: Regional Infrastructure Funding Summary

Costs:	£4,044,690,000
Known Funding:	£820,800,000
Funding Gap:	£3,223,890,000

Project Type	Level of Homes Supported	Level of Jobs Supported	Level of Commitment	Ease of Delivery	Interrelationships	Social Benefits	Environmental Benefits	MCA Score
Enabling	+++++	++++	++	0	+++	+++	+++	25
Enabling	+++++	+++++	+++	0	+++	++	++	25
Enabling	++++	++++	++++	+	+++	++	+	24
Enabling	++++	++++	++++	+	+++	++	+	24
Enabling	+++++	++++	++++	0	++	++	++	24
Enabling	+++++	++++	++	0	+++	++	++	23
Enabling	++++	+++++	+++	0	++	++	++	23
Enabling	+++++	+++	++++	0	++	++	++	23
Enabling	+++++	++++	++	0	++	++	++	22
Enabling	++++	++++	++	0	++	++	++	21
Enabling	+++++	+++++	+	0	+++	++	0	20
Enabling	++++	++	++	0	++	+++	++	18
Enabling	+++++	+++++	0	0	0	++	+	14
Safeguarding	0	+++	++	+	0	+	+++	14
Safeguarding	0	+++	++	+	0	+	+++	14

0	+	++	+++	++++	+++++

Negligible   Significant

REGIONAL AND COUNTYWIDE INFRASTRUCTURE

5

Countywide Infrastructure

Replicating the approach presented on the previous pages for the regional infrastructure projects, the table below and on the facing page present the results of the OXIS Multi Criteria Assessment undertaken for the countywide infrastructure projects. As stated on the previous pages, the ordering of projects does not necessarily represent the order in which investment would be prioritised but provides a basis upon which decisions of that nature can be progressed from an evidence based position.

Refer to Appendix 1 to follow the specific scoring for each criteria.

Table 1.4: Countywide Infrastructure Projects

Countywide Infrastructure Projects		2016-2021	2021-2026	2026-2031	Post 2031
Infrastructure Type	**Description**				
Strategic Rapid Transit	Rapid Transit Line 3 - A40 Eynsham P&R with Eynsham to Duke's Cut Eastbound bus lane (A40 Science Transit 2)	■			
Strategic Rapid Transit	Rapid Transit Line 3 - A40 Wolvercote to Eynsham P&R - Westbound Bus Lane		■		
Strategic Rapid Transit	Rapid Transit Line 3 - A40 Wolvercote to Marsh Lane	■	■		
Road Network	A40-A44 link road	■			
Road Network	Culham to Didcot River Crossing				■
Road Network	Didcot Science Bridge & A4130 Capacity Improvements	■			
Strategic Rapid Transit	Park and Ride - A40 (East) corridor (Thornhill)		■		
Rail Network	Cowley Branch Line			■	
Strategic Rapid Transit	Rapid Transit Line 3 - Marston Ferry Road to Hollow Way (including A2H)	■	■	■	
Strategic Rapid Transit	Rapid Transit Line 1 - Blackbird Leys to city centre		■	■	
Strategic Rapid Transit	Rapid Transit Line 2 - Thornhill to city centre		■		
Strategic Rapid Transit	Park and Ride - A34 (South) Lodge Hill corridor including Lorry Park			■	
Strategic Rapid Transit	Rapid Transit Line 3 - Hollow Way to Lodge Hill and Sandford-on-Thames	■		■	
Strategic Rapid Transit	Rapid Transit Line 3 - A40 Duke's Cut Bridge Pinch Point			■	
Road Network	A40 Strategy - Dual Carriageway from Witney to Eynsham P&R			■	
Strategic Rapid Transit	Park and Ride - A44 corridor		■	■	
Active Modes	Super Cycle Route - A4260 into Oxford	■			
Active Modes	Super Cycle Route - Northern Gateway to Oxford Parkway via Five Mile Drive		■		
Active Modes	Super Cycle Route - Northern Gateway to Oxford Parkway via rail line		■		
Broadband	Better Broadband for Oxfordshire Programme	■			
Strategic Rapid Transit	Rapid Transit Line 1 - Langford Lane to city centre	■	■		
Strategic Rapid Transit	Rapid Transit Line 2 - Cumnor to city centre	■			
Strategic Rapid Transit	Park and Ride - A34 (North) corridor		■	■	
Strategic Rapid Transit	Park and Ride - A4074 corridor Sandford		■	■	
Strategic Rapid Transit	Park and Ride - A420 Corridor Park & Ride Cumnor		■	■	
Strategic Rapid Transit	A41 Bicester Village - J9 infrastructure improvements including bus priority	■			
Green Infrastructure	Upper Thames Floodplain Restoration Project	■			
Energy	New electricity 132/33kV Grid substation at Bicester from 2022	■			
Energy	Improvement works to the Cowley – Headington – Yarnton – Witney 132kV network substation	■			
Green Infrastructure	The Natural Capital of Woodlands: Bringing Oxfordshire Areas of Outstanding Natural Beauty (AONBs) into sustainable management	■		■	
Road Network	A41 Bicester to Aylesbury			■	
Education	New Special Educational Needs (SEN) School planned within Didcot	■	■		
Flood	Oxford Flood Alleviation Scheme	■	■		
Green Infrastructure	The Oxfordshire Forestry Programme (OFP)	■	■		
Green Infrastructure	Wood Stations and Biomass Trade Centres	■			

Note - projects with shaded text are identified as fully funded and would therefore not represent future investment priorities

Table 1.5: Countywide Infrastructure Funding Summary

Costs:	£743,160,000
Known Funding:	£221,670,000
Funding Gap:	£521,490,000

Project Type	Level of Homes Supported	Level of Jobs Supported	Level of Commitment	Ease of Delivery	Interrelationships	Social Benefits	Environmental Benefits	MCA Score
Enabling	+++++	+++++	++++	++	+++	+++	++	29
Enabling	+++++	+++++	++	+	+++	+++	++	26
Enabling	+++++	+++++	++	+	+++	++	++	25
Enabling	+++++	+++++	+++	+	+++	++	0	24
Unblocking	+++++	+++++	++	0	+++	++	0	23
Enabling	+++++	+++++	+++	0	+++	++	0	23
Mitigating	++++	++++	++	+	+++	+++	++	23
Enabling	++++	++++	++	+	++	+++	++	22
Enabling	+++	+++	+++	+	+++	++	++	22
Enabling	++++	++++	+	+	+++	++	++	22
Enabling	++++	++++	+	+	+++	++	++	22
Mitigating	++++	++++	++	0	+++	+++	++	22
Enabling	++++	++++	+	+	+++	++	++	22
Enabling	++++	++++	+	0	+++	++	0	21
Enabling	++++	++++	+	0	+++	++	0	21
Mitigating	+++	+++	++	+	+++	+++	++	21
Mitigating	+++	+++	+	+	++	+++	+++	20
Enabling	++	++	++	+	++	+++	+++	20
Enabling	++	++	++	+	++	+++	+++	20
Safeguarding	+++	+++	++++	+	+	+++	+	20
Enabling	+++	++	+	+	+++	++	++	19
Enabling	++	++	++	+	+++	++	++	19
Mitigating	++	++	++	+	+++	+++	++	19
Mitigating	++	+++	++	0	+++	+++	++	19
Mitigating	++	+++	++	0	+++	+++	++	19
Mitigating	++	++	+++	+	+++	++	++	19
Safeguarding	+	+	++	+	++	++	+++	18
Enabling	+++	++	+	+	++	+	++	17
Enabling	+++	+++	++	++	0	+	+	17
Mitigating	+	+	++	++	+++	+	+++	17
Enabling	+++	+++	+	+	++	++	0	17
Mitigating	+++	+	+	++	++	+++	0	16
Safeguarding	+	+	+++	0	+	+++	+++	16
Mitigating	+	+	++	+	+	+++	+++	16
Mitigating	+	+	++	++	+	++	++	15

0	+	++	+++	++++	+++++
Negligible					Significant

Corridor 1 - Knowledge Spine North

Table 1.6: Major Housing Growth Sites (Ccmmitted and proposed)

	Units	2016-2021	2021-2026	2026-2031	Post 2031
North West Bicester	6,000				
South West Bicester phase 2	2,605				
South West Bicester phase 1	1,742				
South East Bicester	1,500				
Graven Hill	2,100				
Former RAF Upper Heyford	2,429				
Land East of Oxford Road	650				
Land West of Oxford Road	530				
Gavray Drive	300				
Land South East of Kidlington	230				
Land at Stratfield Farm	100				

Table 1.7: Major Employment Growth Sites

	ha
North West Bicester	10.00
Graven Hill	26.00
Bicester Business Park	29.50
Bicester Gateway	18.00
Land at North East Bicester	15.00
South East Bicester (Bicester 12)	40.00
Former RAF Upper Heyford	n.a

Table 1.8: Local Infrastructure Funding Summary

Costs:	£341,150,000
Known Funding:	£2,770,000
Funding Gap:	£338,380,000
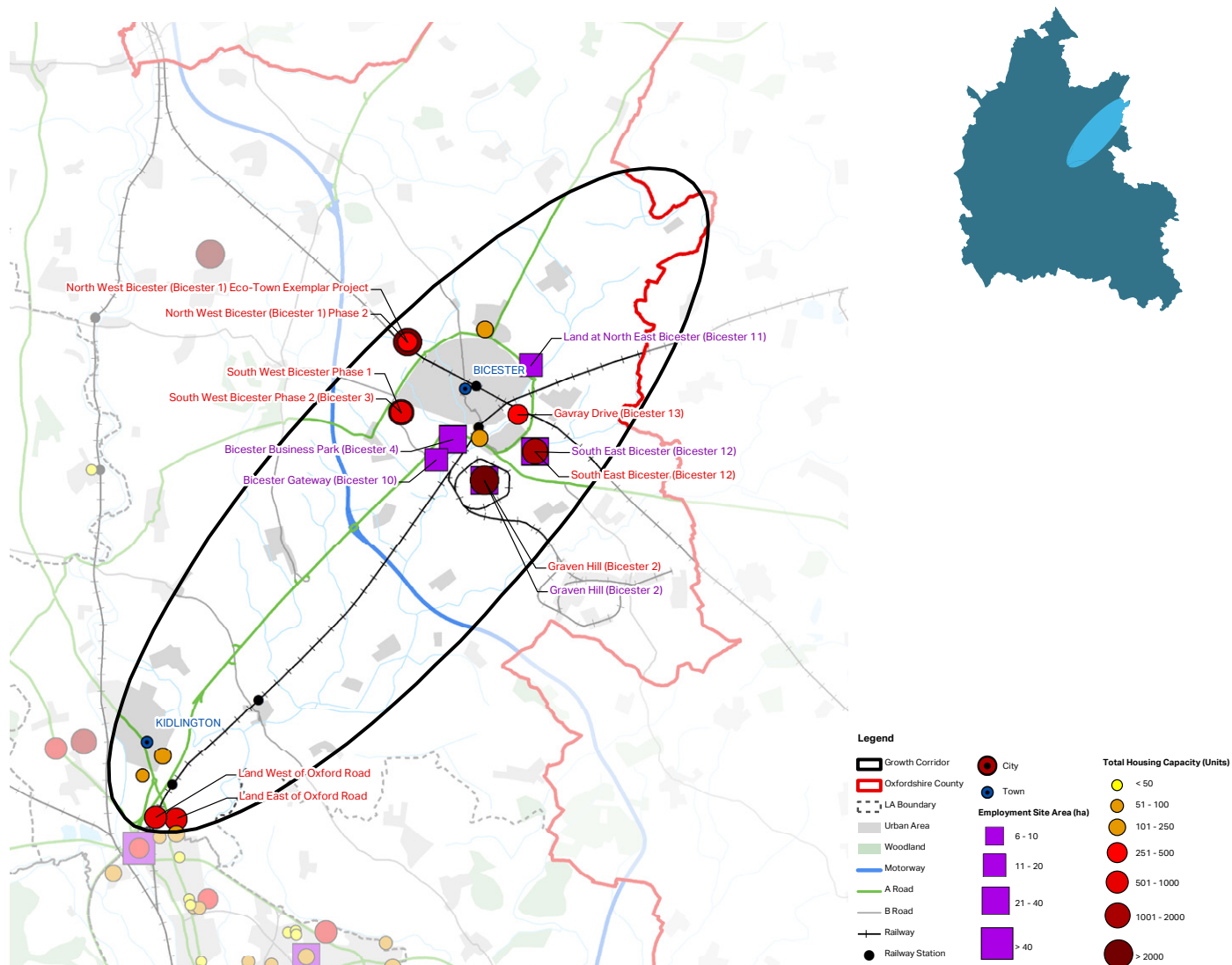
Figure 5: Major Growth Sites in Knowledge Spine North

LOCAL INFRASTRUCTURE

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Table 1.9: Infrastructure Projects and MCA Scores

Infrastructure Project	MCA Score
Strategic Rapid Transit / Bus	
Expansion of Oxford Parkway P&R	18
Road Network	
A41 corridor improvements from J9 to the county boundary, including Ploughley Road junction	15
Bus Lane improvements along the A4260/A4165	15
Eastern peripheral corridor - Link and Junction improvements / multi modal approach Skimmingdish Lane and Charbridge Lane	18
London Road level crossing solution	15
New Garden Town motorway junction - Bicester Connectivity to M40	19
Signalised junctions along the A4260/A4165 corridor to improve bus movements	15
Southern peripheral corridor - Bicester SE Perimeter Road	19
Western peripheral corridor Howes Lane/Lords Lane Tunnel under railway & imp link	21
Active Modes	
Kidlington roundabout pedestrian/cycle bridge over Frieze Way	16
Ped / Cycle bridges over Oxford Canal and other barriers enabling active travel	17
Ped / cycle improvements linking Kidlington, Begbroke and Yarnton	17
Sustainable Travel Scheme (STS) Cycle corridor: (including Railway line from NW Bicester / Boundary Way / Buckingham Road / Churchill Road / Middleton Stoney Road)	14
Sustainable Travel Scheme (STS) public realm enhancements in Market Square and The Causeway	16
Education	
1 New Primary School (2FE) at Land East of Oxford Road, North of Oxford	14
6 New Primary Schools in Bicester providing 12 - 13FE	16
2 New Zero Carbon Secondary Schools at Bicester (1no. 600 places and 1no. 600-1200 places)	18
Health & Social care	
Bicester - 2 hub Healthcare practice serving 30,000 patients	17
New Health Care Facilities at Former RAF Upper Heyford	13
New surgery (5GP with expansion planned for 7GPs) to serve North West Bicester and South West Bicester	13
Green Infrastructure	
Bicester Walking & Cycling Connectivity Project	18
Chesterton Country Park (Burnehyll Community Woodland)	16
Greening Bicester - Growing the Garden Town	16
Energy	
CHP and use of heat from Ardley Energy Recovery Facility: for North West Bicester site (with potential to extend to the rest of Bicester)	16
Project to improve gas supply on 1km of the medium pressure network at Bicester	14
Waste Water	
Upgrades to Waste Water to support Bicester Growth	15

Infrastructure Project	MCA Score
Waste	
Potential Household Waste Recycling Centre (HWRC) to serve north of county	15
Flood defences	
Bicester Industrial Area Initial Assessment	15
Blackthorn Flood Risk Management Scheme	14
Blue corridors for public open space/ recreation within those areas of the site in Cherwell Local plan Policy area Flood Zone 3 (FZ 3)	14
Islip Flood Risk Management Scheme	11
Wendlebury	12

Note - projects with shaded text are identified as fully funded and would therefore not represent future investment priorities

Corridor 2 - Knowledge Spine South

Table 1.10: Major Housing Growth Sites (Ccmmitted and proposed)

	Units	2016-2021	2021-2026	2026-2031	Post 2031
Valley Park	4,254	■	■	■	■
Great Western Park	3,364	■	■		
Land by Culham Science Park	3,500	■	■	■	■
Land at Grove Air Field	2,500	■	■		
Didcot North East	1,880	■	■		
Crab Hill	1,500	■	■		
Dalton Barracks	1,200			■	■
Harwell Campus	1,000	■	■		
North of Abingdon on Thames	800		■	■	
North West Valley Park	800		■	■	
Ladygrove East	624		■	■	
Monks Farm, West of Old Station Rd	517	■	■	■	
North East of Marcham	400	■	■	■	
Didcot - Gateway Site	300	■	■		
Didcot - Vauxhall Barrack	300				
Didcot - Orchard Centre	300			■	
North West of Grove	300			■	

Table 1.11: Major Employment Growth Sites

	ha
Culham Science Centre	9.40
Southmead Industrial Estate	2.90
Milton Park	28.00
Harwell Campus (Enterprise Zone)	93.00
Harwell campus (Outside Enterprise Zone)	35.00
Didcot A	29.00
Monks Farm, North Grove	6.00

Table 1.12: Local Infrastructure Funding Summary

Costs:	£650,450,000
Known Funding:	£76,710,000
Funding Gap:	£573,730,000

Figure 6: Major Growth Sites in Knowledge Spine South
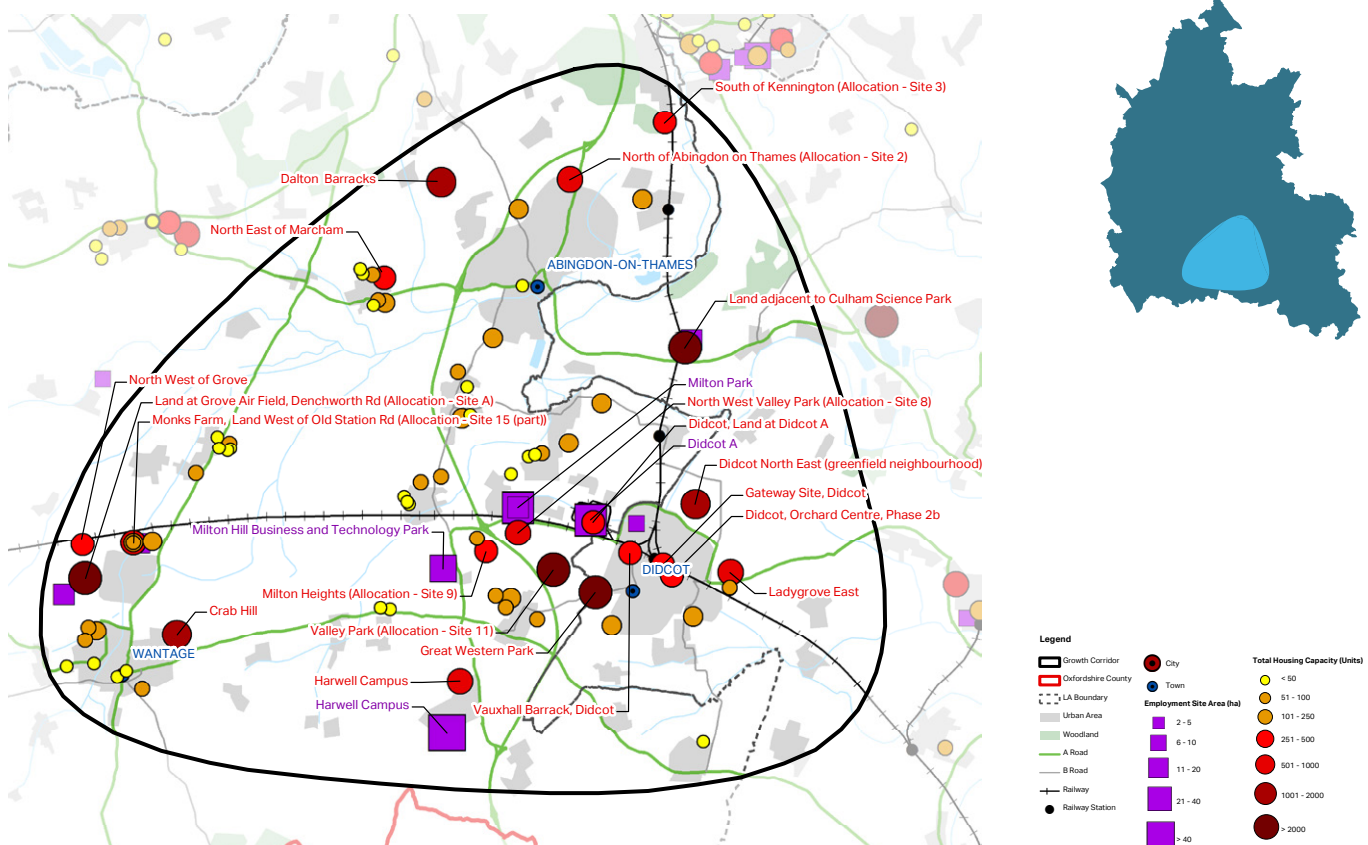
Table 1.13: Infrastructure Projects and MCA Scores

Infrastructure Project	MCA Score
Strategic Rapid Transit / Bus	
Wantage town centre bus interchange and public realm improvements	13
Road Network	
A34 bus lane between Lodge Hill and Hinksey Hill Junctions	20
A4130 capacity improvements (between Didcot and Wallingford)	12
Abingdon Bypass	14
Clifton Hampden bypass	20
Didcot Jubilee Way junction	16
Didcot Northern Perimeter Road Stage 3	25
Featherbed Lane and Steventon Lights	23
Harwell Campus access Improvements (Fermi and Curie Avenues)	19
Harwell Campus Entrance (Thomson Avenue)	21
Harwell Link Rd Section 1 B4493 to A417	21
Lodge Hill south facing slips	25
Marcham Bypass	12
Milton Interchange - Milton Park - north facing slips	18
Wantage eastern Link road	19
Rail Network	
Culham Railway Station Development	21
Didcot Parkway Station Improvements	23
Active Modes	
Didcot Garden Town Project - Garden Line Cycle Improvements	24
Didcot Garden Town Project - Smart Travel and New Technologies	18
Didcot Garden Town Project - Central Didcot Transport Corridor improvements	24
Didcot Garden Town Project - Didcot Town Cycle Improvements	22
Milton Enterprise Bridge	24
Science Vale Cycle Network Improvements	25
Education	
Expansion of 7-8 existing Primary Schools, equivalent to 4FE	15
12 - 14 New Primary Schools providing up to 28 FE across the Corridor	18
Expansion of 8 Secondary Schools	18
3-4 New Secondary Schools across the Corridor	18
Health & Social care	
Expansion of Health Care provision, including New Health Centre at Didcot and wider expansion of GP provision	15

Infrastructure Project	MCA Score
Green Infrastructure	
Greater Didcot Garden Town Green Infrastructure (GI) Projects	17
Energy	
Reinforcement of Drayton Bulk Supply Point (BSP)	8
Replacement of Grove primary transformers by 2017	8
Replacement of Wootton Road primary substation by 2026.	9
Uprating of Drayton to Milton 33kV circuits by 2017	7
Water Supply	
Site for potential direct river abstraction at Culham	10
Water supply reinforcements at Abingdon, Hagbourne Hill & Wantage	9
Waste Water	
Waste water Treatment Works (WwTW) upgrades by 2021 at Abingdon, Didcot and Drayton	13
Waste	
Potential Household Waste Recycling Centre (HWRC) to serve south of county	14
Flood defences	
Abingdon River Ock Flood Storage Area	15
East Hagbourne Flood Risk Management Scheme	13
Milton near Abingdon, Oxon flood alleviation	13
Shillingford Flood Risk Management Scheme	13
Steventon Flood Defences*	15
Sutton Courtenay Flood Risk Management Scheme	15

Note - projects with shaded text are identified as fully funded and would therefore not represent future investment priorities

Corridor 3 - A44 Corridor

Table 1.14: Major Housing Growth Sites (Ccmmitted and proposed)

	Units	2016-2021	2021-2026	2026-2031	Post 2031
Land east of Chipping Norton	1,400	■	■	■	
Land East of Woodstock	300	■			
Land North of Banbury Road	250		■	■	
Walterbush Rd, Chipping Norton	228	■			
South of A4095, Long Hanborough	169	■			
Land North of Hill Rise, Woodstock	120		■		
East of Pinsley Farm, Long Hanborough	120	■			
Land East of the A44 (Begbroke) - (Cherwell site)	1,950		■	■	
Land West of Yarnton - (Cherwell site)	530		■	■	
Land South East of Woodstock - (Cherwell site)	410			■	

Table 1.15: Major Employment Growth Sites

	ha
Land North of London Road, Chipping Norton Business Park	5.00

Table 1.16: Local Infrastructure Funding Summary

Costs:	£82,540,000
Known Funding:	£0
Funding Gap:	£82,540,000

* West Oxfordshire Council is proposing a change to the Local Plan to reduce the number of dwellings

east of Chipping Norton to 1,200 as a result of additional site capacity work undertaken

Legend

- Growth Corridor
- Oxfordshire County
- LA Boundary
- Urban Area
- Woodland
- Motorway
- A Road
- B Road
- Railway
- Railway Station
- Town

Employment Site Area (ha)
- 2 - 5
- 6 - 10
- 21 - 40
- > 40

Total Housing Capacity (Units)
- < 50
- 51 - 100
- 101 - 250
- 251 - 500
- 501 - 1000
- 1001 - 2000
- > 2000

Table 1.17: Infrastructure Projects and MCA Scores

Infrastructure Project	MCA Score
Strategic Rapid Transit / Bus	
A44 upgrade to include Rapid Transit lines	15
Junction improvements facilitating cross-corridor bus movements (A44 to/from A4260)	14
Vehicular spine route through Land East of the A44 (suitable for use by buses)	14
Yarnton bus lanes and cycle facilities	16
Road Network	
Chipping Norton East Link Road	17
Rail Network	
New rail station between Kidlington and Begbroke	18
Active Modes	
Cycle improvements along the A44 to A34	19
Pedestrian/Cycle bridge over the Oxford Canal and Railway	18
Pedestrian/Cycle bridge over the Oxford Canal linking Stratfield Farm (PR7b) to Land East of the A44 (PR8)	19
Reduction of speed limit and pedestrian/cycling crossing at key locations along the A44 (from Sandy Lane to Cassington Road)	12
Sandy Lane - ped+cycle new link over railway	18
Education	
1 New 2FE Primary school (including nursery) East of Chipping Norton	15
1 New Primary School (2FE) at Land South East of Woodstock	14
1 New 2-3FE Primary School at Land East of the A44 and 0.5 FE expansion of William Fletcher Primary School	15
Secondary school (900- place) at Land East of the A44 with playing pitches	15
Health & Social care	
Additional Health provision in Woodstock - potential move to larger site (no plan at present)	12
Potential redevelopment of Exeter Hall to accommodate existing GP practices in larger premises	14
Green Infrastructure	
River Evenlode Catchment Restoration and Land Management Enhancement Partnership	14
The Wychwood Project (including Centre)	15
Energy	
Substation Reinforcements at Charlbury, Woodstock, Kiddington and Chipping Norton	12
Waste Water	
Upgrade to Waste Water Treatment Works (WwTW) at Enstone	11
Upgrade to Waste Water Treatment Works (WwTW) at Woodstock	15
Flood defences	
Provision of blue corridors for public open space/ recreation	15

Note - projects with shaded text are identified as fully funded and would therefore not represent future investment priorities

LOCAL INFRASTRUCTURE

Corridor 4 - A4074 Corridor

Table 1.18: Major Housing Growth Sites (Ccmmitted and proposed)

	Units	2016-2021	2021-2026	2026-2031	Post 2031
Berinsfield Regeneration project	1,700				
Wallingford Greenfield Neighbourhood	555				

Table 1.19: Major Employment Growth Sites

	ha
Hithercroft Industrial Estate	1.90
Crowmarsh Industrial Cluster	2.50

Table 1.20: Local Infrastructure Funding Summary

Costs:	£60,380,000
Known Funding:	£0
Funding Gap:	£60,380,000

Figure 8: Major Growth Sites in A4074 Corridor

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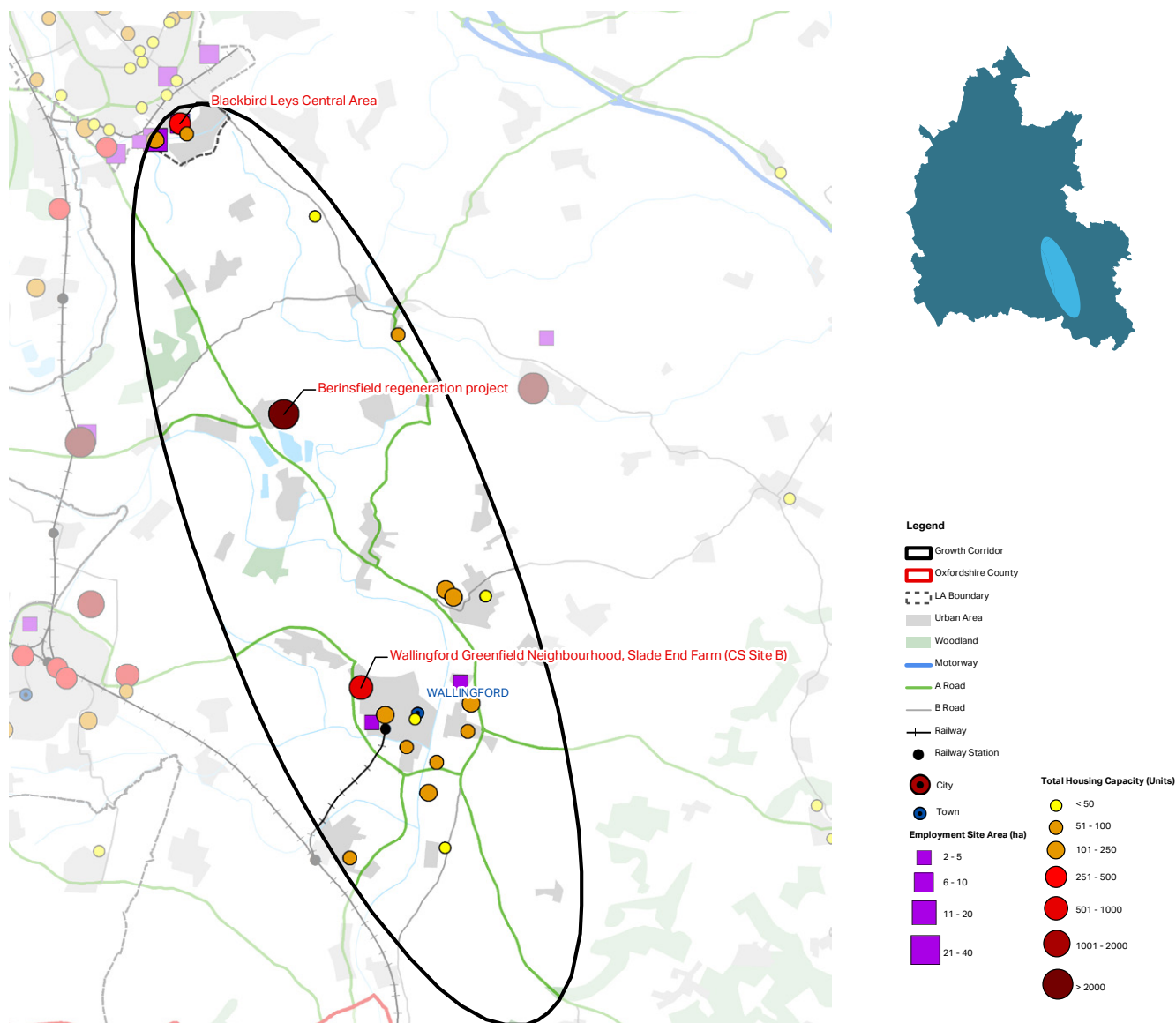
Table 1.21: Infrastructure Projects and MCA Scores

Infrastructure Project	MCA Score
Road Network	
A4074 capacity improvements	14
Golden Balls Roundabout junction improvements (A4074/B4015)	14
Education	
Expansion of Primary School provision in the corridor, equivalent to 1 - 2FE	14
New 1.5 - 2FE Primary School, Including Early Education to serve Berinsfield	15
New 2 FE Primary School, Including Early Education Provisions in Wallingford	15
Expansion of Existing Secondary School in Wallingford, equivalent to 350 places	16
Health & Social care	
Extension to Wallingford Medical Centre	14
New Leisure and Health Hub at Berinsfield (including blue light hub, medical centre, adult education)	14
Energy	
New 33kV circuit from Cowley Local to Berinsfield to serve Berinsfield and Wallingford	12
Upgrades to substations including Kennington, Rose Hill, Berinsfield, Wallingford	10
Water Supply	
Future supply from groundwater abstraction at South Stoke or Moulsford	8
Waste Water	
Upgrades to Waste water Treatment Works (WwTW) to the south / south-east of this corridor	11
Waste water Treatment Works (WwTW) upgrade at Benson and Cholsey	11
Waste	
Potential Household Waste Recycling Centre (HWRC) to serve south of county	14
Flood Defences	
Benson Flood Risk Management Scheme	12
Dorchester Flood Risk Management Scheme	11
Drayton St Leonard Flood Risk Management Scheme	11
Stadhampton Flood Risk Management Scheme	11
Wallingford Flood Risk Management Scheme	12

Note - projects with shaded text are identified as fully funded and would therefore not represent future investment priorities

LOCAL INFRASTRUCTURE

Corridor 5 - A40 Corridor

Table 1.22: Major Housing Growth Sites (Ccmmitted and proposed)

	Units	2016-2021	2021-2026	2026-2031	Post 2031
North Eynsham	2,200		■	■	
Land west of Eynsham	1,000	■	■	■	
North Witney / West Witney / East Witney	2,850	■	■	■	
Land east of Carterton	700	■			
REEMA North and Central, Carterton	500	■	■	■	
New Road and Mount Owen Rd, Bampton	281	■			
Burford Road, Witney	260	■			
Downs Road, Witney	257	■			
Milestone Rd, Carterton	200		■		
Swinbrook Rd, Carterton	205	■			
Shilton Rd, Burford	159	■			

Table 1.23: Major Employment Growth Sites

	ha
Land north of the A40, Eynsham Science Park	40.00
West Witney Strategic Development Area (SDA)	10.00
Land at Monahan Way, Carterton	4.00
East of Downs Road, Witney	2.22

Table 1.24: Local Infrastructure Funding Summary

Costs:	£141,200,000
Known Funding:	£10,850,000
Funding Gap:	£130,350,000
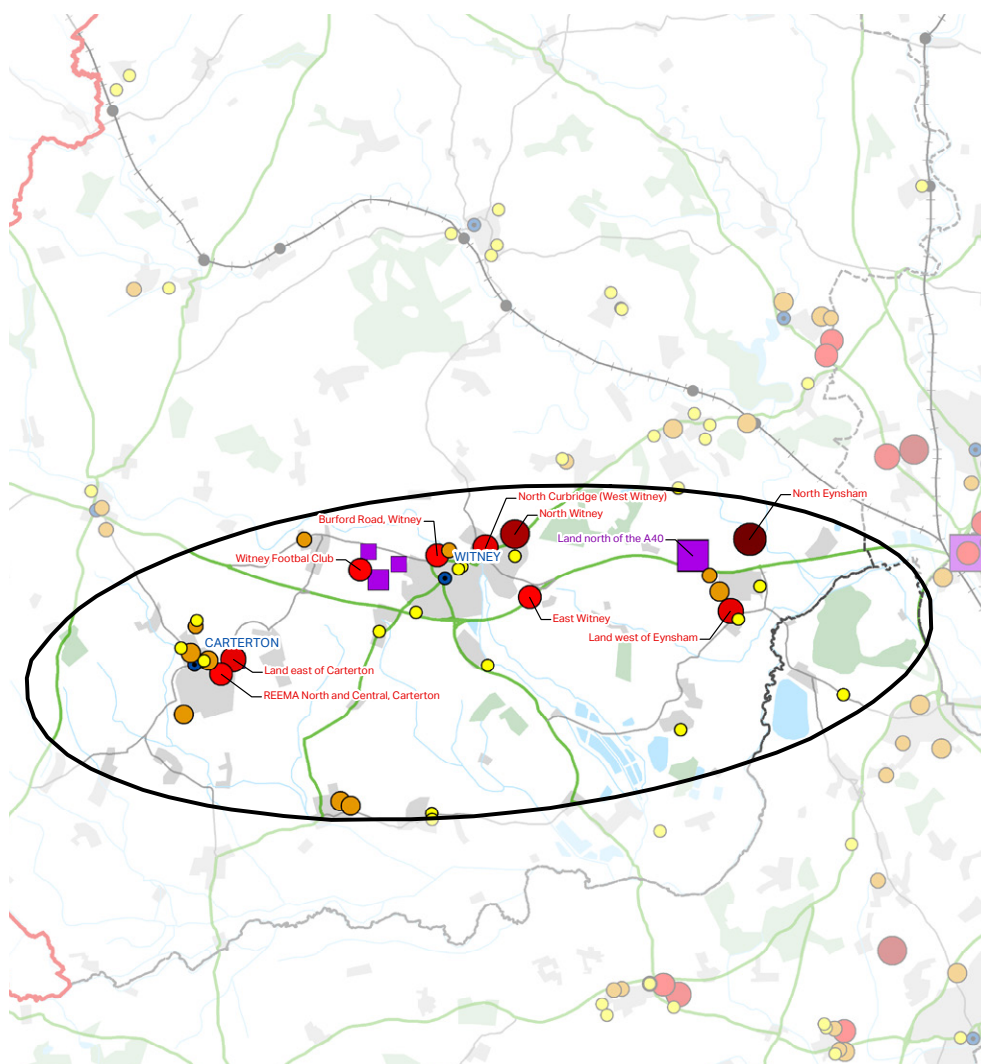
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Table 1.25: Infrastructure Projects and MCA Scores

Infrastructure Project	MCA Score
Road Network	
A40/Minster Lovell West Facing Slips	15
A40/Shores Green West Facing Slips & redesignation of the A4095	18
Access to Carterton B4477 Upgrade and Witney to Carterton Premium Cycle Route	19
Witney A40 Downs Road junction	20
Witney Bridge Street schemes to deter through traffic	15
Witney West End Link 2 Road Bridge	16
Education	
Expansion of Primary School provision in the corridor, equivalent to 2 - 3FE	15
1 New 1FE Primary School to serve East Carterton	15
1.5 FE Primary School to serve West Witney	18
2 FE Primary School to serve North Witney	16
2 New 2FE Primary Schools to serve Garden Village/ Eynsham sites	16
Secondary school provision of up to 600 places to serve Garden Village/ Eynsham sites	18
Secondary school provision of up to 600 places to serve West & North Witney	16
Health & Social care	
Adaptation of Witney Police Station & New Fire Station in Carterton (Blue Light Hub)	15
Expansion of GP provision at Witney	15
Eynsham Practice surgery move to Long Hanborough and keep existing site to serve garden village	14
Green Infrastructure	
Berks, Bucks & Oxon Wildlife Trust (BBOWT) project - landscape, biodiversity and heritage conservation along the Upper Thames Valley	15
Lower Windrush Valley Project	17
Windrush in Witney Project	17
Energy	
0.5km of improvements to the gas network around Witney.	15
Gas supply upgrade between Carterton and Witney	15
Windrush Park substation improvement works prior to 2023	13
Witney Bulk Supply Point (BSP) and substations improvement works by 2022	12
Witney Town primary transformers replacement by 2023	12
Waste Water	
Cassington Waste water Treatment Works (WwTW) upgrade and new permit to discharge	15
Waste	
Potential for Household Waste Recycling Centre (HWRC) to serve the west of the county	14
Flood defences	
Witney Initial Flood Assessment	16

Note - projects with shaded text are identified as fully funded and would therefore not represent future investment priorities

LOCAL INFRASTRUCTURE

Corridor 6 - A420 Corridor

Table 1.26: Major Housing Growth Sites (Ccmmitted and proposed)

	Units	2016-2021	2021-2026	2026-2031	Post 2031
East of Kingston Bagpuize with Southmoor	380				
Land South of Park Road, Faringdon	280				
Land South of A420	260				
North of Shriverham					

Table 1.27: Major Employment Growth Sites

	ha
South of Park Road, Faringdon	3.00

Table 1.28: Local Infrastructure Funding Summary

Costs:	£66,880,000
Known Funding:	£13,500,000
Funding Gap:	£53,380,000

Legend

- Growth Corridor
- Oxfordshire County
- LA Boundary
- Urban Area
- Woodland
- Motorway
- A Road
- B Road
- Railway
- Railway Station
- Town

Employment Site Area (ha)
- 2 - 5
- 6 - 10
- 11 - 20
- 21 - 40
- > 40

Total Housing Capacity (Units)
- < 50
- 51 - 100
- 101 - 250
- 251 - 500
- 501 - 1000
- 1001 - 2000
- > 2000

East of Kingston Bagpuize with Southmoor

Land South of A420 and east of A415 Witney Road, Kingston Bagpuize (Allocation - Site 7)

FARINGDON

Land South of Park Rd (Allocation - Site 17)

North of Shrivenham (Phase 2) (Allocation - Site 21 (part))

Table 1.29: Infrastructure Projects and MCA Scores

Infrastructure Project	MCA Score
Road Network	
A420 Corridor Improvements	17
A420 Western Vale infrastructure (Shrivenham & Faringdon junctions)	19
Education	
Expansion of primary school capacity equivalent to 1FE at Shrivenham	14
Expansion of primary school capacity equivalent to 1.5FE across Kingston Bagpuize and Stanford-in-the-Vale	13
New 2FE Primary School to serve South of Park Road, S.Faringdon, SW Faringdon, E of Coxwell Road	15
Increased capacity at Faringdon Community College (Secondary and Sixth form), providing 350 places	15
Health & Social care	
Expansion of GP Provision at Faringdon	14
Energy	
Reinforcements to substations including Shrivenham, Faringdon, Fyfield and Standlake	10
The Bulk Supply Point (BSP) transformers at Stratton will require replacement by 2022	12
The Faringdon primary transformers require replacement by 2023	12
Water Supply	
Future water supply reinforcement at Shrivenham, Stanford and Faringdon	11
Waste Water	
Waste Water Treatment Works upgrade at Faringdon	13
Waste Water Treatment Works upgrade at Shrivenham and Kingston Bagpuize	13
Waste Water Treatment Works upgrade at Buscot and Uffington	13

Note - projects with shaded text are identified as fully funded and would therefore not represent future investment priorities

LOCAL INFRASTRUCTURE

Corridor 7 - A4260 Corridor

Table 1.30: Major Housing Growth Sites (Ccmmitted and proposed)

	Units	2016-2021	2021-2026	2026-2031	Post 2031
Bankside Phase 1	1,090				
Bankside Phase 2	600				
South of Salt Way - East	1,425				
South of Salt Way - West	350				
Canalside	700				
North of Hanwell Fields	544				
Land East of Southam Road	510				
West of Bretch Hill	400				
Land adjoining and West of Warwick Road	300				
Drayton Lodge Farm	250				
Land at Higham Way	150				

Table 1.31: Major Employment Growth Sites

	ha
Canalside	tbc
Land West of M40	35.00
Land North East of junction 11	13.00
Former SAPA site	13.00

Table 1.32: Local Infrastructure Funding Summary

Costs:	£169,310,000
Known Funding:	£4,900,000
Funding Gap:	£164,410,000

Figure 11: Major Growth Sites in A4260 Corridor

AECOM
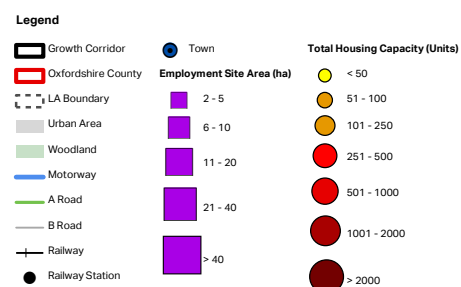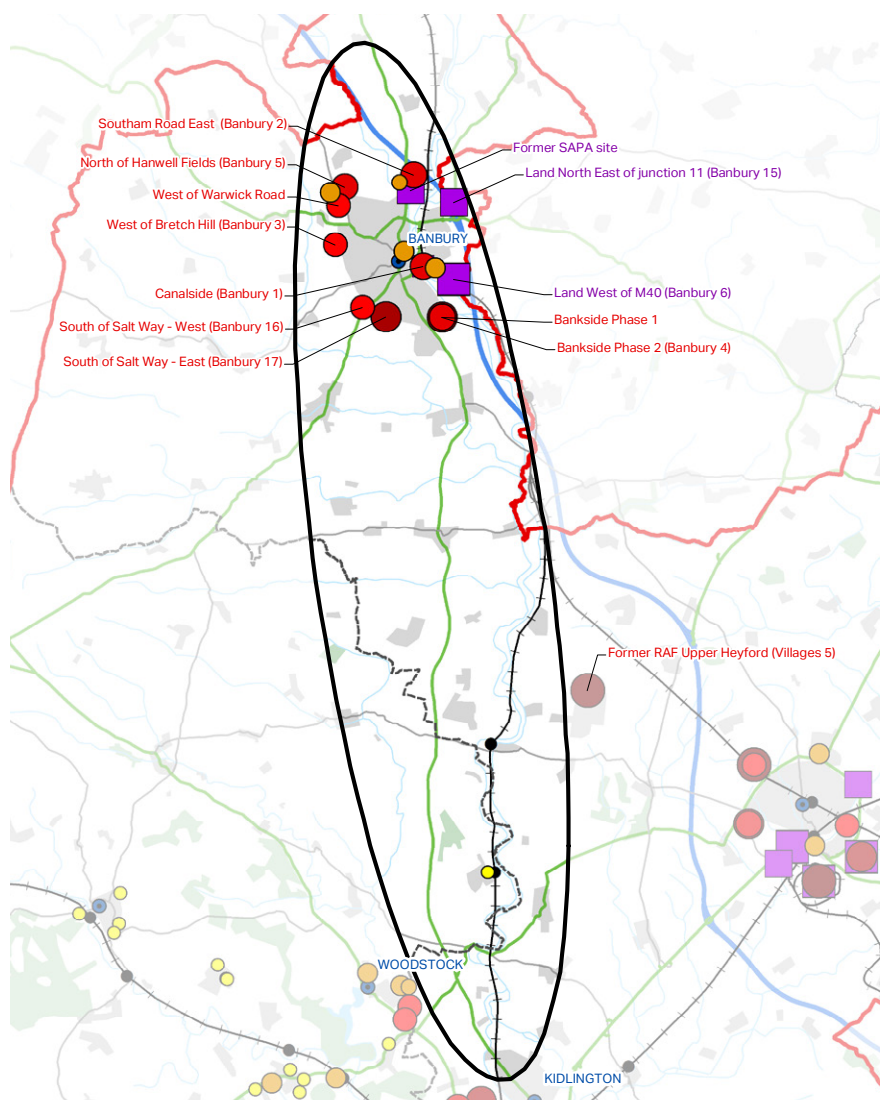
Table 1.33: Infrastructure Projects and MCA Scores

Infrastructure Project	MCA Score
Strategic Rapid Transit / Bus	
Banbury Infrastructure for town centre bus routeing including bus station	18
Road Network	
A361 Bloxham Road / Queens Way / Springfield Avenue Improvements	18
A361 South Bar Street/ Horsefair corridor traffic mangement measures	19
A361 Southam Road / Castle Street/ Warwick Road Improvements	12
A4260 Bridge Street/Cherwell Street eastern corridor improvements	18
Banbury A361 Bloxham Road / South Bar Street improvements	14
Banbury Link Road (northern section - east of M40 J11)	20
Banbury Relief Road (southern section)	19
Banbury Townwide Network Improvements including bus access and sustainable movements ie multi modal	18
Hennef Way Corridor improvement - Southam Road to M40 J11	19
North-facing slip roads onto M40 to relieve Hennef Way	19
Salt Way SDA Spine Road A361 Bloxham Road to A4260 Oxford Road	17
Upper Heyford mitigation package	15
Warwick Road junction improvements	15
Rail Network	
Banbury Rail Station Accessibility: Opening Tramway Road to Station Approach for bus movements & wider sustainability modes; opening Tramway to station surface car park	19
Banbury Rail Station Longer term reconfiguration (Chiltern Railways exploring reconfiguration potential)	16
Education	
Expansion of Existing Primary Schools to provide a further 1FE	14
3 New Primary Schools providing 6FE Across the Corridor	14
Expansion of Heyford Park Free School - Providing 800 - 900 all-through school places	15
1 New Secondary School in Banbury and expansion to existing schools, equivalent to 1200 - 1700 places	15
Health & Social care	
New Health Care Facilities at Banbury, location unconfirmed at present.	13
Green Infrastructure	
Cherwell Country Park	18

Infrastructure Project	MCA Score
Energy	
300m of expansion in the gas infrastructure around Banbury within the short term	16
Reinforcement of 132kV circuits between Headington / Yarnton tee and Yarnton substation by 2023.	14
Waste Water	
Significant upgrade to Waste water to support Banbury development	17
Waste	
Potential Household Waste Recycling Centre (HWRC) to serve the north of the county	14
Broadband	
Upgrade broadband infrastructure serving premises in the Kidlington South and Wroxton areas	13
Flood defences	
Bloxham (Tadmarton Road) Flood Risk Management Scheme	15
Bloxham Flood Alleviation Scheme	15

Note - projects with shaded text are identified as fully funded and would therefore not represent future investment priorities

Corridor 8 - Oxford

Table 1.34: Major Housing Growth Sites (Ccmmitted and proposed)

	Units	2016-2021	2021-2026	2026-2031	Post 2031
City Centre	960				
Headington	1,706				
Summertown	1,615				
Cowley Road	402				
Cowley Blackbird Leys	1,468				

Table 1.35: Major Employment Growth Sites

	ha
City Centre	13,400
Headington	> 1,000
Summertown	4,300
Cowley Road	
Cowley Blackbird Leys	4,560

Table 1.36: Local Infrastructure Funding Summary

Costs:	£237,170,000
Known Funding:	£59,010,000
Funding Gap:	£178,170,000

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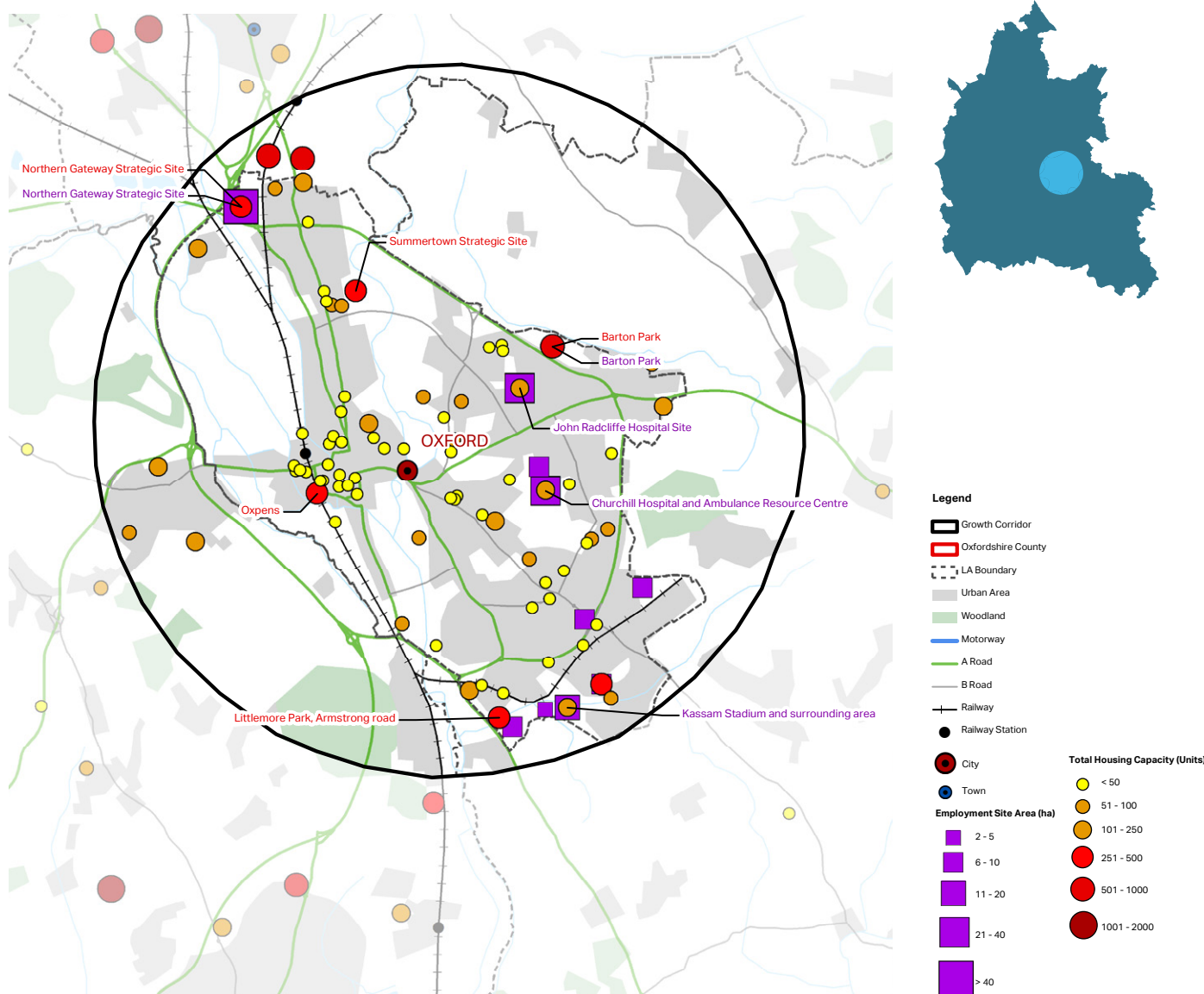
Table 1.37: Infrastructure Projects and MCA Scores

Infrastructure Project	MCA Score
Strategic Rapid Transit / Bus	
Bus stand extension on Becket Street	15
City centre traffic access restrictions	17
Gloucester Green bus terminal phase 1	14
Gloucester Green bus terminal phase 2, including cycle hub	14
Peartree Park & Ride expansion	17
Redbridge Park & Ride expansion	18
Seacourt Park & Ride expansion	20
Speedwell Street bus terminal phase 2 (Telephone Exchange)	14
Road Network	
Botley interchange and approaches	14
Cowley Interchange	18
Cowley Road	10
Headington roundabout - phase 2 (including Collingwood Crossing)	14
Heyford Hill roundabout	14
Hinksey interchange	17
Horspath Road Junction Improvements	14
Kidlington roundabout	11
Littlemore roundabout	14
Marsh Lane interchange	13
Northern Gateway site link road	17
Peartree interchange	14
Active Modes	
City Wide Connector Routes	13
Connections to Oxford Station	18
Cycle hire stations	16
District Centre Improvements (Cowley Centre / Blackbird Leys / Headington / St Clements / Summertown)	14
Gloucester Green cycle hub	12
Osney Mead Knowledge Park Enabling Works	21
Oxford City Centre Improvements	14
Oxpens to Osney Mead bridge over rail line & river	17
Premium Cycle Route - Oxford Riverside Routes / Morrell Avenue / Banbury Road / Cowley Road / London Road	17
Public realm works (Broad street, George Street, Magdalen St, St Giles, Queen St)	13
Super Cycle Routes - B4495 / Iffley Road / Marston Road / Woodstock Road / Botley Road / Abbingdon Road	17
Woodstock Road Radcliffe Observatory Quarter (ROQ)	15
Zero emission zone - central core	17
Zero emission zone - citywide	17

Infrastructure Project	MCA Score
Freight	
Freight restrictions	9
Education	
Extensions to primary schools, equivalent to 1FE, to cater for Northern Gateway and cumulative sites	13
New 1.5FE Primary School to Serve Barton Park	16
New 1,200 Pupil Secondary School (Swan School) to Serve Oxford Growth	17
Health & Social care	
Enhanced community-based care for Headington/Barton, including GP	13
New City Centre GP provision (to replace/enhance Beaumont Street)	13
New Health Centre in Summertown	13
Green Infrastructure	
Green Infrastructure for Healthier Lives in Oxford	16
Energy	
A section of the 132kV cable at Osney Bulk Supply Point (BSP) will need to be uprated by 2023	14
Primary transformers at the Kennington substation will require replacement by 2026	11
The North Hinksey primary transformers will require replacement by 2026	11
Waste Water	
Upgrade to Oxford Waste Water Treatment Works (WwTW)	14
Waste	
Potential Household Waste Recycling Centre (HWRC) to cerve the centre of the county	14
Flood defences	
Boundary Brook Catchment (Florence Park) Flood Alleviation	15
New Marston Flood Risk Management Scheme	14
West Thames Temporary Defences	14

Note - projects with shaded text are identified as fully funded and would therefore not represent future investment priorities

Corridor 9 - M40 Corridor Eastern

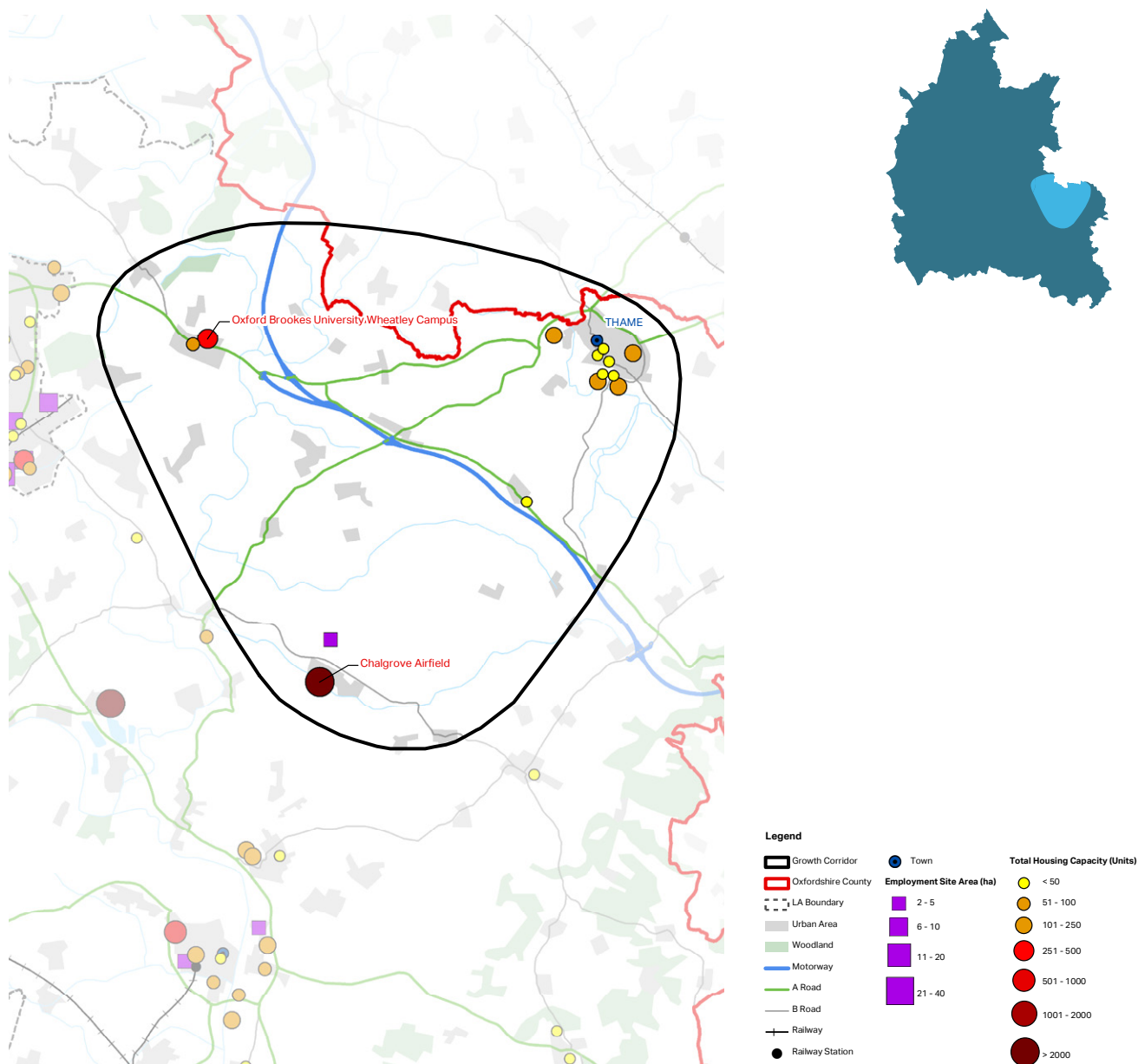**Table 1.38: Major Housing Growth Sites (Ccmmitted and proposed)**

	Units	2016-2021	2021-2026	2026-2031	Post 2031
Chalgrove Airfield	3,000				
Thame sites	832				
Wheatley Campus (OX Brookes)	300				

Table 1.39: Major Employment Growth Sites

	ha
Chalgrove Airfield	5.00
Monument Business Park	4.50
Thame Industrial Cluster	1.60

Table 1.40: Local Infrastructure Funding Summary

Costs:	£79,240,000
Known Funding:	£330,000
Funding Gap:	£78,910,000

Legend

Symbol	Description
	Growth Corridor
	Oxfordshire County
	LA Boundary
	Urban Area
	Woodland
	Motorway
	A Road
	B Road
	Railway
	Railway Station
	Town

Employment Site Area (ha)
- 2 - 5
- 6 - 10
- 11 - 20
- 21 - 40

Total Housing Capacity (Units)
- < 50
- 51 - 100
- 101 - 250
- 251 - 500
- 501 - 1000
- 1001 - 2000
- > 2000

Table 1.41: Infrastructure Projects and MCA Scores

Infrastructure Projects	MCA Score
Road Network	
Benson Bypass	18
Stadhampton Bypass	18
Watlington Bypass	19
Active Modes	
Thame to Haddenham cycle route	18
Education	
New 1FE Primary School (including Early Years Provision) in Thame	13
Additional primary school capacity, of up to 3 - 4FE, to Serve Chalgrove Airfield Site	15
Expansion of Existing Lord Williams Secondary School, equivalent to 150 places	15
Secondary School capacity to serve Chalgrove Airfield Site, equivalent to 600 places	15
Health & Social care	
Expansion of Existing GP Provision	14
Waste Water	
Chalgrove Waste Water Treatment Works upgrade required from 2021	13
Energy	
Reinforcements at Wheatley and Headington substations and Headington Bulk Supply Point (BSP)	11
Flood defences	
Chalgrove Flood Risk Management Scheme	16
Mill Lane Chalgrove Flood Attenuation Scheme	18
Wheatley West Attenuation Scheme	16

Note - projects with shaded text are identified as fully funded and would therefore not represent future investment priorities

7.1 The Funding Challenge

There is a significant gap between the cost of the infrastructure Oxfordshire is likely to need by 2040 and the funding available to deliver it.

The figure on the facing page summarises the total cost of delivering the infrastructure requirements set out in the previous sections covering regional, countywide and local infrastructure projects. The headline figures are as follows:

- Total Infrastructure Cost: £8.35 billion

- Known Funding: £1.21 billion

- Funding Gap: £7.14 billion

It should be noted that the costs associated with health and adult social care and utility infrastructure has been sourced from the theoretical cost analysis included within the Stage 1 report. This is due to an absence of tangible project costs from the stage 2 project review process.

The known funding figures are limited to information made available to the OXIS research process whilst reviewing the project lists with stakeholders. Importantly this known funding figure excludes a number of funding sources which are likely to contribute towards the cost of infrastructure. These include developer contributions, utility company investment and NHS funding. These have been excluded only due to a lack of clarity on the likely level of funding these sources will contribute.

It is recommended that further analysis into the quantum of funding from these potential sources is developed in order to refine the estimated infrastructure funding gap.

Funding is the biggest risk to the delivery of infrastructure projects. The current funding environment is complex and is being constantly re-shaped. Closing this funding gap will require a broader and more sophisticated approach to infrastructure financing than currently exists.

This section explores the traditional and emerging sources of funding for infrastructure and outlines emerging opportunities which may help to fill the significant funding gap. The Oxfordshire Growth Board and infrastructure providers will need to work together to explore every option to secure the necessary funding.

This section sets out the three usual sources for funding infrastructure:

1. Public sector funding – declining

2. Private sector funding – already limited

3. Developer contributions – limited by land values

This section also sets out a range of potential alternative options to secure funding for the infrastructure needed, for consideration by Oxfordshire local authorities. These will need regular review to take account of changing circumstances.

The funding situation outlined in this section reflects current knowledge of approaches to the delivery and funding of infrastructure. However, an important point to note is that over the document time period (to 2040) at least four general elections will take place. This makes it difficult to predict the policy towards various types of infrastructure (health, education, transport etc.) in five years' time.

To illustrate this point, 10 years ago, a local education authority planning for additional secondary school needs in 2017 would have been unaware of the forthcoming creation and subsequent abolition of the Building Schools for the Future programme and the introduction of Academies and Free Schools. Local authorities can only work with what is currently known which highlights the need for flexibility - essential to accommodate the inevitable changes to delivery and funding over the planning period.
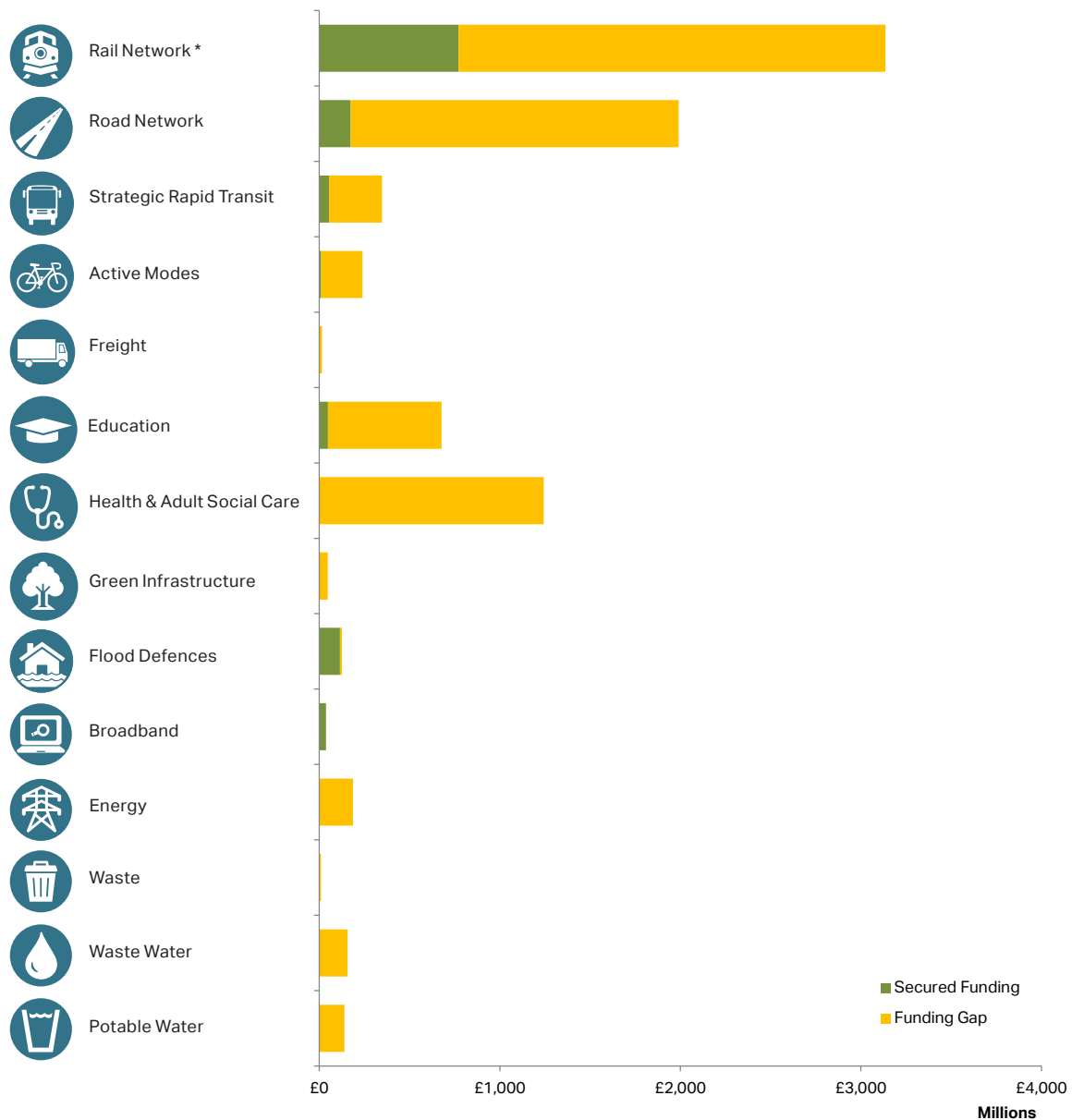
Figure 14: Total Infrastructure Costs associated with Growth across Oxfordshire to 2040

* Rail network costs have excluded the £4.9 billion cost associated with the Great Western Route Modernisation

Note - Cost and Funding Estimates at September 2017

INFRASTRUCTURE FUNDING

7.2   Public Funding

This section presents an overview of the main sources of public funding by broad theme.

Since 2011 all local authorities in Britain have seen year on year reductions in their funding from Central Government. The influence of local authorities on infrastructure funding varies considerably depending on the role played by Central Government and the private sector in each segment of the infrastructure market. This will reflect current and evolving policy and practice over which types of funding mechanisms are deemed most appropriate for different types of infrastructure. For instance, much social infrastructure, including education, health, and general community facilities, is the responsibility of the local authority with funding provided by both Central Government grants and local taxation. These services are public goods which meet social objectives that cannot feasibly be paid for by market mechanisms, other than where a proportion of funding is required from a developer through S106 as a result of the grant of planning permission.

On the other hand, some forms of infrastructure are delivered by a mixture of non-governmental public bodies and private companies within strongly regulated markets (e.g. rail,) and most utilities are delivered in semi competitive markets by highly regulated private companies.

This section provides a summary of these various roles and responsibilities with a focus on the mainstream public grants for capital funding for local infrastructure from the public sector.

Transport

Transport infrastructure funding comes from a range of sources depending on the nature of the asset and its strategic status.

ROADS & LOCAL STRATEGIC PROJECTS

Capital funding for strategic roads is the responsibility of Highways England (HE), a publicly owned corporation since April 2015.

Highways England reports to the Department for Transport and has responsibility for managing the Strategic Road Network in England. It operates a variety of information services, liaises with other government agencies as well as providing staff to deal with incidents on its roads.

Highways England's responsibilities that are most relevant to the infrastructure framework include undertaking large scale improvements through a programme of major schemes, carrying out routine maintenance of roads, structures and technology to make the network safe, serviceable and reliable and making sure traffic can flow easily on major roads and motorways.

Investment decisions are prioritised through HE's cyclical Road Investment Strategy (RIS) which sets out a long-term programme for UK motorways and major roads. Local Authorities need to lobby and produce the business case for investment to Central Government / HE to include projects for delivery within the RIS.

Between 2015 and 2020, the RIS will see £15.2 billion invested in over 100 major schemes to enhance, renew and improve the network nationwide. Recent Government announcements have confirmed a £1.4 billion package of 18 new road schemes in London and South East of England.

Local roads in the county are the responsibility of Oxfordshire County Council which is responsible for planning and delivering the majority of the transport-related infrastructure to support development proposals in each local authority within Oxfordshire. Emerging proposals for a Major Road network, currently out to consultation, is also a potential funding opportunity.

Other local transport projects to support economic growth and development have less well defined funding and delivery processes. Aside from local authority capital investment budgets, Local Enterprise Partnerships are the main public source of capital grant funding through the Local Growth Deals and Large Local Major Schemes Fund. Department for Transport (DfT) also allocates funding via competitive bid processes to specific types of project; for example the recent Pinch Point Fund.

7

The main source of capital funding for local roads is through Councils' borrowing although other instruments are available to local authorities to finance transport investment, e.g. the Public Works Loan Board. In addition, funding can be secured through business rate retention and municipal bonds. These are presented later in this section.

RAIL

The rail network is the responsibility of Network Rail (an arms-length public body). Network Rail owns the infrastructure, including the railway tracks, signals, overhead wires, tunnels, bridges, level crossings and most stations, but not the passenger or commercial freight rolling stock. Although it owns over 2,500 railway stations, it manages only 18 of the biggest and busiest of them (none of which are within Oxfordshire), all the other stations being managed by one or other of the various train operating companies.

Projects for capital investment in the local rail network need to meet the Governance for Railway Investment Projects (GRIP) process to be planned / funded within a 5-year Control Period. Similarly to the strategic road network, a sound business case needs to be presented for projects to be included in a Control Period. The current delivery plan period covers 2014 to 2019.

Education

Capital funding for primary and secondary education is raised from Local Authority borrowing capital funding own resources and the Basic Need Central Government grant scheme to ensure that Local Authorities can provide adequate school spaces for the populace. Funding is currently mapped out until 2019.

Oxfordshire County Council has set aside a 2017/18 budget of £237.9m for education infrastructure which is expected to deliver new early years, primary and secondary school places within its boundaries.

The Priority School Building Programme (PSBP) has also been in place since 2011, replacing the previous Building Schools for the Future Programme. PSBP provides funds via the Education Funding Agency (EFA) either in the form of a capital grant or through a private finance contract. Schools across England were invited to bid for the fund and awards were allocated to those deemed most in need of rebuilding or maintenance.

Health

Depending on the service, NHS commissioning is either undertaken by local Clinical Commissioning Groups (CCGs) or by NHS England regional groups. Most healthcare services are commissioned by the CCG, but primary care services and other specialist services, such as offender healthcare, are commissioned by NHS England.

The NHS recognises that there is no single geography across which all services should be commissioned: some local services can be designed and secured for a population of a few thousand, whilst for rare disorders, services need to be considered and secured nationally.

The CCG and NHS England receive direct funding for commissioning from the Government. In some instances they may also be recipients of developer contributions or other sources of local funding.

NHS Trusts and Foundation Trusts are key providers in most health systems and will utilise a portfolio of facilities, some of which will be owned and others leased from a variety of organisations. They will also have access to funds, sometimes self-generated or as a result of bids to the centre. All of these organisations, led by CCGs have developed local health economy Strategic Estates Plans over the last year. Together with the emerging Sustainability and Transformation Plans (STPs) these are identifying the capital investment likely to be needed in the years up to 2020/21. Following the Health and Social Care Act in 2013 and the changes to governance, commissioners generally no longer have specific estate functions. Strategic estates planning support is therefore provided by Community Health Partnerships and NHS Property Services, organisations wholly owned by the Department of Health, which have complementary roles in the health system providing actual facilities and technical expertise.

Adult social care is means tested (unlike NHS services which are free at the point of use). This means that approximately 75% of care is self funded and approximately 25% is funded by the local authority through council tax, although currently partly supported by the Revenue Support Grant, the Social Care precept and the Better Care Fund. The Better Care Fund is presently £40.9m in Oxfordshire for 2017/18, the purpose of which is to help meet Government objectives for more social care to take place outside of hospitals, reducing the burden on admissions and readmissions.

INFRASTRUCTURE FUNDING

7

Emergency Services

POLICE SERVICE

Police services in Oxfordshire are provided, managed, and coordinated by Thames Valley Police. The main source of funding for the police force is the Central Government grant made available through the annual Home Office Police Grant Report. Police and Crime Commissioners can also raise additional revenue funding through council tax precepts. All police forces in the UK have been subject to reductions in funding in recent years. The Government has consulted on proposals for new funding arrangements for police forces in England and Wales. It is generally accepted that the existing formula is no longer appropriate and the Government wants to replace the existing funding formula with a simplified formula. However, following statistical errors having been discovered in the funding proposals, the Government has decided to delay changes to police funding for 2016/17

FIRE AND RESCUE

Services are provided by Oxfordshire Fire and Rescue Service. The service generally provides its services for free, although there are some special services that can be charged for, and some additional services that can be paid for. The service is free to the end user in the case of an emergency. Funding for the fire service comes from two principal sources: a Central Government grant, and a levy (precept) on the local council tax. From 2010-11 to 2015-16, funding for fire and rescue authorities has fallen for stand-alone authorities by 28%. Once council tax and other income is taken into account, the average reduction in total income ('spending power') is 17% in real terms.

AMBULANCE SERVICES

The ambulance service is the emergency response wing of the National Health Service. The ambulance service across the UK has two main functions: an accident and emergency paramedical function, and the Patient Transport Service function which transfers immobile patients to and from their hospital appointments. Services are provided by the South Central Ambulance Service (CSAS) across Oxfordshire. Funding for this organisation is from the National Health Service rather than Central Government (in contrast to the other two emergency services) and has experienced reductions in overall funding in recent years.

Green Infrastructure

Natural England is the non-departmental public body responsible for providing advice to ensuring that England's natural environment, including its land, flora and fauna, freshwater and marine environments, geology and soils, are protected and improved. Natural England is promoting the concept of green infrastructure as a way to deliver a wide range of benefits for people and the natural environment together. It believes that green infrastructure should be delivered via the spatial planning system, as an integral part of new development everywhere, and also forms a key part of proposals to regenerate existing urban areas.

Utilities

Utilities infrastructure delivery and funding of it is largely the responsibility of the relevant utility companies, with connections to services for new sites also funded by site developers. For future development, it is will be important to clarify the procedure by which these utility companies consider development sites and how these are included within their own programme and investment strategies.

Utility Providers are regulated by OFGEM and OFWAT; in principle, neither regulator supports installing new infrastructure on a speculative basis, rather they are reactive to providing supply services to new developments once a scheme has received consent. However, if a robust business case that gives a good level of certainty that development will take place in a definite timescale is put to the Regulators, advance funding may be approved. This is an unsatisfactory situation and changes in the way utility services are provided is an important issues to consider further.

It important to highlight the fact that Water Companies are now undertaking the preparation of the next Water Resource Management Plans (WRMP) and Business Plan. Local Plan growth targets and the timing of sites is a key source of information to inform these plans. Water providers, as natural monopolies, are obligated in the requisitioning or provision of self-lay connections by developers or their contractors and subject to regulation under the 1991 Water Industry Act. This stipulates that they must provide necessary infrastructure and supply given the attainment of certain conditions and costs by the developer. The main water supplier in Oxfordshire is Thames Water. There is currently no direct competition for supply in the water market as switching is not possible.

Water recycling centre upgrades (previously referred to as sewage or wastewater treatment works), required to provide for additional growth, are wholly funded by the water companies through their Asset Management Plan. Foul network improvements are generally funded/part funded through developer contribution via the relevant sections of the Water Industry Act 1991. The cost and extent of the required network improvement are investigated and determined when the service company is approached by a developer and an appraisal is carried out. Similarly water infrastructure provision will

be dependent on location and scale of the development and contributions for upgrades or strategic schemes will be obtained through provisions in the Water Industry Act 1991.

Waste and refuse collection is the responsibility of the district and City authorities. These services are largely contracted out to the private sector (except in Oxford City and Cherwell) and funded from local budgets. Oxfordshire County Council has responsibility for domestic waste disposal. Commercial waste is dealt with by the private sector.

Flood Risk Management & Drainage

The Environment Agency manages flood risk from main rivers, the sea and reservoirs and works with others to manage the risk of flooding and coastal erosion in England. As part of this role the Environment Agency delivers flood risk management schemes to reduce the risk of flooding. An appraisal process is carried out to secure funding from Government and to ensure that value for money is maximised from the investment. The appraisal tests the economic viability, technical feasibility and environmental impacts. A partnership funding approach is taken and where there is a shortfall in funding investment is sought from other organisations such as local councils, businesses and utility companies. In Oxford the Environment Agency is working with local partners on a scheme to reduce flood risk to homes and businesses in Oxford, as well as to services and major transport routes into the city.

Oxfordshire County Council is the lead local flood authority (LLFA) in Oxfordshire and is responsible for managing local flood risk, including from surface water, ground water and ordinary watercourses, and for preparing local flood risk management strategies. This means that it is able to receive Central Government funding for Flood and Coastal Erosion Risk Management (FCERM). Funding can be delivered via a range of routes, including via DEFRA, DCLG the Environment Agency, or other bodies that have been devolved funding responsibilities such as LEPs. £735m has been allocated by Central Government in 2016 / 17 for these purposes.

In return, the LLFA has a range of responsibilities including to: prepare and maintain a strategy for local flood risk management in their areas, coordinating views and activity with other local bodies and communities through public consultation and scrutiny, and delivery planning; maintain a register of assets –i.e. physical features that have a significant effect on flooding in their area; investigate significant local flooding incidents and publish the results of such investigations; provide statutory planning advice

for establish approval bodies for design, building and operation of Sustainable Drainage Systems (SuDS) in relation to major (10 plus homes) planning applications.; issue consents for altering, removing or replacing certain structures or features on ordinary watercourses; and play a lead role in emergency planning and recovery after a flood event.

Public Funding Outlook

The Local Government Finance Act came into force in April 2013, giving Local Authorities the power to retain up to half of the proceeds of any growth in business rates income within their jurisdiction. The devolution of this key funding source came against a background of austerity budgets since 2011 in which Central Government grant funding to Local Authorities, via the Revenue Support Grant, has been sharply reduced year on year.

Over this same period a devolution agenda has also been followed by Government, through which many traditional sources of funding to Local Authorities were pooled into the Single Local Growth Fund and reallocated to Local Enterprise Partnerships as part of Local Growth Deals. The implication of these changes means that Local Authorities have reducing budgets and have to work with these new systems and mechanisms in order to find and apply for funding to deliver services and new infrastructure. There are changes however since the Autumn Statement 2015, when the Government signalled a change in the local government funding settlement, with the full localisation of business rates (national non-domestic rates) by 2020, compensating for the phasing out of the Revenue Support Grant - delivering a 13.1% real increase in local government funding by 2020.

The picture of public funding for infrastructure in England is an evolving one which will need to be monitored constantly in order to ensure that local authorities remain aware of the opportunities available to finance their infrastructure requirements.

The current trend towards reducing public resources with the ending of the Government's Rate Support Grant in 2020/21, the use of competitive funds and a greater reliance on private sector sources is likely to continue. On the other hand some structural changes may occur as a result of emerging Devolution deals and the eventual exit of the UK from the EU.

EU funding has been a significant component of locally determined delivery of employment and skills and business support. The LGA fears that due to delayed sign offs by government, only 50% of the £5.3 billion will be agreed before the UK leaves the EU - leaving a shortfall in the delivery of EU Structural and Investment Fund Plans.

Table 1.42: Overview of Funding Responsibilities and Major Public Funding Streams for Capital Investment in Infrastructure

Infrastructure Themes	Management Body	Remit	Public Funding Stream(s)
Transport			
Strategic road network	Highways England	Operates, maintains and improves England's motorways and major A roads. Highways England Delivery Plan 2015-2020, published in response to the Government's Road Investment Strategy RIS2, sets out Highways England's main activities, strategic outcomes and describes how it will deliver the Investment Plan.	Highways England, set for 2015-2020
Local road network & transport projects	Oxfordshire County Council	The County Council is responsible for the delivery of the Local Transport Plan. Local authorities' responsibilities include: traffic management improvements; tackling congestion; safer roads (including casualty reduction); public Rights of Way improvements; local road maintenance.	Local authority budget; DfT competitive funds e.g. Pinch Point Fund; Local Highways Maintenance Challenge Fund.
	Oxfordshire Local Enterprise Partnership (OXLEP)	Funding for major local transport schemes was devolved to LEPs as part of the Single Local Growth Fund in 2015. In Oxfordshire a number of transport projects have been identified in the OXLEP Growth Deal.	Local Growth Deal
Rail	Network Rail	Network Rail is the monopoly owner and operator of the national rail network and its assets – such as track, bridges and signaling. Network Rail's income comes from three sources: direct grants from the Department for Transport and Transport Scotland); charges for track access to train operating companies; income from commercial property.	Government funding to Network Rail is allocated for a five-year period for the CP5 (2014 to 2019). MOU agreed between NR and DfT post CP5 to set out the governance around delivering future enhancements.
Airports	Private companies	London Oxford Airport is run by private company but some public funding may be accessible as part of a Government initiative to support small airports.	DfT Regional Air Connectivity Fund for small airports
Integrated transport (buses, cycling, walking)	Oxfordshire County Council	The County Council is responsible for the delivery of the Local Transport Plan. Local authorities' responsibilities include: cycling schemes; walking routes; passenger transport improvements.	Local authority budget; DfT competitive funds e.g. Access Fund for Sustainable Travel
	OXLEP	The OXLEP Growth Deal includes some cycling improvement schemes.	Local Growth Deal
	Bus companies	The area is served by a number of bus and coach companies providing part subsidised services.	n/a
Education			
Early years & childcare, primary education, second education, sixth form education	Oxfordshire County Council	Local authorities have a duty to ensure that there are sufficient school places in their area. The Education Funding Agency provides grants to local authority maintained schools and academy trusts for building maintenance, refurbishment and rebuilds.	A number of funding streams are provided by the Department for Education / Education Funding Agency for capital investment in schools: Basic Need capital allocations, school condition funding, Priority School Building Programme.
Higher Education (HE), Further Education (FE), Adult learning	Colleges, universities, education providers	Investment in FE and HE is decided by Central Government and education providers.	The Skills Capital Fund from the Skills Funding Agency for further education capital investment; the Higher Education Funding Council for England for higher education capital investment.
Health and Social Care			
Primary care services	Clinical commissioning group (CCG), NHS Property Services, Community Health Partnerships	NHS England has the commissioning responsibility for primary care services. As part of this they provide some funding for improvement to premises and manage specific capital initiatives. Most significant funding is now secured from private equity either via public sector vehicles such as NHS LIFT and PPP or borrowing from private funds. In addition there are occasional primary care schemes that are funded by a partnership, social enterprise, or commercial enterprise.	NHS England (Estates and Technology Transformation Fund – competitive)

Infrastructure Themes	Management Body	Remit	Public Funding Stream(s)
Hospitals & mental health	CCG, NHS Hospital Trusts, NHS England, NHS Property Services, Community Health Partnerships	Services in these sectors are commissioned by the Clinical Commissioning Group, NHS England and specialist national groups. Some central capital funding is available for premises, IT and equipment replacement as well as from the two NHS property organisations, NHS Property Services and Community Health Partnerships. Foundation Trusts and non-NHS providers may borrow from private equity either via public sector vehicles such as PFI, NHS LIFT and PPP or borrowing from private funds.	Department of Health programmes and a range of alternative funding sources
Adult social care, public health and well-being	Oxfordshire County Council	Under the Care Act 2014 local authorities have new responsibilities in social care. The Act makes clear that local authorities must provide or arrange services that help prevent people developing needs for care and support or delay health deterioration and reduce the requirement for ongoing care and support. Local authorities also provide other health and well-being services e.g. related to smoking, weight management, family support and mental health.	Local authority budget; Better Care Fund; Social Care Precept, which allows Councils with Social Care responsibilities to increase council tax by an additional 2% to meet these new duties.
Emergency Services			
Police service	Thames Valley Police	The funding for the police service comes from two main sources. Around two thirds of the police budget comes from a Central Government grant whilst the remaining one third is provided through the council tax as the policing precept.	Central Government, Oxfordshire County Council
Fire service	Oxfordshire Fire and Rescue services	Funding for fire and rescue services comes from two main sources: a proportion of the council tax precept and Central Government grant	Central Government, Oxfordshire County Council
Ambulance service	South Central Ambulance Service NHS Trust (SCAS)	Ambulance services are funded by NHS England through their commissioning arrangements, except for air ambulances which are charitably funded.	South Central Ambulance Service NHS Trust (SCAS)
Utilities and Waste			
Energy	Gas network operators, UK power network	Utilities infrastructure delivery and funding is largely the responsibility of the relevant private utility companies with new connections to services also part-funded through site developers.	Private operators, although Central Government programmes may be available to encourage investment in renewable energy at local level.
Broadband	BT Open Reach and other Commercial Operators (i.e Virgin Media)	A large share of the investment in broadband infrastructure has been implemented by commercial operators. The public sector is also providing funding in order to achieve 95% coverage of the population by 2017/18.	Central Government funding, EU match-funding
	Oxfordshire County Council & West Oxfordshire District Council	The County Council is delivering capital investment in broadband infrastructure to support large scale commercial development including the installation of a Superfast broadband network. West Oxfordshire District Council is delivering its own programme.	Local Authority Budget
Water & waste water	Thames Water	Water recycling centre (previously referred to as sewage or wastewater treatment works) upgrades required to provide for additional growth are wholly funded by the water companies through their Asset Management Plan. Foul network improvements are generally funded/ part funded through developer contribution via the relevant sections of the Water Industry Act 1991. The cost and extent of the required network improvement are investigated and determined when the service company is approached by a developer and an appraisal is carried out. Similarly water infrastructure provision will be dependant on location and scale of the development and contributions for upgrades or strategic schemes will be obtained through provisions in the Water Industry Act 1991	n/a
Waste	District, City and County Authorities	Waste and refuse collection and disposal is the responsibility of the District, City and County Authorities. These services are largely contracted out to the private sector and funded from local budgets.	n/a
Flood Protection & Drainage			
Flood risk	Oxfordshire County Council	Oxfordshire County Council is the organisation responsible for local Flood and Coastal Erosion Risk Management (FCERM), receiving grant funding from Central Government and the Environment Agency.	Central government funding
Flood Risk Management	Environment Agency	Environment Agency is responsible for managing flood risk from main rivers, and delivers flood risk management schemes to reduce the risk of flooding.	Central government funding and partnership funding from local organisations.

7.3 Developer Contributions

In recognition of the public costs borne by local authorities in providing infrastructure to support new developments, the town planning process provides the means for developers to contribute to the cost of necessary supporting infrastructure. These arrangements variously take the form of planning conditions, Section 106 agreements between local authorities and developers and a Community Infrastructure Levy (CIL).

Section 106 agreements

Section 106 of the Town and Country Planning Act 1990 allows a LPA to approve a development proposal that would not otherwise be acceptable on planning grounds, on various conditions set out in agreements negotiated between local authorities and developers. These commonly include an obligation for developers to provide affordable housing (of various types and at various times) and to secure financial contributions and land from developers for all types of supporting infrastructure.

The Community Infrastructure Levy Regulations specify that Section 106 agreement can be concluded, only where such an agreement is:

– necessary to make the development acceptable in planning terms

– directly related to the development; and

– fairly and reasonably related in scale and kind to the development.

Section 106 agreements should be focused on specific measures to mitigate the planning issues which would otherwise lead to refusal of the planning application. Accordingly, funding received under a Section 106 agreement must be spent on the infrastructure agreed to be delivered, pursuant to a developer contribution agreement.

Community Infrastructure Levy

The Community Infrastructure Levy is a fixed, tariff-based planning charge, which allows LPAs to require developers of particular types of development to pay a levy based on the size of the development (per square metre). In setting the CIL, the LPA must specify a list of projects or types of infrastructure which the CIL will fund (known as a Regulation 123 list). The levy is intended to recognise the costs to LPAs in providing infrastructure to support the cumulative impact of development. LPAs can determine whether or not to institute such a levy and the per square metre rates used for different development types. The National Planning Policy Framework recommends that, where possible, Community Infrastructure Levy rates should be developed alongside an LPA's Local Plan.

Funds raised through the CIL must be applied to provide the infrastructure specified on an LPA's Regulation 123 list.

Parish councils and associated neighbourhood forums also receive a "meaningful proportion" of CIL receipts to the neighbourhoods affected by development, typically 15-25%. The scale of this contribution is directly linked to the number of homes developed in the Parish and the existing scale of the parish (in terms of dwellings). The meaningful proportion can be spent on anything to help mitigate the impact the development has on the town or parish. It is the decision of the town or parish council where the money is spent.

Since the relevant provisions of the Planning Act 2008 came into force in 2010, Oxford City and South Oxfordshire have adopted a CIL charging schedule and Cherwell, Vale of White Horse and West Oxfordshire have a draft charging schedule.

Table 1.43: Oxfordshire Authorities CIL Status

	Status	Max Residential CIL Rate per Sq.m
Cherwell	Draft Charging Schedule	£270
Oxford	Adopted	£100
South Oxfordshire	Adopted	£150
Vale of White Horse	Draft Charging Schedule	£120
West Oxfordshire	Draft Charging Schedule	£200

RELATIONSHIP BETWEEN CIL AND SECTION 106

There should be no circumstances where a developer is paying a CIL and contributing under a section 106 agreement in relation to the same infrastructure.

While Section 106 agreements for developer contributions to infrastructure should be focused on specific measures to mitigate the planning issues which would otherwise lead to refusal of the relevant planning application, CIL is intended to be levied to address the broader impacts of development on specified types of infrastructure.

Historically, LPAs pooled funding for Section 106 agreements of separate but complementary developments to fund large scale infrastructure such as roads and schools. The Community Infrastructure Regulations 2010 introduced CIL restrictions which limit the maximum number of Section 106 agreements that can be pooled for a single projects to five.

Development Viability

Any contribution by a developer to infrastructure (through an agreement) is dependent on the proposed development being commercially viable. The viability of prospective developments is sensitive to the value of the land on which the development is to be built and the level of contributions sought from developers to fund infrastructure. Higher land values indicate a greater prospect that a development will be able to contribute towards costs of the required infrastructure while remaining viable.

According the Valuation Office Agency (VOA) 2015 estimates, the average price per hectare in each local authority in Oxfordshire varies from £3,100,000 per hectare in the Vale of White Horse to £5,020,000 in Oxford.

Values for Oxfordshire exceed typical values across England (excluding London), which has an average value of £2,100,000 per hectare, but lower than England when London is included, which has an average value of £6,900,000.

7.4   Wider Funding Options

Given the limitations of CIL and Section 106 to fully fund infrastructure across Oxfordshire, consideration must be given to wider (and more innovative) funding mechanisms that are being developed by the public and private sectors.

In a context of significant projected population growth combined with constrained financial resources, Oxfordshire will need to continue to explore ways to secure additional funding, beyond mainstream public sector grants and developer contributions, in order to meet its infrastructure needs.

This section provides an overview of current options for such alternative funding drawing on the experience of local authorities across the UK but bearing in mind that funding sources evolve over time with emerging priorities and changes in regime either at local, regional or national level.

Whilst the early sections outlined the main sources of public sector grants available to pay for infrastructure, the funding gap will require the use of other instruments including a range of financial and market-based mechanisms.

Public Funds

EUROPEAN FUNDING

European funding for the UK is still available for the short term from the European Regional Development Fund (ERDF), European Social Fund (ESF) and part of the European Agricultural Fund for Rural Development (EAFRD) which are combined into a single 'EU Structural Investment Funds (ESIF) Growth Programme' made available to Local Enterprise Partnerships (LEPs) on a competitive basis.

The Programme runs from 2014 to 2020 and focuses on:

– Skills, Employment Support and Promoting Social Inclusion (ESF)

– research and innovation, IT and broadband, business support, low carbon, climate change, environment, transport, social inclusion, technical assistance (ERDF)

– support for rural businesses (EAFRD)

EU funds require match-funding from either public or private sources. They must be additional to, and not replace, existing national funding. Opt-in arrangements are encouraged to ensure a closer integration with local and national programmes, sources of guaranteed match funding, and provide a low level of risk in delivery. Delivery of the programme is through a variety of routes. These are open calls for projects, opt-ins, possibly financial

instruments, and commissioning through tendering for delivery contracts.

The OXLEP has secured funds under the 2014-2020 programme and produced an EU Structural and Investment Fund Strategy setting out priority areas for investment.

A number of other European funds can support infrastructure investment including: Connecting Europe Facility for road and rail infrastructure with significant EU added value; CIVITAS for the implementation of ambitious, integrated, sustainable urban transport strategies; LIFE for measures to mitigate and adapt to climate change; Natura 2000 to protect the EU's most valuable and threatened species and habitats; ELENA which supports councils in preparing and implementing sustainable energy plans for their area. In addition, the European Investment Bank (EIB) lends to individual projects where the total investment cost exceeds EUR 25m.

The future extent and role of European Funding in infrastructure investment in the UK will depend on the arrangements agreed for the exit of UK from the European Union. Government has agreed to continue to fund EU projects post Brexit if they meet national needs. The Government may need to provide additional national funding as a replacement for any EU funding lost to Oxfordshire and to ensure that the local economy can adapt and respond to new challenges to our trading relationships. The absence of a national replacement to EU funding would exacerbate existing local funding gaps identified in the OXIS.

THE HOUSING INFRASTRUCTURE FUND

The Housing Infrastructure Fund is a government capital grant programme of up to £2.3 billion, which will help to deliver up to 100,000 new homes in England. Funding will be awarded to local authorities on a highly competitive basis, providing grant funding for new infrastructure that will unlock new homes in the areas of greatest housing demand. The Fund provides:

– **Marginal Viability Funding:** On housing sites held back because the costs of putting in the infrastructure and building the homes are too great, the fund will provide the final, or missing, piece of infrastructure funding to get additional sites allocated or existing sites unblocked quickly. Infrastructure is expected to be built soon after schemes have been awarded funding, and for the homes to follow at pace. Bids can be up to £10 million for Marginal Viability proposals and are available to single and lower tier local authorities

– **Forward Funding**: For local authorities seeking to take a strategic approach and plan for infrastructure provision, the fund will back a small number of strategic and high-impact infrastructure schemes. This might including providing the first amount of funding, which then gives the market confidence to provide further investment and make more land available for development and future homes. Bids can be up to £250 million for Forward Funding proposals and are available to the uppermost tier of local authority

The Fund is available over four years from 2017/18 to 2020/21 and some Marginal Viability proposals will be aimed at spending in 2017/18. All funding must be committed by March 2021. Local authorities are invited to submit expressions of interest by Thursday 28 September 2017. Authorities can submit multiple bids and will need to rank them in order of priority.

DCLG encourages all tiers of government to work together, and with their Local Enterprise Partnerships, to develop strong bids and to submit joint bids where they will unlock additional housing at scale. Applications will be assessed on how well they meet the following criteria:

– The proposal takes a strategic approach, with strong local leadership and joint working to achieve higher levels of housing growth in the local area, in line with price signals, and supported by clear evidence.

– The proposal is value for money, on the basis of an economic appraisal following the principles set out in the Green Book and the DCLG Appraisal Guide.

– The proposal can be delivered. This is about both delivering the infrastructure and how that will then lead to the delivery of new homes. It also means all the key delivery partners need to be working together.

NEW HOMES BONUS

The New Homes Bonus (NHB), which commenced in 2011, creates an incentive for local authorities to deliver housing growth in their area. It is based on central government match funding the Council Tax raised for new homes and properties brought back into use, with an additional amount for affordable homes, for the following six years to ensure that the economic benefits of growth are returned to the local area. This can however be viewed as a reallocation of funding that was previously allocated to local authorities through the Central Government Local Authority Financial Settlements. From 2015 NHB included a requirement that some resources are pooled to support LEP growth plans.

The Government has conducted a consultation on options for 'Sharpening the Focus' of the Bonus. These options included significant reductions in the availability and distribution of the Bonus for some local authorities. The Government is yet to provide a formal Government response and the future of the Bonus remains uncertain.

Borrowing

PUBLIC WORKS LOAN BOARD OR 'PWLB'

The public sector can borrow from the Public Works Loan Board (PWLB) at rates determined by HM Treasury to fund its spending and represents a key source of finance which could be used to fund infrastructure. This is the main direct funding source for local authorities and interest rates are currently low in comparison to other funding sources.

Local authorities can borrow to invest in capital works and assets so long as the cost of borrowing is affordable and in line with the principles set out in a professional Prudential Code. This means that local authorities must use various prudential indicators to judge whether their capital investment plans are affordable, prudent and sustainable.

Prudential borrowing represents a key source of affordable finance which could be used to meet the upfront costs of key infrastructure. It has the benefit of being a relatively reliable source of finance, not being subject to commercial market appraisals in the way that a bank financed project would be.

However, whilst this could help meet the upfront costs of infrastructure, it will increase the overall costs due to the need to service debt on the loan and it does place the local authority in a position of risk in terms of repaying the whole value of infrastructure from resources, if revenue or value through the schemes to come forward cannot be captured.

INFRASTRUCTURE FUNDING

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Example - Croydon Council
The current Croydon Growth Zone is a billion pound delivery programme of infrastructure development to enable the Central Opportunity Area (COA) to accommodate the delivery of 23,600 new jobs with a further 5,100 jobs created during the construction phase, the creation of at least 10,500 new homes and the wholesale renewal of the retail core. It is planned to be funded through a Tax Increment Financing (TIF) funding model using the retention of enhanced Business Rates to pay back the Public Works Loan Board (PWLB) loan of around £300 million. The project is forward funded by a grant of £7m from the Government to fund the early years interest repayments.

LOCAL AUTHORITY BONDS

Bonds allow local authorities to raise substantial sums of capital immediately, on the basis of promises to repay the capital with interest at a specified point in the future.

Local authorities' borrowing limits will be related to the revenue streams available to them, which influence their ability to repay the debt. Local authorities are prevented by law from using their property as collateral for loans.

It would be possible for a local authority to issue bonds as part of a TIF process. Money would be obtained up-front by selling the bonds (instead of approaching financial institutions), and they could be repaid by the additional tax revenues resulting from the public investment.

If the future tax revenues do not materialise and the local authority is thus unable to repay the bonds, this will of course cause financial problems for the local authority.

As of 2016, a new UK Municipal Bonds Agency has been established. It is owned by some 56 shareholding local authorities. The purpose of the agency is to facilitate the issuing of bonds by smaller local authorities, and to obtain a competitive price for their bonds within the conventional bond market in order to reduce councils' capital costs over the long term. It will do this by: raising money on the capital markets through issuing bonds; arranging lending or borrowing directly between local authorities; sourcing funding from other third party sources such as banks, pension funds and insurance companies.

It aims to lend to eligible councils at a lower rate than the PWLB or than if the councils were to issue their own bonds. This lower rate will be attained by: achieving a sovereign-like credit rating through a joint and several guarantee (see section 6 of the business case); issuing bonds in benchmark sizes of £250 million to £300 million;

and sourcing capital at low interest rates from third parties, such as the European Investment Bank.

The Municipal Bonds Agency will be open both to shareholder authorities and other authorities.

Example: Warrington Council
In August 2015, Warrington Council issued £150 million in bonds, with a 40-year repayment period. The majority of the funding is to be used to redevelop Warrington town centre. The council will seek to repay the bonds via the proceeds from this redevelopment, whether in the form of business rates revenue, or the sale and rental of the properties in question.

Example: Greater Cambridge City Deal
An agreement set up between a partnership of local organisations and Central Government, to help secure future economic growth and quality of life in the Greater Cambridge city region. The agreement set up with Central Government will provide up to £500 million worth of funding over the next 15 years. The partnership aim to generate a further £500 million through other funding streams, bringing in a total investment of £1 billion

Borrowing Against Local Revenue

In recent years a number of alternative borrowing mechanisms have been trialled in the UK, using local revenue streams as a basis for long-term lending. However, take-up of each of these mechanisms has been limited so far.

TAX INCREMENT FINANCING (TIF)

TIF schemes were approved by the 2010-1015 Coalition Government as a new mechanism for forward funding infrastructure and capital development. Tax Increment Financing allows local authorities to capture the value of uplifts in local taxes (business rates) that occur as a result of infrastructure investment. Specifically it enables local authorities to borrow against the value of the future uplift in order to deliver the necessary infrastructure. Tax increment financing schemes in England have so far been based on business rate revenues, as this is the only local authority tax the revenues of which are likely to be directly affected by infrastructure projects.

Borrowing for Tax Increment Financing schemes falls under the prudential system, allowing local authorities to borrow for capital projects against future predicted

increases in business rates growth, provided that they can afford to service the borrowing costs out of revenue resources. However, such borrowing can only take place if local authorities and developers have a degree of certainty about the future tax revenue streams and whether there are sufficient guarantees that they will be retained within the authority.

Examples: Northern Line Extension

London Underground's Northern Line extension to Battersea involves an extra 3.2 km of track that will run from Kennington to the site of the disused Battersea Power Station, via Nine Elms. An innovative finance package to deliver the Northern Line Extension was developed by TfL, the GLA, Wandsworth Borough Council and Lambeth Council. It was agreed that the lion's share of Section 106 and Community Infrastructure Levy contributions from sites in the Nine Elms Enterprise Zone, within which Battersea Power Station sits, would be ring fenced to help fund the tube line extension. A Tax Increment Financing (TIF) deal was also agreed to provide additional funding for the Northern Line Extension. The GLA is taking out a loan of up to £1 billion to fund the project, with a repayment guarantee provided by the UK government. Loan repayments are due to be paid back, in part, through future growth in business rates revenue within the Nine Elms Enterprise Zone. The CIL and s106 revenues will also be used to pay back the loan.

BUSINESS RATE RETENTION

The Business Rates Retention (BRR) scheme was introduced in April 2013 and provides the opportunity for councils to retain a proportion of business rates revenue as well as growth on the revenue that is generated. The scheme could be used to meet the cost of infrastructure as and when the revenue is received, or it could be used to raise finance to meet up-front infrastructure costs.

Under the BRR scheme local authorities are able to pool together on a voluntary basis to generate additional growth and smooth the impact of volatility in rates income across a wider economic area. Business rates would generate funds which could be used to pay for a range of needs. Their use to help meet the funding of infrastructure would need to be carefully considered against other council funding objectives.

Under current Government plans Local authorities will retain 100% of business rates within the sector by the end of this Parliament and how the system will operate is not yet clear. Its design and the implications for certainty

of longer term income may impact on local authorities' willingness to invest in longer term projects such as infrastructure.

This will therefore require a concerted effort for local authorities to pro-actively to bring forward new business land and premises using all the available powers and financial interventions at their disposal to facilitate business expansion opportunities and also secure a higher proportion of inward investment businesses, particularly taking advantage of any displaced businesses from other locations.

Drawing Value from the Local Authority's Own Assets and Resources

LOCAL ASSET BACKED VEHICLES (LABV)

Local Asset Backed Vehicles (LABV) allow local authorities to use their assets (usually land) to lever long-term investment from the private sector for regeneration projects. They are designed to bring together a range of public and private sector partners in order to pool finance, planning powers, land and expertise; to ensure an acceptable balance of risk and return for all partners; and to plan and deliver projects more strategically.

There is no uniform method for designing LABV arrangements. In fact, given the varying capacity, assets and ambitions of local authorities across the country, each LABV must be specifically tailored to the individual needs of a local authority or city-region. Nevertheless, there are certain phases that all LABVs are likely to go through in their formation. Generally, when attempting to establish a LABV, local authorities and other public sector bodies will first collaborate to identify a portfolio of assets and a pipeline of regeneration projects which require funding. Finding the right mix of assets is important, and they should be bundled together specifically with the aim of attracting particular private sector partners. In order to simplify the public-private relationship and make it easier to attract private investment, this collaboration is then formalised into one company with a single governance structure – the LABV. Any number of specialist partners can be introduced further down the line, whether they are developers, infrastructure delivery companies, contractors or other bodies.

While LABVs can be an effective tool to unlock brownfield or underdeveloped sites, they also present a range of challenges including:

- securing political buy-in. This can be a challenge for multiple reasons including reluctance to relinquish control of local authority assets; scepticism of the private sector; need for cross-party, and cross-boundary working;

- getting the governance right given the LABV would bring together a diverse range of partners, each with different objectives;

- the capacity of local authorities to set up and manage their own LABV arrangements, and to manage risk;

- the need to maintain stakeholder support;

- the cost of setting up and operating the LABV. Procurement, preparing and agreeing legal documentation, require significant officer and external advisor time.

Example: Sunderland Council
As part of a strategy to support city centre regeneration, the former Vaux brewery site was acquired by the council with plans to create jobs and enhance city centre attractiveness by developing high quality office space with complementary residential, retail and leisure uses. This site was packaged together with housing developments in Chapel Garth and Seaburn seafront sites into a joint Local Asset Backed Vehicle (LABV) called Siglion with the council and Carillion, managed by Igloo Regeneration. In addition, the council had to agree to take on the head lease on the first building delivered at the Vaux site in order to make development viable.

The value of entering a LABV to Sunderland has been to improve the ability of the portfolio to support employment, resulting in improved rents and rental income back to the council. The LABV model enabled partners to focus on acquiring sites and building with low occupancy or a poorer offer and improving their performance. In Sunderland, the formal partnership between the public and private sector matches the expertise and finance available in the private sector, with the de-risking through planning that the public sector can bring.

STRATEGIC ASSET MANAGEMENT

The combined impact of the recession and local government funding cuts has made publicly owned land and property assets an increasingly important tool for local authorities to support economic growth, as well as to generate revenue funding.

The response to these shifts has meant a greater focus on treating public assets more strategically at local level. Government policy in this area has tended to focus on disposal of publicly owned land and property, as well as reducing costs and improving the public service delivery through co-location. But the priorities for local authorities, and the opportunities that public assets present in terms of supporting local growth, are quite different. Publicly owned land and property can be both a strategic as well as financial asset to local authorities. It can enable them to capitalise on existing assets to deliver more housing or employment space to support economic growth (or improve public service delivery), as well as providing a revenue funding stream in the context of reducing budgets.

While disposal of land and property might remain the right response in some cases, strategies that include investing to refurbish old assets or acquire new ones in the right places are also appropriate responses for cities seeking to proactively to support economic growth and regeneration, as well as generate revenues.

Three broad approaches to managing and optimising the value of public sector assets can be found across UK local authorities:

- Leading development: in places where the market is too weak to deliver physical development and regeneration without public sector intervention and funding. Partners are purchasing and/or using the existing asset base to pump-prime development that will support economic growth

- Shaping development: in other places, the private sector property market (residential or commercial) is stronger. The focus for partners is on using the public asset base to influence how and what kind of development takes place in ways that align with their vision for the area.

- Unlocking development: localities focus on removing the barriers to particularly difficult individual sites and projects, by working together to formally to coordinate asset management and investment within cities (across local authorities and public sector agencies), which creates new opportunities for releasing valuable

land in strategic locations within urban areas and enabling new ways of delivering services.

Strategic Asset Management is therefore much more than just a potential funding stream for local authorities and must be approached as a mechanism to support regeneration, place making and local development.

> **Example – One Public Estate**
> Starting in 2013 One Public Estate is a pioneering initiative delivered in partnership by the Cabinet Office's Government Property Unit and the Local Government Association (LGA). It is about local government working with central government and public sector partners locally on land and property initiatives to deliver four core objectives: create economic growth; more integrated and customer-focused services; generate capital receipts; and reduce running costs. Programmes with 32 of the largest land and property owning councils in England are aiming to create an additional 20,000 jobs, 9,000 homes, and raise £129 million from land and property sales over a five year period.

Private Finance 2

Private Finance Initiatives (PFIs) are a form of Public-Private Partnership (PPP), first introduced in 1992. Under a PFI, the private sector will typically design, build, finance and maintain infrastructure facilities under a long-term contract. The public sector body which uses the infrastructure repays the debt over a long period, often 25-30 years.

As PFI contracts allow a local authority and other service providers to embark on large capital projects with little upfront commitment of resources, it has been a popular option for capital financing in the past although since 2010, the number of new PFI projects has fallen sharply.

In December 2012, the Government announced the replacement of 'PFI' with 'PF2', which sought to address widespread concerns with the Private Finance Initiative and the recent changes in the economic context. The key reforms are as follows:

- Public sector equity: the public sector will take an equity stake in projects and have a seat on the boards of project companies, ensuring taxpayers receive a share of the profits generated by the deal.

- Encouraging more investors with long-term investment horizons - The use of funding competitions will be introduced to encourage institutional investors such as Pension Funds to compete to take equity in a PF2 project after the design stage. This is significant in terms of risk as Pension Funds are unlikely to invest in projects that are insufficiently developed.

- Greater transparency - Companies will have to disclose actual and forecast annual profits from deals. The new PF2 structure will curb gains to be made from refinancing and unutilised funds in lifecycle reserves.

- More efficient delivery - An 18 month limit on procurement will be introduced. Failure to meet this limit will see the respective public sector body lose funding.

- Future debt finance - the tender process will require bidders to develop a long-term financing solution where bank debt does not provide the majority of the financing requirement. Institutional investment will, therefore, become an important source of finance for PF2.

The first confirmed programme to which PF2 has been applied is the £1.75 billion privately financed element of the Priority Schools Building Programme (PSBP). While the immediate PF2 pipeline is focused on accommodation projects, an asset class which has been a particular focus of the PFI reforms, the Government wants to ensure that all suitable projects take advantage of PF2. Looking forward the Treasury will work with departments to assess which future projects are eligible for PF2.

Local Government Pension Funds

The Local Government Pension Scheme (LGPS) is a funded, statutory, public service pension scheme. DCLG is responsible for the scheme's stewardship and maintaining its regulatory framework. It is administered and managed by local pension fund authorities.

The primary responsibilities of Local Government Pension Scheme (LGPS) administering authorities regarding investments are to deliver the returns needed to pay scheme members' pensions, and to protect local taxpayers and employers from high pension costs. Thus pension funds do not represent large additional sources of capital expenditure that could be made freely available to local government.

However, the potential role of the LGPS in infrastructure funding is evolving. A number of recent studies have found there to be scope for LGPS funds to do more to invest for wider social and economic benefit. In 2012, DCLG carried out a consultation on possible changes to the investment regulations. As a result of the consultation, it amended

the investment regulations to increase the proportion of the capital value of a fund that could be invested in partnerships.

In October 2015, the Chancellor of the Exchequer announced an intention to work with councils to create half a dozen British Wealth Funds able to invest in infrastructure.

At the 2016 Budget, the Government announced that it would work with LGPS authorities to establish a new "Local Government Pension Scheme infrastructure investment platform".

Institutional Investors

The UK, particularly the London region, offers an extensive set of infrastructure investment opportunities, including in the regulated utility, power generation and transportation sectors. The UK's longstanding track record of private ownership and robust rule of law makes it amongst the most attractive jurisdictions for infrastructure investing.

There is strong interest in the UK infrastructure market from overseas investors (e.g. Middle East and Far East wealth funds) and from 'pension funds seeking higher financial returns and annual cash yields from investments in real assets at a time of low interest rates.

However, despite the strong interest in the UK market among investors, there are still hurdles to overcome as institutional investors attempt to marry their responsibilities and duties within tight legal and regulatory frameworks that vary across borders. Infrastructure debt competes for attention with other asset classes, and strong competition might see investors move their investment allocations away from the UK's infrastructure assets towards other asset classes.

Crowdfunding

Crowdfunding is the practice of funding a project or venture by raising monetary contributions from a large number of people, typically via the internet. The crowdfunding model is fueled by three types of actors: the project initiator who proposes the idea and/or project to be funded; individuals or groups who support the idea; and a moderating organization (the "platform") that brings the parties together to launch the idea. There are two primary types of crowdfunding:

- Rewards Crowdfunding: entrepreneurs pre-sell a product or service to launch a concept without incurring debt or sacrificing equity/shares.

- Equity Crowdfunding: the backer receives shares of a company/project, usually in its early stages, in exchange for the money pledged. The company/project's success is determined by how successfully it can demonstrate its viability

Several dedicated civic crowdfunding platforms have emerged in the UK, some of which have led to the first direct involvement of local governments in crowdfunding. Notable examples include Bristol, Mansfield and London.

However, most projects funded through crowdfunding are highly local and small with typical campaigns generating funding around the tens-of-thousands mark. This would not be enough to support large projects that local government is involved with, such as transport infrastructure and educational projects. However, it may be the case that crowdfunding represents a potential funding stream for the smaller social infrastructure and desirable local level projects that can often be overlooked when allocating limited funding across a range of infrastructure requirements, e.g low carbon energy projects.

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Example: London

The Mayor's Civic Crowdfunding Programme aims at supporting local projects that boost quality of life and the economy by helping Londoners to crowdfund innovative project ideas on Spacehive.

In 2015, local community groups – such as Town Teams, Business Improvement Districts or Resident and Trader associations – were asked to pitch ideas on how to make their local high streets better places to visit, live and do business using the Spacehive website. These groups could then use Spacehive alongside social media, email and events to build local support for their ideas in order to reach their funding target.

Selected projects received match of funding up to £20,000 from the Mayor. So far, the Mayor has pledged £600,000 towards 37 projects over two rounds of funding. These projects made up a diverse mix including the Peckham Coal Line, Good Food Catford, Wood Street Walls, The Community Kitchen and more.

Conclusions

A wide range of alternative sources of funding are available to the Oxfordshire Growth Board in order to meet its infrastructure need. However, each source has its strengths and weaknesses and it will be important for the Growth Board to devise a tailored and integrated package of funding sources and delivery mechanisms that meet the needs of different areas and types of infrastructure. Oxfordshire will have to prioritise clusters or portfolios of projects, which will have the greatest impact, as well as those which would be attractive to investors. A package of funding sources may need to be compiled to deliver a series of major projects.

This will require further analysis to assess: which funding sources are appropriate for Oxfordshire; how different strands of funding can be brought together to secure long-term infrastructure delivery e.g. through mechanisms such as revolving investment funds; and the Oxfordshire authorities' capability and capacity to develop and manage such instruments.

Table 1.44: Selected Options for Additional Infrastructure Funding

	Description	Project Types	Maturity	Positive Attributes	Negative Attributes
Prudential borrowing	Loans at low rates from the Public Works Loan Board (PWLB) under prudential principles.	Any	Mature	Low rates Reliable Prudential approach determined by local authorities	Availability of revenue funding to repay the loan Political appetite for borrowing
Local authority bonds	A fixed- interest bond, repayable on a specific date, used by a local authority in order to raise a loan and similar to a Treasury bond. Could be used as part of a TIF scheme.	Any	Re-emerging, with the implementation of a UK Municipal Bonds Agency	Reliable Stable repayment amounts over time	Ability to repay the loan
Business Rates Retention (BRR)	Local authorities can retain a proportion of business rates revenue as well as growth on the revenue that is generated. The scheme could be used to meet the cost of infrastructure as and when the revenue is received, or it could be used to raise finance to meet up-front infrastructure costs.	Any	Emerging	No cost to the local authority Potential track record with Enterprise Zones	Use of funds from BRR for infrastructure must be weighed against other local authority needs Allocation issues if cross-boundary receipt
Tax increment financing (TIF)	Enables local authorities to borrow against the value of the future uplift in order to deliver the necessary infrastructure (usually based on BRR)	Sites / areas where substantial business rate growth is a realistic prospect.	Emerging	Prudential system	Ability to repay dependent on achievement of predicted growth in value
Local asset backed vehicle	Local Asset-Backed Vehicles (LABVs) allow local authorities to use their assets (usually land) to lever long-term investment from the private sector for regeneration projects.	Contaminated or under-developed urban areas; housing projects.	Developing	Unlocking value from previously undeveloped / unused local assets. Brings in funding and expertise from private sector to develop the asset.	Need to securing political buy-in. Difficulty and cost of implementation: working across a range of partners; managing risks; stakeholder engagement; operation costs; procurement and legal requirements.
Strategic Asset Management	Maximising the contribution of local authority assets as sources of long-term funding through a combination of: refurbishing and repurposing buildings in order to make better use out of them and ready them for sale; selling off to generate receipts, or liabilities to reduce costs; acquiring new assets to meet local council or civic needs, to deliver where the market cannot or to grow the investment portfolio.	Revenue from SAM can be used for any purpose	Mature	Limited costs Maximises value of local authority assets Facilities working across the public sector locally Some dedicated funds to support (e.g. Open Public Estate)	Difficulty in aligning objectives of different public sector owners Need to adopt an entrepreneurial approach, working to commercial timescales and accepting risk Tensions and trade-offs between short-term financial gain and long-term economic growth benefit
European Funding	A range of EU funds are accessible to local authorities in the forms of loans, grants or equity funding. The main source is the 'EU Structural Investment Funds (ESIF) Growth Programme' made available to Local Enterprise Partnerships. Also discounted borrowing through EIB for major schemes (e.g. light rail)	Projects meeting eligibility criteria e.g. for ERDF, projects relating to Innovation, ICT, SME competitiveness, Low Carbon, Climate Change Adaptation, Environmental Protection, and	Mature	Provides additional source of funding to national / local streams. This is one of the criteria for eligibility.	Requires match-funding There may not be a pipeline of projects ready to apply for funding The quality of proposals may not be sufficiently high. Uncertainty of the impact of Brexit on UK access to EU funds (and national successor funding) beyond 2020.

	Description	Project Types	Maturity	Positive Attributes	Negative Attributes
Housing Infrastructure Fund	The fund offers repayable finance for upfront infrastructure investment and other site preparation works that will support economic growth, jobs and homes.	Any	Mature	Additional funding for site-based development	Limited life cycle and strict eligibility criteria
New Homes Bonus	The New Homes Bonus is a grant paid by central government to local councils to reflect and incentivise housing growth in their areas. It is based on central government match funding the Council Tax raised for new homes and properties brought back into use, with an additional amount for affordable homes, for the following six years	Local councils can decide how to spend the NHB.	Mature	Clear financial incentive for local authorities to permit new housing Bonus is relatively easy to calculate	Limited impact on planning applications and decisions Uncertainty about the long-term future of the policy
Private Finance Initiative (PFI)	Under a PFI, the private sector will typically design, build, finance and maintain infrastructure facilities under a long-term contract. The public sector body which uses the infrastructure repays the debt over a long period, often 25-30 years.	Generally linked to buildings (e.g. schools, hospitals)	Mature	Enables a local authority to embark on large capital projects with little upfront commitment of resources	Higher costs and risks than conventional funding Business case for PFI can be weak Local authority's ability to manage risk and achieve appropriate contract
Local Government Pension Funds	The Local Government Pension Scheme (LGPS) is a funded, statutory, public service pension scheme. The LGPS may be able to invest part of its fund in supporting the development of local communities across the UK.	Any	Emerging	Source of investment with a long-term view and interest in the UK infrastructure market.	Scope for involvement of LGPS currently evolving
Institutional investors	Sovereign wealth funds and pension funds show a growing interest in the UK infrastructure market as a place to invest.	Any	Emerging	Large operators with long-term view of investment.	Likely limited potential as infrastructure debt competes for attention with other asset classes Has to perform against other competing assets classes on risk / reward basis
Crowd funding	Funding a project or venture by raising monetary contributions from a large number of people, typically via the internet.	Small projects (e.g. community gardens)	Emerging	Direct link with local population and their need Ability to address gaps in funding for small projects which contribute to well-being and sense of place Dynamic and grass-rooted	Small scale funding

8.1 Recommended Next Steps

Key Findings:

The following overarching findings have been established:

- Oxfordshire is expected to need to accommodate housing and economic growth over the 25 year period to 2040 delivering on average 5,100 dwellings per annum, or **123,500 dwellings over the 25 year period.** This compares to average annual completions of 2,333 dwellings per year across Oxfordshire from 2011 to 2015.

- OCC forecast a **population increase of 267,000 people** between 2016 and 2040 (an increase of 39%).

- **101,000 additional jobs** are forecast between 2016 and 2040 (an increase of 25%).

- Delivering the necessary infrastructure to support that growth from now to 2040 is estimated to **cost at least £8.35 billion** in 2017 terms. This represents an estimate of capital delivery costs only and does not include the additional annual revenue requirements, maintenance costs or land requirements.

- The study has reviewed the potential costs of delivery alongside currently identified secured funding, highlighting a remaining **funding gap estimate of over £7.14 billion** at 2017 prices. It is important to note that this funding gap is a gross figure and does not take into account future developer contributions, utility company planned investment and other sources not yet confirmed.

With regards to the identification and criteria based assessment of infrastructure requirements, the following key findings have been established:

Regional and Countywide Infrastructure:

- Chapter 5 of the report demonstrates the application of the mutli criteria assessment to the regional and countywide schemes.

- The assessment scoring and subsequent ranking of regional and countywide schemes demonstrates the dominance of rail and transport schemes, reflecting the fact that movement and connectivity are central to delivering sustainable growth.

- The highest ranked schemes are so because, in accordance with the agreed criteria, they enable or unlock significant proposed development, recognising the fact, that significant investment in Oxfordshire is needed if we are to deliver our growth commitments.

- The priority given to the importance of growth and connectivity means that some other schemes, such as for green infrastructure are not perhaps given the profile that some stakeholders might expect.

- Officers on the Steering Group have recognised this within the OxIS findings and have noted the need to consider issues such as green infrastructure, utility capacity and their importance to sustainable growth in other ways such as separate specialist strategies or more specifically through the proposed Joint Spatial Plan.

Local Infrastructure:

- Local housing and economic growth sites and associated infrastructure schemes have been grouped into a series of growth corridors which help to demonstrate the collective growth patterns within Oxfordshire that have to date been articulated through a range of Local Plans and the Local Transport Plan. In this regard, the corridors are a diagrammatic illustration of how growth is dispersed across the county and the infrastructure that relates to it.

- Through the OXIS process it has proven difficult to rank the local schemes in such a way as to provide a clear hierarchy. Instead, it has highlighted that, within each growth corridor the full suite of infrastructure was both essential and inextricably interlinked - all items were required to ensure that the growth within each corridor would be sustainable.

- Accordingly, the headline presentation for local infrastructure is one of a listing rather than a ranking, thus demonstrating the importance of the totality of this more locally focussed infrastructure to Oxfordshire's sustainable growth.

Recommended next steps:

The following next steps are recommended to the Growth Board:

- Dialogue with relevant funding bodies including Central government departments such as the Homes and Communities Agency (HCA) to identify appropriate funding pots from which **tailored funding bids** can be made.

- Continued **joint working between the Oxfordshire authorities through the Oxfordshire Growth Board** and other local authorities and England's Economic Heartland (EEH) area on strategic issues and priorities. This includes linkages to London and the Cambridge, Milton Keynes, and Oxford Growth Corridor considering the impacts of major infrastructure proposals such as East West Rail and the Oxford to Cambridge Expressway.

- **Development of an overarching joint spatial plan for growth throughout the county,** enabling pro-active, co-ordinated planning for both housing and business growth and a comprehensive understanding of the infrastructure implications of the same. The emerging growth expectations of Government, both for the county and related regional growth initiatives, for example the Cambridge, Milton Keynes, and Oxford Growth Corridor will pose growth related challenges that will only be met by co-ordinated strategic planning.

- Use the study as **a tool for engagement with Central Government** in demonstrating the challenges faced in supporting growth across Oxfordshire and **continue dialogue with the National Infrastructure Commission (NIC)** on wider issues including the envisaged housing and economic growth and major infrastructure proposals in the Cambridge, Milton Keynes, and Oxford Growth Corridor.

- Use the study as a platform to support **development of more detailed strategies and policies**, for example Green Infrastructure and Energy Strategies.

- Further analysis to produce a more **detailed assessment of secured and potential funding sources** and in doing so reduce the identified funding gap. This should include further analysis of potential developer contributions or CIL through the application of average contribution rates to the forecast housing trajectory.

- The potential for an organised OXIS **Engagement Forum between the Oxfordshire authorities and relevant external stakeholders** such as the health sector, utility companies, Environment Agency, Highways England, Network Rail and other operators to consider greater integration on long term growth and infrastructure planning.

- Consider the **joining up of infrastructure modelling across a much larger geography, principally the EEH area,** for subjects including transport models, waste water modelling, and social infrastructure models. Including holistic consideration of cross border requirements and aligned to planning and funding bid timetables.

- Use the evidence provided within the OXIS and subsequent updated versions of it, to help review existing capital programmes to **shape, prioritise and sense check project pipelines across a range of infrastructure work streams** to optimise outcomes. The sequencing of capital infrastructure expenditure is very important, if this is done well it can offset future capital expenditure.

- Consider the implications of infrastructure provider's decisions both now and in the future. This study has used standard metrics to determine requirements for some infrastructure elements (such as healthcare, social care accommodation etc.), but the actual requirements will be heavily dependent on service decisions on new delivery models which are affected by regulatory, financial and technological changes.

- Explore further links between sub regional infrastructure planning as presented within the OXIS and opportunities and synergies between the requirements identified in this work and the continued review of local authority assets as part of the One Public Estate programme.

- Enable the wealth of information and GIS mapping data collated in the production of this strategy to be accessed by all relevant partners to inform their respective infrastructure planning work and to enable partners to understand and interrogate the data held within the databases.

- Revisit the evidence base behind this strategy on a regular basis in collaboration with partners to maintain a rolling understanding of the infrastructure landscape and funding priorities

- Consider the commissioning of detailed infrastructure topic specific assessments of infrastructure supply and demand modelling for the medium and long term to provide a more robust evidence base when planning over 25 year timeframes which often exceed any organisation's planning horizon. This would support effective planning past the 5 - 10 years as is currently undertaken by some service providers such as the NHS CCG.

Appendix 1 - Multi Criteria Assessment

Table 1.45: Scoring applied to Multi Criteria Assessment

	Criteria	Definition	Further Definition	Illustration	MCA Score
Type of Project		Safeguarding	Safeguarding Development	++	2
		Mitigating	Mitigating Development	++	2
		Enabling	Enabling New Development	+++	3
		Unblocking	Unblocking Stalled development	++++	4
Growth Supported	Level of Homes Supported	Negligible	<10 Homes	0	1
		Low	<100 Homes	+	2
		Medium	< 1,000 Homes	++	3
		High	> 1,000 Homes	+++	4
		Very High	> 5,000 Homes	++++	5
		Highest	> 10,000 Homes	+++++	6
	Level of Jobs Supported	Negligible	<10 new Jobs	0	1
		Low	<100 new Jobs	+	2
		Medium	< 1,000 new Jobs / or some retention of existing jobs	++	3
		High	> 1,000 new Jobs / or significant retention of jobs	+++	4
		Very High	> 5,000 new jobs / or fundamental retention of jobs	++++	5
		Highest	> 10,000 Homes	+++++	6
Deliverability	Level of Commitment	Negligible	Identified Need	0	0
		Low	Proposed Project	+	1
		Medium	Approved - Published Plan	++	2
		High	Approved - Part Funded	+++	3
		Very High	Approved - Fully Funded	++++	4
	Complexity of Delivery	High	Highly complex project with multiple issues	0	0
		Medium	Standard Project with some complexities	+	1
		Low	Simple Project with minimal issues	++	2
		Very Low	Very Simple Project and development ready	+++	3
	Level of Inter-relationships	Negligible	No interrelationships of significance	0	0
		Low	Adds limited value to wider infrastructure investment	+	1
		Medium	Adds notable value to wider infrastructure investment	++	2
		High	Part of Package / adds notable value	+++	3
Associated Impacts	Social Benefits	Negligible	Negligible beneficial effect on society	0	0
		Low	Low beneficial effect on society	+	1
		Medium	Medium beneficial effect on society	++	2
		High	High beneficial effect on society	+++	3
	Environmental Benefits	Negligible	Negligible beneficial effect on Environment	0	0
		Low	Low beneficial effect on Environment	+	1
		Medium	Medium beneficial effect on Environment	++	2
		High	High beneficial effect on Environment	+++	3

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