

HERTFORDSHIRE

INFRASTRUCTURE & FUNDING PROSPECTUS 2018-2031





EXECUTIVE SUMMARY

To understand the scale of the infrastructure challenges in Hertfordshire, AECOM was commissioned by Hertfordshire Infrastructure and Planning Partnership (HIPP) to develop the Hertfordshire Infrastructure and Funding Prospectus (HIFP).

HIPP consists of representatives from the County Council, Hertfordshire Local Authorities and Hertfordshire LEP. In recent years, HIPP has identified the need for a joint approach on infrastructure planning and funding across Hertfordshire. This has seen HIPP investigate the potential for better joint working in the context of the Government's encouragement for Local Planning Authorities to come together both formally and informally to address strategic planning and infrastructure issues. The development of the HIFP has been one of the commitments to come out of this process.

The Hertfordshire Infrastructure and Funding Prospectus provides a 'snap-shot' in time as of September 2018. The HIFP presents an overarching baseline of growth patterns, infrastructure projects and cost requirements and funding gaps.

This report sets out the findings following a desk-based assessment carried out by AECOM in parallel with stakeholder engagement with Hertfordshire County Council, Hertfordshire Local Authorities and infrastructure providers (i.e. NHS, DfT, LEP, etc). This offers an example of a collaborative process and approach to understanding the key issues related to strategic infrastructure requirements across the County.

The study provides a "snap-shot" in time, reflecting a position from September 2018, however consideration must be given that the growth and development context in Hertfordshire, much like the rest of the UK, is constantly changing, in which all LPAs in Hertfordshire are at varying stages in developing and implementing their local plans.

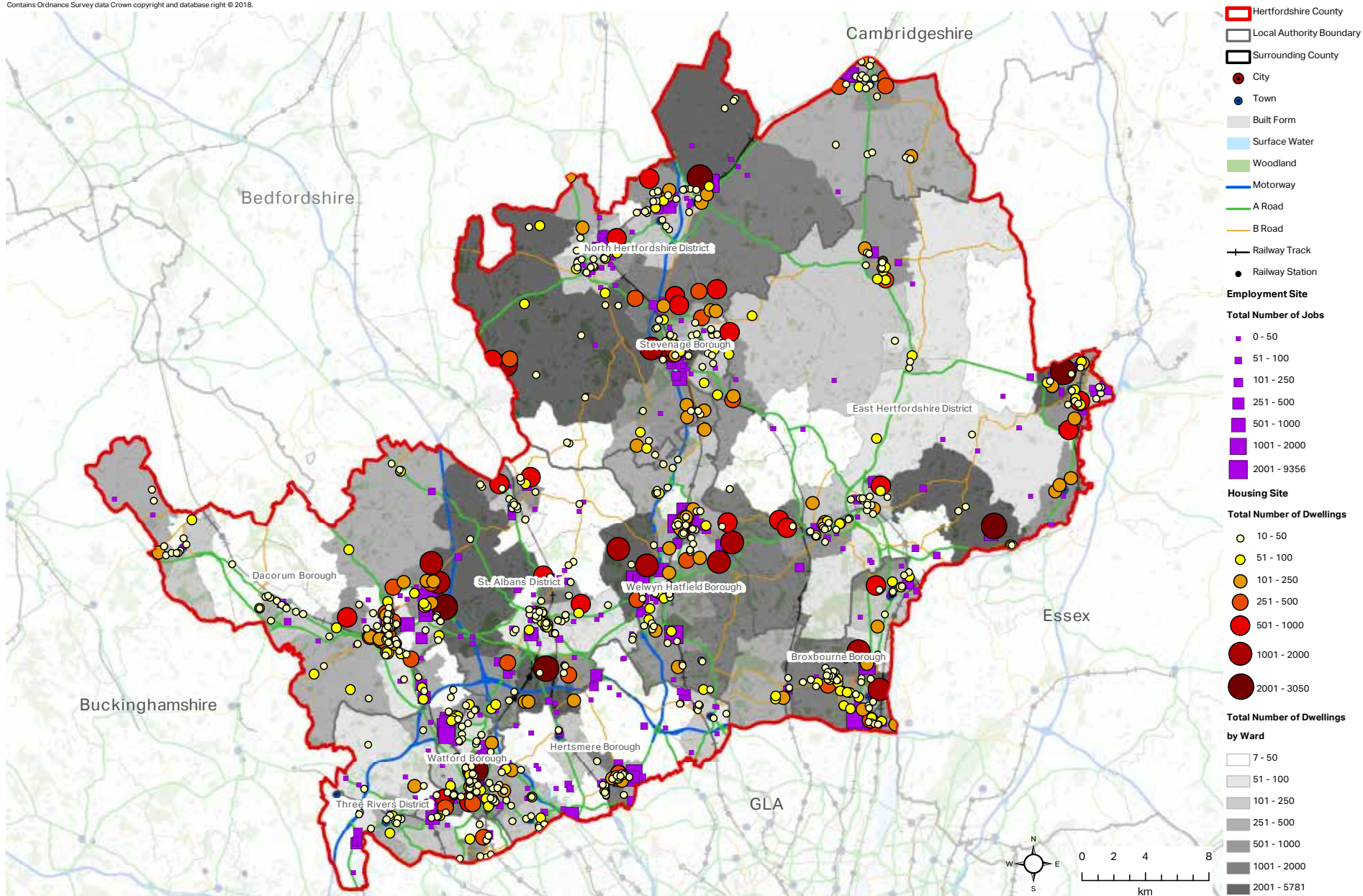
The HIFP is not intended to supersede or replace local evidence studies. Findings are based on common funding and cost assumptions and modelling work that may differ from those used in individual local infrastructure delivery plans and documents.

The following identifies the key findings identified in the 2018 HIFP

KEY GROWTH FINDING FROM THE HIFP

The following key findings related to housing, population and employment growth have been established:

- Hertfordshire authorities have identified housing growth **over the 13 year period to 2031 of on average 6,425 dwellings per annum**. This compares to average annual completions of 3,189 dwellings per year across Hertfordshire from 2011/12 to 2016/17.
- This is a total **housing supply of 83,530 dwellings** that are expected between 2017/18 and 2031/32.
- Local authorities across Hertfordshire have identified **housing need for approximately 97,411 homes** between 2018 and 2031.
- ONS Population projections **forecast a population increase of 107,400 people** (an increase of 9%).
- **44,650 additional jobs** are forecast by the East of England Forecasting model (2017 run), an increase of 6%.



* This is based on the most up to date information at the time of publication (September 2018)

FIGURE A - STUDY AREA AND MAJOR HOUSING/EMPLOYMENT SITES

Source: Local Authority data input into the Hertfordshire COMET Transport Model (Last run November 2017) & further engagement with Local Authorities to refine the data

KEY INFRASTRUCTURE FINDINGS FROM THE HIFP

The Prospectus reviewed a comprehensive scope of infrastructure topics and has identified a series of key infrastructure issues facing Hertfordshire:

- Across most infrastructure topics, decades of growth have created deficits in existing infrastructure, both across Hertfordshire and in localised areas.
- There is significant congestion on the rail and road network across the County. This has led to unreliable journey times due to limited resilience on the motorways resulting in daily delays. Similarly, on the rail network congestion can be seen on most lines leading into London (in terms of seating capacity).
- Both road and rail network suffer from poor east-west connections, resulting in an over-reliance on private vehicle use within Hertfordshire.
- Future education demand will expand to 2031 for new primary and secondary schools. In many instances, it appears that there is an oversupply at the local authority level of schools, however as patterns of growth are shifting and occurring in localised areas, this will require significant investment in education infrastructure to ensure strong future provision and accessibility that meets growth requirements.
- Pressure on the health and social care sector will continue to grow. This is leading to a shift in the future provision of healthcare with a move towards a more integrated approach focused on co-location of healthcare facilities and development of new models of care delivery. Simultaneous to the development of the HIFP, Sustainable Transformation Plans (STPs) have been developed by NHS organisations and local councils in collaboration with NHS Trusts, and CCGs. This is a move to encourage greater integration of services and better scale of provision. The STP Estates Strategy will act as a key document guiding strategic planning in the healthcare system. While still being developed, this work has fed into the HIFP where possible.
- Pressure on the existing health and social care sector will continue to grow as Hertfordshire sees the greatest population growth in those aged over 65. This is leading to a shift in the future provision of healthcare with a move towards a more integrated approach by developing new models of care. As part of the development of STPs, there is a push to transfer services into the community - promoting realignment of community and primary care facilities to benefit the need of the changing population demographics. This will require a different approach to facilitate co-location of public services and other community facilities.
- Hertfordshire can generally be considered to have a high quality landscape and provision of open space and green infrastructure. This is partially due to its legacy of garden cities and new towns in the 20th century and the location of Chiltern Hills AONB to the west of the county. However, there are issues with the health of the natural environment including fragmentation. Planned housing and economic growth will need to be mitigated through provision of new strategic green infrastructure and enhancing the quality of existing provision and mitigating existing localised issues.
- There are no significant energy (electricity, gas, or gas) projects identified, however to meet future growth to 2031 it has been identified that there will need to be upgrades and reinforcement to the existing network across the county.
- To meet future water supply and waste water requirements, the water companies are focusing on a strategy in the short term of metering, leakage reduction, and temporary restrictions at times of drought. However, in the long term there will need to be upgrading of infrastructure to meet localised growth demands around existing settlements and in the case of water supply, securing a transfer for a new regional reservoir by 2055.

KEY COST & FUNDING FINDINGS FROM THE HIFP

- Delivering the necessary infrastructure to support that growth from now to 2031 is **estimated to cost at least £5.70 billion in 2018 terms**. This represents an estimate of capital delivery costs only and does not include the additional annual revenue requirements and maintenance costs.
- The study has reviewed the potential costs of delivery alongside currently identified secured funding, potential funding from public, private and developer contributions highlighting a **remaining funding gap estimate of over £3.59 billion at 2018 prices**.
- The study demonstrates that existing funding will not deliver the scale of infrastructure investment identified in this framework. Developer contributions (whether s106, s278 or CIL), local authority capital programmes or current public sector funds and grants will fall short.
- All local authorities in Hertfordshire need to work together to devise an integrated package of funding sources and delivery mechanisms that meet the needs of different areas and types of infrastructure. Chapter 6 of this Prospectus presents a summary of potential options and the benefits and limitations of each.
- The HIFP has identified a variety of additional funding mechanisms that could be explored (i.e. Public Works Loan Boards, Crowdfunding, Business Rate Retention, Tax Increment Financing, etc). This includes an assessment of which alternative funding mechanisms are best suited for each type of infrastructure.

- However, the challenge of meeting many of the infrastructure requirements may require in part an approach that involves new and innovative ways of delivering services in a more integrated approach. This has in particular been adopted by the NHS in its future delivery models of healthcare across the UK.

NEXT STEPS

The Hertfordshire Infrastructure and Funding Prospectus has identified several next steps that should be taken forward as a result of this document.

Short Term

- HIPP to endorse the HIFP
- LEP Board to endorse the HIFP
- HIFP Presentation to Leaders Group / Shadow Growth Board to gain support
- HIFP Presentation to Public Sector Leaders Group to gain support
- Hertfordshire County press release

Medium Term

- Each Local Authority to utilise the HIFP to inform their Local Plans, evidence bases and funding decisions
- Potential to hold a conference with stakeholders (County Council, Local Authorities and Service Providers) and the development industry on HIFP outcomes
- Hertfordshire County and Local Authorities to utilise HIFP in meetings with ministers and civil servants

Long Term

- Prioritise infrastructure Projects
- Commission study to project infrastructure need to 2050

HERTFORDSHIRE

The HIFP identifies the following headline figures between 2018 & 2031

97,411
homes needed

83,530
homes planned

107,400
new people (+9%)

44,650
new jobs (+6%)

Total Infrastructure Costs: **£5,700,910,000**

Total Secured Funding: **£549,710,000**

Total Expected Funding: **£1,554,210,000**

Total Funding Gap: **£3,597,000,000**

Funding as % of Costs: **37%**

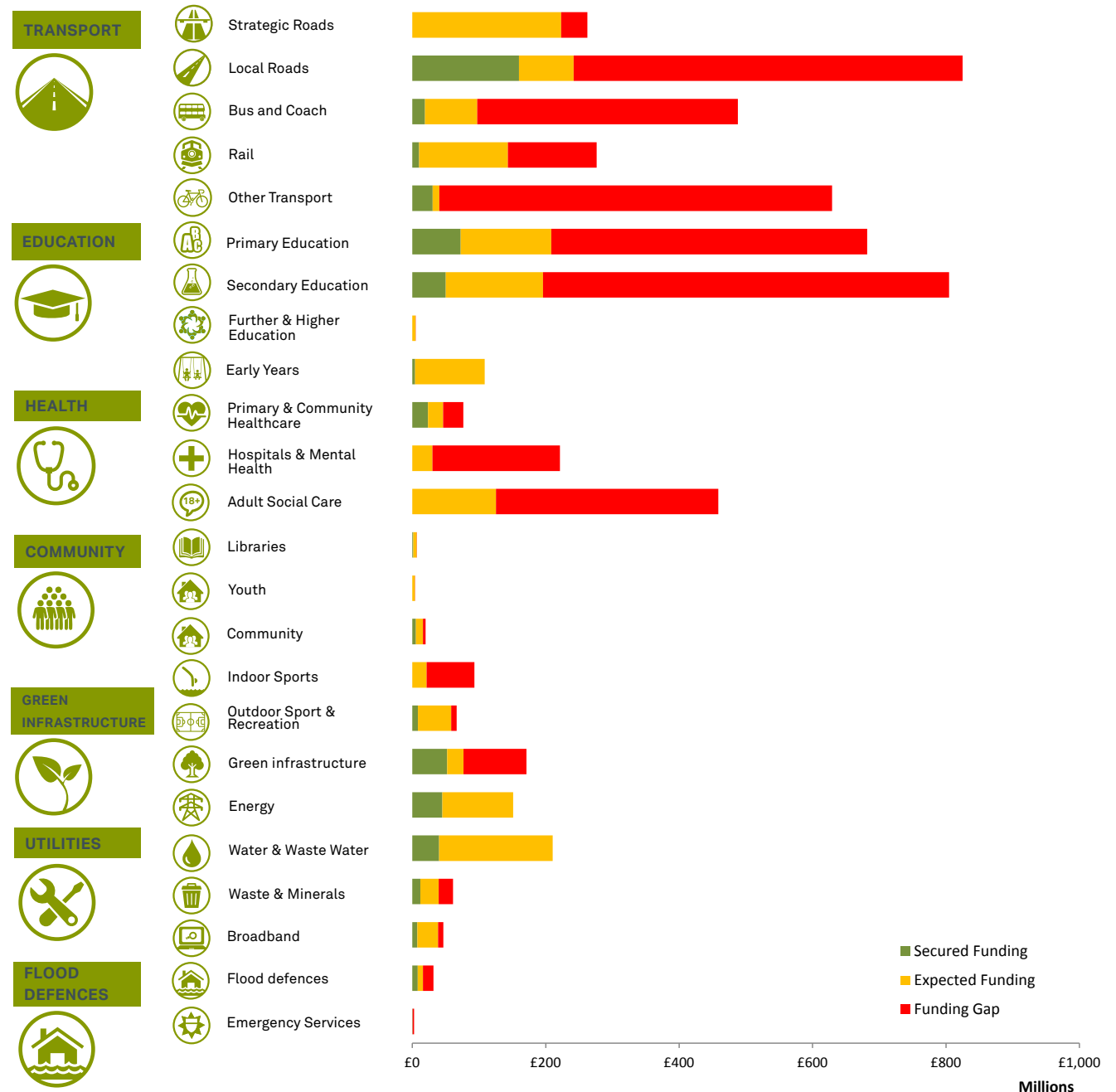


FIGURE B - SUMMARY OF INFRASTRUCTURE PROJECT COSTS AND FUNDING GAPS (2018-2031)

Figure B on page 6 illustrates the range of infrastructure required to support 83,530 new homes, 44,650 jobs and 107,400 people. This covers all forms of infrastructure that supports the environment, social and economic needs of Hertfordshire. The analysis highlights more than £5.7 billion in estimated infrastructure costs from 2018 - 2031, of which there is identified funding and expected funding of just over £2 billion.

Our analysis has reviewed the potential costs of infrastructure alongside currently secured funding and potential funding from public, private and developer contributions. This highlights a potential funding gap of nearly £3.6 billion.

Figure C and D on this page summarises the local infrastructure project costs for each of the local authorities and Figure E presents costs by phase.

It should be noted a number of caveats are associated with the analysis and methodology of the HIFP. Refer to Chapter 8 of the document, which sets out the caveats, modelling benchmarks and assumptions behind cost and funding figures.

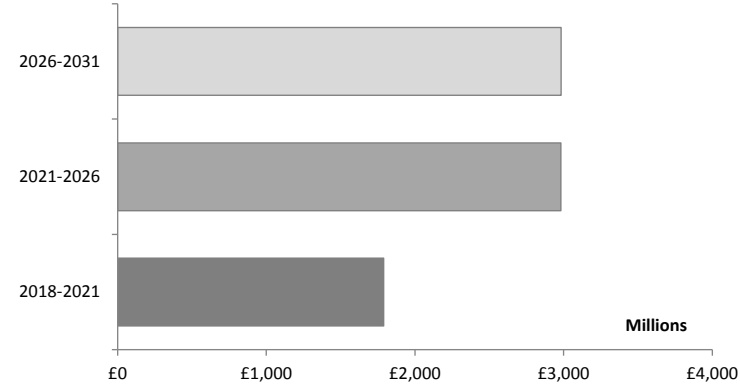


FIGURE D - TOTAL INFRASTRUCTURE COSTS

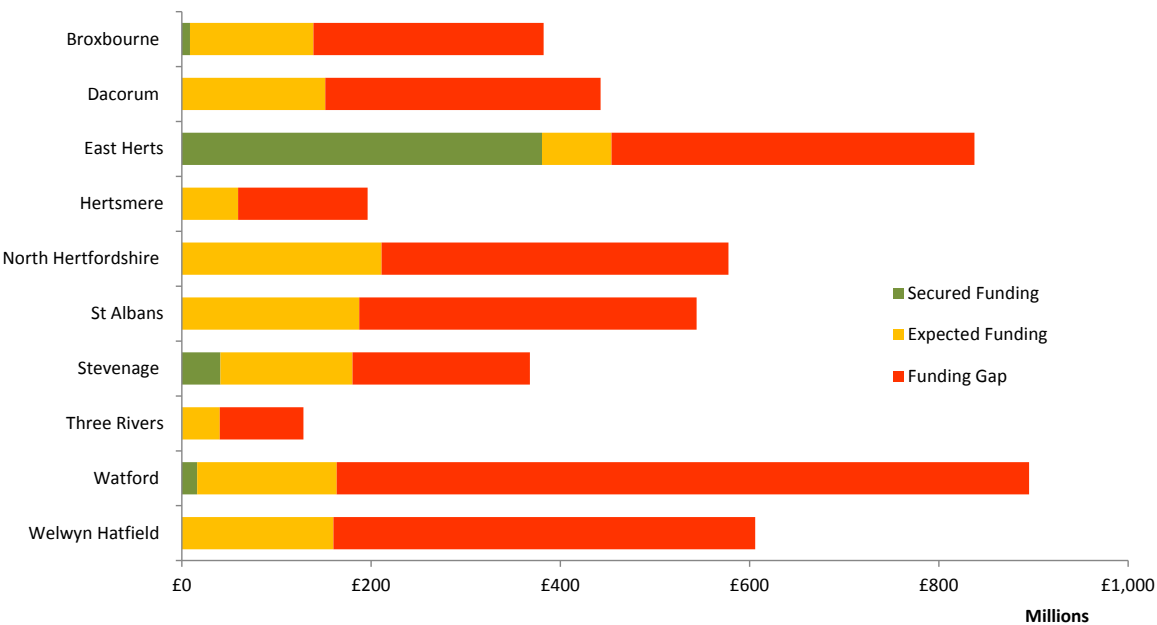


FIGURE C - TOTAL COST OF INFRASTRUCTURE AND ESTIMATED FUNDING

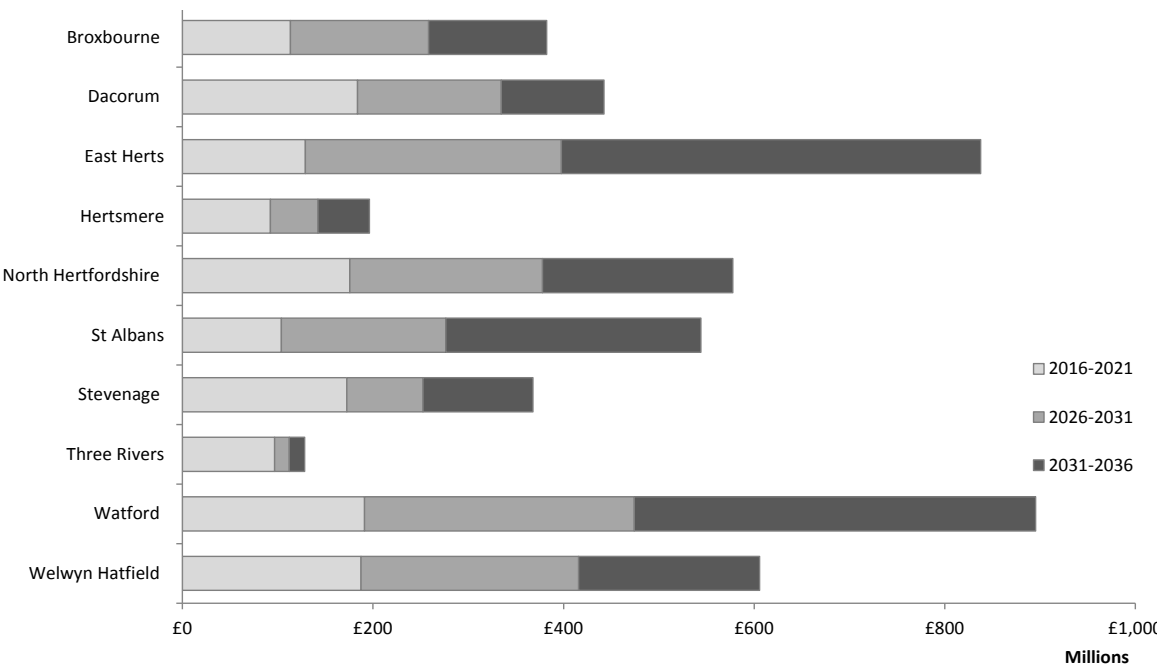


FIGURE E - ESTIMATED PROJECT COSTS BY PHASE



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Front Cover References:

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01

INTRODUCTION

The Hertfordshire Infrastructure and Funding Prospectus has been prepared by the Hertfordshire Infrastructure and Planning Partnership (HIPP) - consisting of 10 Hertfordshire local planning authorities, Hertfordshire County Council and the Hertfordshire LEP - to provide a view of emerging development and infrastructure requirements to support growth from 2018 to 2031 and an exploration of potential funding options.

Across Hertfordshire, there is a need for a joint approach on infrastructure planning and funding. This has been identified as a priority within the context of Government's encouragement for Local Planning Authorities to come together formally and informally to address strategic planning and infrastructure issues. This has been further identified as a priority for Hertfordshire by HIPP.

However, a strategic overview of growth distribution and infrastructure provision is currently lacking across Hertfordshire.

Each local authority is at a different stage of Local Plan preparation, and at different stages in the development of their Infrastructure Delivery Plans. Meanwhile, infrastructure is being provided by a host of different providers.

This document begins to present a strategic picture of the risks to growth. It aims to:

- Collate and summarise population, housing and economic growth projections across Hertfordshire County.
- Set out a combined understanding of capacity within current infrastructure provision and pipeline infrastructure projects being taken forward by local authorities and other infrastructure providers.
- Highlight cumulative costs, funding streams and gaps in infrastructure funding.
- Facilitate discussion across partners by highlighting the core infrastructure issues which require attention in order to deliver housing and economic growth.
- Enable the infrastructure investment required to promote balanced economic growth and support access to employment.

The Hertfordshire Infrastructure and Funding Prospectus (HIFP) has been produced for the following audiences:

- Hertfordshire County Council and the 10 District, City and Borough Councils.
- The Hertfordshire Local Enterprise Partnership to inform priorities for investment to support growth objectives.
- 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 difficulties in delivering infrastructure across Hertfordshire.
- For use by the county council and local authorities to support their dialogue and engagement with Central Government.
- To provide support to Hertfordshire Infrastructure Planning Partnership (HIPP) in their engagement with Hertfordshire Forward, Hertfordshire Local Enterprise Partnership, the Local Transport Body for Hertfordshire, the Local Nature Partnership and other organisations to develop improved joint working across the County.

It should be noted, that all costs presented are based on 2018 prices.

The HIFP should be viewed as a 'snap-shot' in time, as of September 2018. Section 8.1 identifies further caveats by each local authority.

1.1 SCOPE OF STUDY

The Hertfordshire Infrastructure and Funding Prospectus (HIFP) covers all forms of infrastructure supporting the economic, environmental and social needs of the county. The infrastructure scope covered in the report is comprehensive, as illustrated in Figure 1.1. The Study Area is illustrated in Figure 1.2.

The prospectus is structured as follows:

Chapter 2: Provides an overview of how growth and infrastructure is planned across Hertfordshire.

Chapter 3: Sets out social and economic growth drivers and the potential distribution of development in Hertfordshire.

Chapter 4: Provides an overview of infrastructure requirements across Hertfordshire for a range of infrastructure provision, including education, health, community, transport, utilities and flood protection.

Chapter 5: Provides a summary of infrastructure issues and potential investment requirements for each local authority.

Chapter 6: Presents a commentary on delivery and funding issues affecting growth and infrastructure across Hertfordshire.

Chapter 7: identifies recommendations and conclusions of the study.

Chapter 8: Details specific caveats supplied by local authorities and presenting infrastructure and funding assumptions

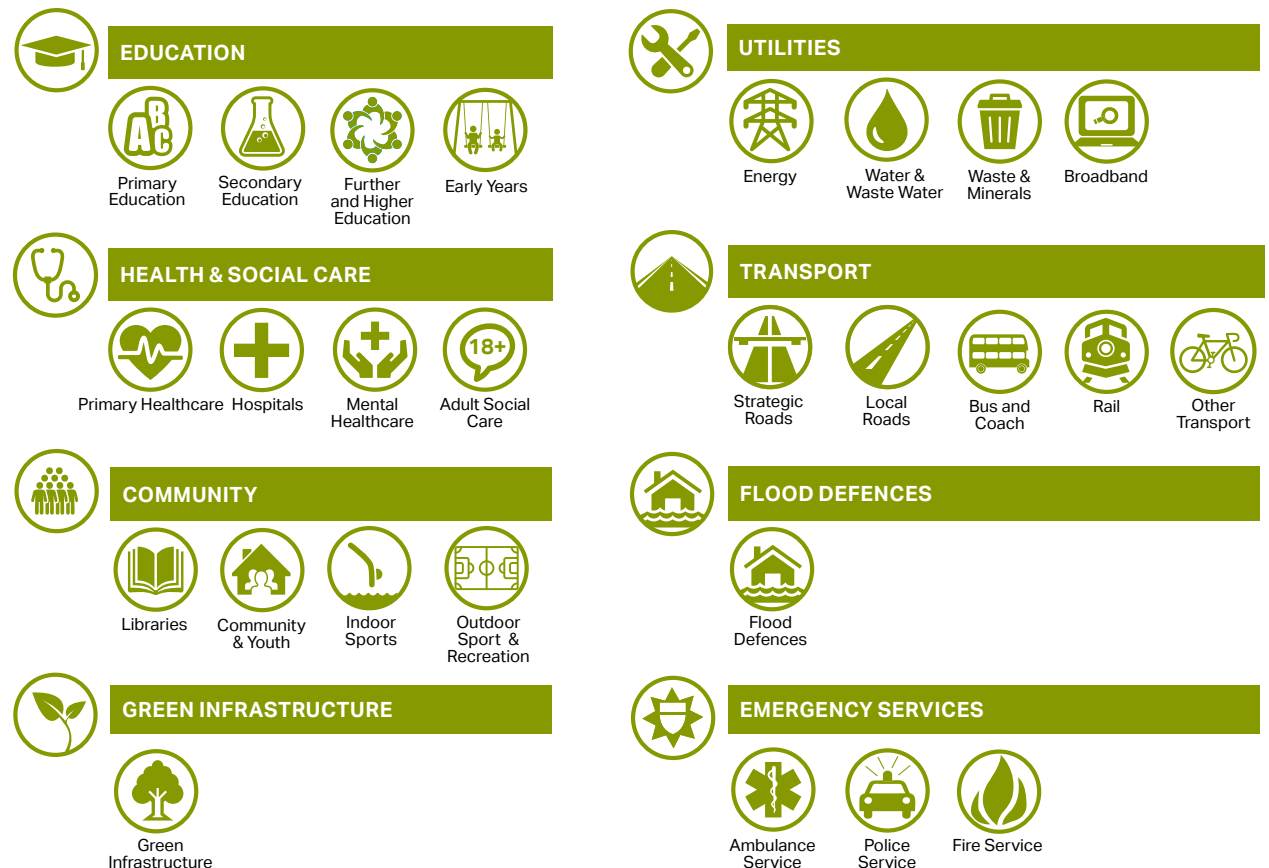


FIGURE 1.1 - TYPES OF INFRASTRUCTURE WITHIN SCOPE OF STUDY

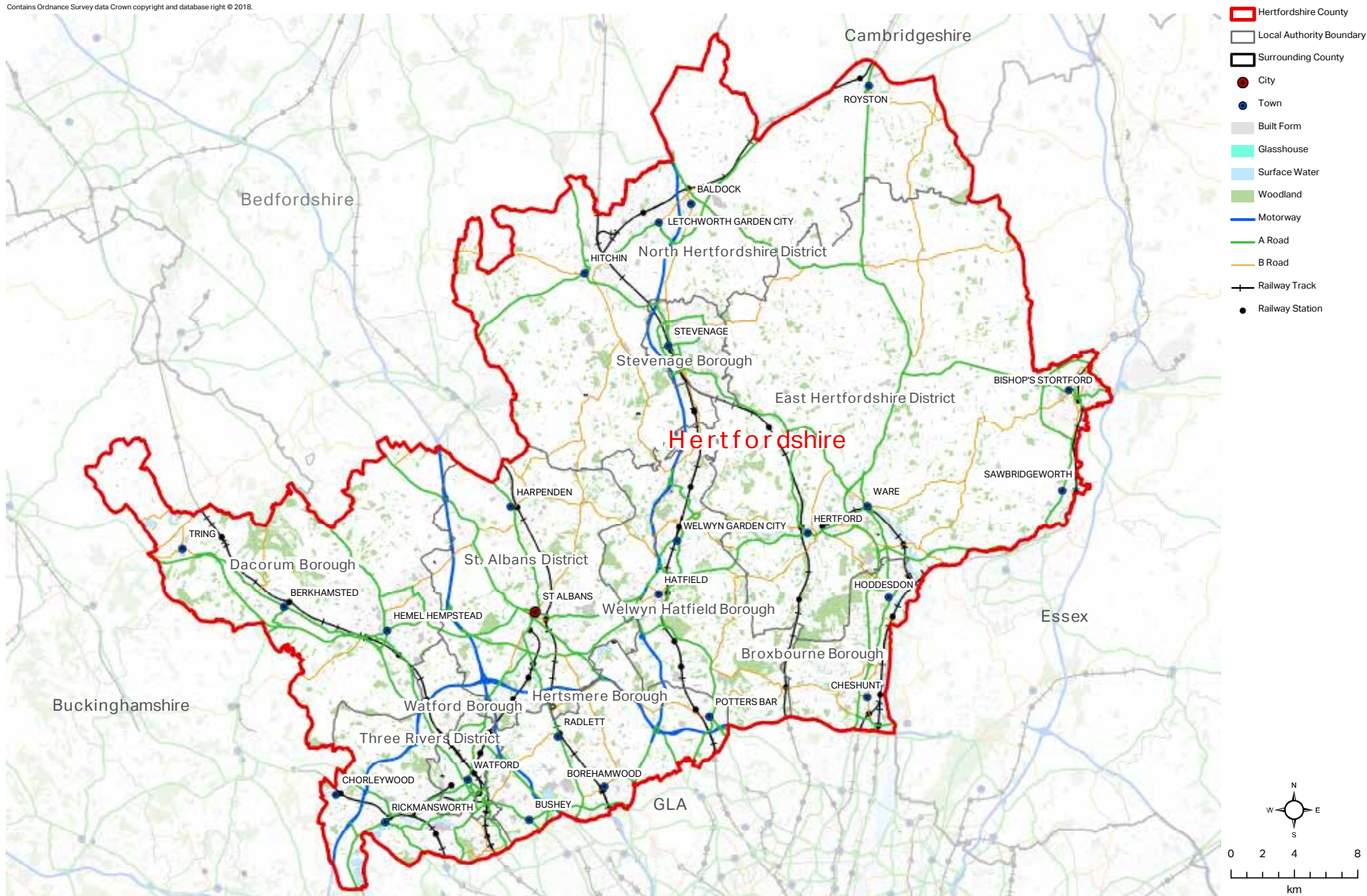


FIGURE 1.2 - STUDY AREA

1.2 PARAMETERS OF THE PROSPECTUS

This study has been prepared in accordance with the following parameters:

A Snapshot in Time:

- The housing, employment and population forecasts presented in this document represent our understanding of the growth context at September 2018. It is recognised that this information is continually evolving and should therefore be treated as **a snap shot in time only** for the period 2018-2031.

Population Forecasts:

- The study uses projected population growth from 2018 to 2031, utilising the 2016 based ONS Subnational Population Projections for England (published May 2018).

Housing Growth:

Housing Supply Trajectory:

- The production of the HIFP has required engagement with the local planning authorities (LPAs) to establish the latest understanding of the current housing supply between 2018 and 2031.
- The housing trajectories (planned supply) presented in this document have been provided and developed by the LPAs but represent only the latest working assumption on likely housing delivery.

- The housing supply trajectories are based on the Hertfordshire County Model of Transport (COMET), which is a transport model based on site-specific housing inputs. The site specific housing trajectory was provided by each Local Authority in November 2017. However, following consultation with local authorities, the housing trajectory has been revised to reflect up to date housing supply figures, where possible. This was consulted on summer 2018. Specific caveats have been supplied by some of the local authorities and are presented in Section 8.

Housing Need:

- The HIFP has used existing Objectively Assessed Need (OAN) and Strategic Housing Market Assessment (SHMA) documents to compile an aggregate number of dwellings needed in Hertfordshire from 2018 to 2031. This has been compiled in consultation with each of the local authorities.

Employment Growth:

- The study uses the number of additional jobs to 2031, projected by the Cambridge Insights East of England Forecasting Model from 2018 (using 2017 data).
- The study has collated details of key employment sites likely to have implications for infrastructure provision from the Hertfordshire Council COMET Model. The sites were provided by each Local Authority in November 2017. However, following consultation with local authorities, the sites has been revised to reflect up to date supply figures, where possible.

Infrastructure Need:

Current Infrastructure Provision

- The study has sought to establish the existing scale, distribution and capacity of all infrastructure types and the required additional investment in infrastructure to support growth to 2031 through the consolidation of existing service planning and through theoretical modelling, where no service planning is available.
- The ten local authorities have undertaken considerable work to understand the infrastructure requirements to support their local plans. Table 2.2 presents the current availability of existing Infrastructure Delivery Plans (IDPs) across the county. These IDPs have formed important source documents for this study.

Infrastructure-Type Provision Benchmarks

- The study uses industry-wide infrastructure need benchmarks (developed alongside the County Council and infrastructure providers) in conjunction with projected population growth or the housing supply trajectory (as set out in Section 3) to determine the necessary level of provision for each type of infrastructure. The benchmarks used are set out in Section 8.

Project Schedule

- The study is supported by a schedule of planned projects across Hertfordshire to 2031. This schedule records all identified project requirements, including the infrastructure type, location and timing.
- The study models additional theoretical projects to deliver the necessary infrastructure and supplement the project schedule.
- The project schedule developed by HIFP does not replace the work done by each of the local authorities through their Infrastructure Delivery Plans, which will continue to be reviewed and developed. HIFP looks to compliment this work and understand it in a strategic context across the entire County.

Infrastructure Cost:

Available Planned Costs

- The study collates details of known infrastructure project costs (where these are available). The costs are reviewed based on their assumptions and brought up to date to ensure consistency across the study.

Theoretical Costings

- The study supplements unavailable infrastructure project costs with AECOM costing advice. The sources for these costings and associated caveats are set out in Section 8.

Total Cost

- The study aggregates all costing work to estimate the total cost in 2018 terms of providing the necessary infrastructure to support growth to 2031.
- The costs of infrastructure presented in this document represent the sum of all entries in the project database under that infrastructure theme and location. It should be noted that not all items in the project database have an associated cost due to a lack of project details from which to estimate costs. This therefore means that the costs of infrastructure presented in this document represent a minimum figure.
- A full set of cost caveats have been included at the conclusion of this document and explain the predominant source of cost information by each infrastructure topic.

Secured and Expected funding

Secured Public and Private Funding

- The study confirms secured funding from public and private sources to 2031 by aggregating details of known funds committed to planned projects.

Expected Public and Private Funding

- In addition to the secured funding, the study also estimates the potential scale of funding from public and private sources to 2031 by applying benchmark assumptions about likely funding for future projects. These assumptions are set out in Section 8.

Expected Developer Contributions

- The study estimates the funding from developer contributions to 2031, by applying a flat rate of developer contributions per dwelling against the number of dwellings planned in the aggregated Hertfordshire housing supply trajectory to 2031 (set out in Section 3).
- Further detail of the assumptions supporting these estimates of funding contributions is set out in Section 8.

Funding Gap

- The estimated funding gap is determined by subtracting secured and expected funding contributions from the estimated total costs.

1.3 PROJECT METHODOLOGY

The Hertfordshire Infrastructure and Funding Prospectus has been developed in two stages

Stage 1 Tasks Undertaken

Key tasks that have been undertaken within Stage 1 of the Prospectus include:

1. Data gathering from all project partners, including baseline statistics, infrastructure topic specific data, GIS mapping data, strategy documents and identifying up-to-date Local Plan and Infrastructure Delivery Plan documents.

2. The current infrastructure planning, and the social and economic context of Hertfordshire and the Prospectus.

3. The scale of growth to present within the HIFP in relation to housing need, housing supply, housing sites, population growth, employment forecasts and employment sites. These were established as an iterative process alongside each of the local authorities through ongoing collaboration and refinement. These have continually been revised through stage 2 of the project to ensure the document presented comparable and agreed figures for each local authority.

4. Engagement with project partners to introduce the Prospectus and to gather required information, including:

- Hertfordshire County Council commissioning and delivery teams across all county services.
- Local Authority Infrastructure Delivery Plans available at project commencement.
- Local Authority representatives to test and refine the housing need and housing trajectory figures.
- External infrastructure service providers and workshops (utilities, transport, healthcare and flood).

5. An infrastructure baseline and review of existing capacity issues where possible, including a geodatabase of GIS mapping layers, for all areas of Hertfordshire across all infrastructure topics.

6. A preliminary assessment of future infrastructure requirements to support the identified level of housing and economic growth to 2031. This assessment required review by the relevant project partners to agree the appropriate assumptions and conclusions to draw from this process.

7. A Stage 1 draft infrastructure project schedule for review by relevant project partners. This project schedule recorded the existing and forecast projects required to support growth and associated information, including project timings, scale, location, cost and funding status.

8. Development of an Interim Report that presented the existing infrastructure planning context, social and economic context, scale of growth, infrastructure findings by topics and collation of projects. This included initial area based assessments for Hertfordshire local authorities of their housing and economic growth profiles.

Stage 2 Tasks Undertaken

Key tasks that have been undertaken within Stage 2 of the Prospectus, the results of which are presented within this document, include the following:

1. Stage 1 Interim Report review by project partners (steering group and local authority representatives).
2. Further targeted discussions with project partners to refine the working assumptions and data behind the prospectus development and the draft project schedule. This includes sharing with the Local Authority partners the draft of the area based studies to review growth figures and present local infrastructure and capacity issues. In addition, a four week consultation period following AECOM's submission of the Draft Final HIFP for all stakeholders to review the document and provide comments.
3. Further development of the Stage 1 Project Schedule through ongoing discussions and meetings with project partners at Hertfordshire County Council and infrastructure service providers. Existing projects within the draft project list have been removed where no longer found to be appropriate and additional projects added where evidence for this has been provided.
4. Assessment of potential infrastructure costs to deliver the required infrastructure projects. In the case of social, green and utility infrastructure the costs were based on

a theoretical assessment utilising benchmark planning standards rather than tangible project entries within the infrastructure projects schedule.

5. An infrastructure costing review. All theoretical infrastructure requirements and associated cost estimates have been reviewed with project partners. A benchmark sense-checking exercise has been undertaken by AECOM's cost consultancy team to review the total infrastructure costs against the scale of economic and housing growth for each area. Where the infrastructure project schedule includes tangible projects with sufficient project details but no estimate on cost, the AECOM cost consultancy team has provided estimated capital costs.

6. A funding and delivery review. As part of the project partner review of the project schedule, all known infrastructure funding associated with projects have been recorded. As expected, a large proportion of projects do not have details regarding funding options and the HIFP therefore reviews potential funding levels from public and private sources. The HIFP also includes a working assumption towards the scale of development contribution that may be generated across each local authority given the identified housing trajectory. The funding and delivery review considers the wider role of partner organisations and their ability to fund and deliver infrastructure projects.

7. Completion of a HIFP GIS Geodatabase and packaging for transfer back to Hertfordshire County Council for continued use.

8. Development of a Final Report that presented the existing infrastructure planning context, social and economic context, scale of growth, infrastructure findings by topics, area based assessments for Hertfordshire local authorities, funding chapter and a project schedule. This includes total cost of infrastructure requirements to 2031 and the funding gap.



02

PLANNING FOR INFRASTRUCTURE IN HERTFORDSHIRE

This study draws together information and data from a range of sources. It seeks to piece together a strategic perspective of growth and infrastructure provision in Hertfordshire from 2018 to 2031.

It draws on the following information:

- Adopted and emerging Local Plans and Infrastructure Delivery Plans for all local authorities within Hertfordshire.
- Local Authorities' Local Plan evidence bases.
- Other existing and emerging information, strategies and plans from local authorities across Hertfordshire.
- GIS database information provided by Hertfordshire County Council.
- 2016 based ONS Census Sub National Population Projections, May 2018
- Documents produced by the Hertfordshire Local Enterprise Partnership
- Information from other infrastructure provider's plans including utility providers, the Environment Agency, Network Rail, Highways England and the National Health Service (NHS).

The study is based on a detailed analysis of issues in Hertfordshire relating to growth and infrastructure current to September 2018. It should be recognised that this presents a snapshot in time and is not produced to meet a specific statutory requirement.

TYPES OF INFRASTRUCTURE

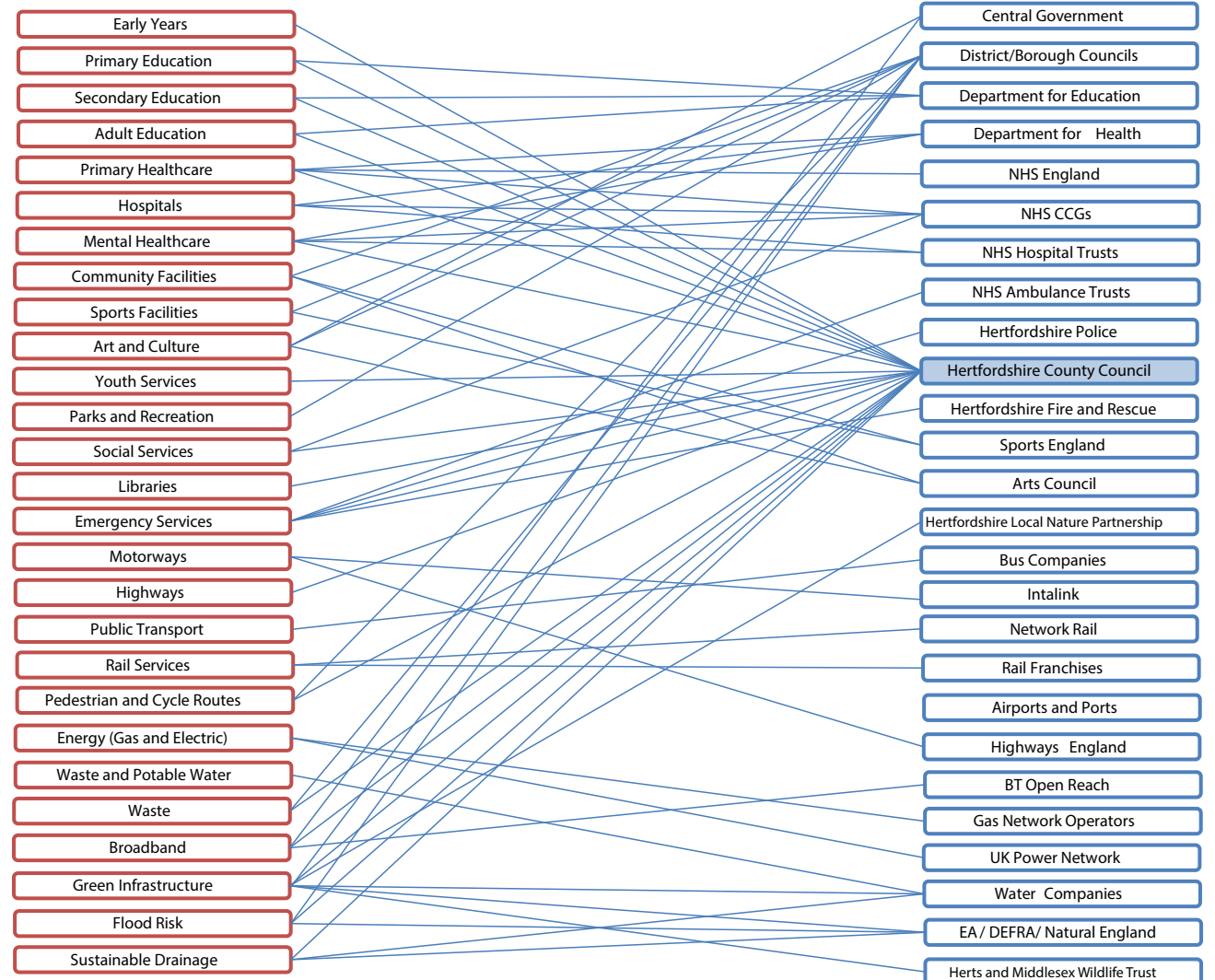


FIGURE 2.1- THE COMPLEX PATTERN OF INFRASTRUCTURE PROVISION IN HERTFORDSHIRE

The complex relationship between infrastructure requirements and providers across Hertfordshire is shown in Figure 2.1. The County and the Local Authorities play a vital role in the supply of infrastructure. In addition a number of public, not-for-profit and private organisations have responsibility to provide infrastructure.

This study covers the following aspects of infrastructure provided by the local authorities.

- Education: early years, primary, secondary, higher and further education and adult education
- Other social infrastructure: libraries, adult social services and youth services, public health, community and sports facilities, parks and recreation

- Highways and transport

- Waste management

- Green Infrastructure

In addition, other providers' requirements have been investigated including:

- Healthcare (NHS)
- Highways (Highways England)
- Green infrastructure providers
- Railway and bus operators
- Utility services
- Other significant infrastructure (e.g. Environment Agency)

2.1 PLANNING FOR INFRASTRUCTURE

Planning for infrastructure provision is critical to ensure infrastructure is in the right place, made at the right time and sufficient to unlock opportunities into the future. The current approach to infrastructure planning and delivery in Hertfordshire is described below and illustrated in Figure 2.2.

Planning for the use of space in England, including the placement of infrastructure, is regulated by Central Government through legislation, including the Planning and Compulsory Purchase Act 2004. This legislation is supported by the National Planning Policy Framework (NPPF), introduced in 2012 (and updated in 2018), and associated Planning Practice Guidance issued by the Department of Communities and Local Government (DCLG).

Responsibility for this spatial planning at a local level is held principally by lower tier authorities (typically District, Borough and City Councils, but also Unitary Authorities) in their capacity as designated Local Planning Authorities (LPAs).

Each LPA is required by the Planning and Compulsory Purchase Act to produce a Local Plan setting out, amongst other things, intentions for growth in jobs and dwellings across their area.

LPAs should make clear in their Local Plan what infrastructure will be required for at least the first five years of its duration, how that infrastructure will be funded, who will provide it, and how that infrastructure relates to the anticipated rate and phasing of development. These strict

requirements are more relaxed later in the Local Plan period, reflecting the greater uncertainty about infrastructure need and provision over time.

The Act also provides that each Local Plan must be supported by an Infrastructure Delivery Plan (IDP), setting out the economic and social infrastructure planned to support the growth in jobs and dwellings set out in the Local Plan. An IDP also informs development of Community Infrastructure Levy (CIL) rate, which LPAs are empowered to charge developers, under the Planning Act 2008, to support infrastructure provision. (See Section 6 for further information).

Each LPA in Hertfordshire is at a different stage in ensuring their Local Plan is up to date, as set out in Table 2.1. Some are updating an existing Local Plan to ensure consistency with the subsequently introduced NPPF and others are developing an IDP to support an existing Local Plan (Table 2.2).

Responsibility for planning for waste is held by upper tier authorities (typically County Councils and Unitary Authorities).

Upper tier authorities are also responsible for providing a range of infrastructure and related services, including Highways and Transport.

Central government bodies, such as the Environment Agency, Highways England and Network Rail, also have important roles as providers of infrastructure in Hertfordshire.

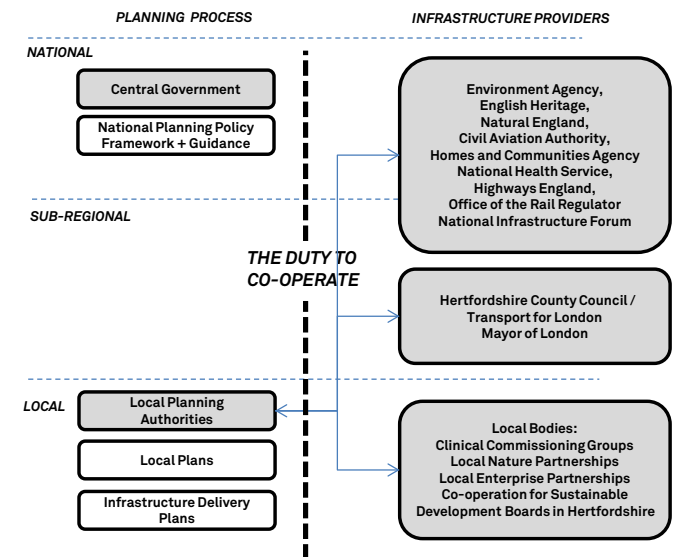


FIGURE 2.2- THE CURRENT PLANNING PROCESS AND INFRASTRUCTURE PROVISION IN HERTFORDSHIRE

Local Enterprise Partnerships between local authorities and businesses were established in 2011 to inform priorities for investment in roads, buildings and facilities in local areas. Hertfordshire is a part of the Hertfordshire Local Enterprise Partnership.

Recognising that the geographic areas covered by individual LPAs are not isolated, but are interconnected and interdependent, the Localism Act 2011 creates a duty for LPAs to co-operate with various infrastructure providers

on strategic planning issues. Such issues are often, but are not exclusively, where service or infrastructure provision crosses LPA boundaries.

Within and above this statutory duty to co-operate, continued dialogue and close collaboration between local authorities and infrastructure providers is essential to ensure infrastructure planning and delivery is adequate to meet growing demand.

This document will assist Hertfordshire Local Authorities to fulfil the “Duty to Co-operate” and piece together a co-ordinated understanding of growth and infrastructure across Hertfordshire.

Authority	Local Plan Progress	Plan Period	Availability of IDP / Infrastructure Evidence Base	Period
Broxbourne	Broxbourne Local Plan 2018-2033 Emerging Local Plan <ul style="list-style-type: none"> Currently going through Examination in Public. 	2018 - 2033	Draft IDP (living document last published Jan 2018)	2018 - 2033
Dacorum	Core Strategy 2013 (Adopted 25 September 2013) - New Local Plan in Development and heading to Issues and Options Stage <ul style="list-style-type: none"> Council are in the process of preparing a new Local Plan working towards Pre-Submission September 2019. 	2006 - 2031	Infrastructure Delivery Plan (July 2017)	2006 - 2031
East Herts	East Herts District Plan 2011-2033 - Emerging Local Plan under consultation. <ul style="list-style-type: none"> Council have received inspector's final report and Schedule of Main Modifications. 	2011 - 2033	Infrastructure Delivery Plan (2017)	2011 - 2033
Hertsmere	Hertsmere Local Plan 2012-2027 - Core strategy adopted January 2013	2012 - 2027	Infrastructure Assessment (February 2013)	2012 - 2027
North Herts	Emerging North Hertfordshire Local Plan 2011-2031 <ul style="list-style-type: none"> Submitted to Government on 9 June 2017 - Awaiting Inspector's Report 	2011 - 2031	Infrastructure Delivery Plan (January 2018 Update)	2011 - 2031
St Albans	The District Local Plan Review 1994 (saved policies 2007) – adopted <ul style="list-style-type: none"> New Local Plan has begun. Reg 19 October 2018 	1994 -	Infrastructure Delivery Plan (July 2016)	2016 - 2031
Stevenage	Stevenage Borough Local Plan 2011-2031 - Emerging Local Plan <ul style="list-style-type: none"> Inspector's Report received October 2017 	2011 - 2031	Infrastructure Delivery Plan (March 2017)	2011 - 2031
Three Rivers	Three Rivers Core Strategy – adopted 17 October 2011 <ul style="list-style-type: none"> New Local Plan in development - additional call for sites consultation closed 20 August 2018. 	2001 - 2026	Infrastructure Delivery Plan (March 2012)	2012 - 2026
Watford	Watford Local Plan 2006-2031 - Core Strategy adopted January 2013 <ul style="list-style-type: none"> New Local Plan in development - Reg 18 consultation took place 7 Sep - 19 Oct 2018 	2006 - 2031	Infrastructure Delivery Plan Update (July 2017)	2016 - 2031
Welwyn Hatfield	Welwyn Hatfield Draft Local Plan Proposed Submission 2016 <ul style="list-style-type: none"> Currently going through Examination in Public. 	2016 - 2032	Draft Infrastructure Delivery Plan (May 2017)	2013 - 2032

TABLE 2.1- LOCAL PLAN STATUS

**This table represents the status of the local plans as of September 2018 and is a snapshot in time that is subject to change*

TABLE 2.2 - INFRASTRUCTURE DELIVERY PLANS

**This table represents the status of the local plans as of September 2018 and is a snapshot in time that is subject to change*

2.2 HERTFORDSHIRE IN CONTEXT

In considering the growth across Hertfordshire to 2031, it is important to consider the growth in housing, employment sites and infrastructure planned nearby, including in the surrounding counties and Greater London.

STRATEGIC HOUSING DEVELOPMENTS

Figure 2.3 on the facing page illustrates a conservative estimate of planned housing supply across all local authorities which adjoin the boundaries of Hertfordshire between 2018 and 2031 (as according to most recent Local Plans and/or relevant policy documents).

Also illustrated in Figure 2.3 are a number of large housing development sites which are proposed/coming forward in neighbouring areas and considered likely to have a significant impact on strategic infrastructure that also serves Hertfordshire. These sites include, but are not limited to:

- Harlow Gilston Garden Town
- Houghton Regis Development, Central Bedfordshire
- Cambridge Urban Extensions (North West, East Cambridge and Southern Fringe)
- Northstowe New Town, Cambridgeshire
- Alconbury Weald Garden Settlement, Huntingdonshire
- Cambourne New Town, Cambridgeshire

As can be seen by Figure 2.3, the greatest pressures of additional growth are likely along the north, northeastern and southern boundaries of Hertfordshire County, with a number of large strategic sites to the north of the study area and high level of planned housing delivery across the London boroughs and into Essex.

The Draft New London Plan seeks to provide for at least 649,350 net housing completions to 2028/29 or 65,000 per annum.

The London Plan Review may lead to requests for Hertfordshire authorities to accommodate additional housing growth, particularly given the county's transport links and commuter potential into London. At present it is uncertain what level of unmet growth in London may be asked to be accommodated in Hertfordshire.

In November 2017, the National Infrastructure Commission (NIC) published its findings for growth in the Cambridge-Milton Keynes-Oxford Corridor. This included the recommendation for a new East-West rail line between Oxford and Cambridge and accelerating the construction of a new expressway. The Autumn Budget 2018 has reinforced the NIC's recommendations, with the announcement of the delivery of up to one million new homes by 2050. The growth along this corridor will have a significant impact on future housing and employment growth within Hertfordshire and current infrastructure capacity.

Strategic Employment Developments

Planned employment growth in the surrounding area is also likely to affect growth in Hertfordshire. These sites include:

- Cambridge Biomedical Campus, Cambridge
- Cambridge City Deal Growth Projects
- Greater Ipswich Enterprise Zones, Suffolk
- Felixstowe Port, Suffolk
- Enterprise Zone, Harlow
- LSCC Corridor

Infrastructure Planning

The significant growth in housing and economic activity planned adjoining Hertfordshire is also to be supported by significant infrastructure investment.

Essex County Council has recently completed a Growth and Infrastructure Framework for Greater Essex, which acts as a similar tool as this document. Suffolk County Council have recently commissioned the development of a Suffolk Planning and Infrastructure Framework (SPIF) and the GLA has produced the London Infrastructure Plan 2050 and Mayor's New Transport Strategy.

The transport section of this framework highlights some of the regional transport projects that will have a direct impact on or benefit to Hertfordshire, but there are additional non-transport specific projects that should also be recognised. The following are in some cases regional but in other cases nationally significant infrastructure projects in areas adjoining Hertfordshire:

- M11 Junction work to support Harlow Gilston Garden Town
- A14 improvements in Cambridgeshire - and connectivity to A1
- High Speed Rail 2
- Crossrail 2 developments
- Potential development of a new expressway and rail line connecting Oxford and Cambridge as part of the Cambridge-Milton Keynes-Oxford Corridor.

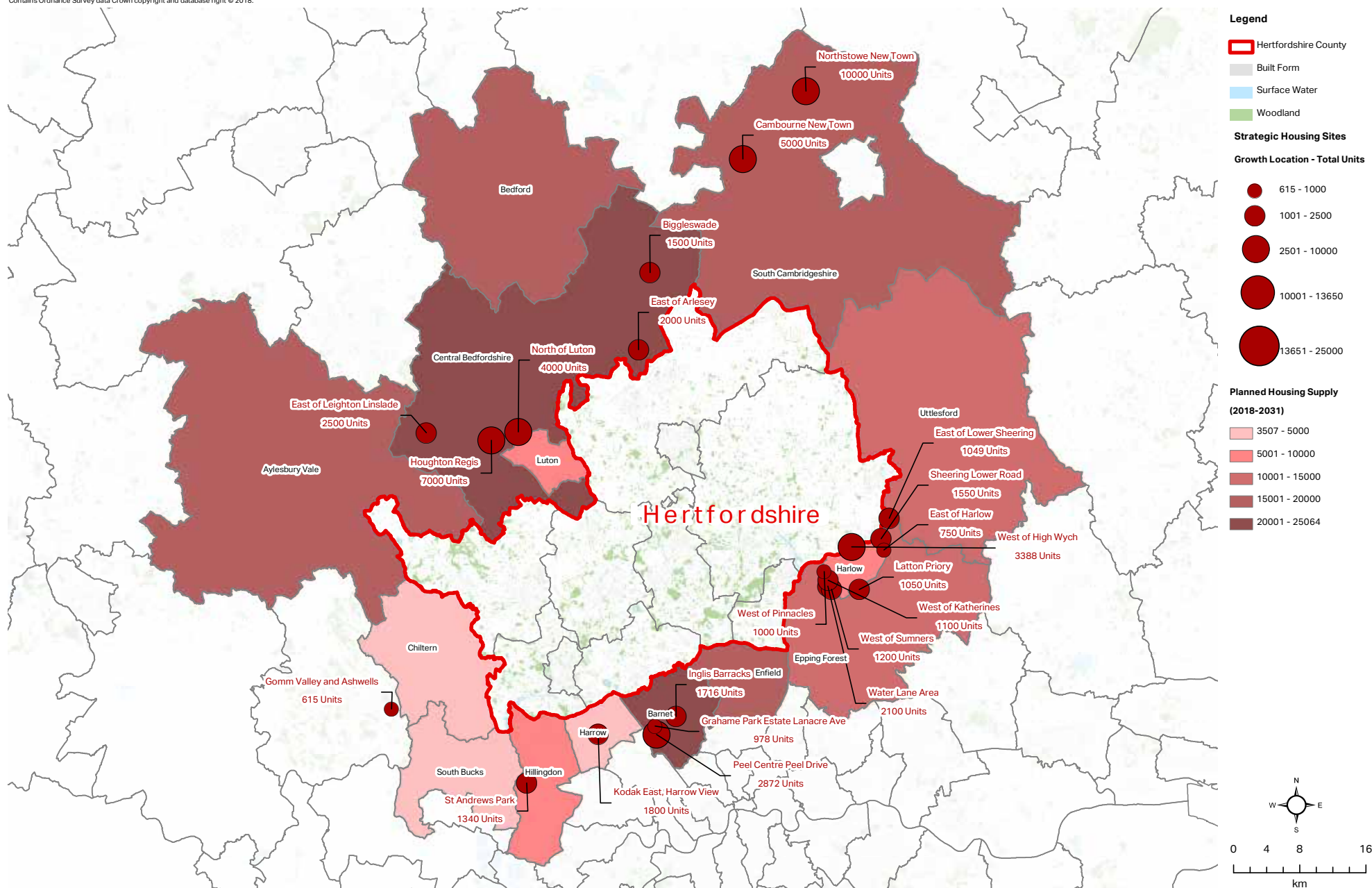


FIGURE 2.3 - ESTIMATED PLANNED HOUSING SUPPLY AND KEY STRATEGIC SITES FOR LOCAL AUTHORITIES SURROUNDING HERTFORDSHIRE

Source: Published Local Plan documents and the Draft London Plan



03

GROWTH CONTEXT

This section aims to summarise the key issues in planning for growth in Hertfordshire to 2031.

As highlighted in the previous section, accommodating growth across Hertfordshire is planned for through the Local Plan process on a Local Planning Authority basis. This section seeks to set the context for study area growth requirements and current planned growth areas as established within the Local Plans. This comprises:

A Social Portrait

- ONS Population Projections to 2031
- Current socio-demographic issues and trends likely to impact on growth and infrastructure provision in Hertfordshire

A Housing Portrait

- Current housing stock and completions
- Housing need and supply forecasts to 2031
- An understanding of housing growth requirements and planned growth locations

An Economic Portrait

- Current economic issues and trends likely to impact on growth and infrastructure provision
- An understanding of employment requirements and planned growth locations

This growth context is then used as the basis for examining infrastructure requirements in the remainder of this study.

3.1 SOCIAL PORTRAIT

POPULATION CHANGE

The ONS population projections are based upon Census population estimates, natural change and migration trends. They are unconstrained projections used by Central Government departments and agencies and specifically by MHCLG to produce the latest household forecasts, which inform Strategic Housing Market Area Assessments (SHMAs).

ONS population projections (published 2018) estimate a 2018 population of 1,195,000 for Hertfordshire and a 2031 population of 1,302,400 - an increase of 107,400, equivalent to 9% growth. Population growth in Hertfordshire is distributed unevenly across the county. The highest population growth is forecast in East Hertfordshire, Welwyn Hatfield and Dacorum. Stevenage, Hertsmere and Broxbourne are forecast to experience relatively low population growth, none exceeding 8,000.

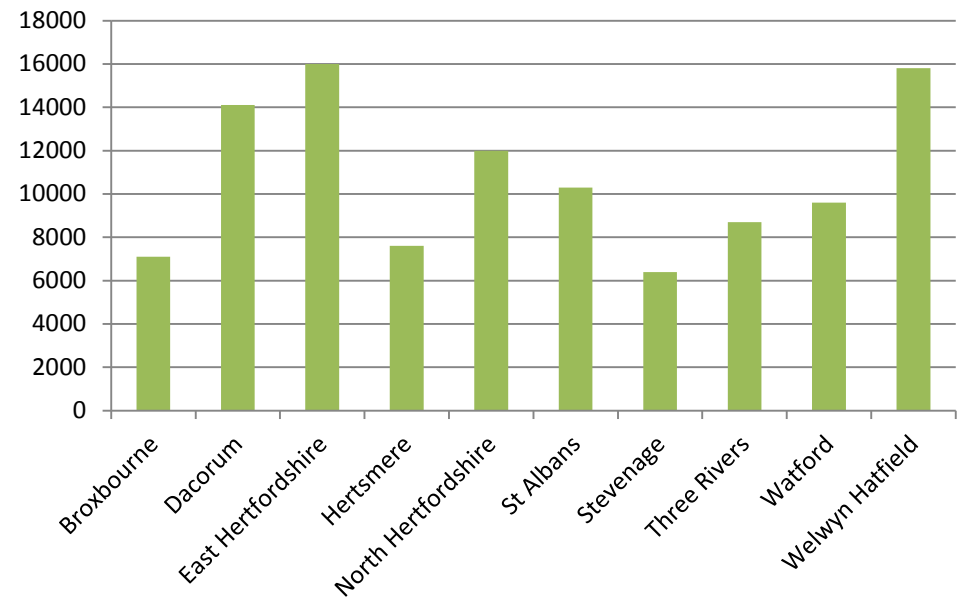


FIGURE 3.1 PROJECTED POPULATION CHANGE BY LOCAL AUTHORITY 2018-2031
Source: 2016 based ONS Sub National Population Projections, 2018

Hertfordshire could grow by **107,400 people** between 2018 and 2031.

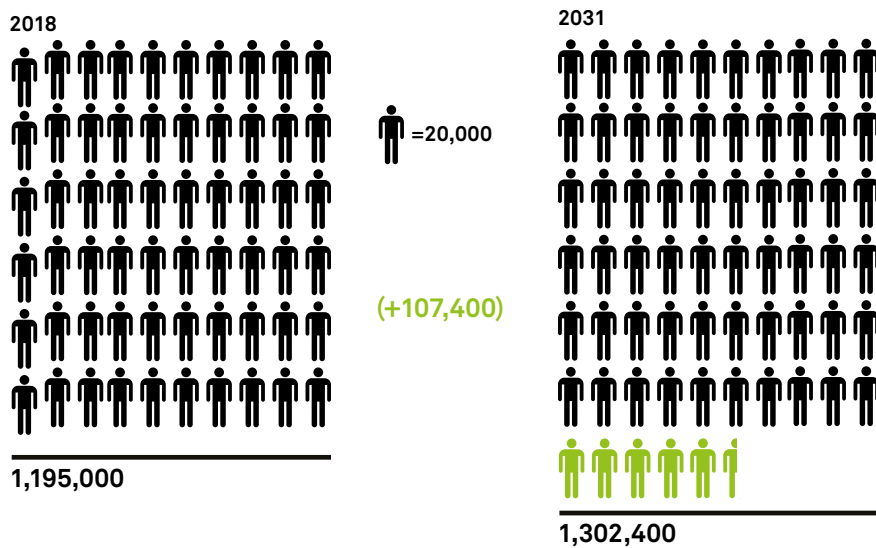


FIGURE 3.2 PROJECTED POPULATION CHANGE IN HERTFORDSHIRE-2031
Source: 2018 based ONS Sub National Population Projections, 2018

This is high in comparison to the forecast population growth between 2018 and 2031 for neighbouring Counties

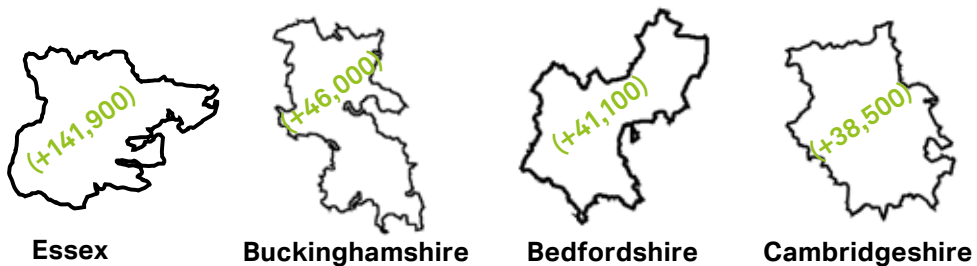


FIGURE 3.3 PROJECTED POPULATION CHANGE IN THE WIDER REGION
Source: 2018 based ONS Sub National Population Projections, 2018

Hertfordshire is a net recipient of migration both within the UK and internationally. Mid-2015 to mid-2016, there was net domestic migration (within UK) of 809 people into Hertfordshire

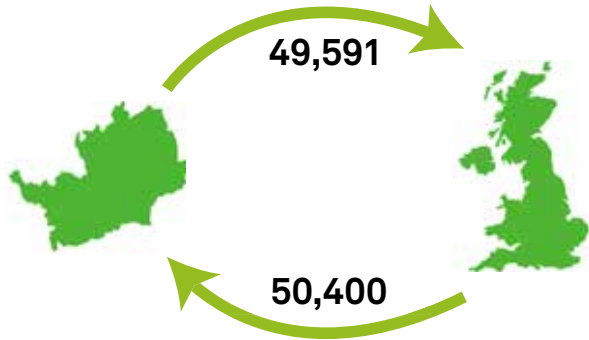


FIGURE 3.4 - MID 2015-MID 2016 NET DOMESTIC MIGRATION (HERTFORDSHIRE)

Source: Local Area Migration Indicators 2018, ONS

In 2016 the natural increase was 5,270 people:



FIGURE 3.6 - 2016 NATURAL POPULATION INCREASE (HERTFORDSHIRE)

Source: Birth Summary Tables & Death Summary Tables – England and Wales, 2016 ONS, 2018

Mid-2015 to mid-2016, there was net international migration of 4,015 people into Hertfordshire

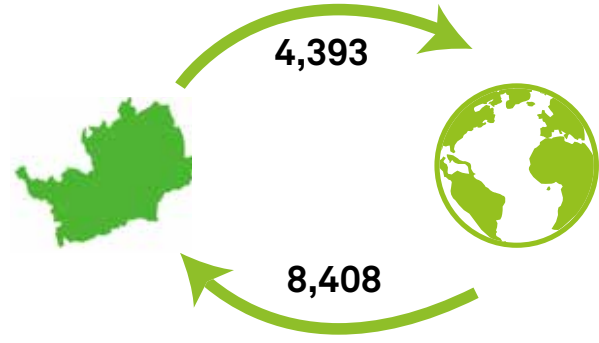


FIGURE 3.5 - MID 2015-MID 2016 NET INTERNATIONAL MIGRATION (HERTFORDSHIRE)

Source: Local Area Migration Indicators 2018, ONS

Despite the overall net migration into Hertfordshire, the population is ageing. The greatest increase in age categories in absolute terms will be those over 60, with the biggest increase in the 65-69 cohort. The greatest contraction in population will be the young working age 25-29 cohort.

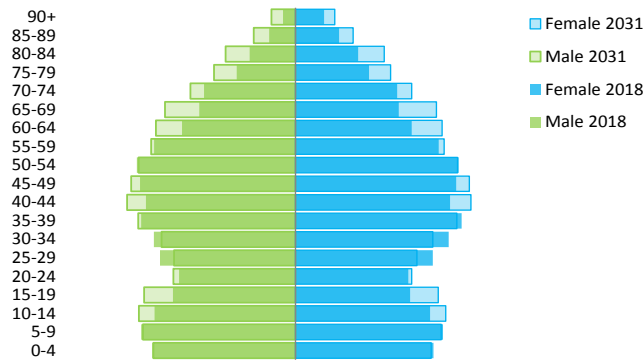


FIGURE 3.7 FORECAST CHANGE IN AGE PROFILE 2018-2031

Source: 2016 based ONS Sub National Population Projections, 2018

An ageing population will cause significant additional demand for certain types of infrastructure. As those over the age of 65 begin to represent an increased proportion of the population, different types of housing will be required, demand for health care will increase and accessible infrastructure will be both expected and necessary.

As the population gets older, working age residents will decline by 3% (equivalent to -9% decrease) in their total share of the population by 2031, whereas elderly residents will increase their share by 4% of the population (a 25% increase between 2018-2031). This will result in a reduced tax base against the increase in infrastructure demands.

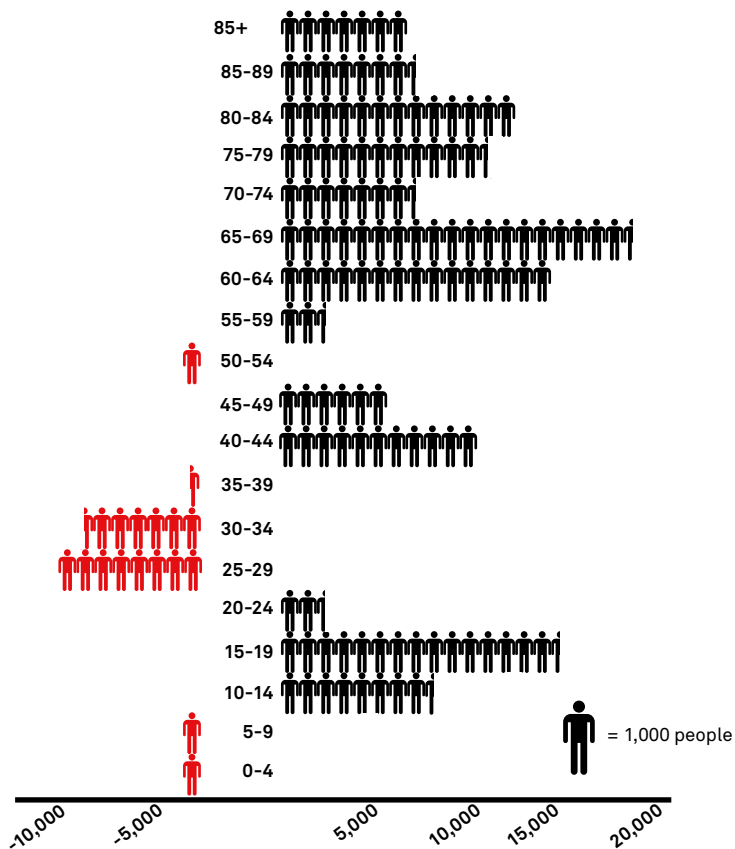


FIGURE 3.8 ADDITIONAL POPULATION BY AGE COHORT
Source: 2016 based ONS Sub National Population Projections, 2018

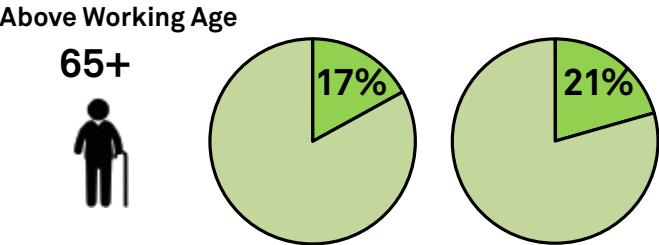
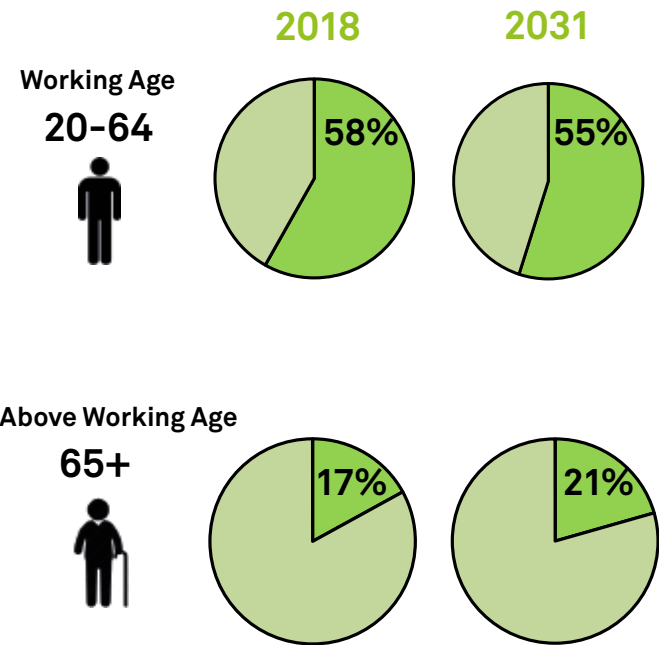


FIGURE 3.9 - FORECAST CHANGE IN HERTFORDSHIRE WORKING AGE COHORT
Source: 2016 based ONS Sub National Population Projections, 2018

The current population of Hertfordshire mostly own their homes (68%) with few renting (13%) or in social housing (18%). In addition, the majority of Hertfordshire's housing stock is stand-alone housing (77%), with flats and apartments only making up 22% of the housing stock. However, Hertfordshire has increasingly seen a greater portion of the population shifting towards renting and living in flats.

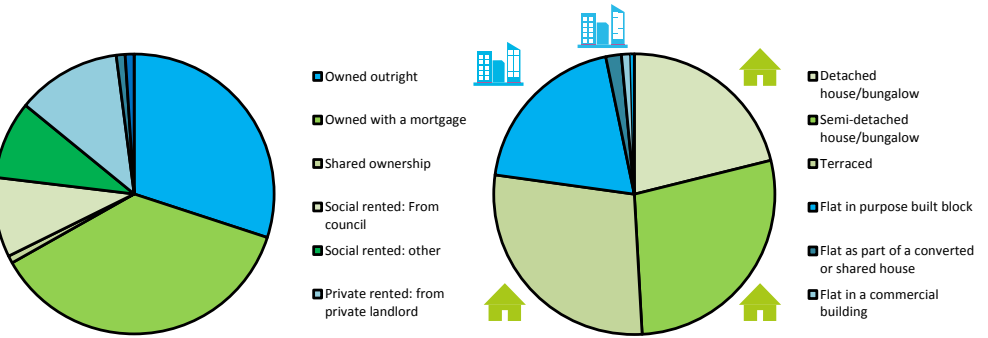


FIGURE 3.10 - HERTFORDSHIRE HOUSING CHARACTERISTICS

Source: ONS 2011 via Herts Insight, 2018

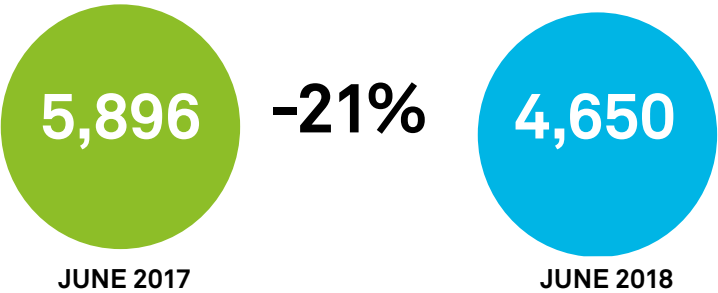


FIGURE 3.11 - HERTFORDSHIRE POPULATION CLAIMING JOBSEEKERS ALLOWANCE

Source: Herts Insight, 2018

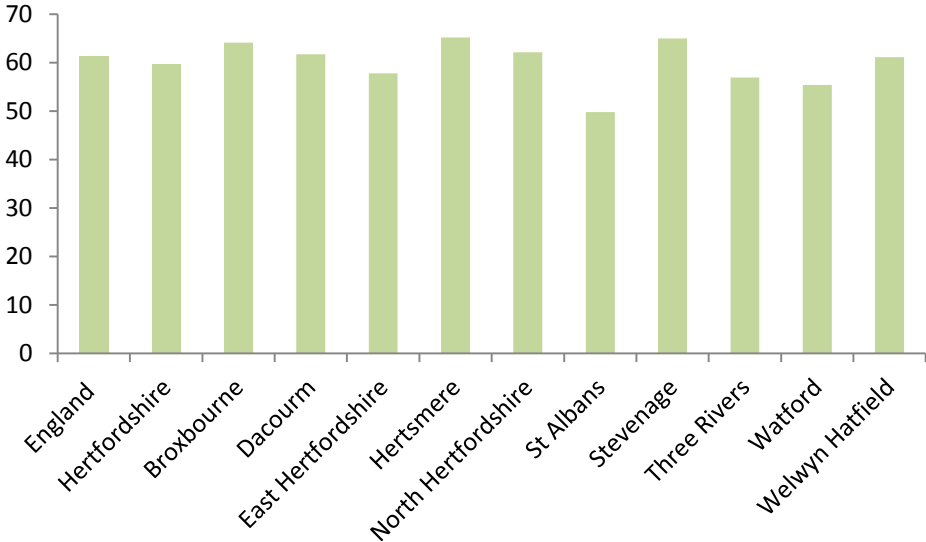


FIGURE 3.12 - PERCENTAGE OF ADULTS (AGED 18+) CLASSIFIED AS OVERWEIGHT OR OBESE 2016/2017

Source: Public Health England, 2018

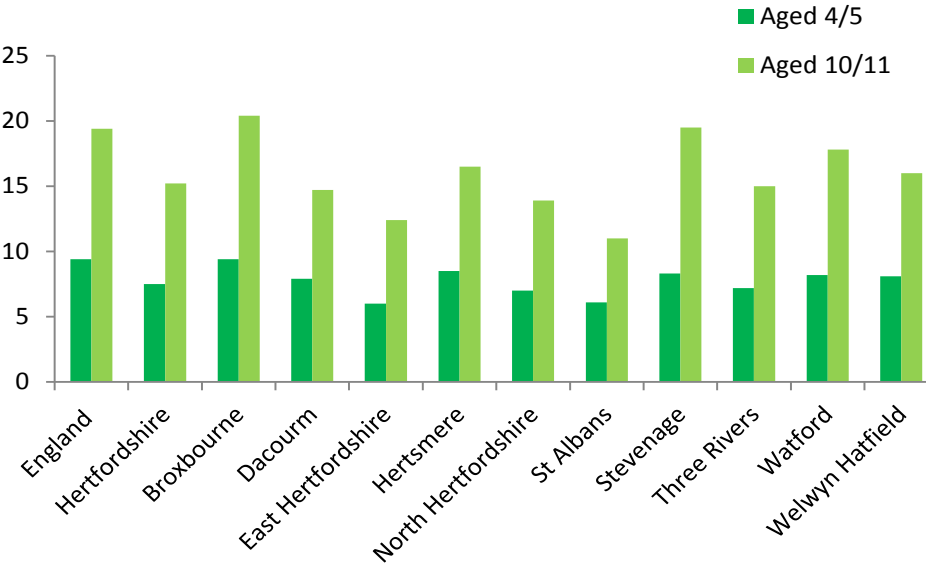


FIGURE 3.13 - PREVALENCE OF OBESITY AMONG CHILDREN AGED 4/5 AND 10/11, 5-YEAR DATA COMBINED 2013-2017

Source: NHS Digital via Public Health England, 2018

Quality of life is relatively strong, but pockets of high deprivation are identified across Hertfordshire and particularly in urban centres.

While Hertfordshire ranks high in the IMD index (and has relatively low number of JSA claimants, as illustrated in Figure 3.11), issues such as obesity are increasingly becoming an issue across the county in both adults and children (Figure 3.12 & 3.13).

Future planning and infrastructure have the opportunity to address these issues. Obesity will put greater stress on health infrastructure, however encouraging changing lifestyles through physical infrastructure and how places grow and change can help to lower these health inequalities.

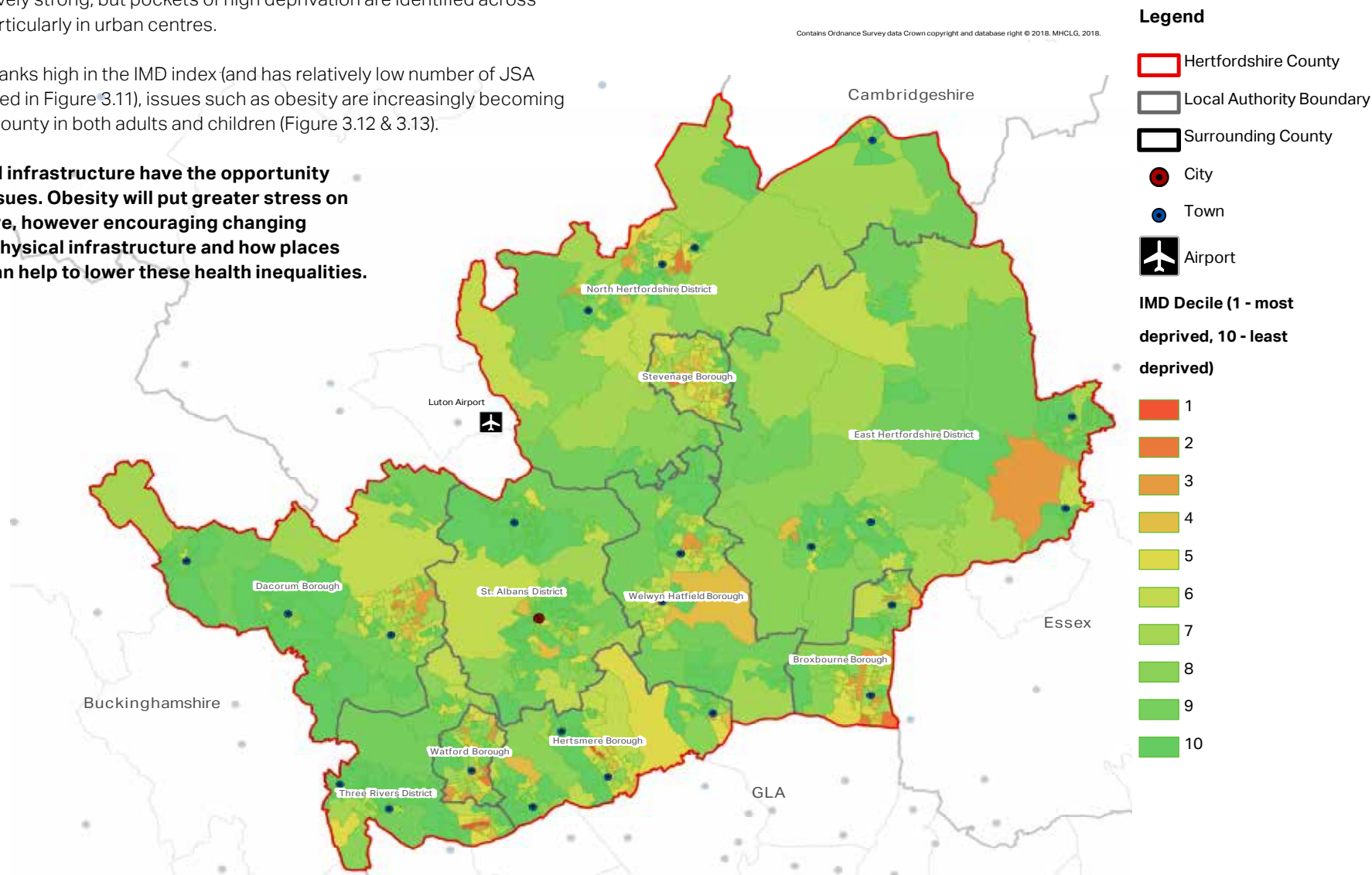


FIGURE 3.14 - INDEX OF MULTIPLE DEPRIVATION ACROSS HERTFORDSHIRE (2016)

Source: NHS Digital via Public Health England, 2018

3.2 HOUSING PORTRAIT

EXISTING HOUSING

There are approximately 495,000 households across Hertfordshire local authorities. Figure 3.15 illustrates the distribution of those existing households across the county, with the largest share accommodated by Dacorum, East Herts and St Albans and the least within Stevenage and Three Rivers.

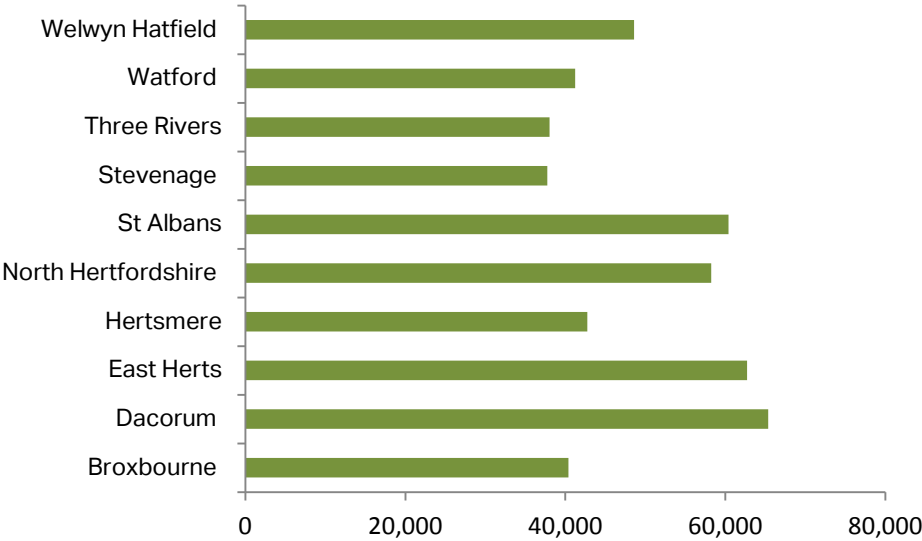


FIGURE 3.15 - EXISTING HOUSEHOLDS 2018
Source: 2014-based Household Projections, Department for Communities and Local Government

Figure 3.16 illustrates the total completions achieved for each local authority in Hertfordshire between 2011/12 and 2016/17 according to completions data from each local authorities Annual Monitoring Reports 2016/17. 19,100 homes have been delivered across Hertfordshire over the six year period. This equates to an average annual completion rate of approximately 3,189 dwellings. The highest level of completions were achieved in East Herts.

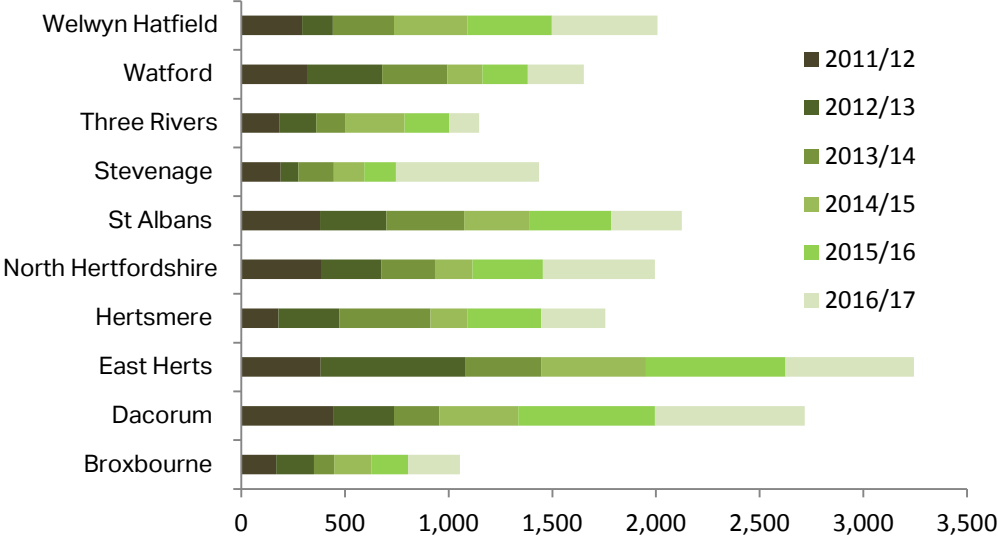


FIGURE 3.16 - HOUSING COMPLETIONS 2011/12 - 2016/17
Source: Local Authority Annual Monitoring Report 2016/17

HOUSING NEED TO 2031

Compilation of the various assessments of housing need across Hertfordshire indicates an objectively assessed need for approximately 97,411 additional dwellings across Hertfordshire between 2017/2018 - 2031/2032.

Housing need, in this context, refers to the scale and mix of housing types and tenures that is likely to be needed in the area over that period - taking into account existing housing and likely demand over that period.

Table 3.1 and Figure 3.17 illustrate the total housing need for each local planning authority from 2018 - 2031. Table 3.1 also sets out the sources from which Hertfordshire housing need has been compiled for this study.

The Ministry of Housing, Communities and Local Government have revised the methodology used to objectively assess housing need. This has been enshrined in the National Planning Policy Framework (NPPF) in autumn of 2018. This revised methodology has not been used in the development of the HIFP.

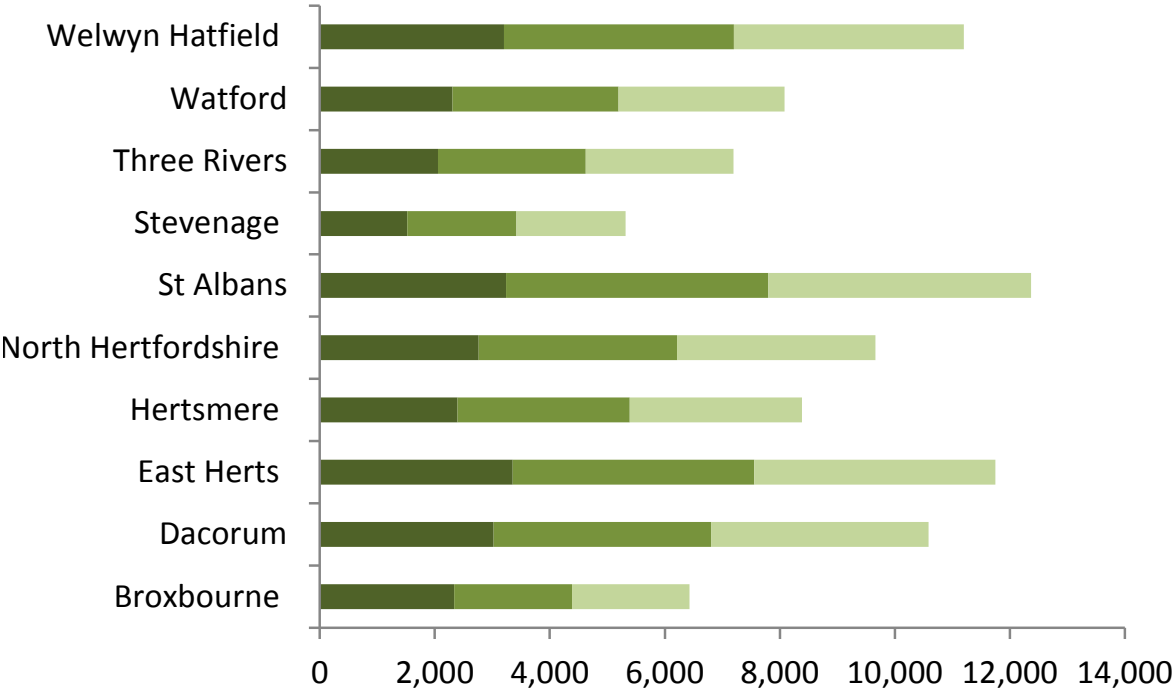


FIGURE 3.17 - HOUSING NEED 2018 - 2031

Source: See Table 3.1

■ 2018/19 - 2021/22
■ 2022/23 - 2026/27
■ 2027/28 - 2031/32

		2018/19 - 2021/22	2022/23 - 2026/27	2027/28 - 2031/32	2018/19 - 2031/32
Broxbourne	Local Plan Housing Trajectory 2018-2033 (May 2018) OAN	2,925	2,045	2,045	7,015
Dacorum	South West Herts SHMA 2013-2036 (January 2016)	3,780	3,780	3,780	11,340
East Herts	West Essex and East Hertfordshire SHMA 2011-2033 (2017)	4,195	4,195	4,195	12,585
Hertsmere	South West Herts SHMA 2013-2036 (January 2016)	2,995	2,995	2,995	8,985
North Hertfordshire	Stevenage and North Hertfordshire SHMA Update (June 2015)	3,450	3,450	3,450	10,350
St Albans	South West Herts SHMA 2013-2036 (January 2016)	3,941	4,565	4,565	13,071
Stevenage	Stevenage and North Hertfordshire SHMA Update (June 2015)	1,900	1,900	1,900	5,700
Three Rivers	South West Herts SHMA 2013-2036 (January 2016)	2,570	2,570	2,570	7,710
Watford	South West Herts SHMA 2013-2036 (January 2016)	2,885	2,885	2,885	8,655
Welwyn Hatfield	Annual Monitoring Report 2017	4,000	4,000	4,000	12,000
Hertfordshire		32,641	32,385	32,385	97,411

TABLE 3.1 - OBJECTIVELY ASSESSED HOUSING NEED 2018 - 2031

HOUSING TRAJECTORY TO 2031

To complement the Hertfordshire housing need from 2017/2018 - 2031/2032, a Hertfordshire housing supply trajectory has been compiled for the same period, using LPA's individual housing supply trajectories. These housing supply trajectories are set out in Table 3.2.

The housing supply trajectories are informed initially by the Hertfordshire County Council Transport Comet Model. The Comet Model is a County transport model that was last run in November 2017. The model is informed by site specific housing data inputs by each local authority.

This has since been reviewed, and several local authorities have revised their overall housing supply from the Comet Model to provide a more up to date forecast based on updates to their emerging Local Plans. The greatest level of housing growth is likely to be in North Hertfordshire, St Albans and Welwyn Hatfield. This will be subject to amendment as Local plan reviews emerge, which pickup on housing calculations based on the new NPPF methodology.

An understanding of the currently identified housing sites from all known sources, including sites under construction, sites with outline or full planning permissions, and Local Plan allocations, is illustrated in Figure 3.18.

Phasing

Table 3.2 demonstrates the current anticipated phasing of housing in the period 2017/2018 - 2031/2032.

The phasing is broken down into the following periods:

- 2017/18 - 2021/22
- 2022/23 - 2026/27
- 2027/28 - 2031/32

The housing trajectory identifies that the greatest portion of houses will come forward between 2017/18 - 2021/22, in which approximately 30,000 dwellings are proposed. This accounts for 36% of the identified delivery of new housing to 2031.

	2017/18- 2021/22	2022/23- 2026/27	2027/28- 2031/32	2018/19 - 2031/32
Broxbourne	2,989	2,645	2,016	7,650
Dacorum	3,656	3,180	896	7,732
East Herts	2,625	3,825	2,250	8,700
Hertsmere	2,520	640	720	3,880
North Hertfordshire	3,510	5,500	6,000	15,010
St Albans	2,371	4,572	5,845	12,788
Stevenage	4,550	400	2,000	6,950
Three Rivers	1,550	160	260	1,970
Watford	3,010	2260	2610	7,880
Welwyn Hatfield	3,558	4215	3197	10,970
Hertfordshire	30,339	27,397	25,794	83,530

TABLE 3.2 - PLANNED HOUSING TRAJECTORIES 2018 - 2031

Source: HCC Comet Model & Hertfordshire Local Authorities - Supplied trajectories including under construction, planning permissions and allocations

IDENTIFIED HOUSING SITES

Accompanying the local authority level housing supply trajectory outlined in Table 3.2, is the Comet Model site-specific housing data. This is a detailed site specific dataset recording the currently identified housing sites from all known sources (under construction, with outline or full planning permissions, plan allocations and strategic sites), and was last updated in November 2017.

This data has been used to map the distribution of forecast growth as illustrated in Figure 3.19.

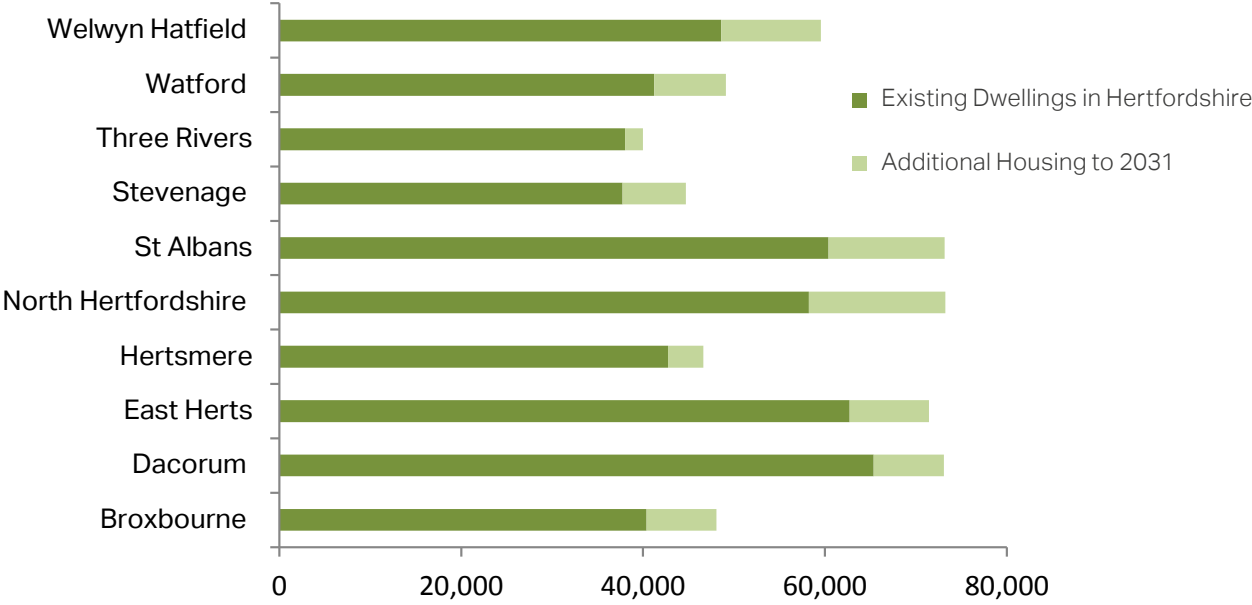


FIGURE 3.18 - HOUSING GROWTH 2018 - 2031

Source: Table 3.2

Housing Growth Pattern

Figure 3.19 highlights the areas planning for the greatest level of housing growth over the next 13 years. Whilst it is acknowledged that not all of the local authorities are presenting an adopted Local Plan position with a full trajectory, the local authorities that are accommodating the greatest level of growth are North Hertfordshire, St Albans and Welwyn Hatfield.

Figure 3.19 on the facing page illustrates the currently identified housing sites which will make up a share of those planned new homes. Many of these identified housing sites are located along three key corridors, following major transport routes:

- M1, West Coast Mainline and Midland Mainline which will see significant growth in St Albans, Watford and Dacorum, including several strategic housing sites of over 2,000 units
- A1M/East Coast Mainline and Great Northern Route that includes Welwyn Hatfield, Stevenage and North Hertfordshire and includes several major urban extensions and strategic housing sites in particular surrounding Stevenage and Welwyn Hatfield
- A10/West Anglia/M11 that includes Broxbourne and East Hertfordshire, in which significant growth along the corridor will be focused around Broxbourne and close to Cambridge

While housing supply trajectories indicate anticipated housing delivery, actual delivery could differ significantly - depending on a number of factors, including changing economic conditions, development viability and infrastructure delivery.

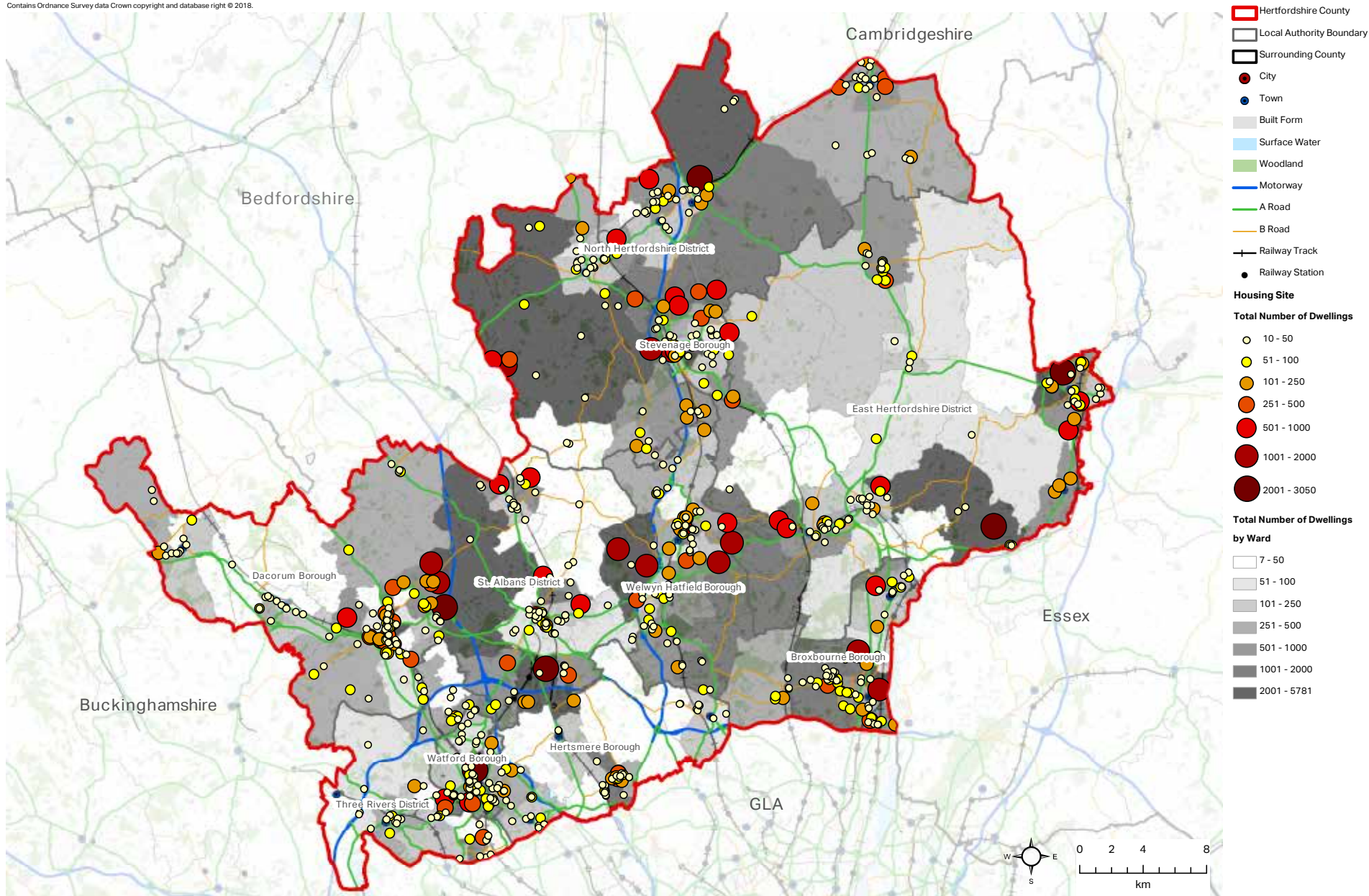


FIGURE 3.19 - IDENTIFIED HOUSING SITES IN HERTFORDSHIRE TO 2031

* This is based on the most up to date information at the time of publication and could be subject to change, subject to review of planning policy documents.

Source: Local Authority data provided for Infrastructure Study (Comet Model)

3.3 ECONOMIC PORTRAIT

ECONOMIC CONTEXT

Hertfordshire makes a significant contribution to the UK economy, generating £36bn Gross Value Added (GVA) per year and supporting over 581,000 jobs.

Key high performing economic sectors based on recent GVA growth are other services and household activities (including arts, entertainment and recreation), construction, public administration; education; health, business service activities and Information and communication.

Hertfordshire benefits from its close proximity to London. It has strong road and rail infrastructure providing primary connections to London and the rest of the UK, and Luton and Stansted Airports are located adjacent to the County boundary. In addition, the Oxford-Cambridge Corridor lies adjacent to Hertfordshire's boundary to the north and west, which will be the location for significant growth in the region.

The LEP welcomes investment in science and technology and Hertfordshire is ranked 2nd in terms of the value of business expenditure on research and development. Key opportunities lie in life sciences, sustainable construction, and agri-tech. Hertfordshire's labour market profile shows the ability to harness such investment with 43% of workforce educated to NVQ4+, higher than both the East of England average and the national average.

Hertfordshire's Local Authorities show specialisms in a range of economic sectors. These include pharmaceuticals manufacturing, metals manufacturing, chemicals

manufacturing, research and development, employment activities, telecoms, construction and computer related activities.

In 2014, Welwyn Hatfield had the highest work-based employment in Hertfordshire, followed by Dacorum, St Albans and Watford. These boroughs are located to the south and west of Hertfordshire. The Hertfordshire Economy is forecast to see an additional 38,200 jobs to 2031. The East of England Forecasting Model 2016 indicates that Broxbourne, East Hertfordshire and St Albans are forecast to have the highest employment growth rate between 2018 and 2031. The strongest employment growth to 2031 is forecast in Accommodation & food services (24%), followed by Public administration (19%), Real estate (19%), Construction (18%), Health and care (18%) and Business services (15%).

POLICY CONTEXT

Hertfordshire lies entirely within the Hertfordshire LEP area. As articulated in its Strategic Economic Plan (2017-2030), the vision of Hertfordshire LEP is for Hertfordshire to become one of leading UK economies, taking advantage of being located within the Golden Triangle of elite universities located in London, Oxford and Cambridge, and helping to realise the full economic potential of the assets and opportunities which this location brings.

The Strategic Economic Plan also sets out economic priorities for Hertfordshire including maintaining global excellence in science and technology; harnessing the

relationships with London and elsewhere; reinvigorating Hertfordshire's places for the 21st century; and re-enforcing the foundations for growth.

Hertfordshire LEP has secured £221.5m from the Government's Growth Deals rounds 1 and 2, which will be used to fund projects that benefit the local economy. Growth Deal 1, received in July 2014, focuses on three Growth Areas around the principal road and rail corridors of the M1/M25, A1(M) and M11/A10.

In addition, the Hertfordshire Business Growth Programme and Hertfordshire Skills Programme also take advantage of the Growth Deal. The Expanded Growth Deal (i.e. Growth Deal 2), received in January 2015, supports the key employment sectors and helps to support skills development.

The third round of the Growth Deal, £43.95m received in February 2017, continues to provide funding for regeneration and growth in Hertfordshire, helping to reduce congestion in the area, creating new incubator space, and providing high quality skills provision.

Figure 3.20 presents Hertfordshire's employment density and major growth corridors. The highest employment densities can be seen along major transport corridors and urban centres. Along these corridors are also the location of many of the major employers within the County (including Tesco, Ocado, Airbus, GSK and MBDA). Figure 3.34 on page 41 presents identified employment sites in Hertfordshire to 2031. This illustrates a reinforcement of these existing growth corridors.

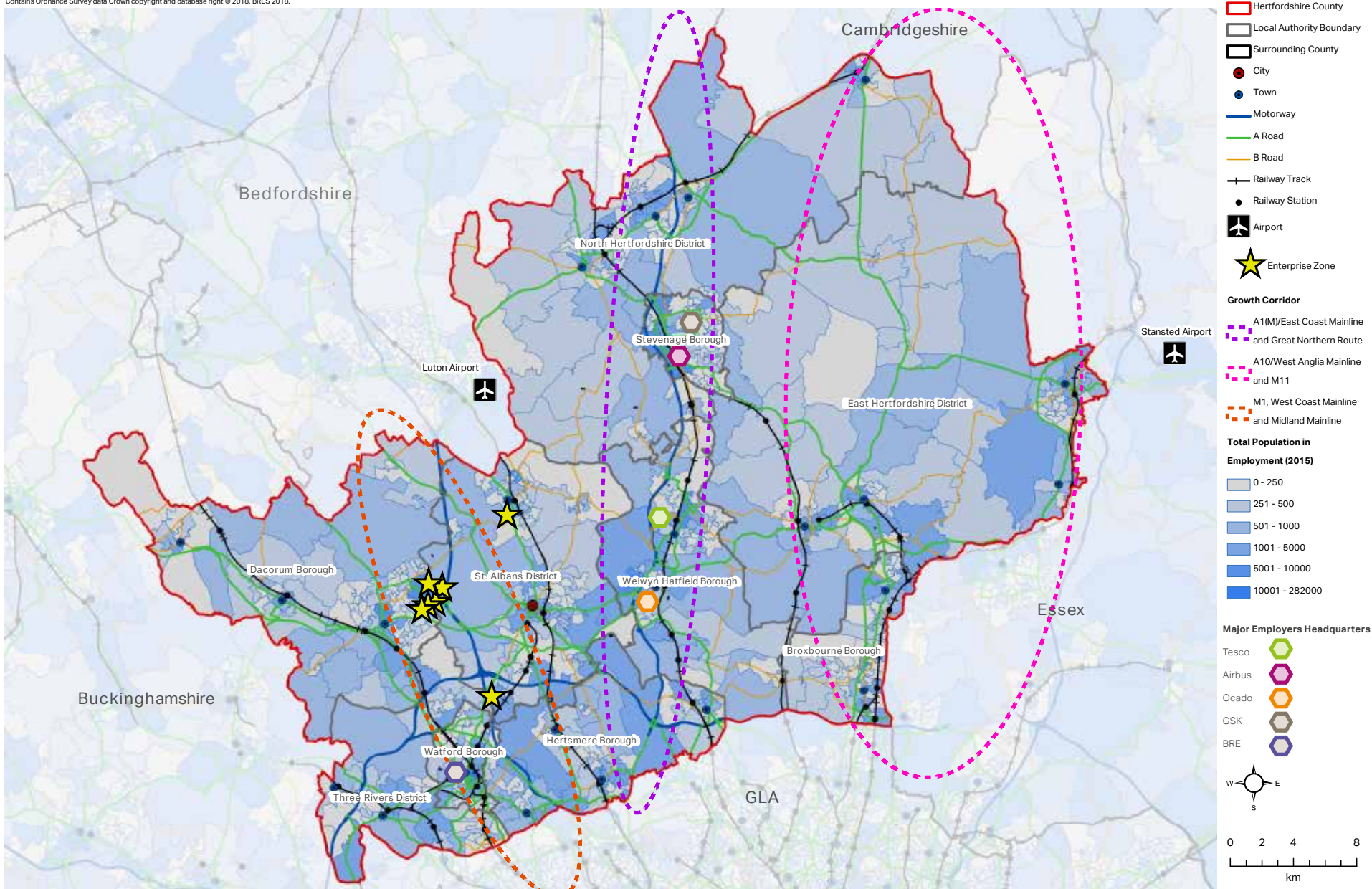


FIGURE 3.20 - EMPLOYMENT DENSITY AND ECONOMIC GROWTH CORRIDORS

Source: Employment density by Lower Level Super Output Area, ONS 2011

ECONOMIC PROFILE

GVA PER HEAD

In 2016, as shown in Figure 3.21, GVA per head in Hertfordshire was higher than the East of England and national average, indicating a higher value generated by units engaged in the production process per head. Figure 3.22 illustrates that recent growth (from 1997 to 2016) lags behind the national average. Nevertheless, the growth in Hertfordshire GVA outperforms East of England.



FIGURE 3.21 - REGIONAL GVA(I) PER HEAD IN 2016

Source: Regional GVA(I), ONS, 2017

The top three Local Authorities with the highest GVA in 2015 were St Albans (£4,300 million), Dacorum (£4,000 million) and Watford (£3,800 million).

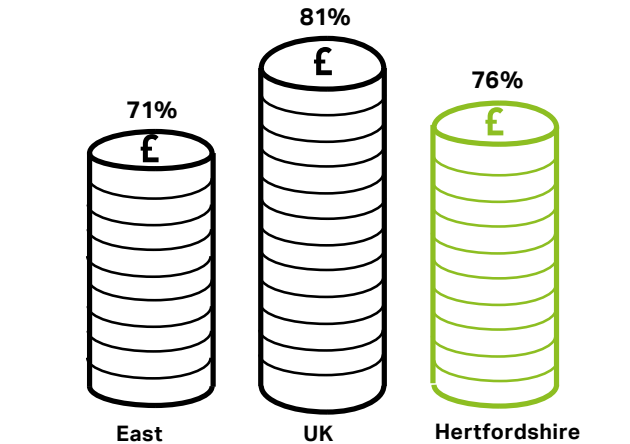


FIGURE 3.22 - GROWTH IN HERTFORDSHIRE GVA PER HEAD 1997-2016

Source: Regional GVA(I), ONS, 2017

There are clear disparities in GVA per head in each borough. The difference between the highest figure (Watford £40,000) and the lowest figure (Bloxbourne £23,000) is around £17,000.

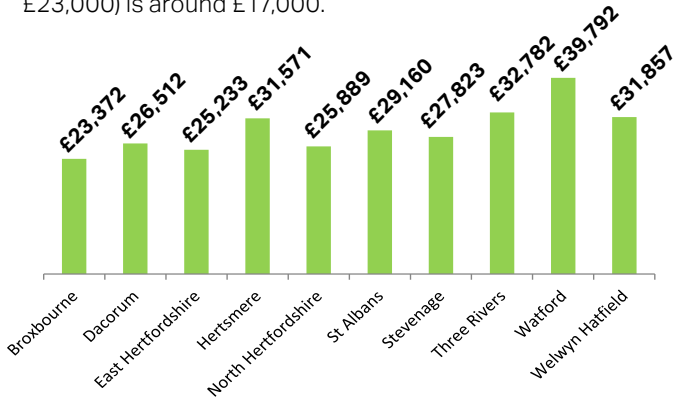


FIGURE 3.23 - GVA PER HEAD BY LOCAL AUTHORITY 2015

Source: Regional GVA(I) by local authority in the UK, ONS, 2016



FIGURE 3.24 - GVA BY LOCAL AUTHORITY (£ MILLION)

Source: Regional GVA(I) by local authority in the UK, ONS, 2016

GVA BY SECTOR

In 2010, the top three best performing industries, as per GVA by industry, were (1) **Distribution; transport; accommodation and food**, (2) **Business service activities** and (3) **Public administration; education and health**.



Manufacturing, Financial and Insurance and other services and household activities (including Arts, Entertainment and Recreation) had the highest annual growth rates between 1997 and 2016 (Figure 3.25).

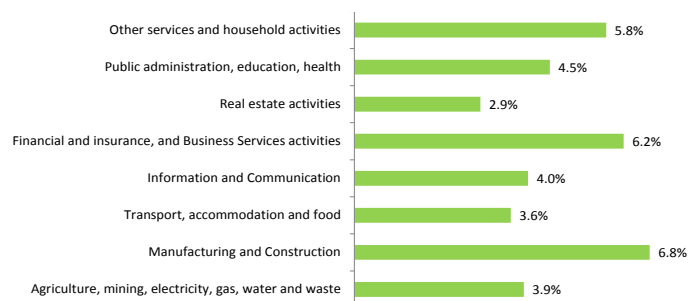


FIGURE 3.25 - COMPOUND ANNUAL GROWTH RATE (CAGR) OF GVA BY SECTOR IN HERTFORDSHIRE (1997-2016)

Source: Regional GVA(I) by local authority in the UK, ONS, 2016

EMPLOYMENT

The top four Local Authorities in terms of employment were Welwyn Hatfield, Dacorum, St Albans and Watford. The strongest employment growth is forecast in Broxbourne (10%), East Hertfordshire (9%) and St Albans (8%) while the slowest is forecast in Dacorum (0%) (Figure 3.26).



FIGURE 3.26 - TOTAL WORKPLACE-BASED EMPLOYMENT (000S) BY LOCAL AUTHORITY IN HERTFORDSHIRE 2014

Source: Cambridge Econometrics, East of England Forecasting Model (2016)

For Hertfordshire as a whole, the historical employment growth was 21% between 2001 and 2014. The East England Forecasting Model (2018) projects that Hertfordshire's economy could add 44,650 additional jobs to 2031, representing a growth of 6% compared to 2018 level (Figure 3.27).

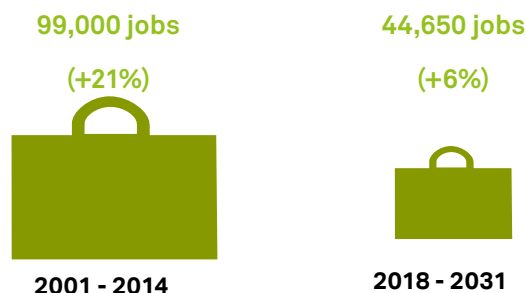


FIGURE 3.27 - HISTORICAL AND FUTURE GROWTH RATE OF TOTAL WORKPLACE-BASED EMPLOYMENT (000S)

Source: Cambridge Econometrics, East of England Forecasting Model (2018)

EMPLOYMENT BY SECTOR

The strongest employment growth to 2031 is forecast in accommodation & food services (24%), followed by public administration (19%), real estate (19%), construction (18%), health and care (18%) and business services (15%). There are a number of sectors which used to experience negative historical growth rates but are projected for positive growth rates to 2031; these sectors include construction (18%), water and air transport (11%), computer related activity (11%) and public administration (19%).



FIGURE 3.28 - SECTORS WITH HIGHEST FUTURE GROWTH RATE OF TOTAL WORKPLACE-BASED EMPLOYMENT

Source: Cambridge Econometrics, East of England Forecasting Model (2016)

The proportion of the workforce employed in highly skilled occupations is slightly higher in Hertfordshire (55%) than the averages recorded in East of England (46%) and United Kingdom (45%) (Figure 3.29).

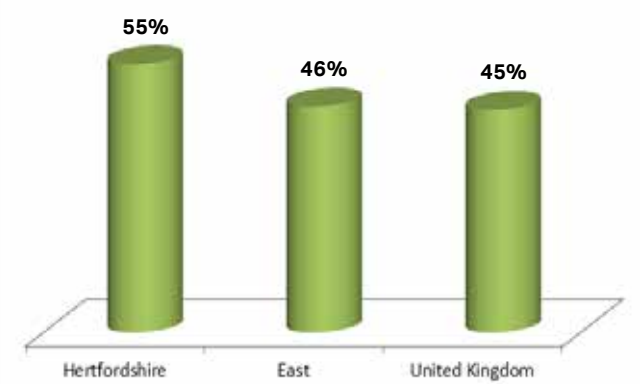


FIGURE 3.29 - % OF WORKFORCE IN MANAGERIAL, PROFESSIONAL AND TECHNICAL OCCUPATIONS

Source: ONS Annual Population Survey, 2018

Hertfordshire also has a higher proportion of residents educated to NVQ4+, compared to that recorded in East of England and the national average

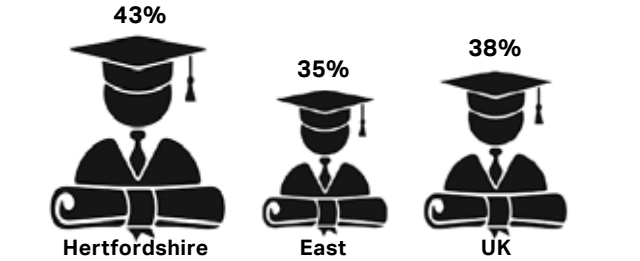


FIGURE 3.30 - % OF WORKFORCE WITH NVQ LEVEL 4+

Source: ONS Annual Population Survey, 2018



FIGURE 3.31 - COMMUTING PATTERNS OF HERTFORDSHIRE RESIDENTS

Source: ONS Annual survey of hours and earnings, 2017

People who work in Hertfordshire but do not necessarily live there currently do not earn as much compared to people who live in Hertfordshire but work outside the county. The majority of commuters are going to London, in which there is a net outflow of 73,000 from Hertfordshire to London (Figure 3.31)

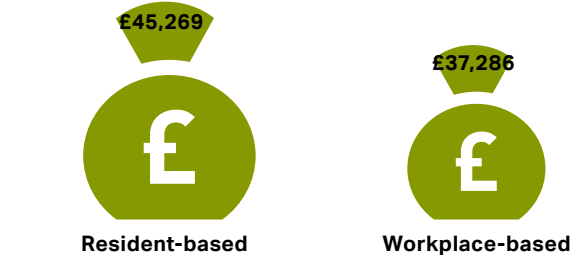


FIGURE 3.32 - MEAN AVERAGE EARNINGS IN HERTFORDSHIRE IN 2017

Source: ONS Annual survey of hours and earnings, 2017

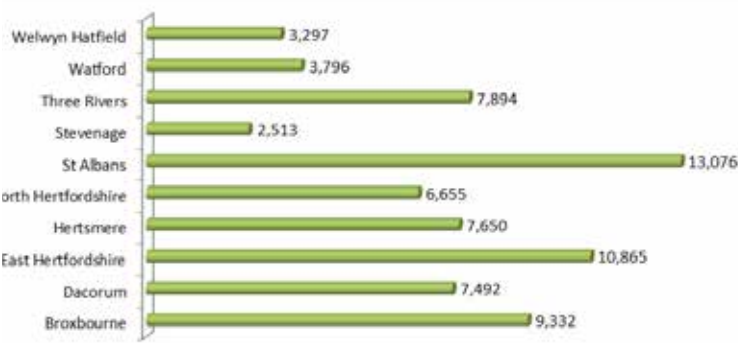
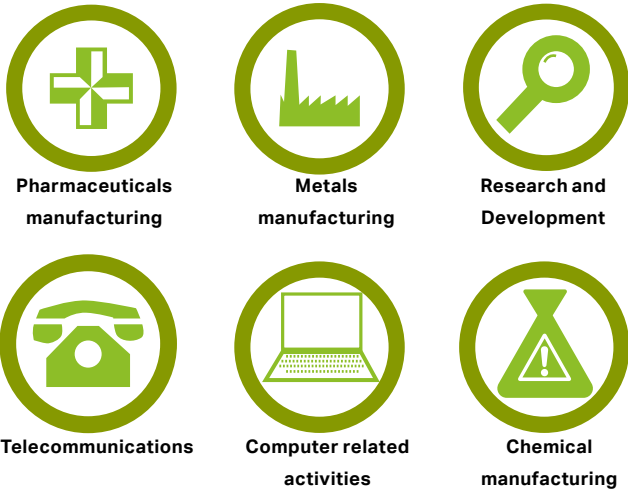


FIGURE 3.33 - NET OUT-COMMUTING FROM HERTFORDSHIRE LOCAL AUTHORITIES TO LONDON

Source: Origin-Destination data, ONS Census 2011

The East of England Forecasting Model has indicated that Hertfordshire shows specialisms in a range of economic sectors with more local variances. These include:



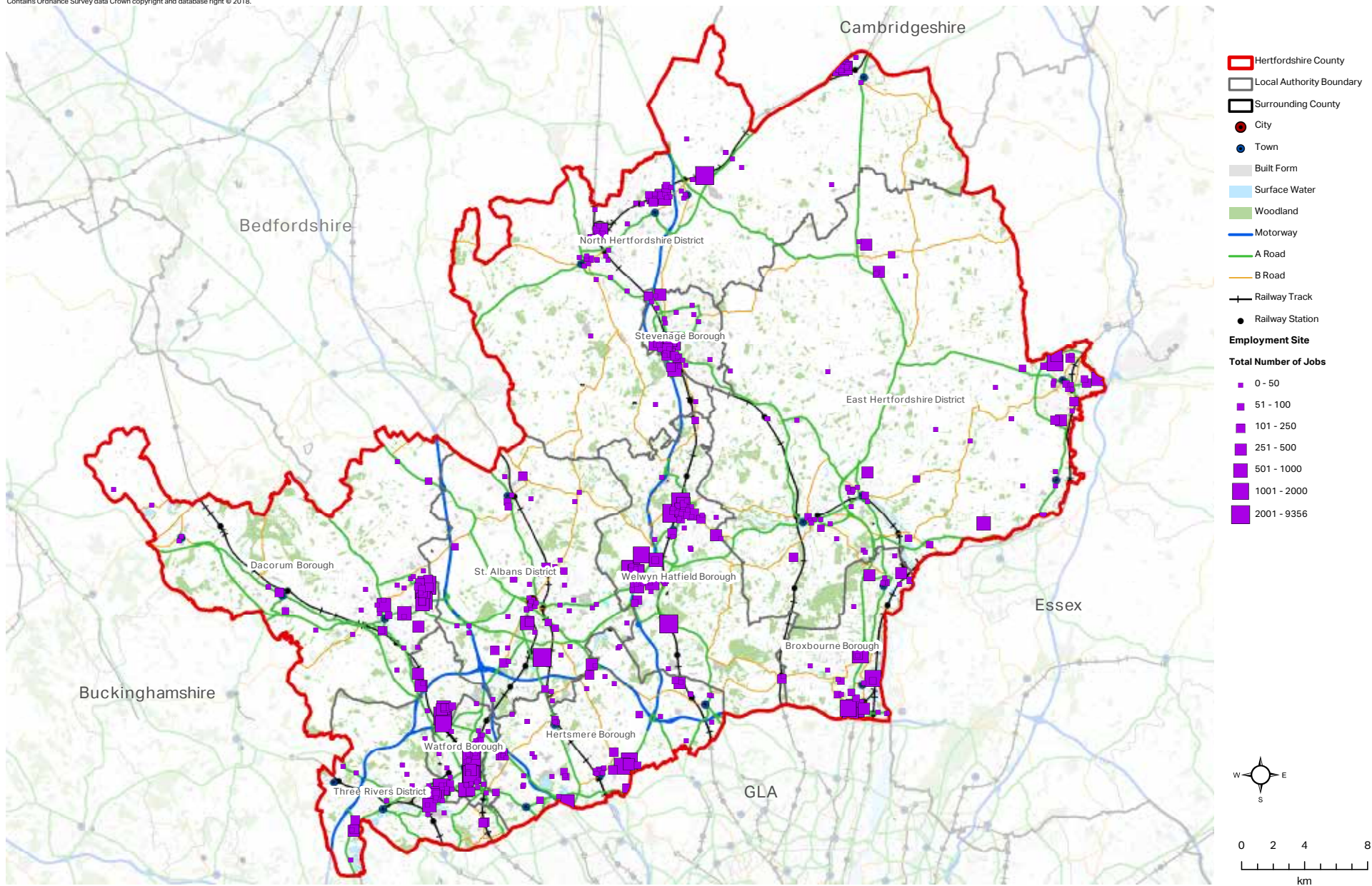


FIGURE 3.34 - IDENTIFIED EMPLOYMENT SITES IN HERTFORDSHIRE TO 2031

* This is based on the most up to date information at the time of publication and could be subject to change, subject to review of planning policy documents.

Source: Local Authority data provided for Infrastructure Study (COMET Model)



04

INFRASTRUCTURE NEEDS & REQUIREMENTS

The HIFP builds a picture of the infrastructure needed to support expected growth in Hertfordshire to 2031, outlined in Section 3, and the anticipated funding to provide it.

Future infrastructure need is assessed by applying industry standard benchmarks to either the projected increase in population or necessary additional dwellings to 2031.

- The projected increase in population to 2031 (+107,400) is sourced from ONS population projections outlined in Section 3.1.
- The number of planned additional dwellings to 2031 (+83,530) is derived from the housing supply trajectory provided by each Local Planning Authority and HCC Comet Model, as outlined in Section 3.2.
- Further detail of the benchmarks used in this assessment is set out in detail in Section 8.
- The total cost of providing the necessary infrastructure is estimated from detail of planned and theoretical infrastructure projects required to meet each type of infrastructure need, based on existing infrastructure.
- A project schedule comprising the projects required to meet the infrastructure need has been collated from detail of planned projects and theoretical projects (where data about specific planned projects is unavailable).
- Costings for theoretical projects were generated by applying industry cost benchmarks for each type of infrastructure to each project.
- Where no data was available from which to estimate project costs, the cost has been assumed as £0. Accordingly, the costs of infrastructure presented in this document are minimum figures.
- All costs presented are based on 2018 prices and have not been indexed forward to the assumed date of requirement or delivery.
- The sources for these costings and caveats applicable to those costed by AECOM are set out in Section 8.
- Finally, the funding gap is estimated by reducing the total cost in line with anticipated public and private sector funding and developer contributions. These contributions are determined largely by assumptions of future funding, set out in detail in Section 8.5.

These high level estimates of cost and available funding have been assessed theoretically and are highly sensitive to the accuracy of the supporting assumptions. We recommend that future iterations of this study are informed by further data, research and analysis to refine and improve these assumptions. In the meantime, over-reliance on these figures should be avoided, as they are partly based on theoretical need, costed theoretically, and subject to theoretical assumptions about the availability of future funding.

Notably, this Section does not include detailed analysis of the likely impact of anticipated growth in adjoining areas (Greater London, Essex, Buckinghamshire, and Bedfordshire, Cambridgeshire) on Hertfordshire. However, as these growth areas are likely impact on service demand in Hertfordshire, especially along border areas, these are explored at a high level in Section 2.

This section covers the following infrastructure categories:

4.1 Transport

- Highways (strategic and local)
- Public Transport (Rail and Buses)
- Active Modes (Walking and cycling)

4.2 Education

- Early years and childcare
- Primary education
- Secondary and sixth form education
- Further and higher education

4.3 Health + Social Care

- Primary healthcare
- Hospitals and mental health
- Adult social care

4.4 Emergency Services

- Police service
- Fire service
- Ambulance service

4.5 Community

- Libraries
- Community and youth services
- Indoor sports
- Outdoor sports and recreation

4.6 Green Infrastructure

- Natural capital and landscape
- Ecological
- Open space

4.7 Utilities & Waste

- Energy
- Broadband
- Water + waste water
- Waste

4.8 Flood & Drainage

- Flood protection
- Sustainable drainage

4.1 TRANSPORT



STRATEGIC ROADS

Current Situation

The majority of Hertfordshire's principal roads and motorways provide a direct route for commuters, freight, buses and leisure trips for long distance and local inter-urban movements, accounting for approximately 70% of vehicle kilometres in Hertfordshire.¹ Figure 4.1 shows the strategic road network in Hertfordshire.

The M1, A1/A1(M), A10 and A41 provide the strategic north-south road corridors through the County and are critical connections to London in the south and to the Oxford – Cambridge growth corridor to the north and the international gateways of Luton and Stansted Airports.

The A1/A1(M), M1 and M25 are managed by Highways England, in addition to a section of the A414 between M1 Junction 8 and A405 at Park Street (south of St Albans).

Existing Infrastructure Capacity & Issues

Generally the north-south strategic highway route network is well connected but east-west links are weaker, with fewer options. Currently, there are significant road congestion issues across the county, which is partially due to a 80% private vehicle mode share in travel patterns putting additional strain on the road network. Peak hour car trips are forecast to increase by 18% by 2031, which will exacerbate the existing congestion on the network. Figure 4.2 and Figure 4.3 show the key link flows in the AM Peak and congestion hotspots on the strategic road network.

Hertfordshire is characterised by a high number of similar-sized towns, which generates a high level of cross-boundary commuting and complex travel movement patterns. Over 60% of the county's residents travel to work by car, leading to significant levels of congestion on major roads linking towns and at key junctions where major roads intersect. Particularly along the A1(M), the M25, the M1 and parts of the A602, where serious link congestion has been identified.² The M25, M1 and A1(M) carry the highest flows of freight traffic.

The A1/A1(M) corridor has significant movements between the towns with the majority of these trips being undertaken by car. East-west travel is predominantly by car, with the largest flows occurring between Hemel Hempstead, Watford and St Albans, and Hatfield and Welwyn Garden City. There are also high flows of traffic from Luton and Dunstable into Hemel Hempstead, Harpenden, St Albans and Stevenage. North London boroughs also generate a lot of trips into the County to destinations including Watford, Borehamwood and Cheshunt.³

With an annual average weekday flow of over 96,000 vehicles, Hertfordshire's motorway, trunk and principal network carry traffic flows which are double the national average.⁴

Planned or proposed improvements to the national strategic transport network in Hertfordshire include improvements to the A1/A1(M) between the M25 and Peterborough, to bring consistency to the route and address issues such as poor journey time reliability and environmental concerns.⁵

A case is also being considered for an expressway linking Oxford and Cambridge to the north of the County border, which may generate additional traffic growth on Hertfordshire's network.

LOCAL ROADS

Current Situation

The vast majority of local roads are managed by Hertfordshire County Council as local highway authority, including major inter-urban routes such as the A414 and A10, as well as many junctions with Highways England-managed strategic roads.

The key east west connectivity is provided by the A414, which links major urban centres through Hertfordshire and beyond to Chelmsford in the east and Aylesbury in the west. Other important east-west highway routes include the A120 linking the A10, Stansted Airport and Essex; the A505 linking Central Bedfordshire and Cambridgeshire via Luton, Hitchin and Royston; and the A507 linking the A10 corridor at Buntingford, the A505 and A1(M) corridors at Baldock, and Central Bedfordshire.

¹ Hertfordshire Traffic and Transport Data Report, page 5

² Hertfordshire Traffic and Transport Data Report, page 29

³ Hertfordshire Traffic and Transport Data Report, page 5

⁴ Hertfordshire Traffic and Transport Data Report, page 10

⁵ HCC LTP4, Published May 2018

Existing Infrastructure Capacity & Issues

High demand for road travel is causing regular congestion and network disruption resulting in unreliable journeys, limited resilience on the network to deal with incidents effectively, and high vehicle emissions.

Future growth in population and jobs will generate a 19.7% increase in traffic creating additional pressure on the road network and is expected to lead to increased travel times (50% in the AM peak), additional congestion points and areas of the network operating at capacity by 2031. This is based on strategic demand modelling predictions, which assume travel behaviour and current mode share will continue as it currently is in the future.⁶

However, there is significant potential to change travel behaviour and achieve a shift to sustainable modes in the future and relieve pressure on the road network and reduce vehicle emissions. Across the County, 63% of all trips are estimated to be under 5 miles and 53% of commuter trips under 10 miles. Excluding trips to London, which are mainly by rail, car is the main mode of travel and rates of walking and cycling are low. There is opportunity to shift trips to these modes, particularly for short distance travel and relieve pressure on the road network.

⁶ HCC LTP4, Published May 2018 & Hertfordshire Traffic and Transport Data Report

In order to support this, HCC's primary transport policy is its transport user hierarchy, that should be applied in the design of any scheme and development of any transport strategy. The hierarchy is to consider in the following order:

- Opportunities to reduce travel demand and the need to travel;
- Vulnerable road user needs (such as pedestrians and cyclists);
- Passenger transport user needs;
- Powered two wheeler (mopeds and motorbikes) user needs; and
- Other motor vehicle user needs.

Traffic management and a focused set of highway capacity enhancements will also be needed to accommodate growth in traffic, but these should also support improved urban environments and enhanced sustainable travel infrastructure, which can provide people the opportunity to make alternative travel decisions, such as to cycle or walk to the shops, to work or to the station. Additionally, demand management to reduce car use where appropriate will also be needed.

Existing Strategic Roads & Road Infrastructure Capacity Issues

To summarise, the following issues are observed and identified for the strategic and local road network in Hertfordshire and summarised in Figure 4.4:

- Significant road congestion;
- Unreliable journey times and limited resilience on the network;
- Congestion on the M1 and M25 which has a knock-on effect on local roads managed by Hertfordshire County Council including the A414;
- Congestion and delays on the approaches to most towns;
- High levels of congestion on the A1(M), particularly junctions 3, 4 and 6 to 8;
- Rural accessibility in the east of the county; and
- The county is well served with north-south highway links but less with east-west links causing pressure and congestion on the A414.

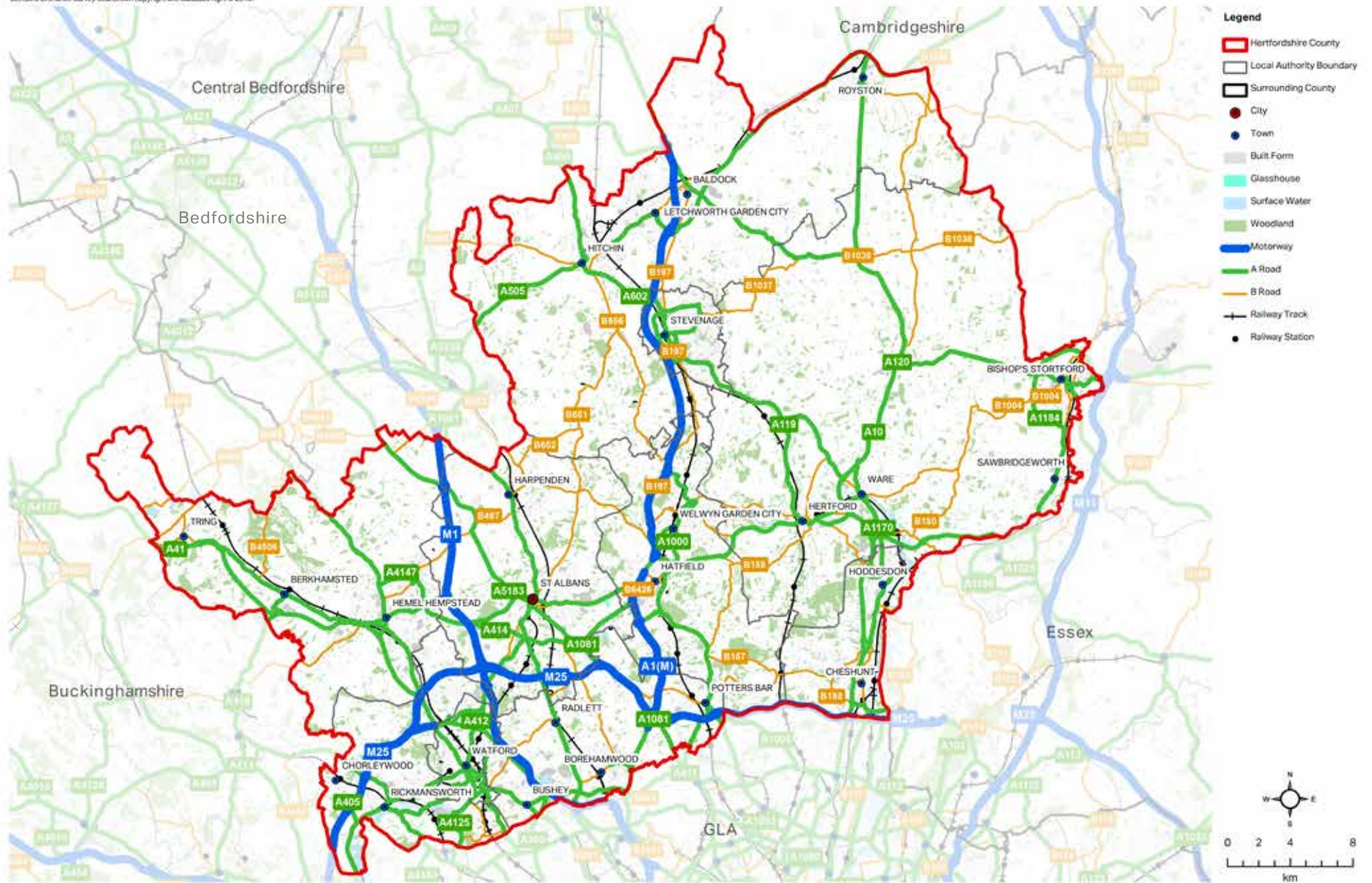


FIGURE 4.1 -STRATEGIC AND LOCAL ROAD NETWORK

Source: HCC

Source: HCC

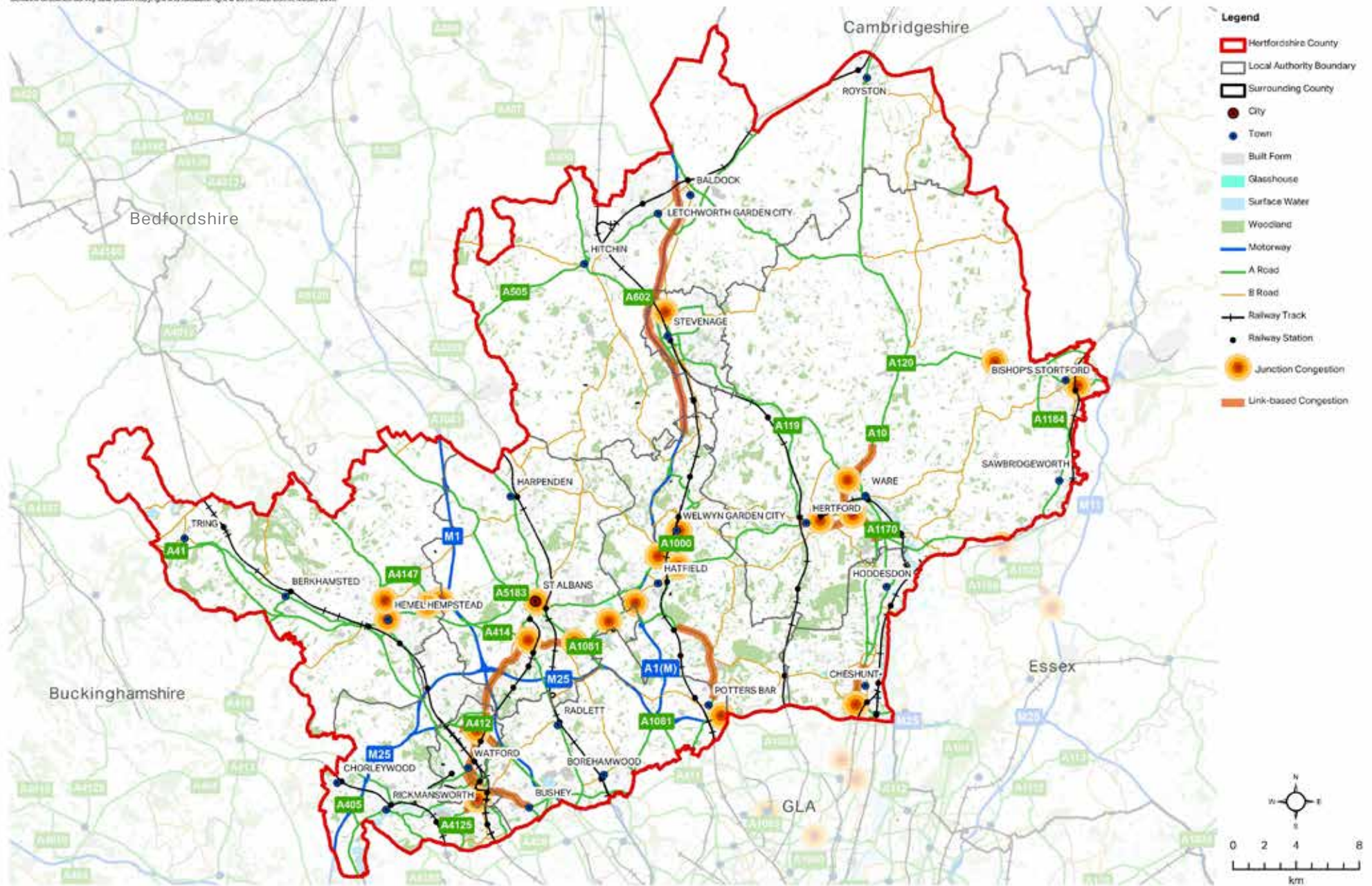
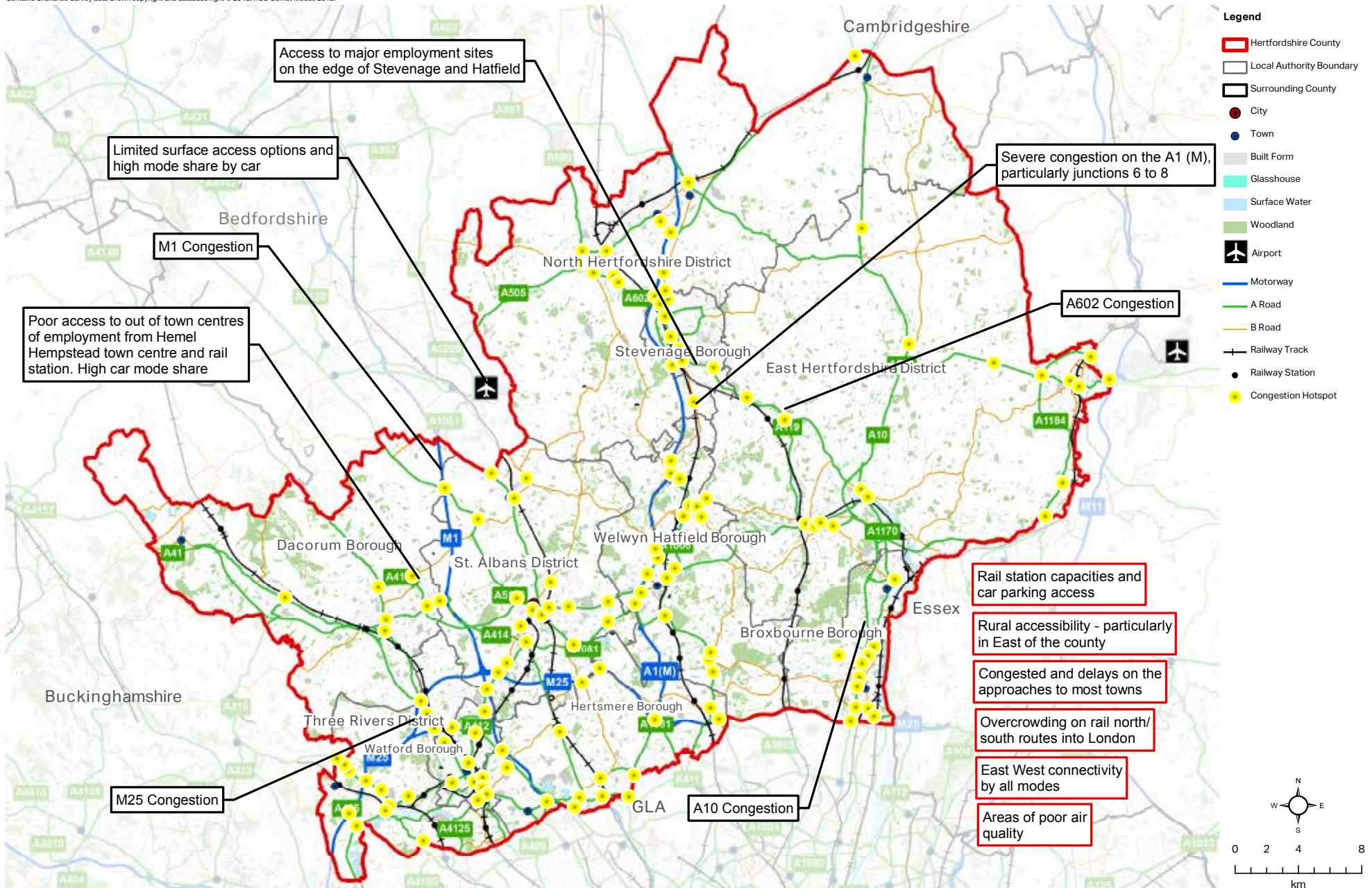


FIGURE 4.3-HIGHWAY NETWORK JUNCTION CONGESTION AND LINK-BASED CONGESTION

Source: HCC



Future Requirement to Meet Growth to 2031

Regional Projects - Schemes located partially in or outside Hertfordshire (Figure 4.5)

Strategic Roads

- M11 Junction 7a including widening of Gilden Way
- M11 Junction 7
- M11 Junction 8 (Interim Option)
- M1 Junction 8a (additional junction)
- M1 Junction 8 enhancement
- M1 Junction 10 southbound on slip capacity improvement
- M1 Junction 4 upgrade
- M1 Junction 6 reconfiguration (Bricket Wood)
- M1 Junction 6a/M25 J21 improvements
- M25 Junction 25 capacity improvements
- M25 spur approach to Hunton Bridge roundabout – widening approach/circulation or signalisation (Hunton Bridge)
- M25 Junction 20 capacity improvements
- A1(M) SMART motorway all lane running Junction 6-8
- A1(M) Junction 9 Letchworth Gate/A505 signalised entries to roundabout

- A1(M) J8/A602 signalised entries to roundabout
- A1(M) Junction 7 and 8 improvements
- A1(M) Junction 6 - improvements to the 4 roundabouts comprising this junction
- A1(M) Junction 4 satellite roundabout - redesign of the satellite roundabout
- A1(M) Junction 3 - Possible new left turn from A414 to Comet Way and dualling of Comet Way
- A1(M) Junction 3 reconfiguration
- A1(M) Junction 2 - Junction 3 link road

Sub-Regional Projects - Schemes located in Hertfordshire but crossing boundaries (Figure 4.5)

Strategic Roads

- A1(M) Junction 4 – ‘Jack Oldings’ roundabout

Local Roads

- A414 Strategic Intervention in Hertford - bypass and town centre sustainable travel enhancements
- Hemel Hempstead Northern Link (A41-M1 Major Link or Local Link to M1)
- A414 Street - public transport, active modes and streetscape improvements in Hemel Hempstead
- Hemel Hempstead Eastern Spine Road

Local Projects

- There are over 200 local road improvement projects specific to the districts, either committed or proposed over the delivery period that include improvements to: Road safety, Local access, Signage, Speed management, Parking, Traffic management, Road capacity and Intelligent Transport Systems.

Cost and Funding (Excluding Regional Schemes)

Based upon the aggregated cost of projects identified in the HIFP project list, the following Hertfordshire wide cost and funding gap has been estimated:

Cost = £1,087,090,000

Estimated Funding Gap = £622,310,000

Refer to Chapter 5 for a summary of the costs associated with Regional schemes. A number of Regional schemes have significant costs which cannot be accurately apportioned within and outside Hertfordshire.

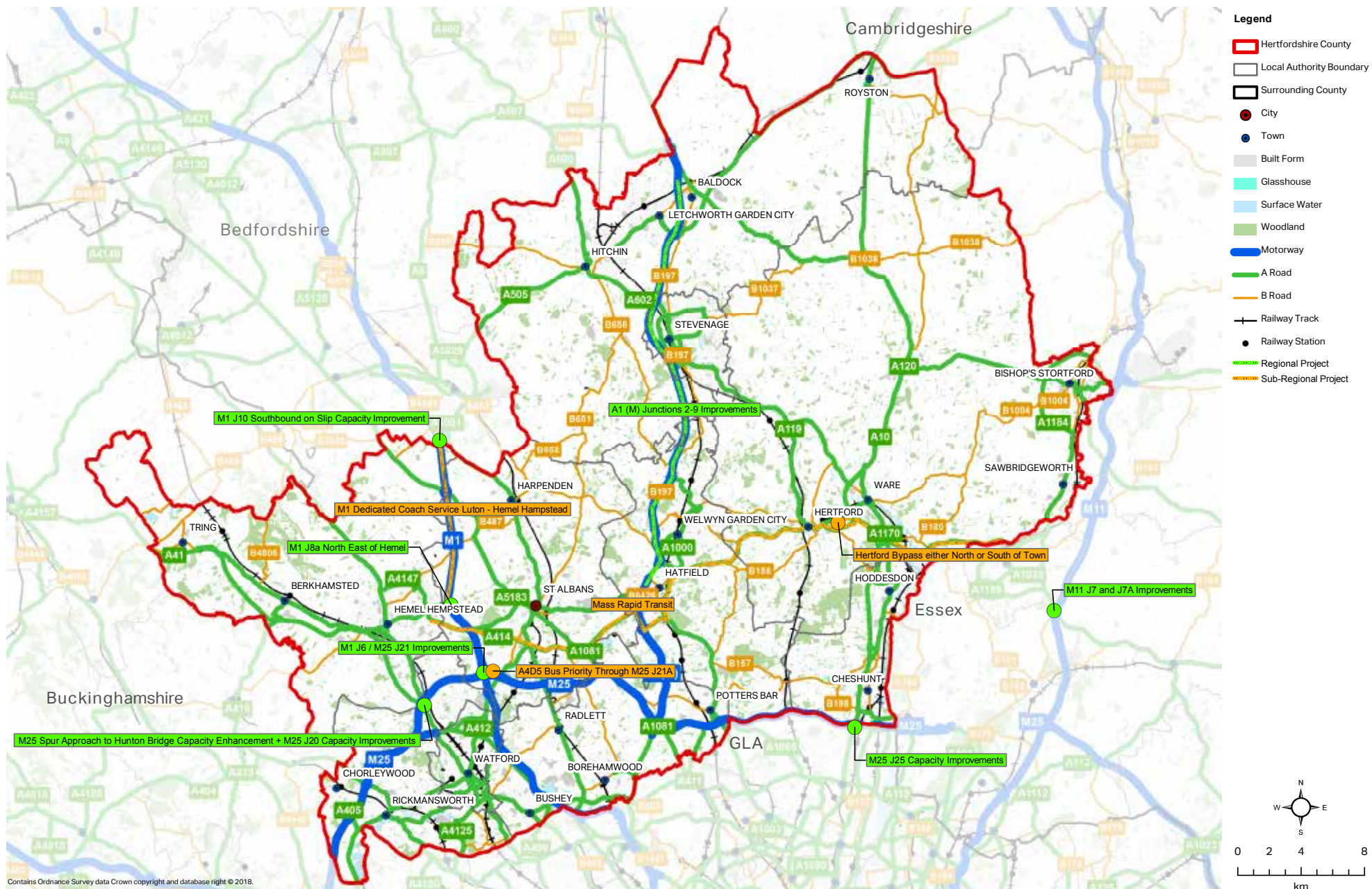


FIGURE 4.5 -STRATEGIC AND LOCAL ROAD NETWORK REGIONAL AND SUB-REGIONAL PROJECTS TO SUPPORT GROWTH TO 2031

Source: Various Sources (HIFP Project Schedule)



RAIL NETWORK

Current Situation

Much like Hertfordshire's road network, the rail network in the county generally runs north-south, with good connections radiating out of London and linking to areas north of the County, providing well for the commuter market. However, similar to the road network, there is a lack of east-west rail infrastructure connecting the radial lines. The rail network is shown Figure 4.6.

The county's rail network comprises of the following rail lines:

- West Coast Main Line from London Euston to Watford Junction, Hemel Hempstead and onwards to Milton Keynes, the West Midlands and Scotland;
- East Coast Main Line (including Hertford Loop and Cambridge branch) from London King's Cross and Moorgate to Welwyn Garden City, Hertford North, Stevenage and onwards to places including Peterborough, Cambridge, York, Newcastle and Scotland;
- Midland Main Line from London St Pancras to St Albans City and onwards to Luton Airport, Bedford, Nottingham and Sheffield;
- West Anglia Main Line from London Liverpool Street to Hertford East and Stansted Airport via Harlow and Bishop's Stortford.

Existing Infrastructure Capacity & Issues

Each of these routes have a different franchised operator, however Network Rail have the overall authority of each line. Much of the rail network is either already at or approaching full capacity during peak times as a result of the high commuter demand and due to Hertfordshire's proximity to London. 13.4% journeys to work are made by rail, with most rail trips to London originating from St Albans, Watford, Cheshunt, Harpenden, Welwyn Garden City, Hemel Hempstead, Borehamwood and Stevenage. Figure 4.7 and Figure 4.8 shows that trips originating from the areas along the rail lines are those with the highest public transport mode share in the morning peak.

The single-track Abbey Line provides a less frequent shuttle service connecting Watford Junction and St Albans Abbey stations. London's Underground network connects into the south-western part of Hertfordshire, with Metropolitan Line services terminating at Watford. London's Overground network also connects Watford with London Euston. A number of other London Underground routes terminate fairly close to the edge of Hertfordshire, including the Jubilee Line at Stanmore, Bakerloo line at Harrow and Wealdstone, the Northern Line at Edgware and High Barnet, and Piccadilly line at Cockfosters.

In 2016, there were 70.5 million Hertfordshire rail trips of which travelling to work accounted for the majority of these trips at 76%.⁶ The high commuter demand for rail travel to London combined with the lines being shared with local, regional and national passenger services and freight, means that rail congestion is experienced on most lines, in terms of seating capacity and the number of trains that can be run. This is particularly the case on two track sections, such as the West Anglia Main Line and at specific pinch points, such as the Welwyn Viaduct on the East Coast Main Line. Some lines are forecast to be over capacity by 2031. Car parking at rail stations is also reaching or at capacity and improvements to facilities and accessibility for sustainable models, including walking and cycling infrastructure, to rail stations is needed to encourage a shift to more active modes accessing the stations.



BUS NETWORK

Current Situation

The county's bus network predominantly consists of services operated commercially, with a primary role played by Arriva, Uno and Centrebus. Transport for London provides a number of cross-boundary routes to and from towns in the south of the county such as Borehamwood, Potters Bar, Waltham Cross and Watford. HCC also provide a small proportion of support (6% of patronage) to local bus services, where the commercial sector cannot provide these due to low passenger demand. Unreliable journey times, limited frequencies, and issues related to relative ease of car use mean that mode share for buses is low with only 3.5% of total mode share for journeys to work which is 4.5% lower than the national figure.⁷

Existing Infrastructure Capacity & Issues

There are also a number of low frequency (less than hourly) commercial express coaches connecting local towns to London, regional centres, airports and with the national coach network, for example Greenline 758/759 commuter service linking Hemel Hempstead and London, and National Express 737 route linking Stansted Airport and Oxford via Hemel Hempstead, and 777 linking the airport with Birmingham via Stevenage and Hitchin. Additionally, there are a range of door to door transport services, run by HCC and Clinical Commissioning Groups, including dial a ride, community and voluntary car schemes, minibus schemes and health transport for non-emergency health needs.

Hertfordshire's own travel website, Intalink, provides the latest bus travel information in Hertfordshire, including maps, timetables and a journey planner.

Existing Public Transport (Rail and Bus) Infrastructure Capacity & Issues

Overall for public transport the following key issues have been identified:

- Weak east-west public transport links, especially by rail. Passengers are often required to change in London for trains serving other parts of the county which can make journeys more time consuming and expensive;
- Rail congestion on most lines in Hertfordshire in terms of seating capacity, overcrowding and the number of trains that can be run, Watford Junction, St Albans City and Stevenage are the three busiest stations⁸;
- Low level of rail use for journeys within the county, especially compared with journeys made by car;
- Passenger transport access to airports is inferior to car; and
- East-west bus services are often delayed by congestion thus have longer and unreliable journey times.

⁷ Hertfordshire Traffic and Transport Data Report, page 62

⁸ Hertfordshire Traffic and Transport Data Report, page 56

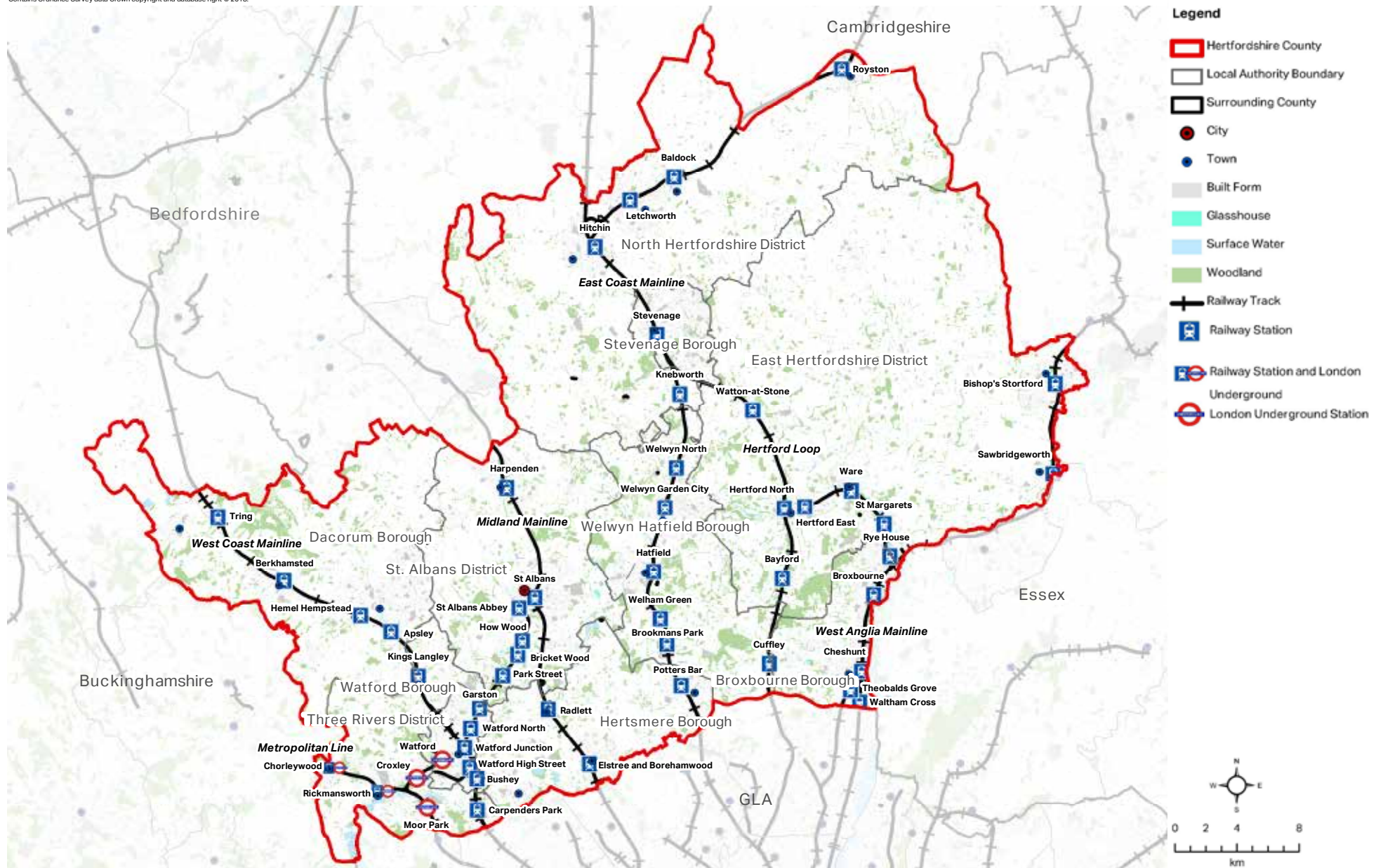


FIGURE 4.6 -HERTFORDSHIRE RAIL NETWORK

Source: Hertfordshire County Council Local Transport Plan

Source: Hertfordshire County Council Local Transport Plan

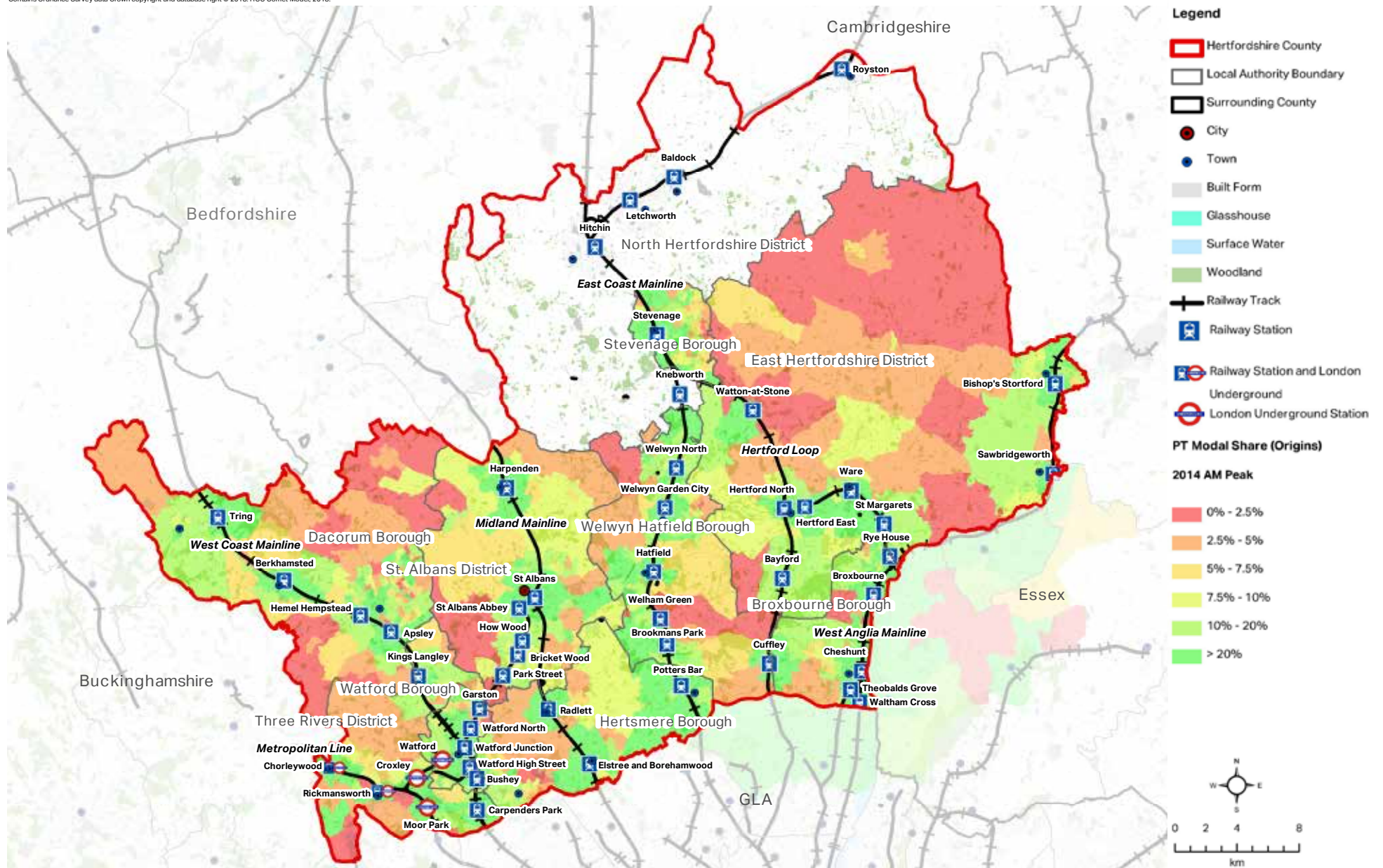


FIGURE 4.8 - PUBLIC TRANSPORT MODE SHARE BY ORIGIN (2014 AM PEAK)

Source: Hertfordshire County Council Local Transport Plan



Future Requirement to Meet Growth to 2031

Regional Projects - Schemes located partially in or outside Hertfordshire (Figure 4.9)

Rail

- West Anglia Main Line 4-tracking
- Additional passenger peak capacity on inner-suburban services into Moorgate
- East Coast Main Line signalling upgrade
- East Coast Main Line South journey time and reliability improvements
- East Coast Main Line increased capacity

Public Transport

- Cross-county mass rapid transit – A414 corridor - explored in the draft A414 Corridor Strategy however there is not a preferred option at this stage. Options which have been considered to date include bus and tram. A heavy rail option has not been considered

Sub-Regional Projects - Schemes located in Hertfordshire but crossing boundaries (Figure 4.9)

Rail

- Provision of a new station between Cheshunt and Broxbourne at Turnford
- New station Park Plaza West
- New train station on the Hertford Loop Line to serve Broadwater area of Stevenage

- Abbey Line Park and Rail hub at relocated Park Street station close to the A414

- Stevenage Platform 5

- Moderate enhancements to Abbey Line

Bus

- Mass Rapid Transit - Hemel Hempstead / Watford to Harlow

- Potters Bar-London bus services enhancements

- Hitchin-Luton bus enhancements

- Enhanced local express bus services between Hemel Hempstead and Watford

- Maylands Multi Modal Transport Interchange: Bus/Coach interchange and centralisation of car parking in Maylands

- M1 dedicated coach service connecting Luton and Hemel Hempstead (or Greenline diversion)

- Watford M1 Junction 5 Park and Ride

- A405 bus priority through M25 Junction 21a

- Park and Ride transport hub at existing Kings Langley station

- Bus routes between urban centres - Hitchin, Letchworth, Stevenage 'triangle'

- Bus Service 308 route amendment and new bus stop/footway

- Bus Service 508/509/510 route amendment(s)

- Upgrade 300/301 to premium standard service

Local Projects

- There are over 70 local rail and bus improvement projects specific to the districts, either committed or proposed over the delivery period that include schemes such as: Bus priority, New bus services, Bus station relocation, New bus stops, Intelligent transport systems for buses, Improved access to rail stations, Increased parking at stations, and Rail station access enhancements.

- Smart Technology: Planning for automated vehicles, electronic charging infrastructure, demand responsive transport, integrated ticketing, etc., Intalink app, etc.

Cost and Funding (all Public Transport excluding Regional schemes)

Based upon the aggregated cost of projects identified in the HIFP project list, the following Hertfordshire wide cost and funding gap has been estimated:

Cost = £764,300,000

Estimated Funding Gap = £523,670,000

Refer to Chapter 5 for a summary of the costs associated with Regional schemes. A number of Regional schemes have significant costs which cannot be accurately apportioned within and outside Hertfordshire.

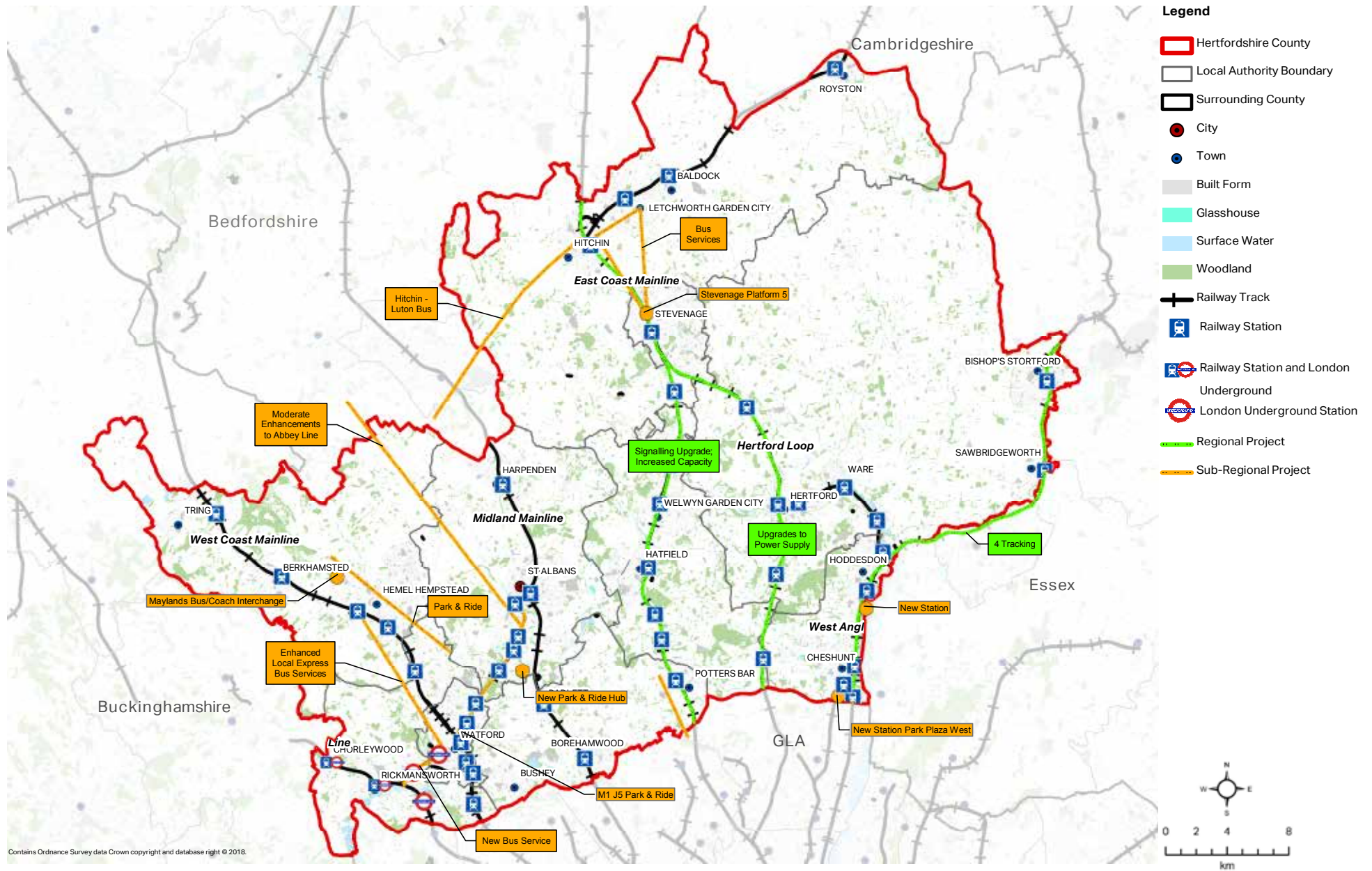


FIGURE 4.9 -RAIL NETWORK REGIONAL AND SUB-REGIONAL PROJECTS TO SUPPORT GROWTH TO 2031

Source: Various Sources (HIFP Project Schedule)



ACTIVE MODES

Current Situation

Walking and cycling infrastructure provision varies across Hertfordshire. The cycle network across the county consists of a variation of routes ranging from flat traffic free routes to more challenging routes catering for both utility and recreational cyclists. A number of these routes are part of the Sustrans National Cycle Network (Figure 4.11) which comprise of a mixture of on and off road paths. Some of these routes utilise the alignments of former railway lines, including the Nickey Line between Hemel Hempstead and Harpenden (part of National Cycle Route 57); between Luton and Harpenden East and towards Wheathampstead (part of National Cycle Route 6); the Cole Green Way between Welwyn Garden and Hertford (National Cycle Route 61); and the Alban Way between St Albans and Hatfield (also part of National Cycle Route 61).

There is also an extensive network of rights of way catering for walking, cycling and horse riding and recreational routes along the tow paths associated with the Grand Union Canal through Berkhamsted and the Lea and Stort Rivers between Hertford and Bishop's Stortford.

Whilst a third of all cycling trips are to work, cycling makes up for less than 2% of the total mode share. In recent years, there is very little evidence of a modal shift from car to more sustainable modes, including active travel, however there is significant potential for this to be improved.

Existing Infrastructure Capacity & Issues

Provision of cycling infrastructure in the county is variable as shown in Figure 4.10 & 4.11. Stevenage has a very good coverage of off-road cycleways, however the provision of cycling infrastructure in many other areas is incomplete and not well connected. Much of the current cycling network is perceived as not being easy to use for less confident cyclists, especially where routes require cyclists to interact with motorised traffic.

A summary of the key walking and cycling issues are below:

- Lack of infrastructure such as street lighting, paving and signalised crossings are perceived to be a barrier to walking and cycling;
- An east-west cycle path runs along the A414 however there is a lack of adjoining north-south routes;
- Notable gaps in the cycle networks between certain towns such as Watford to St Albans and Hertford and towns along the A10; and
- Cycling only forms 1.6% of the journey to work mode share across the county even in areas where a large number of residents work locally.

In line with the County's LTP4 user hierarchy, there will continue to be an emphasis upon enhancing infrastructure for cyclists and pedestrians in the future. This could include improved on and off-road cycle routes; new or improved crossing facilities; potential closure of some roads within town centres to general traffic to facilitate better links for pedestrians and cyclists; increased cycle parking at railway stations; and streetscape works designed to improve the movement of pedestrians and cyclists.

Future Requirement to Meet Growth to 2031

Sub-Regional Projects - Schemes located in Hertfordshire but crossing boundaries

- Improvements to existing unmade path from Cranborne Industrial Estate to Hawkshead Lane
- Cycling improvements along and across the A505
- Extension of the cycle route between Rickmansworth and Chorleywood
- Completion of cycle route between Maple Cross and Rickmansworth Town centre
- New cycle route from Bedmond to South Way via Abbots Langley
- New cycle route between Abbots Langley and Watford Town Centre
- Bishop's Stortford-Stansted cycleway
- Baker Street Cycle Route and M25 'Crossing'
- M25 Cycle Crossings
- Alban Way lighting
- Stevenage to Hitchin cycle route
- B197 sustainable travel corridor
- A405 St Albans-Bricket Wood cycleway; and
- Nickey Line North-South 'Branch line'.

Local Improvements

Also included are over 300 smaller scale walking and cycling improvements, such as new crossings, accessibility improvements, wayfinding signage, cycle parking, pedestrian bridge improvements, walking and cycling links, widened footways and new cycle lanes.

Smarter Travel Programs

Beyond infrastructure, the Districts and HCC concurrently run ongoing marketing, promotion, training and travel planning activities to encourage the uptake of more sustainable modes.

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated::

Cost = £629,300,000

Estimated Funding Gap = £589,010,000

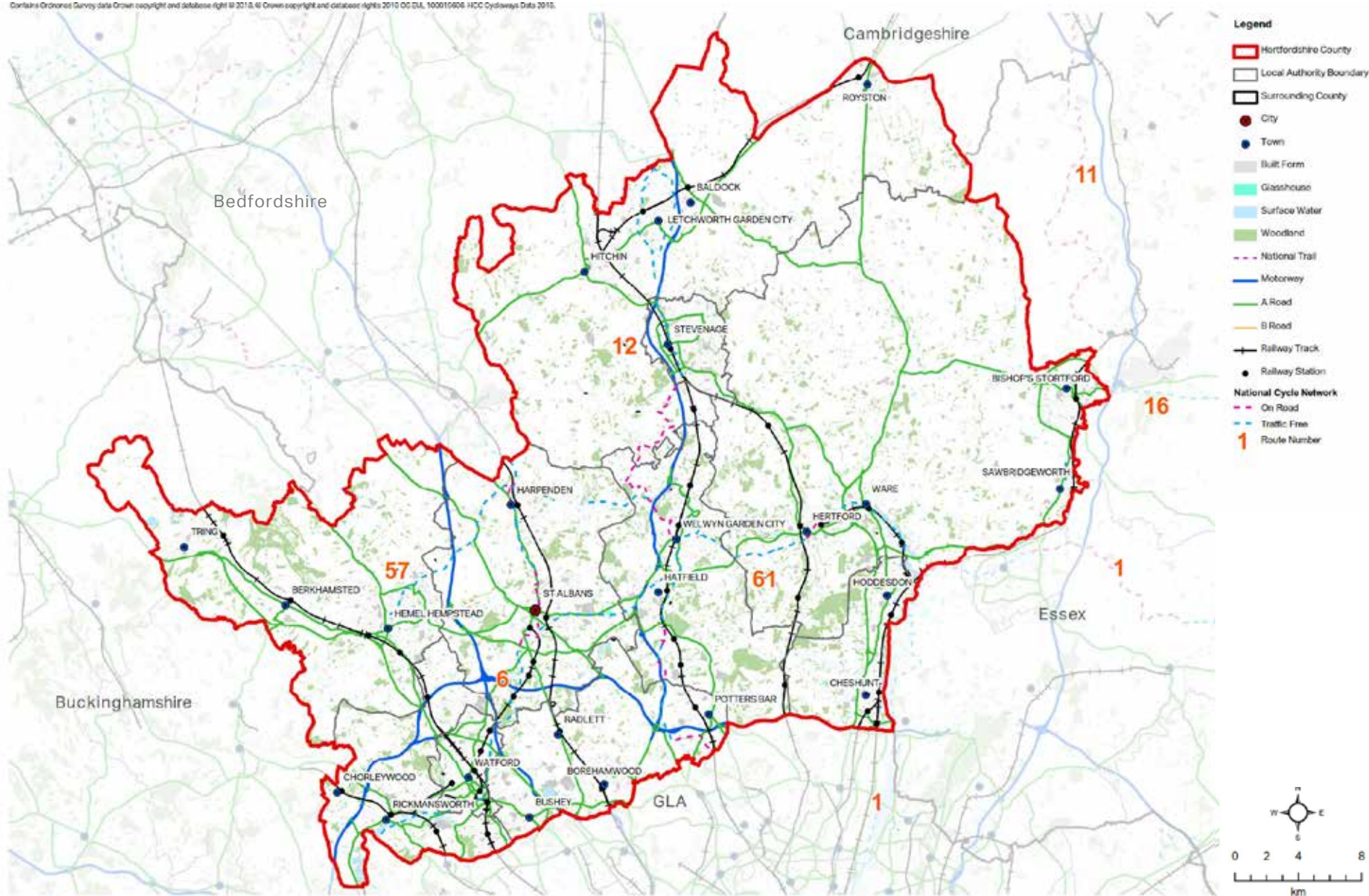


FIGURE 4.10 - NATIONAL CYCLE NETWORK

Source: Sustrans, 2018

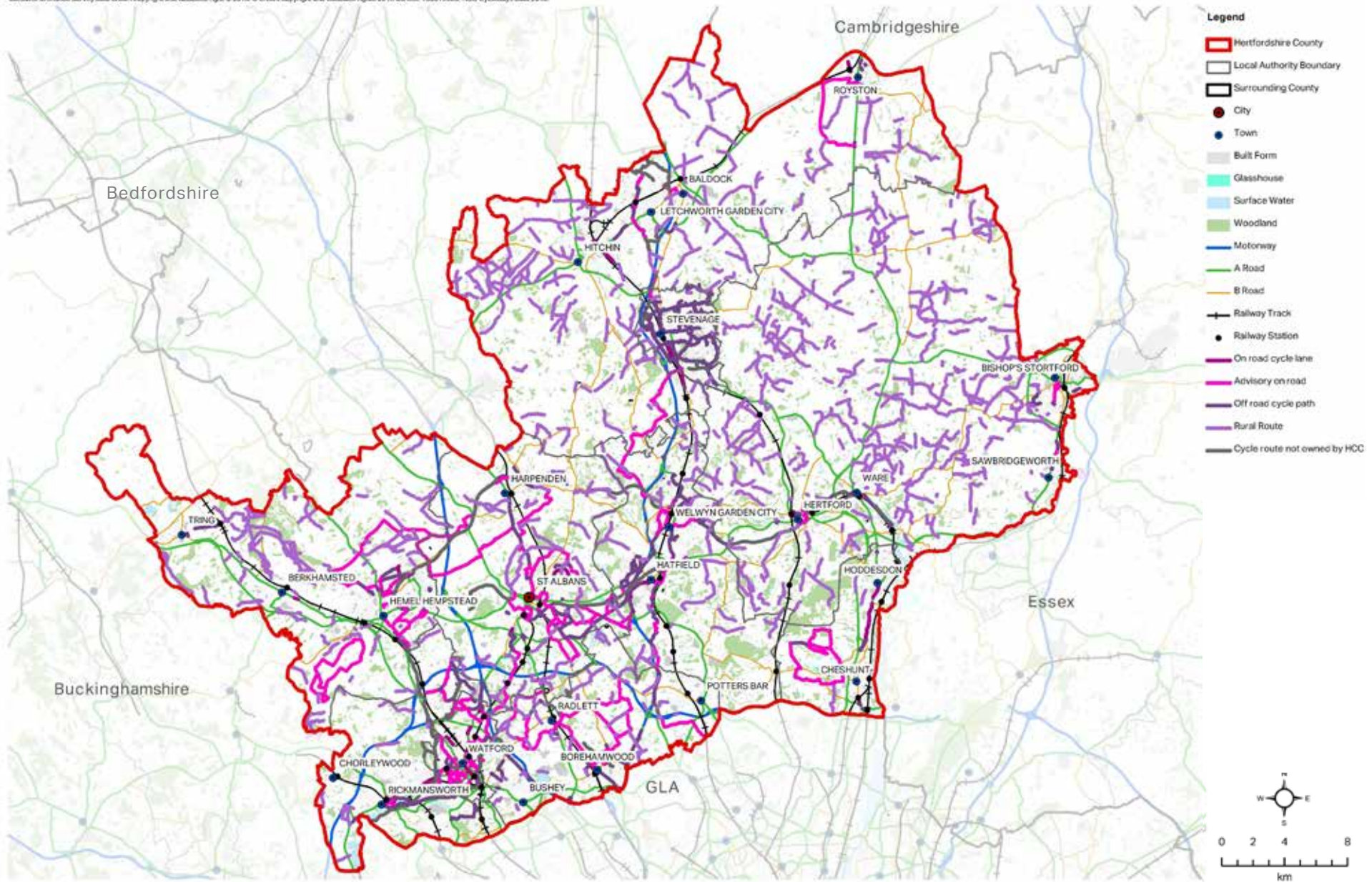


FIGURE 4.11 - COMPLETE CYCLE NETWORK IN HERTFORDSHIRE

Source: Sustrans, 2018

4.2 EDUCATION



EARLY YEARS

Hertfordshire

2,545

Ofsted Registered
FEEE Funded
Facilities

Hertfordshire

6,692

Ofsted Registered
Places

Current Situation

Hertfordshire early years education and childcare is provided by a range of suppliers, including childminders, day nurseries, and pre-schools for children 0 - 4 years. The Childcare Act 2006 places a duty on all local authorities to ensure there are enough childcare services for parents who wish to have them. In addition, the Childcare Act 2016 secures an additional entitlement of childcare support for working parents, whereby a duty is placed on local authorities to publish information about childcare services.

From September 2017, the government introduced 30hrs free childcare for 3-4 year olds for all parents who work a minimum equivalent of 16hrs per week at national living wage, and where each parent earns less than £100,000 per year. HCC trialled the new policy from September 2016, and by April 2017 identified 53 primary schools that would offer the entitlement from September 2017.

HCC produces an annual Hertfordshire Childcare Sufficiency Report (last published in April 2018 but updated in July 2018) that identifies current provision and where provision is lacking across Early Years and Childcare services.

Current provision of early years and childcare facilities are shown in Figure 4.12 and Table 4.1. Within these total figures, HCC has a total of 1,532 providers offering FEEE places for children aged 3-4 and 742 providers for children aged 2 years old.

Providers joining FEEE schemes has seen an increase of over 1,800 free early education places since April 2017, therefore making childcare more accessible to all parents in Hertfordshire. From data collected in spring of 2018, Hertfordshire had 6,692 children accessing a 30 hour place within an Ofsted registered provider across the county, in which the overall uptake for 30 hour free childcare in Hertfordshire is 89 percent.

Figure 4.12 illustrates the priority areas for the development of free early education places in Hertfordshire (April 2017). The areas have been targeted due to low take up by parents for FEEE schemes, in which there is a need to meet demand. The target areas are primarily to the south of the County focused along the southern boundary with London in Three Rivers, Watford, Hertsmere and Welwyn Hatfield. There are also smaller targeted areas in North Hertfordshire, East Hertfordshire and Dacorum.

	FREE ENTITLEMENT FACILITIES*											FUTURE REQUIREMENT	
	Breakfast Club	Childcare on Domestic Premises	Child - minders	Schools with Nursery	Day Nursery	Holiday Activity	Holiday Scheme	Pre-School	Nursery Units of Independent Scheme	Out of School Care	TOTAL	Additional Early Year Place Demand to 2031	Additional Facilities to 2031
Broxbourne	12	0	86	22	16	0	4	21	0	16	177	516	9
Dacorum	9	1	155	43	30	2	7	33	2	26	308	522	9
East Herts	21	1	158	51	19	1	15	41	1	35	343	587	10
Hertsmere	9	2	124	24	19	1	9	24	4	12	228	262	5
North Herts	16	0	179	32	20	0	16	36	1	27	327	1,013	18
St Albans	10	2	196	29	39	1	12	35	1	29	354	863	15
Stevenage	16	0	113	21	9	0	7	17	0	16	199	469	8
Three Rivers	2	0	100	22	13	1	8	18	0	14	178	133	2
Watford	3	0	103	20	15	1	6	21	1	15	185	532	9
Welwyn Hatfield	8	0	155	28	12	1	5	23	1	13	246	740	13
Hertfordshire	106	6	1,369	292	192	8	89	269	11	203	2,545	5,638	98

TABLE 4.1 - FREE ENTITLEMENT FACILITIES

Source: Hertfordshire County Council Childcare Sufficiency Annual Report, April 2018 (updated July 2018)

* Sufficiency returns from all registered FEEE providers from Spring 2017

Future Requirement to Meet Growth to 2031

Table 4.1 sets out the current facilities in terms of FEEE Early Years provision. The age specific population forecasts that have been utilised are from the recently published ONS Sub-National Population Projections 2018 and utilising best practice child yield rates. These show an increase in early year aged children in each local authority, however the level of growth varies significantly. Overall, there could be a need equivalent to 98 new early year facilities. It is acknowledged, however, that major developments will produce increased demand locally, which will need to be catered for and the challenge for adequate cover is greater in the rural parts of the county.

Example Infrastructure Projects Required

Notable investment in Early Years provision includes:

- 3 new Children Centres in Broxbourne
- 1 new Children Centre in Stevenage
- 5 new children centres or equivalent nursery provision in Welwyn Hatfield

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated:

Cost = £180,440,000

Estimated Funding Gap = £0

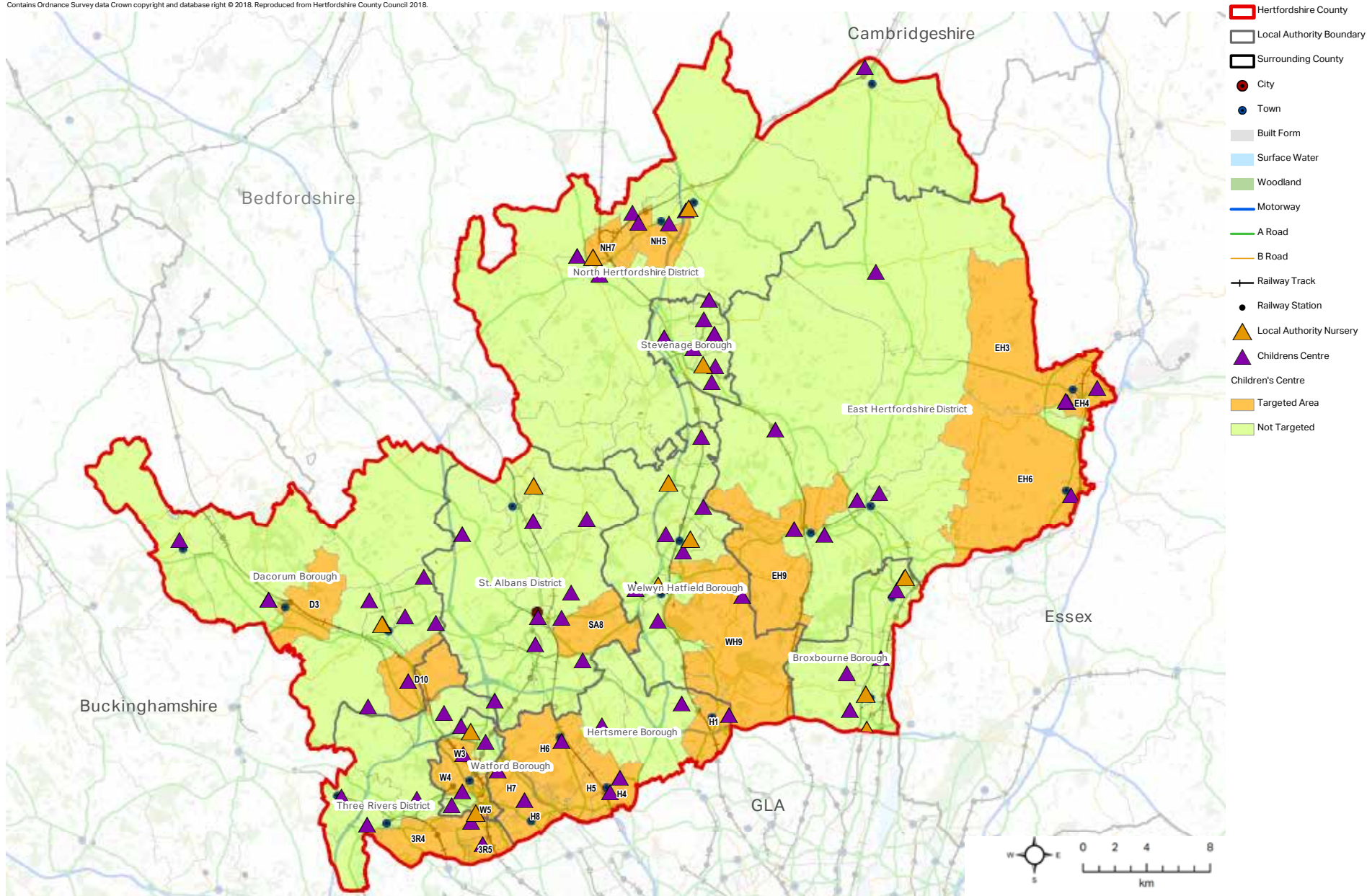


FIGURE 4.12 - EARLY YEARS FACILITIES AGAINST HOUSING GROWTH

Source: Edubase, 2018

Note: Diagram does not map all facilities listed in Table 4.1 - only illustrates Local Authority Nurseries and Children Centres



PRIMARY EDUCATION

Current Situation

Hertfordshire has a total of 370 primary age schools. There is a diverse range of size and type of school, including Community, Voluntary Aided and Controlled, Foundation and Academies. Academies, Foundation and Voluntary Aided Schools are responsible for their own Admission Arrangements and Academies are funded directly by Central Government.

The County Council acts as a commissioner of school places and has a statutory responsibility to ensure that there are a sufficient number of primary places available for all Hertfordshire residents. This includes the assessment of required school provision as a consequence of development and growth across the County. Existing distribution of primary schools alongside proposed housing growth across Hertfordshire is shown in Figure 4.14.

Headlines

- A spatial review of individual schools and their current capacity at Reception illustrates that there are specific tensions already occurring in some areas (figure 4.14). This is particularly notable in urban areas, where significant growth is also occurring, such as Hatfield, Hemel Hempstead, Hitchin and St Albans city centre.

- Figure 4.13 illustrates the forecast surplus/deficit of Reception places in 2018/19 by Primary Planning Area (PPA). PPAs are smaller geographies, used for school planning purposes. This indicates that deficits in school places are forecast in parts of St Albans, Watford and Hemel Hempstead; to the North East around Stevenage, Hitchin and Letchworth Garden City and; in the South East, pockets of deficit capacity in Sawbridgeworth and Hoddesdon.

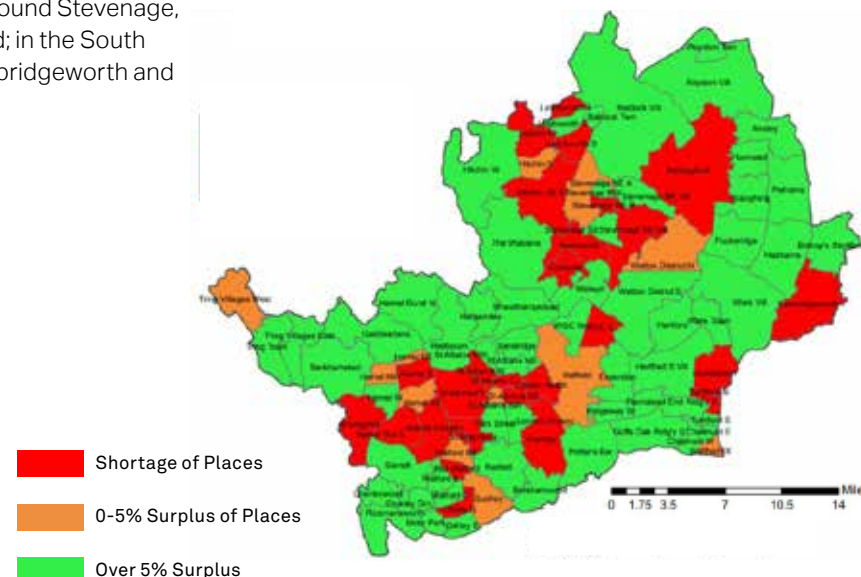


FIGURE 4.13 - PRIMARY SURPLUS / DEFICIT SCHOOL PLACES BY PLANNING AREA

Source: Hertfordshire County Council Meeting the Demand for School Places (Summer 2016/17)

IDENTIFIED GROWTH IN PUPIL NUMBERS						
LOCAL AUTHORITY PLACES	2017/18 Demand for reception places			AECOM Forecasting		
	Schools	Permanent reception places 2017/18	Demand (Reception pupils on Roll - 2017/18)	Surplus/Shortfall places	Additional Pupils (R-6) 2018-2031*	Additional Form Entry 2018-2031
Broxbourne	32	1,362	1,315	47	3,213	15
Dacorum	48	1,922	1,776	146	3,247	15
East Herts	57	1,826	1,638	188	3,654	17
Hertsmere	21	940	836	104	1,630	8
North Herts	41	1,490	1,426	64	6,304	30
St Albans	52	2,326	2,101	225	5,371	26
Stevenage	28	1,440	1,346	94	2,919	14
Three Rivers	14	536	515	21	827	4
Watford	37	1,885	1,805	80	3,310	16
Welwyn Hatfield	40	1,620	1,578	42	4,607	22
Hertfordshire	370	15,347	14,336	1,011	35,083	167

TABLE 4.2 - EXISTING PRIMARY SCHOOL CAPACITY AND IDENTIFIED GROWTH

Source: School Census January 2018, Determined Published Admission Numbers and AECOM Analysis

* 2018 - 2031 Demand forecasts apply the benchmark standards to forecasts housing need presented previously in Section 3

** Surplus depicted in green. Deficit depicted in red

The need for additional places has not considered the implications of the spatial strategies identified in emerging Local Plans and is based solely on the forecast housing supply presented in Section 3

Future Requirement to Meet Growth to 2031

Table 4.2 sets out the number of permanent Reception places available in 2017/18, compared with the number of Reception age children on roll in January 2018 (School Census Jan 2018). Forecasts from 2018 - 2031 have been produced through AECOM analysis of the housing trajectory, which uses the ratio of 1 FE per 500 dwellings as its base. The information should be considered in the context of the following key issues:

- 2017/18 figures identify approximately 1,000 surplus Reception places across Hertfordshire. However, as a large county, with many rural communities, the picture at a local level is invariably mixed and these places may not be the right location or sufficient in number to help support growth.
- Throughout the period 2018 -2031 there will be an estimated additional demand for 167FE across Hertfordshire. This equates to over 5,000 Reception places and over 35,000 primary places (Reception through to Year 6). Forecast need for/cost of Early Years places is dealt with in the Early Years section. However, additional nursery places are usually delivered as part of new school or expansion projects (alongside other Early Years projects).
- This assessment is based on the agreed housing assumptions outlined in section 3. However, there are currently consultations underway in some local authorities (e.g. Three Rivers District Council) which would significantly increase the number of expected dwellings (and therefore the education infrastructure requirement) within this planned period. Recent

representations to some local authorities (e.g. St Albans City and District Council) go beyond the period dealt within this report.

- HCC is already working with Local Authorities to plan for primary schools to meet growth over the next 5 years. By 2031 new primary school provision will be required in all local authorities to meet future demand.

Example Infrastructure Projects Required

Notable investment in Primary School provision includes:

- Provision of four primary schools to serve development to the East of Hemel Hempstead
- Up to 20FE total provision to support growth around Gilston
- Provision of four new primary schools to serve development in Broxbourne
- Provision of 2 new primary schools to serve Bishops Stortford North

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated:

Cost = £681,720,000

Estimated Funding Gap = £473,410,000

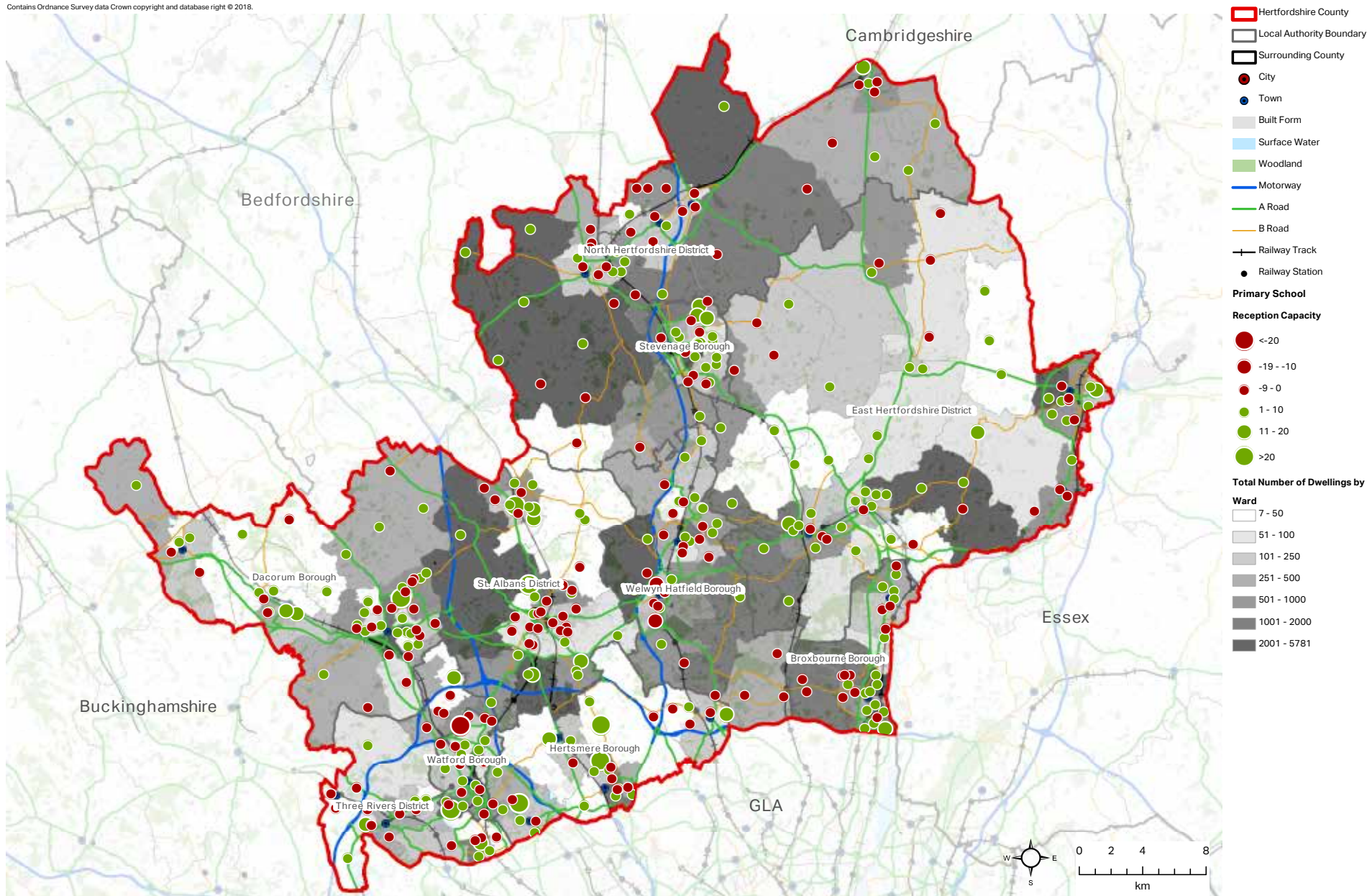


FIGURE 4.14 - PRIMARY EDUCATION FACILITIES CAPACITY AGAINST HOUSING GROWTH

Source: Hertfordshire County Council 2017/18 Summer Interim Forecast



SECONDARY EDUCATION

Current Situation

The majority of secondary schools across Hertfordshire are now Academies but there are also a number of Community, Foundation and Voluntary Aided (VA) schools. Academies are funded directly by central government and they, alongside Foundation and VA schools, are responsible for their own admissions rules. As a commissioner of school places, HCC has a statutory duty to ensure that there are a sufficient number of secondary places for its residents and this includes an assessment of the school provision required as a consequence of growth across the County. Existing secondary school distribution and capacity is shown in Figure 4.15.

Headlines

- A spatial review of individual schools and their current capacity at Year 7 illustrates that there are specific tensions already occurring in some areas (figure 4.15). This is notable in Berkhamsted, Borehamwood, Harpenden, Hatfield and Hitchin.
- Table 4.3 identifies that supply and demand for Year 7 places is already tightly matched in several districts, notably East Herts, St Albans and Three Rivers. Pressure on secondary places across Hertfordshire will continue to rise, regardless of further housing development, as the increased primary age population works its way through to the secondary sector. Planned growth will place further pressure on secondary age provision.

IDENTIFIED GROWTH IN PUPIL NUMBERS						
LOCAL AUTHORITY PLACES	2017/18 Demand for Year 7 places			AECOM Forecasting		
	Schools*	Permanent Year 7 places 2017/18**	Demand (Year 7 pupils on Roll - 2017/18)**	Surplus/Shortfall places	Additional Pupils (Yr 7-13) 2018-2031	Additional Form Entry 2018-2031
Broxbourne	7	1,294	1,259	35	2,984	15
Dacorum	9	1,780	1,597	183	3,015	15
East Herts	13	2,020	2,058	-38	3,393	17
Hertsmere	7	1,439	1,373	66	1,513	8
North Herts	8	1,260	1,103	157	5,854	30
St Albans	12	2,232	2,232	0	4,987	26
Stevenage	6	1,366	1,172	194	2,711	14
Three Rivers	7	1,272	1,271	1	768	4
Watford	4	826	752	74	3,073	16
Welwyn Hatfield	6	1,131	1,061	70	4,278	22
Hertfordshire	79	14,620	13,878	742	32,577	167

TABLE 4.3 - EXISTING SECONDARY SCHOOL CAPACITY AND IDENTIFIED GROWTH

Source: School Census January 2018, Determined Published Admission Numbers

2018 - 2031 Demand forecasts apply the benchmark standards to forecasts housing need presented previously in Section 3

Surplus depicted in green. Deficit depicted in red

*includes secondary, middle, Upper and UTCs

**Excludes upper schools and UTCs which do not admit pupils in year 7

The need for additional places has not considered the implications of the spatial strategies identified in emerging Local Plans and is based solely on the forecast housing supply presented in Section 3

Future Requirement to Meet Growth to 2031

Table 4.3 sets out the number of permanent Year 7 places available in 2017/18, compared with the number of Year 7 students on roll in January 2018 (School Census Jan 2018). Forecasts from 2018 - 2031 have been produced through AECOM analysis of the housing trajectory, which uses the ratio of 1 FE per 500 dwellings as its base. The information should be considered in the context of the following key issues:

- 2017/18 figures identify around 750 surplus Year 7 places across Hertfordshire. However, pressure on secondary places across Hertfordshire will continue to rise, regardless of further housing development, as the increased primary age population works its way through to the secondary sector.
- Throughout the period 2018 -2031 there will be an estimated additional demand for 167FE across Hertfordshire. This equates to over 5,000 Year 7 places and around 32,600 places (Year 7 through to Year 13).
- This assessment is based on the agreed housing assumptions outlined in section 3. However, there are consultations underway in some local authorities (e.g. Three Rivers District Council) which would significantly increase the number of expected dwellings (and therefore the education infrastructure requirement) within this planned period. Recent representations to some local authorities (e.g. St Albans City and District Council) go beyond the period dealt within this report, to 2036.

- By 2031 new secondary provision will be required in all local authorities to meet demand.
- Within Hertfordshire, North Herts will experience the greatest increase in additional demand from housing during the period 2018-31
- Forecast provision includes consideration for future requirement of Sixth Form, which is part of secondary school provision. AECOM forecast based on identified benchmark from HCC and outlined in Section 8)

Example Infrastructure Projects Required

Notable investment in Secondary School provision includes:

- Proposed new 6-10FE secondary school in Broxbourne
- A new 6FE secondary school with potential to expand to 8FE in Bishop's Stortford South
- 6FE-8FE secondary school North of Baldock
- A new 8-10FE secondary school to the East of Hemel Hempstead

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated:

Cost = £804,640,000

Estimated Funding Gap = £608,690,000

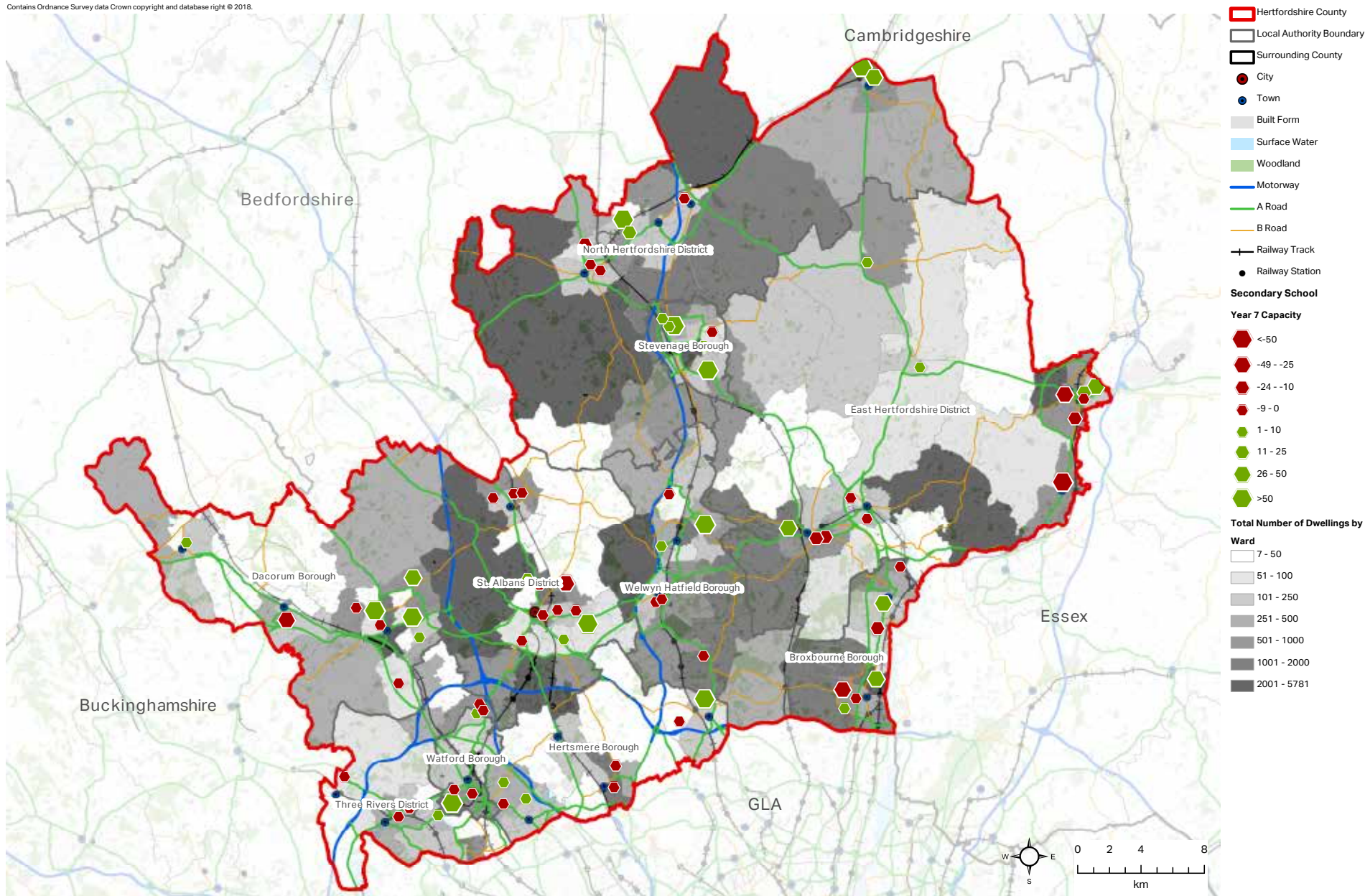


FIGURE 4.15 - SECONDARY EDUCATION FACILITIES CAPACITY AGAINST HOUSING GROWTH

Source: Hertfordshire County Council



FURTHER / HIGHER / ADULT

Hertfordshire

2

HE Campus

Hertfordshire

11

FE Colleges

Hertfordshire

10

Adult Learning Centres

Current Situation

There are 23 institutions delivering Further Education (FE) and Higher Education (HE) places across Hertfordshire (not including Sixth Form).

There are two Higher Education (HE) institutions in Hertfordshire, the University of Hertfordshire in Hatfield and the Royal Veterinary College, University of London. Higher education facilities in Hertfordshire serve local and international markets and therefore have a catchment beyond the County.

In addition, there are 11 colleges and college satellite campuses offering a variety of vocation programmes. These include West Herts College, Oaklands College, Hertford Regional College and North Hertfordshire College.

Hertfordshire Adult and Family Learning Service (HAFLS), funded by the Education and Skills Funding Agency and European Social Fund, deliver community learning courses for adults aged 19+ across the county.

Table 4.4 sets out the current distribution of facilities.

Headlines

- A spatial review (Figure 4.16) of the data indicates a uneven distribution of adult education facilities, with the majority in the west of the County. In particular in Watford and Dacorum and in urban areas.

Future Requirement to Meet Growth to 2031

- University of Hertfordshire has a community of over 25,000 students, of which 2,800 are international. The focus is to continue the University's global outlook and develop international partnerships in research and innovation but also linking with local businesses in Hertfordshire

	University / Higher Education	Colleges / Further Education	Adult Education
Broxbourne	0	1	1
Dacorum	0	1	2
East Herts	0	1	0
Hertsmere	0	1	0
North Herts	0	1	1
St Albans	0	2	1
Stevenage	0	1	1
Three Rivers	0	0	1
Watford	0	1	3
Welwyn Hatfield	2	2	0
Hertfordshire	2	11	10

TABLE 4.4 - FURTHER, HIGHER AND ADULT EDUCATION FACILITIES

Source: AECOM Based Research

- Hertfordshire Adult and Family Learning focus courses in English, maths, nutrition, art and IT, which are focussed on being low cost to enhance the skill sets of people living in Hertfordshire
- FE provision will need to continue to align services and delivery models to reflect requirements of the population and needs of employers within the County

Example Infrastructure Projects Required

Notable investment in Higher and Further Education provision includes:

- Expansion of Oaklands College

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated:

Cost = £4,830,000

Estimated Funding Gap = £180,000

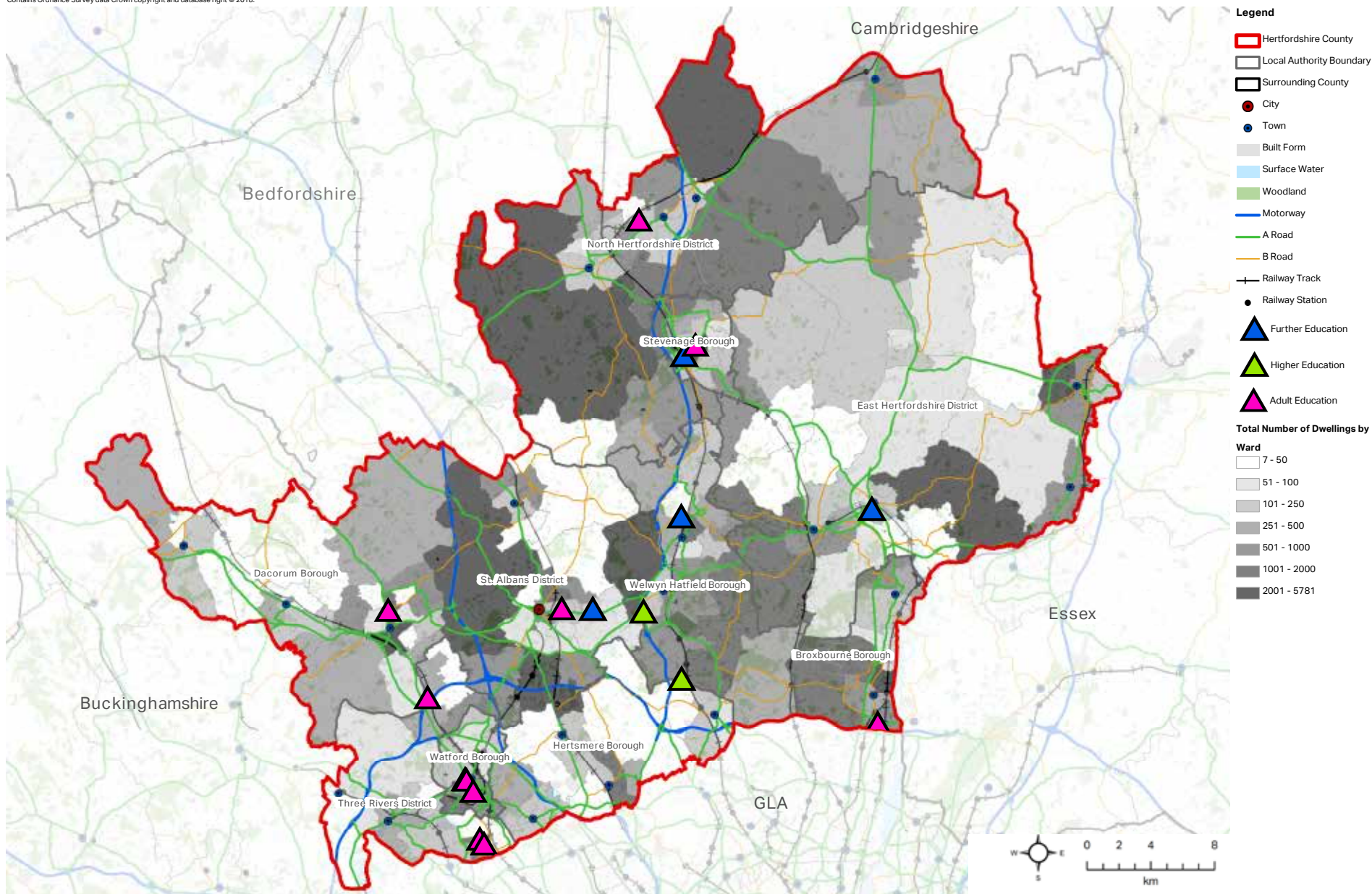


FIGURE 4.16 - POST 16 EDUCATION FACILITIES AGAINST HOUSING GROWTH

Source: AECOM based research and Edubase, 2018

4.3 HEALTH & SOCIAL CARE



PRIMARY & COMMUNITY HEALTHCARE

Hertfordshire	Hertfordshire	Hertfordshire
559	227	2,259
FTE GPs	GP Practices	Patients per GP

Current Situation

The Health and Social Care Act 2012 changed the way that primary care services are planned and organised. This facilitated a move to clinical commissioning, a renewed focus on public health and allowing healthcare market competition for patients. This is provided by the Clinical Commissioning Groups (CCGs) - of which there are three covering the Hertfordshire area.

The East and North Hertfordshire Clinical Commissioning Groups (CCG) serves about 600,000 people registered at 98 GP Practices and 13 Health Centres or Clinics. The Herts Valley CCG serves about 627,000 people registered at 102 GP Practices and 12 Health Centres or Clinics. Part of North Hertfordshire (Royston area) is served by 5 GP Practices through the Cambridgeshire and Peterborough CCG. Figure 4.17 presents the housing growth against the current primary care provision.

In March 2016 NHS England further developed into 44 Sustainability and Transformation Plan (STP) areas. These were agreed by NHS Trusts, local authorities and CCGs. This move towards STPs have focused on improving integration of healthcare services (CCGs, Trusts and Adult Social Care), while reorganising GP provision through a focus on the development of hubs to create better scale of provision (1GP practice : 30,000 people).

There is a significant change emerging in the preferred models for primary healthcare to address the need for greater flexibility and sustainability on how new and current populations will access care in the future. How commissioners review primary care facilities is undergoing a particular change. As part of the Five Year Forward View the move is to a preventative model. Reducing the number of admissions to urgent care, especially A&E, is a key driver as well as involving the patient in their care much more.

To support this preventative model, there will be a focus on the further development of place based care through the integration of primary and community services. This collaboration across services aims to develop active communities with strong local networks of support, whilst delivering care and support in a flexible integrated way, supporting more people to live their lives as independently as possible in the community.

Health Commissioners and the STP use a number of criteria to prioritise which health schemes should be invited to submit a business case for the Clinical Commissioning Group and NHS England to consider for approval. Need can arise from a number of sources:

- A current shortfall where currently there is not enough capacity
- A transformation of services that requires different infrastructure (such as transferring services from acute to community, or community to primary settings)
- An unmet health need (e.g. arising from local deprivation)
- Proposed new housing

Headlines

- The provision of GP services is concentrated in the major urban areas, including Hemel Hempstead, St Albans, Welwyn Garden City, Stevenage, Cheshunt and Bishop's Stortford
- Analysis of GPs to patients indicates that in Hertfordshire there are 2,259 patients per GP.

Local Authority	GP Practices	GPs (FTE)	Theoretical Capacity*	No. of Patients	Patients Per GP	Surplus/Deficit	AECOM Analysis	
							Additional GP Requirement to 2031	Additional Dentist Requirement to 2031
Broxbourne	16	46	92,946	103,750	2,232	-10,804	4	4
Dacorum	33	67	133,723	168,698	2,523	-34,975	7	8
East Herts	33	57	114,773	146,352	2,550	-31,579	8	9
Hertsmere	18	53	106,987	141,959	2,654	-34,972	4	4
North Herts	22	71	142,597	134,353	1,884	8,244	6	7
St Albans	27	72	143,767	157,287	2,188	-13,520	5	6
Stevenage	16	40	79,360	96,494	2,432	-17,134	3	4
Three Rivers	17	44	87,176	83,953	1,926	3,223	4	5
Watford	20	46	9,2536	93,758	2,026	-1,222	5	5
Welwyn Hatfield	25	62	123,515	135,240	2,190	-11,725	8	9
Hertfordshire	227	559	1,117,380	1,261,844	2,259	-144,464	54	61

TABLE 4.5 - EXISTING PRIMARY HEALTHCARE PROVISION AND CAPACITY

Source: Patients Registered at a GP Practice, NHS Digital, July 2018; and General and Personal Medical Services, England : Final 31 December 2017 and Provisional 31 March 2018, experimental statistics, May 2018.


*Based on theoretical capacity of 1GP per 2,000 patients - as identified by NHS in stakeholder workshop


Shading illustrates where the patients per GP in a local authority exceeds the NHS recommended standard of 1GP per 2,000 patients

Future Requirement to Meet Growth to 2031

Future requirements are based on the application of best practice standards against population growth forecasts. It is acknowledged that this approach does not reflect the general shift to preventative models of health and social care and a move to integrated health and social care models.

This analysis also does not take into account wider primary care service such as pharmacies, opticians, community health (health visiting, school nursing, midwifery, district nursing etc) which will all be impacted by demand from growth.

 Hertfordshire
10,684
Additional sq.m of primary healthcare space by 2031

 Hertfordshire
3,060
Additional sq.m of dental healthcare space by 2031

Example Infrastructure Projects Required

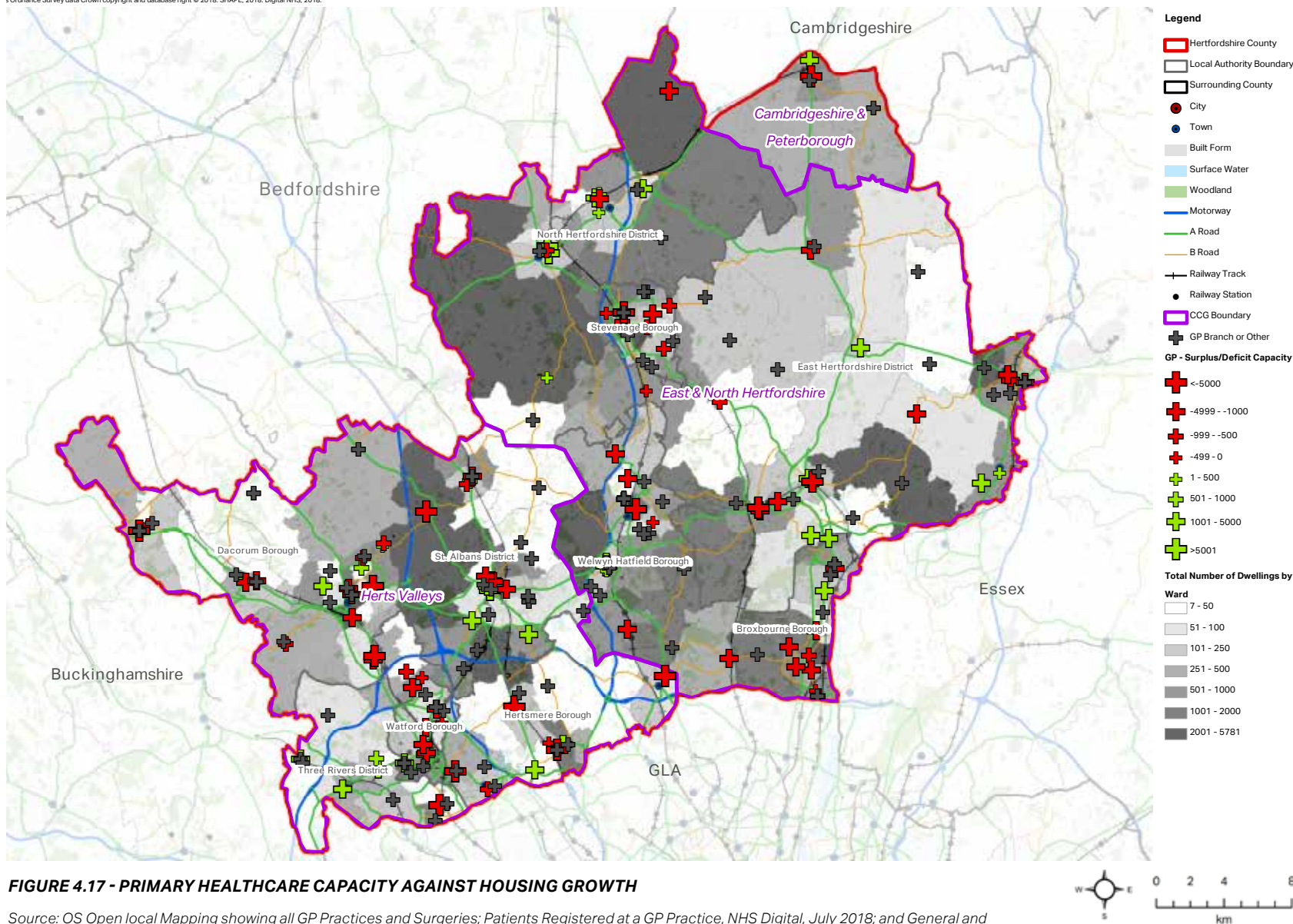
Primary and community healthcare projects are currently being reviewed as part of the Hertfordshire and West Essex Sustainability Transformation Plan as developed by NHS England, CCGs and Community Health Partnership.

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated:

Cost = £76,480,000

Estimated Funding Gap = £30,360,000





ACUTE & MENTAL HEALTH

Hertfordshire

1,798

NHS Acute
Hospital Beds

Hertfordshire

433

Mental Health
Hospital Beds

Current Situation

There are a significant number of organisations providing acute hospital, community and mental health services in Hertfordshire, which include Foundation Trusts, NHS Trusts, and social enterprises. The majority of these services are commissioned locally by CCGs with some more specialist services under the responsibility of NHS England. Acute health trusts provide secondary care and more specialised services, in which acute trusts are commissioned by CCGs.

The STP is currently the key unit of planning with NHS providers and commissioners working together to understand the clinical and service strategy for the area, which will drive the need for any new developments and prioritise infrastructure investment.

Headlines

- Figure 4.18 does not include all private hospitals. A large number of health episodes are treated within private healthcare facilities in Hertfordshire.
- East Herts District has the highest proportion of acute/ specialist hospital beds across the county.

- Spatially, the existing hospitals are located in areas that will see significant growth.
- There are a significant number of community hospitals providing intermediate care and other sub-acute beds across the county.
- Mental health services are focused in Hemel Hempstead and Watford.

Sustainability Transformation Plans

In response to the Five Year Forward View (5YFV), NHS providers, Clinical Commissioning Groups (CCGs), Local Authorities, and other health and care services have come together to form STP 'footprints'. In Hertfordshire there is 1 STP: Hertfordshire and West Essex STP. The STP's purpose is to recognise the need for change and enable it, to support new models of care and plans for growth.

EXISTING HOSPITAL BED CAPACITY (APRIL-JUNE 2018) - % OCCUPIED				
Hospital Trusts	General Acute	Maternity	Mental Illness & Learning Disability	Total
Hertfordshire Community NHS Trust	-	-	-	-
East and North Herts NHS Trust	544 (98.0%)	48 (49.1%)	0	626 (93%)
Hertfordshire Partnership University NHS Foundation Trust	-	-	433 (92%)	433 (92%)
West Hertfordshire Hospitals NHS Trust Hertsmere	667 (91%)	72 (22%)	0	739 (84%)
Hertfordshire	1,227	138	433	1,798

TABLE 4.6 - NHS HOSPITAL CAPACITY

Source: NHS England: Unify2 data collection - KH03 - Average daily number of available and occupied beds open overnight by sector (October 2018)

Note - Existing Hospital Bed capacity data is not available at the site specific level (and therefore local authority level) but available at NHS Trust level as presented above.

Note - These are the principle NHS organisations in Hertfordshire or adjoining that provide services within the county. It does not represent all of the facilities available to the people of Hertfordshire. Also, the NHS Trusts presented above in some cases cover wider areas outside Hertfordshire County. Therefore the total figure provides a figure which covers a wider area than Hertfordshire exclusively.

Future Requirement to Meet Growth to 2031

Future requirements are based on the application of best practice standards against population growth forecasts. It is acknowledged that this approach does not reflect the general shift to preventative models of health and social care and a move to integrated health and social care models.

Both health and social care services are moving away from bed based care for both physical and mental health with a greater emphasis on avoiding hospital admissions and nursing/residential home placements. The focus is on managing people in their own communities. It is unlikely that the current benchmarks used reflect the planned move towards fewer acute beds with more people with increasingly complex needs being managed in the community and supported, medically, by general practice.



Hertfordshire

33,674

Additional sq.m of acute hospital bed space by 2031



Hertfordshire

3,682

Additional sq.m of mental health bed space by 2031

Example Infrastructure Projects Required

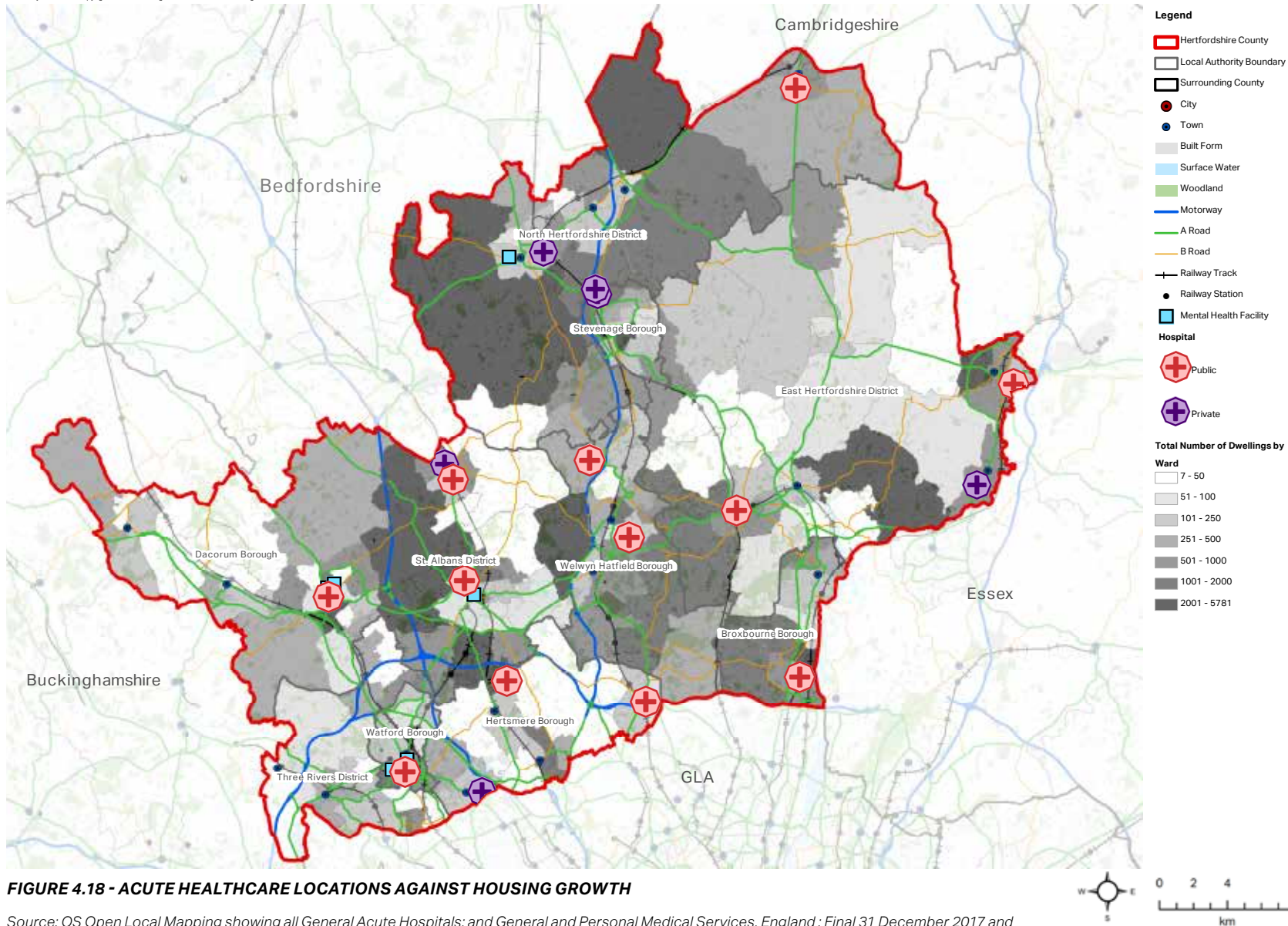
Acute and mental healthcare projects are currently being reviewed as part of the Hertfordshire and West Essex Sustainability Transformation Plan as developed by NHS England, CCGs and Community Health Partnership.

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated:

Cost = £221,240,000

Estimated Funding Gap = £191,180,000



Source: OS Open Local Mapping showing all General Acute Hospitals; and General and Personal Medical Services, England : Final 31 December 2017 and Provisional 31 March 2018, experimental statistics, May 2018.



ADULT SOCIAL CARE

Current Situation

From 1 April 2009 all health and social care services in England are registered and regulated by the Care Quality Commission (CQC), whether provided by the NHS, local authorities, private companies or voluntary organisations.

Hertfordshire County Council currently commissions 49% of the residential care market and 23% of the nursing market, while the NHS commissions 16% of the nursing market. In addition, HCC currently commissions 33% of the total market in the county. The remainder of adult Social Care is delivered by private organisations across Hertfordshire.

HCC is transforming the delivery of adult social care, recognising the growth of the older cohorts will make the current delivery model financially difficult, with greater emphasis towards independent living.

HCC intends to reduce spend on long term residential care placements, reinvesting in delivering short-stay type residential services to allow people to leave hospital and regain their confidence before returning home.

By 2027 HCC aims to provide people that need supported accommodation to have a choice of high quality housing, delivered through new and existing partners to develop both large scale supported accommodation schemes and local initiatives that will benefit smaller communities.

Headlines

- According to Figure 4.19 and Table 4.7 the greatest adult social care provision is in East Herts, North Herts, Welwyn Hatfield and Watford.
- Provision of Adult Social Care beds is predominantly through private companies, but commissioned through HCC.
- Broxbourne, Dacorum, North Herts and St Albans have the highest projected need for residential and nursing care homes to 2030.
- Across Hertfordshire there are 252 Extra Care Units currently being developed according to the Residential and Nursing Care 10 Year Predictions for Older People (July 2018). Despite this, the current number of Extra Care Units being developed and existing capacity will not meet future demand to 2030.
- Table 4.7 indicates that by 2030 there will be a demand for an additional 1,417 residential care beds and 2,308 nursing care beds. It further indicates that there will be a demand for 1,781 additional extra care units.

	CURRENT PROVISION OF ADULT SOCIAL CARE								PROJECTED REQUIREMENTS TO 2030					
	Residential Care (2018)		Nursing Care (2018)		People with Learning Disability (2017)			Extra Care Units	Disabled Adults Projected need of one bed homes	Residential Care		Nursing Care		Additional Extra Care Requirement
	Older Person Demand	Care Beds	Older Person Demand	Care Beds	Living in supported living	Living in residential care	Waiting to be			Projected Older People Requiring Care	Additional Beds Required	Projected Older People Requiring Care	Additional Beds Required	
Broxbourne	290	248	225	22	73	40	12	62	43	544	296	412	390	225
Dacorum	460	590	353	122	182	55	8	58	60	835	245	634	512	387
East Herts	632	814	325	637	68	55	-	159	79	833	19	419	-	293
Hertsmere	339	689	260	369	122	55	5	82	84	687	-	518	149	260
North Herts	428	679	330	212	103	53	7	232	73	860	181	649	437	141
St Albans	435	331	335	267	169	100	3	74	65	813	482	616	349	306
Stevenage	233	387	179	339	115	24	7	114	60	445	58	338	-	78
Three Rivers	301	475	231	222	33	49	15	-	43	587	112	442	220	295
Watford	223	568	171	359	96	57	-	67	43	446	-	335	-	108
Welwyn Hatfield	358	530	273	258	117	86	2	203	47	678	148	509	251	77
Hertfordshire	3,699	5,311	2,682	2,807	1,078	574	59	1,051	597	6,728	1,417	1,541	2,308	1,781

TABLE 4.7 - SUPPORTED ACCOMMODATION REQUIREMENTS

Source: Integrated Accommodation Commissioning, Ten Year Supported Accommodation Strategy 2017 – 2027, Hertfordshire County Council & Residential and Nursing Care 10 Year Predictions for Older People 2017/18, Hertfordshire County Council (July 2018)

Future Requirement to Meet Growth to 2031

Hertfordshire County Council's Ten Year Supported Accommodation Strategy 2017 - 2027 aims to continue to commission services for future social care in line with demographic changes. The strategy has identified the following social care funded services to meet future growth through fundamental changes to service models. This will involve greater support for individuals to live independently, but connected to their local communities.

This will require fundamental change to service models that involve greater support for individuals to live independently, but connected to their local communities.

Table 4.7 summarises the existing provision of Care Homes and the population of people living in supported living. It further summarises HCC forecast requirements for one bed homes for disabled adults, projected need for residential beds for older people, projected requirement for nursing care beds and extra care units required.



Hertfordshire

27 (with 2,170 beds)
Additional Extra Care Facilities (80 bed)



Hertfordshire

29 (with 2,308 beds)
Additional Nursing Care Facilities (80bed)



Hertfordshire

19 (with 1,541 beds)
Additional Residential Care Facilities (80 bed)

Example Infrastructure Projects Required

Notable investment in Adult Social Care provision includes:

- Approximately 75 bedded care home for nursing in Broxbourne
- 14 units of supported accommodation in Stevenage
- 147 Residential care home beds + 36 additional Nursing Care Bed in Watford
- Developing an extra care scheme in Bishop's Stortford

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated:

Cost = £458,580,000

Estimated Funding Gap = £333,280,000

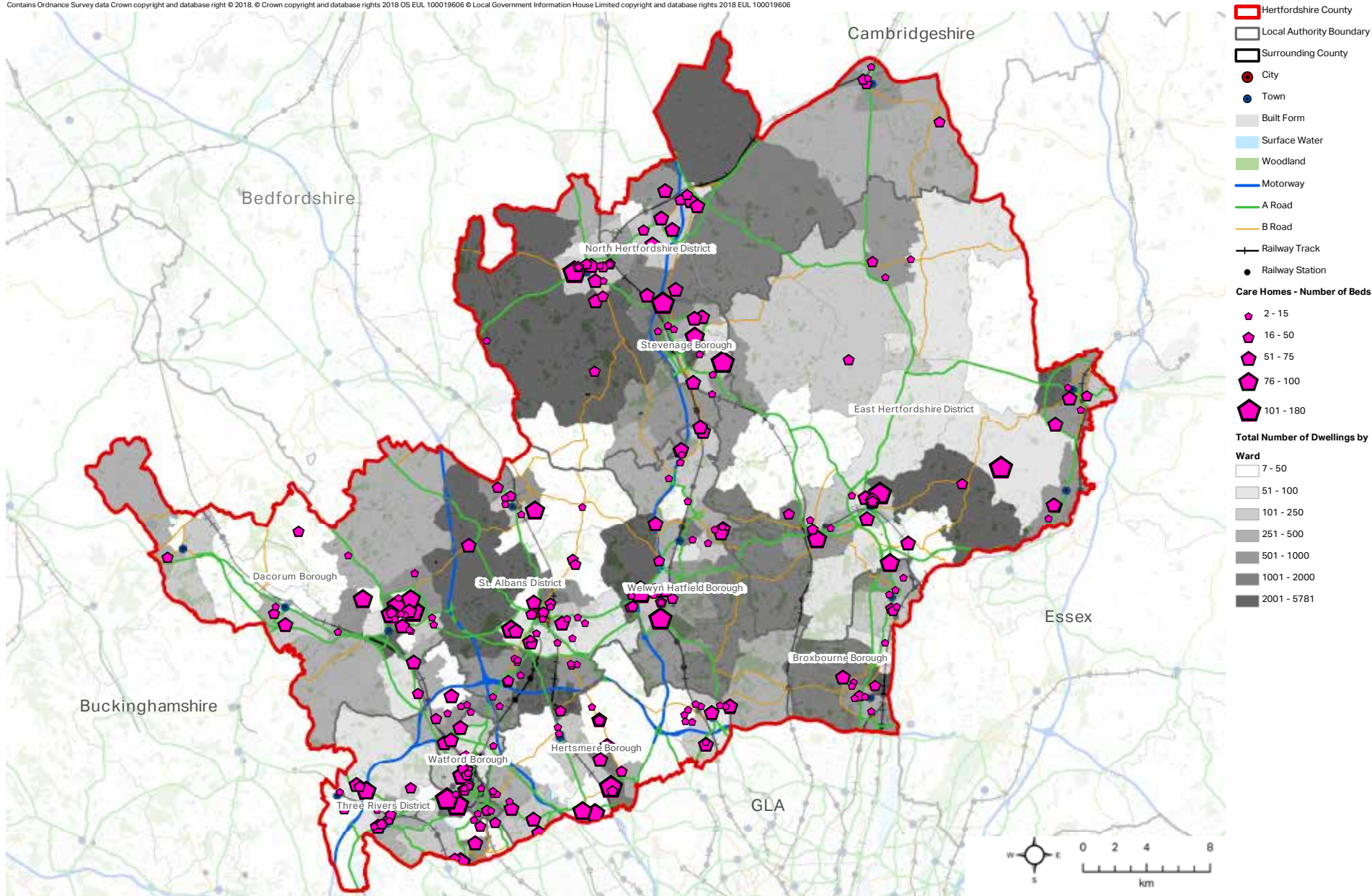


FIGURE 4.19 - SOCIAL CARE ACCOMMODATION AGAINST HOUSING GROWTH

Source: HCC

4.4 EMERGENCY SERVICES



FIRE / POLICE / AMBULANCE

Hertfordshire	Hertfordshire	Hertfordshire
37	40	12
Police Stations	Fire Stations	Ambulance Stations

Current Situation

Fire Service

Hertfordshire Fire & Rescue Service (HFRS) provides a 24 hour emergency response capability for the county that includes delivery of a wide variety of community safety, older persons and youth engagement initiatives. HFRS is part of the Community Protection Directorate of Hertfordshire County Council which is also the Fire and Rescue Authority. HFRS has 40 fire stations within its property portfolio and currently employ around 800 operational staff, and 100 non-uniformed support staff based across the county at a number of locations including a training and development at Longfield, and Service Headquarters in Hertford.

The Police and Crime Commissioner (PCC) for Hertfordshire is developing a business case to move HFRS under the governance of the PCC. This may involve the transfer of property assets to the PCC. The condition and locations of the fire stations are under review as part of the Integrated Risk Management Plan (2014-2018) process, which will consider a range of contributory factors to determine the optimum locations for stations with respect to providing the best possible service for Hertfordshire.

Hertford Fire Station requires significant investment or re-provision, whereby the site could create opportunities for re-development by Herts Living.

Police Service

Hertfordshire is policed by Hertfordshire Constabulary, with their headquarters located in Welwyn Garden City.

Hertfordshire Constabulary currently has three police stations with a front counter service, two police stations with a general enquiry service only and a free outside public telephone to the Police Control Room, and sixteen stations with no front counter service but with a free outside public telephone to Police Control Room.

Ambulance Service

East of England Ambulance Service NHS Trust (EEAST) is one of twelve ambulance trusts working across England, in which across Hertfordshire there are 12 ambulance stations, community response posts and hospitals where ambulances are located.

Emergency Planning

The Civil Contingencies Act 2005 establishes a coherent framework for emergency planning and response ranging from local to national level.

The emergency services, alongside the local authorities and other organisations are defined as Category 1 responders, the primary responders in an emergency. They are supported by Category 2 responders (mostly utility companies and transport organisations).

The HFRS acts on behalf of the county council, which is a Category 1 Responder under the Civil Contingencies Act 2005 and is responsible for the preparation of contingency plans which detail planned response to a disaster or major incident in Hertfordshire.

EMERGENCY SERVICE EXISTING PROVISION			
Local Authority	Police Station	Fire Stations	Ambulance Stations
Broxbourne	2	4	1
Dacorum	5	6	1
East Herts	7	7	2
Hertsmere	2	2	1
North Herts	7	3	3
St Albans	5	8	
Stevenage	1	1	1
Three Rivers	4	1	1
Watford	1	5	1
Welwyn Hatfield	3	3	1
Hertfordshire	37	40	12

TABLE 4.8 - EMERGENCY SERVICE EXISTING PROVISION

Source: AECOM Research

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated::

Cost = £2,500,000

Estimated Funding Gap = £2,000,000

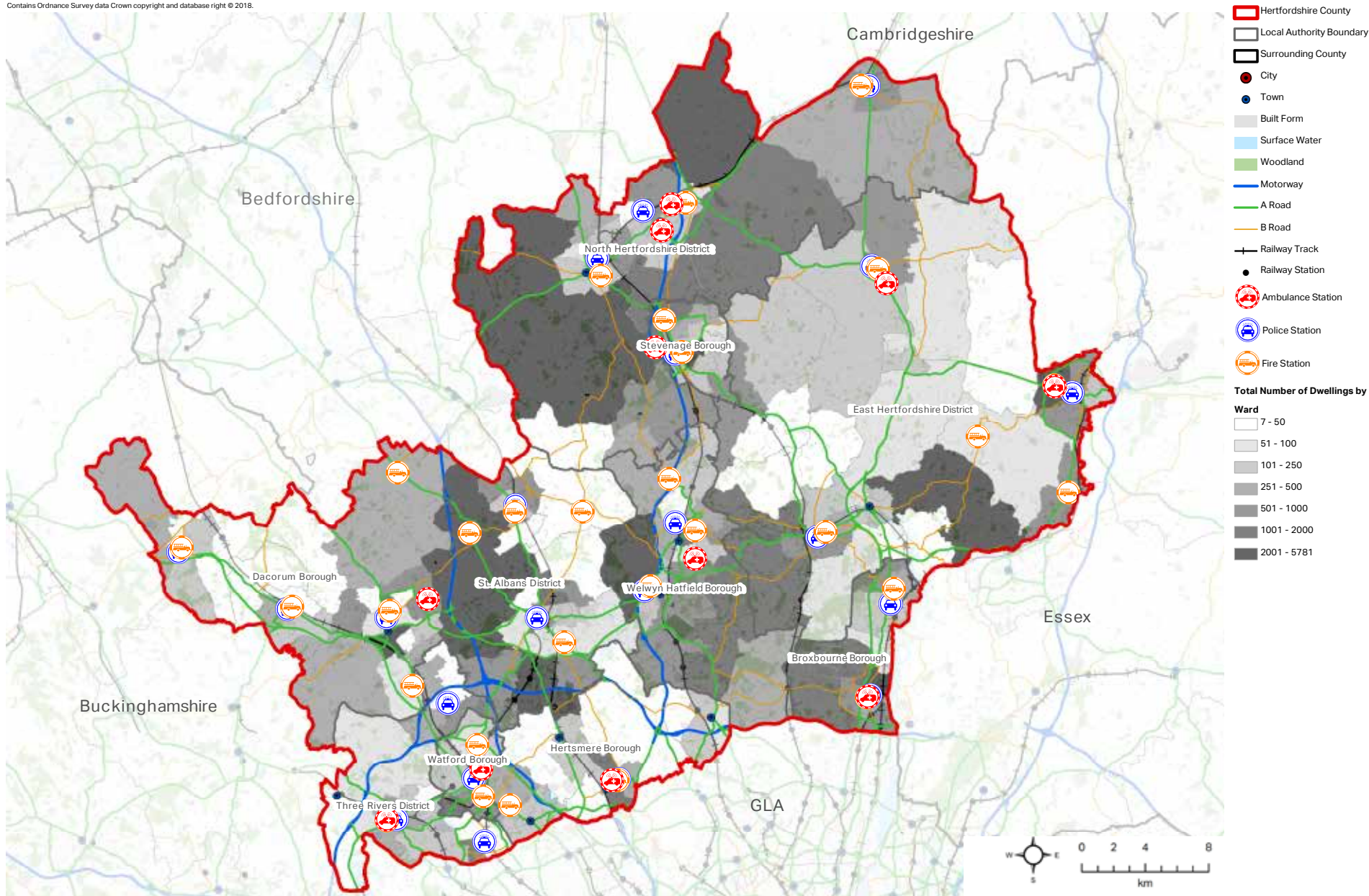


FIGURE 4.20 - EMERGENCY SERVICES FACILITIES AGAINST HOUSING GROWTH

Source: OS Open Map & AECOM Desktop Research

4.5 COMMUNITY, SPORT & LEISURE



LIBRARIES

Hertfordshire

46

Libraries

Current Situation

The total number of public libraries in Hertfordshire is 46. The County Council has a statutory duty to provide “a comprehensive and efficient library service for all persons desiring to make use thereof”. HCC is committed to ensuring its libraries are updated to meet changing needs, to continue to improve services, and to cope with additional demand brought about by new development. These ambitions are set out in Inspiring Libraries, the Hertfordshire Libraries Strategy (2014-2024) which adopted an innovative and ambitious programme of developments to ensure that libraries remain relevant to the diverse needs of the population.

Libraries are no longer places solely to borrow books. They function as community hubs offering services and facilities to cater for a range of community needs including those of children, students, job seekers, and the elderly. Libraries offer free, authoritative, non-judgemental information services and supported access to online resources and services. They provide access to books, audio material, magazines, newspapers and community language material in both physical and digital formats, public computers, Wi-Fi and the Internet, online services, ICT-based and other learning opportunities. They also offer neutral places to promote community wellbeing. Libraries operate as vibrant community assets, increasingly co-located in multi-purpose community hubs which accommodate a broad range of community services and functions.

- In Hertfordshire, libraries are branded and promoted in three different tiers: Tier 1 libraries are located in the largest towns in Hertfordshire and offer the broadest range of library services; Tier 2 libraries are located in smaller towns and offer core library services; Tier 3 libraries are located in smaller communities and villages.
- Inspiring Libraries: the Hertfordshire Libraries Strategy (2014-2024) recognises that libraries need to ‘change with the changing times’ and become vibrant community assets, shaped by the communities they serve as well as investing in technology and digital formats for the benefit of customers.
- Whilst investment in some library buildings has demonstrated the potential of ‘state-of-the-art’ library facilities (Oxhey, Welwyn Garden City, Harpenden, Borehamwood), it is recognised that there are still some libraries across the County that require significant investment and/or relocation.
- While HCC are not planning to add any additional public library service points, it is recognised that significant investment in existing library services would enhance and sufficiently serve existing and additional populations.

	Libraries	Population per Library
Broxbourne	4	24,500
Dacorum	7	22,100
East Herts	5	29,750
Hertsmere	4	26,200
North Herts	5	26,900
St Albans	6	24,800
Stevenage	2	44,200
Three Rivers	5	18,800
Watford	2	49,350
Welwyn Hatfield	6	20,650
Hertfordshire	46	25,950

TABLE 4.9 - EXISTING LIBRARY PROVISION

Source: HCC

Note: Shading illustrates whether the provision within each local authority is greater or less than Hertfordshire County’s overall level of provision per population

Future Requirement to Meet Growth to 2031



Hertfordshire

3,221

sq.m of additional library space required by 2031

Whilst analysis undertaken for the HIFP identifies the need for 3,221 sq.m of additional provision, it is important to recognise the changing nature of library service provision and possibilities for delivering these requirements in new and innovative ways including the shared use of multi functional spaces.

Example Infrastructure Projects Required

Notable investment in library provision includes:

- Refurbishment of St Albans library
- Co-location of Wheathampstead and Redbourn libraries
- Relocation of Stevenage Town Centre library
- The service will continue to seek opportunities to reprovide or refurbish libraries to create bright, welcoming, flexible tech-enabled spaces that are conveniently located and suitable for the provision of modern public library services

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated:

Cost = £6,800,000

Estimated Funding Gap = £290,000

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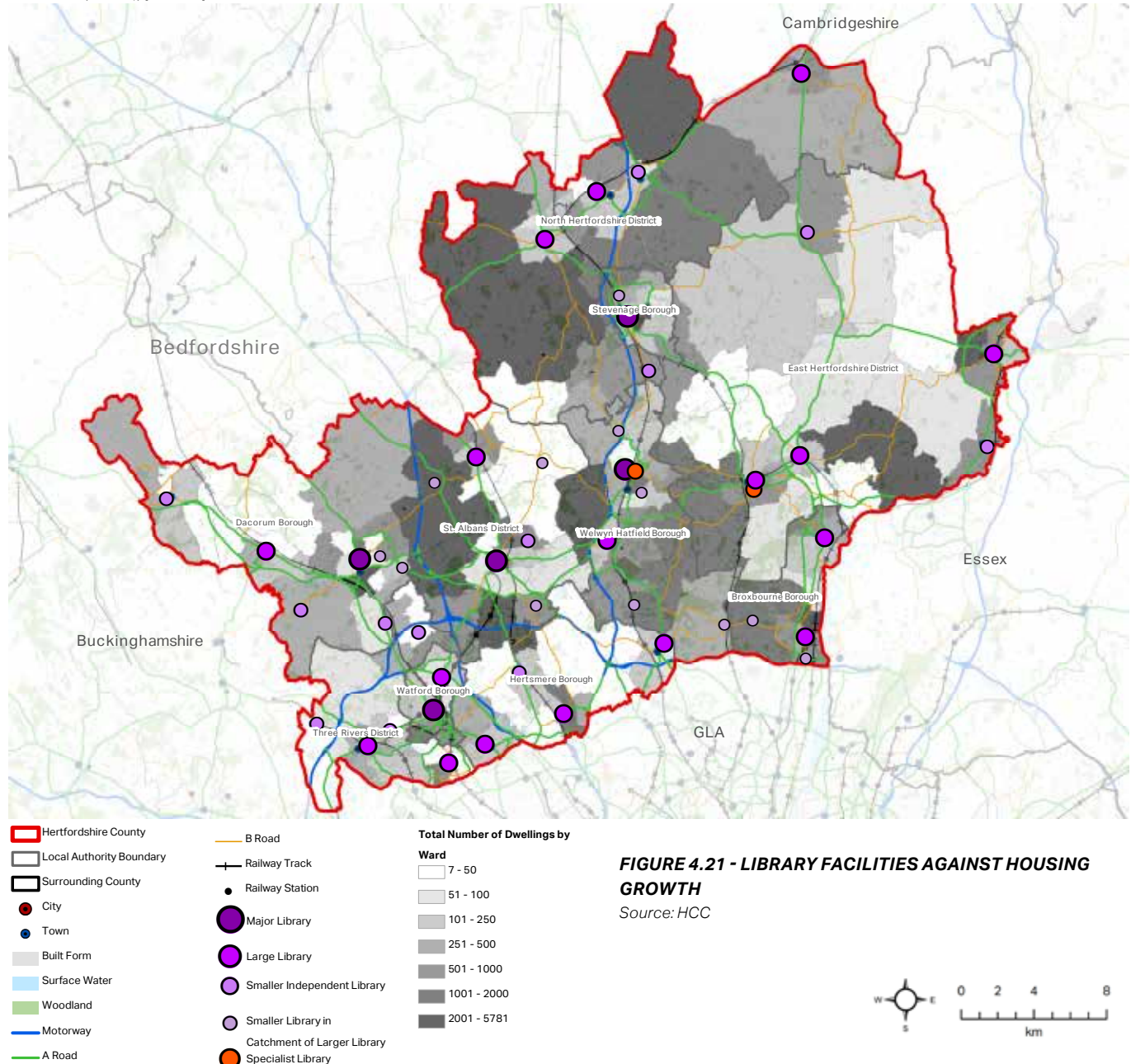


FIGURE 4.21 - LIBRARY FACILITIES AGAINST HOUSING GROWTH

Source: HCC



COMMUNITY & YOUTH

Hertfordshire

53

Total Number of
Youth Centres

Hertfordshire

84

Total Community
Centres

Current Situation

The Statutory Guidance for Local Authorities on Services and Activities to Improve Young People's Well-Being (June 2012) states that young people should have access to opportunities to develop their personal and social skills, which are essential in learning, work and the transition to adulthood. Facilities for young people are therefore essential where they can engage in informal educational opportunities.

At present, Hertfordshire youth services are provided by YC Herts, which has a range of youth services across the County for young people aged 13-19 years old. This is up to 24 years if they have a learning disability and up to 21 years for care leavers.

In addition to the County's youth services, other provisions are also available through Targeted Youth Support (including Youth Justice Service), Families First, Integrated Services for Learning, the Virtual School and How to Thrive.

HCC plans to maximise the utilisation of its youth centres through an ongoing improvements programme, as well as the potential relocation and re-provision of some youth facilities in order to improve standards of both premises and spaces and facilities required for specialised youth provision.

Across Hertfordshire, there are a total of 84 community centres, operated by local authorities. In general many of the centres are multi-functional and provide for a range of diverse facilities for different ages and different community and faith groups. Although owned by the local authorities, they are largely managed by voluntary sector organisations.

Headlines

- HCC has a total of 53 Youth Centres across the County in which many of these are in need of investment. 11 of these are YC Hertfordshire Centres, are referred to as Access Points.
- A spatial visualisation indicates clusters of community centres in major urban areas. In particular, Dacorum, North Herts and Stevenage have the highest provision.
- In terms of youth centres, there is a fairly balanced distribution across the county, with the majority of sites located in East Herts, Hertsmere and North Herts with each providing a total of 4 youth centres.

	Youth Centres				Community Centres		
	Youth Centres 2018	Centres per 1,000 Young People (Aged 13-19)	Additional Youth Clients 2018-2031	Additional Youth Facilities 2018 - 2031	Community Centres 2018	Centres per 10,000 People	Additional Community Facility Space (sq.m) 2018 - 2031
Broxbourne	1	0.12	24	0	4	0.41	464
Dacorum	1	0.08	46	1	12	0.77	917
East Herts	4	0.30	48	1	6	0.40	1,038
Hertsmere	4	0.43	23	0	9	0.86	489
North Herts	4	0.37	30	0	17	1.26	778
St Albans	2	0.15	26	0	5	0.34	671
Stevenage	1	0.13	14	0	14	1.58	417
Three Rivers	0	0.00	28	0	3	0.32	563
Watford	1	0.12	31	1	9	0.91	622
Welwyn Hatfield	2	0.17	62	1	5	0.40	1,021
Hertfordshire	53	0.19	331	6	84	0.7	6,980

TABLE 4.10 - YOUTH AND COMMUNITY CENTRE PROVISION

Source: AECOM Research from local authority websites

Future Requirement to Meet Growth to 2031



Hertfordshire

6,980

sq.m of additional community space required by 2031



Hertfordshire

6

additional youth facilities required by 2031

Example Infrastructure Projects Required

Notable investment in community centres and youth centres provision includes:

- New community centre associated with Spencers Park development in Dacorum
- New community centre in Berkhamsted
- Refurbishment of Royston Town hall
- Re-provision of Pioneer Youth Centre in St Albans
- Enhancement to Waltham Cross Young People's Centre
- Relocation of Buntingford Young People's Centre
- Ongoing enhancement to various youth centres across Hertfordshire - Youth Point (Watford), Youth Zone (Three Rivers), Bowes Lyon Centre (Stevenage)
- Additional community hall facilities associated with development north of Baldock.

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated:

Cost = £23,790,000

Estimated Funding Gap = £3,820,000

Costs are set out for each local authority in Section 5

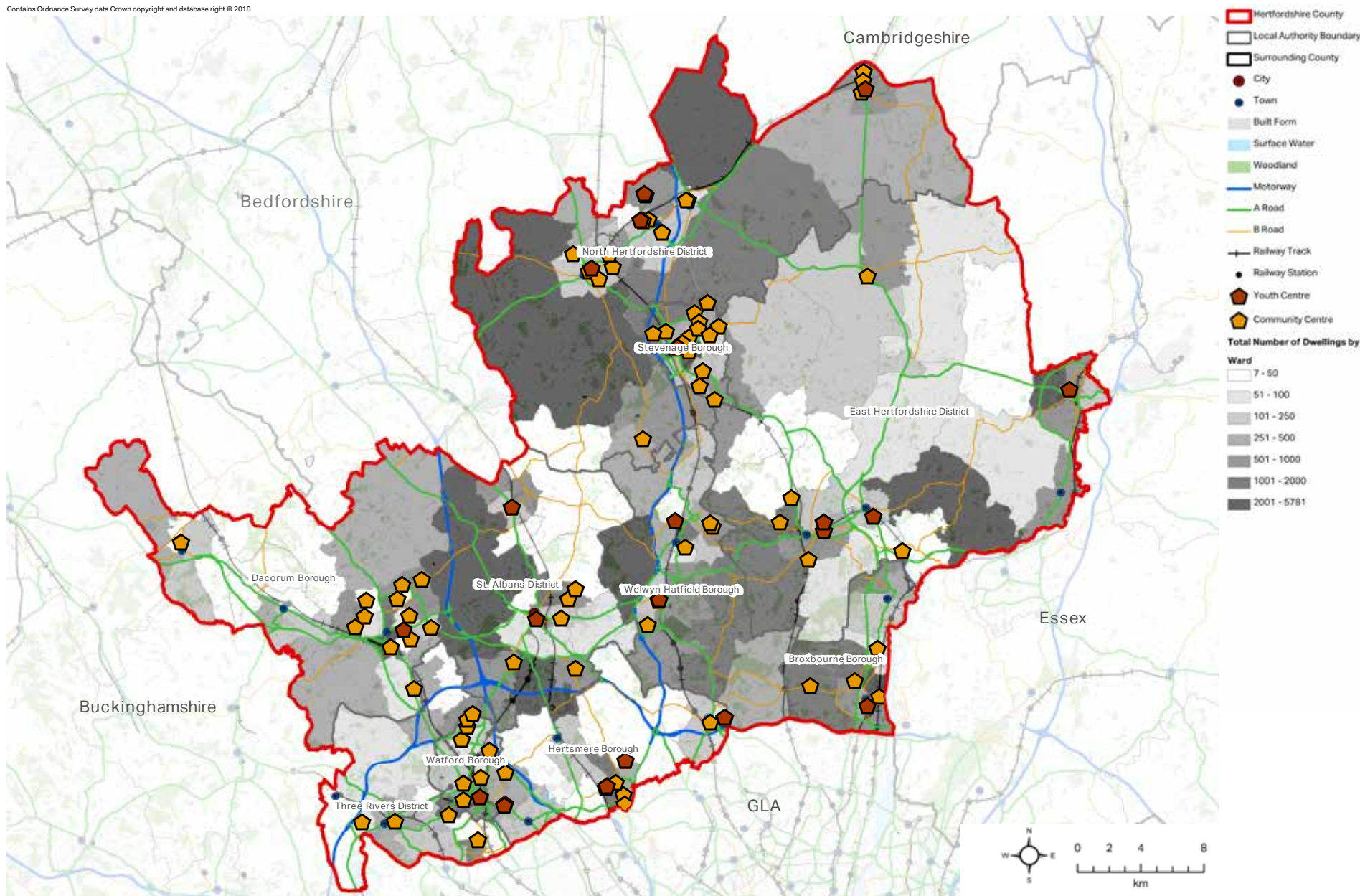


FIGURE 4.22 - COMMUNITY & YOUTH FACILITY PROVISION AGAINST HOUSING GROWTH

Source: AECOM Research from local authority websites



INDOOR SPORT

Hertfordshire

280

Total Number of
Sports Halls

Hertfordshire

134

Total Number of
Swimming Pool
lanes

Current Situation

Indoor sport facilities across Hertfordshire comprise both public and private facilities. Public facilities are funded and provided by each of the individual districts. Private facilities are run by independent organisations and often require membership and payment in order to be able to use these facilities.

The Herts Sports and Physical Activity Partnership (HSP) works in partnership with HCC and other partners from the public, private and voluntary sectors, including Sport England and Local Authority partners, to bring together expertise, resources and ideas across the sports, health and physical activity arena in order to encourage more people to get active, enhance physical and mental wellbeing and contribute to a better quality of life for residents.

Headlines

- Watford, Three Rivers and Broxbourne have particularly low provision of indoor sport facilities relative to the population, in comparison to the Hertfordshire average.
- The strongest supply, relative to the current population, can be found in North Hertfordshire. Dacorum, East Herts and Hertsmere also have relatively strong provision of indoor facilities.

- Looking ahead, issues may emerge around Watford, Three Rivers and Broxbourne given their current low provision and projected planned housing growth.
- Facilities are largely located within major urban centres, however there are far fewer facilities, and less variety, located in areas of highest population, North Hertfordshire District for example has all facilities within the urban centre, however the population is concentrated in more rural surrounding areas where just two facility types are offered.
- Accessibility is increasingly becoming an issue across Hertfordshire in terms of sports provision. Table 4.11 illustrates the overall provision is strong for many sports facilities, however in many cases these are not accessible to many people in Hertfordshire.

	Sports Hall	Swimming Pool	Squash Courts	Health & Fitness Suite	Studios	Indoor Bowls Centre	Indoor Tennis Centre	Ice Rinks	Ski Slopes
Broxbourne	1.8	0.7	0.4	0.9	1.1	0.1	0.0	0.0	0.0
Dacorum	2.2	1.3	0.6	1.6	1.6	0.0	0.1	0.1	0.1
East Herts	2.7	1.7	0.5	1.5	1.5	0.0	0.1	0.0	0.0
Hertsmere	2.8	1.7	0.6	2.2	2.5	0.0	0.2	0.0	0.0
North Herts	2.6	1.1	0.4	1.3	1.8	0.1	0.1	0.0	0.0
St Albans	2.9	1.2	0.3	1.1	1.4	0.1	0.1	0.0	0.0
Stevenage	2.1	0.5	0.3	1.4	2.5	0.1	0.1	0.0	0.0
Three Rivers	1.8	1.1	0.3	1.0	1.1	0.0	0.0	0.0	0.0
Watford	1.3	0.5	0.3	1.2	1.4	0.2	0.0	0.0	0.0
Welwyn Hatfield	2.6	0.9	0.5	1.0	1.3	0.1	0.5	0.0	0.2
Hertfordshire	2.3	1.1	0.4	1.3	1.6	0.1	0.1	0.0	0.0

TABLE 4.11 - INDOOR SPORT FACILITY PROVISION PER 10,000 PEOPLE

Source: Sport England Active Places database 2018. Includes all provision recorded by Sport England (including public, private and educational institutions. Some differences may occur between Sport England and local authority datasets.

Shading illustrates if the type of sports facility is under/over provided relative to the overall level of provision within Hertfordshire

Future Requirement to Meet Growth to 2031



Hertfordshire

20

new swimming pool lanes



Hertfordshire

29

new sport courts



Hertfordshire

7

new indoor bowl rinks

The above infrastructure requirements have been identified based on AECOM analysis using Sport England best practice standards.

Example Infrastructure Projects Required

Notable investment in indoor sport provision includes:

- Expansion of Rosedale Sports Club in Broxbourne
- New indoor sports hall in North Hertfordshire
- Redevelopment of Harpenden Sports Centre and Pool
- Upgrade of Monks Walk swimming pool in Welwyn Hatfield
- Replacement/Refurbishment of Berkhamsted Sports Centre

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated::

Cost = £92,950,000

Estimated Funding Gap = £71,530,000

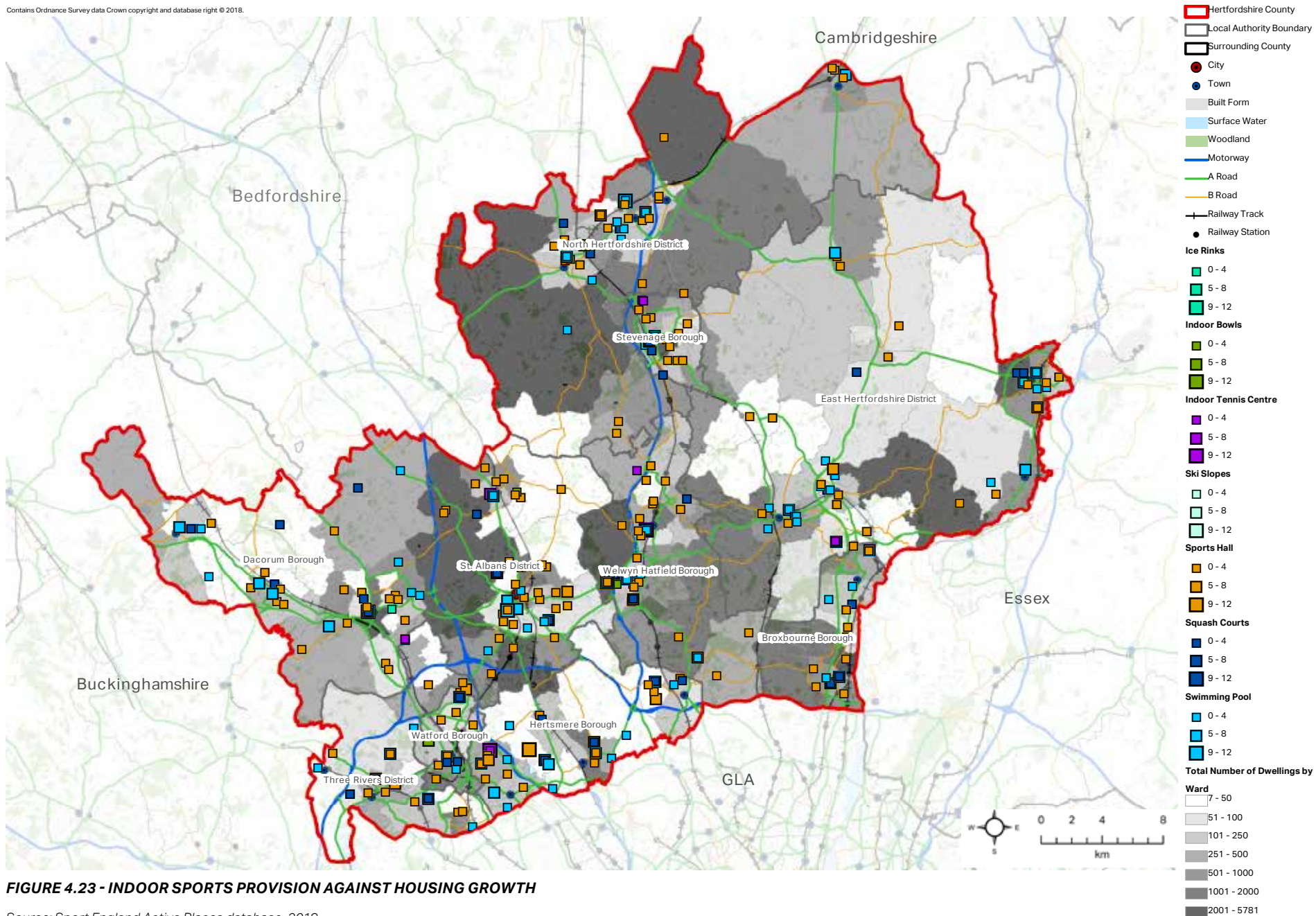


FIGURE 4.23 - INDOOR SPORTS PROVISION AGAINST HOUSING GROWTH

Source: Sport England Active Places database, 2018



OUTDOOR SPORT

Hertfordshire

1,236

Grass Pitches

Hertfordshire

99

Golf Courses

Current Situation

Hertfordshire County comprises a variety of outdoor sports facilities. These facilities and spaces are owned and operated by a variety of public and private organisations, including the individual local authorities.

Alongside indoor sports facilities, Herts Sports and Physical Activity Partnerships (HSP) also applies its core aims and objectives to outdoor facilities and sports provision.

- Facilities are largely located within major urban centres however there is a fairly strong distribution of facility types across the County. This is especially the case for grass pitches which are the predominant outdoor facility in both rural and urban areas.

Headlines

- Watford, Stevenage and Broxbourne have the weakest provision of outdoor sports facilities relative to the population. Broxbourne has low provision in five out of six facility type on offer.
- Three Rivers has the strongest level of relative provision, with above-average provision in all outdoor sport facilities. Dacorum, East Herts, Hertsmere, North Herts and Welwyn Hatfield also have above-average provision in all but one of their facility types for outdoor facilities.
- Looking ahead, particular issues may emerge in Watford and Broxbourne given existing below-average provision and planned housing growth.

	Grass Pitches	Artificial Grass Pitches	Tennis Courts	Athletics Tracks	Golf Courses	Cycling Tracks
Broxbourne	8.2	0.7	0.6	0.0	0.4	0.0
Dacorum	13.4	1.0	1.4	0.2	0.4	0.1
East Herts	12.9	0.9	1.5	0.1	1.0	0.0
Hertsmere	10.8	1.2	1.4	0.0	1.4	0.0
North Herts	12.5	0.6	1.6	0.0	0.8	0.1
St Albans	11.6	0.8	1.2	0.1	1.1	0.0
Stevenage	6.8	1.0	0.6	0.1	0.3	0.0
Three Rivers	10.9	1.3	2.3	0.2	1.5	0.1
Watford	5.6	0.5	1.3	0.1	0.2	0.0
Welwyn Hatfield	6.9	1.2	1.5	0.1	1.0	0.1
Hertfordshire	10.3	0.9	1.4	0.1	0.8	0.0

TABLE 4.12 - OUTDOOR SPORT FACILITY PROVISION PER 10,000 PEOPLE

Source: Sport England Active Places database 2018. Includes all provision recorded by Sport England (including public, private and educational institutions. Some differences may occur between Sport England and local authority datasets.

Shading illustrates if the type of sports facility is under/over provided relative to the overall level of provision within Hertfordshire

Future Requirement to Meet Growth to 2031



Hertfordshire

3

artificial turf pitches (3G / 4G Pitch)



Hertfordshire

129

Hectares of Playing fields



Hertfordshire

12.7

Hectares of children's playspace

The above infrastructure requirements have been identified based on AECOM analysis using Sport England best practice standards.

Example Infrastructure Projects Required

Notable investment in indoor sport provision includes:

- 2 mini football pitches, 2 new cricket pitches, 2 new rugby pitches in Broxbourne
- Upgrading the playgrounds across Dacorum (Grovehill/ Woodhall Farm, Adeyfield Adventure playground, Bennett's End Adventure playground, Caulden Adventure playground
- Skate park facilities at Hampson Park and St Nicholas Park in Stevenage
- New Skateboard facilities in Carpenders Park

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated::

Cost = £66,360,000

Estimated Funding Gap = £8,040,000

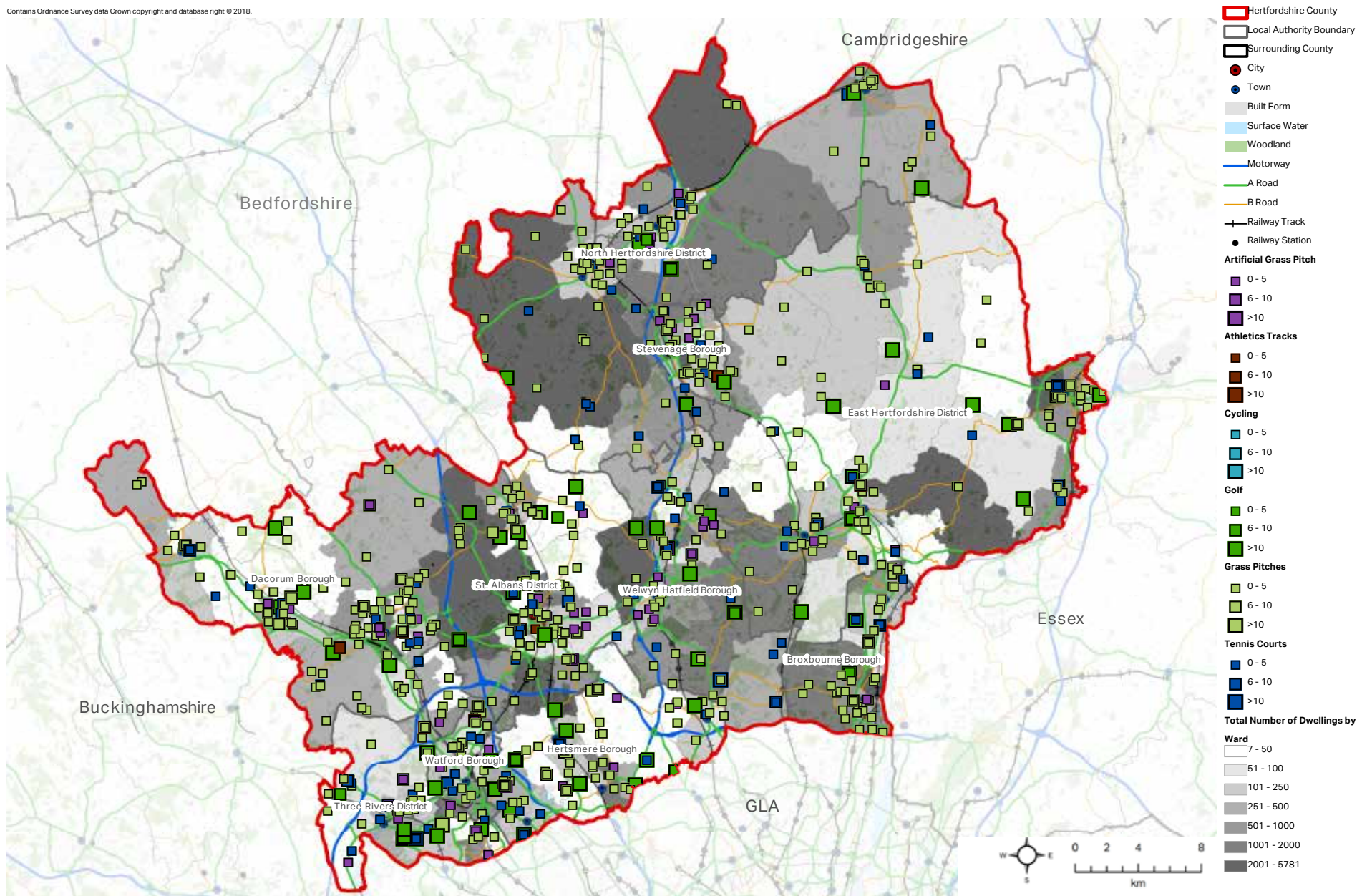


FIGURE 4.24 - OUTDOOR SPORTS AND RECREATION AGAINST HOUSING GROWTH

Source: Sport England Active Places database, 2018

4.6 GREEN INFRASTRUCTURE



GREEN INFRASTRUCTURE

Current Situation

Natural England's Green Infrastructure Guidance states that green infrastructure is a "strategically planned and delivered network comprising the broadest range of high quality greenspaces and other environmental features". It includes: parks and gardens, amenity greenspace, natural and semi-natural urban greenspaces, green corridors, spaces for agriculture (such as allotments), as well as cemeteries and churchyards. Green infrastructure can also include waterbodies such as ponds, lakes, rivers, canals and reservoirs, which are also sometimes known as blue infrastructure. Green infrastructure should make the best use of land and support the widest range of functions and the delivery of multiple environmental, social and economic benefits, and be well connected. For example, green infrastructure might be particularly biodiverse and play an important ecological role, whilst also promoting physical activity, encouraging more people to get out into nature, as well as improving health and wellbeing. Green infrastructure can also attract many visitors which may support the economy through tourism and by creating jobs required to manage the space. This is in accordance with DEFRA's 25 Year Environment Plan which reinforces the relationship between environment and the economy.

The following green infrastructure section looks at open space, natural greenspace, and strategic greenspace. Open space describes a more formally managed area of greenspace, and includes: parks and gardens, amenity greenspace, community gardens, allotments, and cemeteries and churchyards.

Natural greenspace is concerned with sites which have natural character and primarily serve an ecological function, including: natural and semi-natural greenspace, protected habitats, and any other habitat and sensitive areas.

Strategic greenspace looks at the larger, landscape scale green infrastructure in and across the county, which includes: Areas of Outstanding Natural Beauty (AONBs), regional parks, green corridors, and the green belt. While these categories are independent for this report to assess greenspaces according to different scales and purpose, the multifunctionality and flexibility of these spaces means there is often overlap between them. This report draws on Green Infrastructure Plans and Open Space Studies, as well as stakeholder consultation.

Headlines

Hertfordshire generally has a significant amount of quality green infrastructure across its 10 districts. Some of this is associated with the Chiltern Hills AONB to the west of the county and urban greenspaces associated with the creation of garden cities and new towns in the 20th century. The county also has some significant river valleys running across the county, which form Biodiversity Action Plan (BAP) habitat and extend further to important flood plains. Hertfordshire landscape is described by numerous Landscape Character Regions, which includes the Chilterns, the North Hertfordshire (chalk) ridge, the East Hertfordshire Plateau, the Central River Valleys, and South Hertfordshire Plateau.

Despite the predominantly rural nature of the county, there are also some areas where its value could be enhanced. Furthermore, access could be improved to meet the recreational needs of the population, particularly in relation to the growth context.

There are multiple organisations whose purpose is in some way to maintain and improve the green infrastructure across Hertfordshire. This includes:

- Hertfordshire County Council and Local Planning Authorities
- GreenArc
- Hertfordshire Landscape and Green Infrastructure Group (Sub-group of Hertfordshire Planning Group (HPG))
- Hertfordshire Association Cultural Officers (HACO)
- Local Access Forum
- Hertfordshire Tree Forum
- Hertfordshire County Council Tree Heath Network
- Hertfordshire and Middlesex Wildlife Trust
- Hertfordshire Local Nature Partnership
- ParksHerts
- Chilterns' Conservation Board

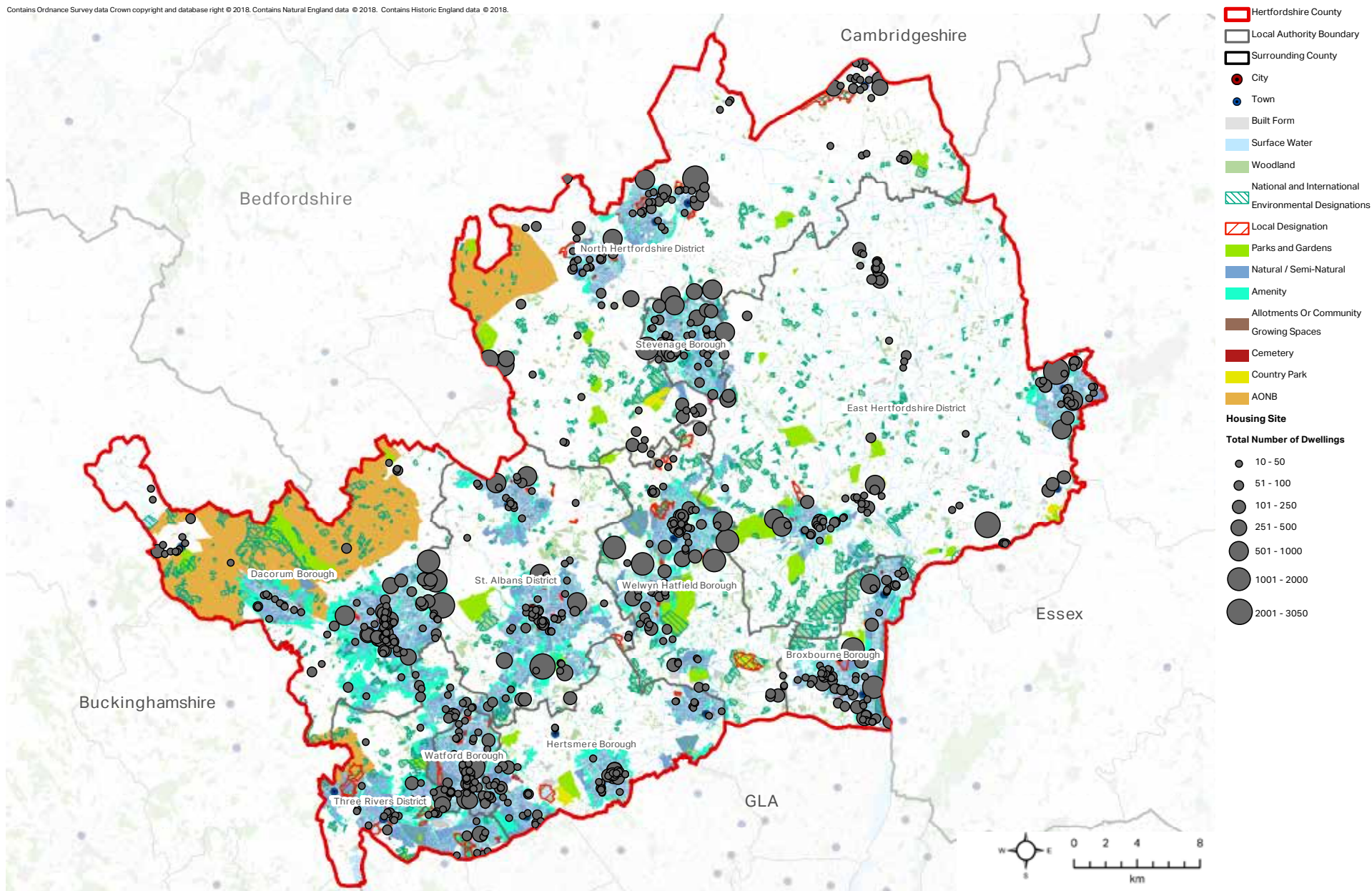


FIGURE 4.25 - GREEN INFRASTRUCTURE & PROPOSED HOUSING SITES

Source: Hertfordshire County Council, Local Authority Assessments of Open Space



OPEN SPACE

Current Situation

Open space refers to green infrastructure with more formal design/purpose, including parks and gardens, amenity greenspace, community gardens, allotments, and cemeteries and churchyards.

Open space has historically been given higher priority in Hertfordshire compared with the rest of the UK, and continues to be valued. This is in part because of the number of Garden Cities and New Towns developed in the late 19th and 20th centuries, which plan for urban greenspace as a core component of the development of the settlements. This includes the first ever Garden City at Letchworth and the later developed Welwyn Garden City. After the Second World War, the principle of Garden Cities was continued with the New Town movement, which aimed to build new settlements and communities as a way to reduce overcrowding in larger industrialised cities. In Hertfordshire, this led to development of New Towns in Hemel Hempstead, Stevenage and Hatfield. In contrast many of the other older towns were built with high density leaving little extra room for open space (see Figure 4.25)

Headlines

Analysing the open space studies of all the districts has allowed assessments of open space quantity, quality and accessibility to be undertaken against standards set by all the local authorities (this is summarised in Table

4.13). According to these studies against the various set standards:

- There is a satisfactory quantity of parks and gardens, with a large quantity in Welwyn Garden City and Hatfield as expected due to their respective Garden City and New Town legacies, but there is a deficit in St. Albans, North Hertfordshire, and Three Rivers. Parks and gardens tend to have poor accessibility across the districts, but they are usually good quality.
- There is quite a low quantity of amenity greenspace in the district, particularly in St. Albans and Watford, whereas East Hertfordshire and Welwyn Hatfield have quite a large quantity of provision. Accessibility of amenity greenspace tends to be about level with the standards set, but again these greenspaces tend to be pretty good quality.
- Allotments and community gardens are well provided for in terms of quantity, particularly in Watford and Hertsmere. These spaces tend to be well maintained but they are sparsely distributed across Hertfordshire, and in particular in areas with less housing in East Hertfordshire, Broxbourne and Three Rivers.
- Churchyards and cemeteries serve a primary purpose of burial and so therefore assessing quantity is not appropriate, but the quality and accessibility of these greenspaces were broadly felt to be good by residents. Quantity should be assessed according to demand

and burial capacity of surrounding churchyards and cemeteries.

Table 4.13 sets out, where available, an assessment of the level of provision, accessibility and quality of open space in Hertfordshire. This analysis scores each local authority either against the identified standard or to the assessment provided within local evidence base. A total score has been given by AECOM, whereby Local Authorities that have a cumulative positive score of 3 or more are seen as having a strong level of open space provision/accessibility, while a local authority that scores 1 has a poor level of open space provision / accessibility.

Table 4.14 summaries, where available, the provision standards for each type of green space in each local authority per 1,000 new population. Where the local authority does not have a standard, the average across Hertfordshire has been applied.

Table 4.15 sets out estimated demand for new open space and green infrastructure based on the provision standards set out by each local authority. This is the demand resulting from new development and does not take into consideration the existing or perceived deficiencies where they occur.

Based on Local Authority provision standards, new development will generate demand for 804ha of additional new green space.

District	Info	Natural & Semi Natural	Parks & Gardens	Amenity Space	Green Corridors	Allotments, Community Gardens & City Farms	Churches & Cemeteries
Three Rivers	Existing Quantity of OS (Ha/1000)	19.28	0.12	0.49	0.37	0.14	0.14
	OS Quantity Standard (Ha/1000)	-	-	-	-	-	-
	Accessibility Score	Excellent	Poor	Average	Excellent	Poor	Average/Poor
	Accessibility Standard	15 minute walk	15 minute walk	1 minute walk	15 minute walk	15 minute walk	30 minutes by private transport
	Existing Quality of OS	Good	Good	Don't know/Good	Good	Don't know	Don't know/Good
	OS Quality Standard	-	-	-	-	-	-
	Total	3	1	2	3	1	1
Watford	Existing Quantity of OS (Ha/1000)	1.92	2.51	0.34	0.27	0.34	0.23
	OS Quantity Standard (Ha/1000)	-	-	-	-	0.125	-
	Accessibility Score	Poor	Average	Good	Poor	Average	Good
	Accessibility Standard	15 minute walk	15 minute walk	-	-	-	30 minutes by private transport
	Existing Quality of OS	-	-	-	-	-	-
	OS Quality Standard	-	-	-	-	-	-
	Total	1	3	2	1	2	3
Hertsmere	Existing Quantity of OS (Ha/1000)	0.33	1.39	-	11.4 miles	0.29	0.06
	OS Quantity Standard (Ha/1000)	-	1	-	-	0.125	-
	Accessibility Score	Poor	Poor	-	-	Good (70% accessibility)	-
	Accessibility Standard	ANGSt	15 minute walk	-	-	1200m straight line	-
	Existing Quality of OS	-	Good	-	-	-	-
	OS Quality Standard	-	Green Flag	-	-	-	-
	Total	1	3	2	2	3	1
Welwyn Hatfield	Existing Quantity of OS (Ha/1000)	6.29	14.4	1.36	~ 2	0.13	~ 0.1
	OS Quantity Standard (Ha/1000)	6.29	14.4	1.36	-	0.125	-
	Accessibility Score	Good	Average	Good	-	Average	-
	Accessibility Standard	ANGSt	15 minute walk	400m / 5 min walk	-	-	-
	Existing Quality of OS	Good	Good	Average	Average	Average	Good
	OS Quality Standard	Qualitative assessment	Qualitative assessment	Qualitative assessment	-	Qualitative assessment	Qualitative assessment
	Total	3	3	3	2	2	3
Broxbourne	Existing Quantity of OS (Ha/1000)	1.26	0.284	0.45	-	0.2	1.74
	OS Quantity Standard (Ha/1000)	1.26	0.284	0.46	-	0.2	-
	Accessibility Score	Average	Poor	Average	-	Poor	-
	Accessibility Standard	15 minute walk	15 minute walk	10 minute walk	-	15 minute walk	-
	Existing Quality of OS	Good	Good	Good	-	Average	Good
	OS Quality Standard	Qualitative assessment	Qualitative assessment	Qualitative assessment	-	Qualitative assessment	Qualitative assessment
	Total	2	2	2	2	2	3
East Hertfordshire	Existing Quantity of OS (Ha/1000)	5.4	2.8	1.7	-	0.3	0.4
	OS Quantity Standard (Ha/1000)	3.2	1.4	1.4	-	0.3	-
	Accessibility Score	Poor	Poor	Average	-	Average	-
	Accessibility Standard	720m	710m	480m	-	1km	-
	Existing Quality of OS	Average	Good	Good	-	Good	Good
	OS Quality Standard	Green Flag Award	Green Flag Award	Green Flag Award	-	General criteria	Green Flag Award
	Total	2	3	3	2	2	3

TABLE 4.13 - OPEN SPACE PROVISION ACROSS HCC

Source: Local Authority Evidence Base (Open Space Study/Assessment)

District	Info	Natural & Semi Natural	Parks & Gardens	Amenity Space	Green Corridors	Allotments, Community Gardens & City Farms	Churches & Cemeteries
Stevenage	Existing Quantity of OS (Ha/1000)	1.78	0.73	1.09	-	0.13	0.9
	OS Quantity Standard (Ha/1000)	1.78	0.73	1.1	-	0.09	-
	Accessibility Score	Average	Good	-	-	-	-
	Accessibility Standard	5 minute walk	15 minute drive (6km) to Fairlands	5 minute walk	-	15 minute walk	-
	Existing Quality of OS	-	-	-	-	-	-
	OS Quality Standard	-	-	-	-	-	-
	Total	2	2	1	2	3	2
North Hertfordshire	Existing Quantity of OS (Ha/1000)	1.47 (Towns) / 6.37 (Rural)	0.09 (Towns) / 0 (Rural)	0.39 (Towns) / 1.64 (Rural)	0.46 (Towns) / 0.47 (Rural)	0.23 (Towns) / 0.36 (Rural)	0.20 (Towns) / 0.54 (Rural)
	OS Quantity Standard (Ha/1000)	1.47 (Towns) / 6.37 (Rural)	0.77 (Towns) / 2.49 (Rural)	0.77 (Towns) / 2.49 (Rural)	-	0.23 (Towns) / 0.36 (Rural)	-
	Accessibility Score	Good	Poor	Good	Good	Average	Good
	Accessibility Standard	720m under 2ha; 960m 2-20ha; 1440m over 20ha (ANGSt)	480m	480m	480m	720m	720m
	Existing Quality of OS	-	-	-	-	-	-
	OS Quality Standard	-	-	-	-	-	-
	Total	2	1	2	3	2	3
St. Albans*	Existing Quantity of OS (Ha/1000)	300ha surplus	Deficit of 9ha	Deficit of nearly 30ha	-	3.2	-
	OS Quantity Standard (Ha/1000)	5	12	15	-	4.5	-
	Accessibility Score	Poor	Poor	Average	-	Average	-
	Accessibility Standard	600m	500m for local parks; 700m - 4,500m for District Parks	300m	-	600m	-
	Existing Quality of OS	-	-	-	-	-	-
	OS Quality Standard	-	-	-	-	-	-
	Total	2	1	1	2	2	2
Dacorum	Existing Quantity of OS (Ha/1000)	1.485	1.526 (not including play space)	0.794	0.156	0.272	0.241
	OS Quantity Standard (Ha/1000)	1	2.8 (including play space)	-	-	0.35	-
	Accessibility Score		-	-	-	-	-
	Accessibility Standard	ANGSt	-	-	-	-	-
	Existing Quality of OS			-		-	-
	OS Quality Standard		-	-	-	-	-
	Total	2	2	3	3	2	2

-  Strong Provision
-  Medium Provision
-  Poor Provision

Table 4.13 sets out, where available, an assessment of the level of provision, accessibility and quality of open space in Hertfordshire. This analysis scores each local authority either against the identified standard or to the assessment provided within local evidence base. A total score has been given by AECOM, whereby Local Authorities that have a cumulative positive score of 3 or more are seen as having a strong level of open space provision/accessibility, while a local authority that scores 1 has a poor level of open space provision / accessibility.

	Natural & Semi-natural (ha/1000)	Parks & Gardens (ha/1000)	Amenity greenspace (ha/1000)	Allotments (ha/1000)
Broxbourne	1.26	0.28	0.46	0.20
Dacorum	1.00	2.80	0.75	0.35
East Herts	3.20	1.40	1.40	0.30
Hertsmere	1.80	1.00	0.75	0.13
North Herts	3.92	1.63	1.63	0.30
St Albans	0.50	1.20	1.50	0.45
Stevenage	1.78	0.73	1.10	0.09
Three Rivers	1.80	2.34	0.75	0.21
Watford	1.80	2.34	0.75	0.13
Welwyn Hatfield	6.29	14.40	1.36	0.13

TABLE 4.14 - OPEN SPACE STANDARDS (HA / 1,000)

Source: Local Authority Evidence Base

* National guidance in regards to traditional forms of open space provision have started to shift from a quantitative approach (ha / 1,000 population) to a provision based on accessibility and meeting needs. This would need to be considered alongside the open space standards identified in Local Authority Evidence Bases.

	Natural & Semi-natural (ha)	Parks & Gardens (ha)	Amenity greenspace (ha)	Allotments (ha)
Broxbourne	8.99	2.03	3.28	1.43
Dacorum	14.11	39.51	10.51	4.94
East Herts	51.11	22.36	22.36	4.79
Hertsmere	13.51	7.52	5.61	0.94
North Herts	46.92	19.51	19.51	3.53
St Albans	5.16	12.38	15.48	4.64
Stevenage	11.43	4.69	7.06	0.58
Three Rivers	15.54	20.29	6.45	1.78
Watford	17.18	22.43	7.13	1.20
Welwyn Hatfield	28.20	36.83	11.70	3.24
Hertfordshire	212.13	187.55	109.09	27.06

TABLE 4.15 - OPEN SPACE REQUIREMENTS TO 2031 (HA)

Source: AECOM Analysis



NATURAL GREENSPACE

Current Situation

Natural greenspace includes natural and semi-natural greenspace, other habitats and sensitive areas, and those which are designated as protected habitats. Designated sites are areas which are recognised as having particular importance for plants, animals, geology or their physical features and are protected from development.

Ecological designations are broken down to include internationally designated sites (such as Ramsar sites, Special Areas of Conservation (SACs), and Special Protection Areas (SPAs) which are afforded a higher level of protection than sites designated on a national level or locally-designated sites (such as Sites of Special Scientific Interest (SSSIs), National Nature reserves (NNRs), Local Nature Reserves (LNRs), and the non-statutory designations Local Wildlife Sites (LWS). Any development which causes an adverse impact on a designated site must identify and avoid, mitigate or as a last resort compensate this impact, in order to deliver positive enhancements such as measurable biodiversity net gain.

Internationally designated sites include parts of the Lee Valley to the east of the county which is both a Ramsar site and SPA, and there are also two SACs (Chilterns Beechwoods to the west and Wormley-Hoddesdonpark Woods to the east). National and locally designated sites include one NNR (Broxbourne Woods), 38 LNRs, 43 SSSIs (Figure 4.26), and 1,812 LWSs. Hertfordshire also contains a number of UK Biodiversity Action Plan (BAP) habitats (Figure 4.26) and is made up of five National Character Areas: South Suffolk and North Essex Clayland, East Anglian Chalk, Chilterns, Northern Thames Basin, Thames Valley. Other

natural greenspace of value include the floodplains, river valleys, and other sites such as Panshanger Park, which is a country park and nature reserve.

Headlines

An assessment of district open space studies suggest a mixed picture when evaluating the quantity of natural and semi-natural greenspace, with some districts such as Three Rivers, St Albans and Hertsmere looking the best provided. However, great care needs to be taken in interpreting these figures because they are based on out of date studies and standards. Since these were evaluated there has been a comprehensive audit of natural and semi natural habitats in Hertfordshire and an assessment of the functionality of the ecological network. This backs up the recent assessment of biodiversity intactness, suggesting that Hertfordshire has a considerable deficit in quantity, quality and connectedness of natural and semi-natural greenspace.

All Hertfordshire's habitats have been significantly impacted by decades of agricultural intensification and development. Woodland is the least impacted, making up about 10% of the county area, which is over half the total remaining area of all habitats. However, even woodland networks are highly fragmented and only a small proportion of those sites are classed as ancient – those of the highest value. Open habitats such as grasslands are the most impacted and vulnerable, with the greatest need for recovery. Of these, heathland is our most threatened habitat, with only 13 ha remaining from roughly 5,000 ha in existence as recently as 175 years ago.

The existing spaces show a mixed picture in terms of accessibility and their value to wildlife is entirely dependent on the management they receive, which is very variable.

Conservation management is rarely economically viable and so beneficial management is usually reliant on the good will of the landowner and as such is extremely vulnerable to negative change, such as through financial imperatives. Based on set accessibility standards from local authority open space studies (usually using a set walking time), there are some areas which have poor accessibility to natural and semi-natural greenspace and others which have good access. Three Rivers in particular has good accessibility, along with Welwyn Hatfield, and North Hertfordshire. On the other hand, Watford, Hertsmere, East Hertfordshire and St. Albans have inadequate accessibility to this typology, and Broxbourne, Stevenage, and Dacorum have accessibility similar to their set standards. It should be noted that these assessments take into account natural and semi-natural greenspace which is not designated.

It has been suggested by HCC that there could be an opportunity in improving links to the west of the county to take advantage of the greater provision of natural greenspace, such as to Ashridge Estate. Barriers to movement blocking footpaths and cycle routes are an issue in terms of accessibility to greenspace across the county, including for instance the M25. Hertfordshire & Middlesex Wildlife Trust consider that it is not the answer to improve transport infrastructure to the west of the county in order to improve accessibility to better areas of open space provision. Instead, there could be significant investment open space local to everyone, which is also in keeping with the government's ambition to create functioning nature recovery networks. This should be done according to the Hertfordshire Ecological Network guidance, and is being developed by a task group as part of a Hertfordshire Green Infrastructure Strategy update.

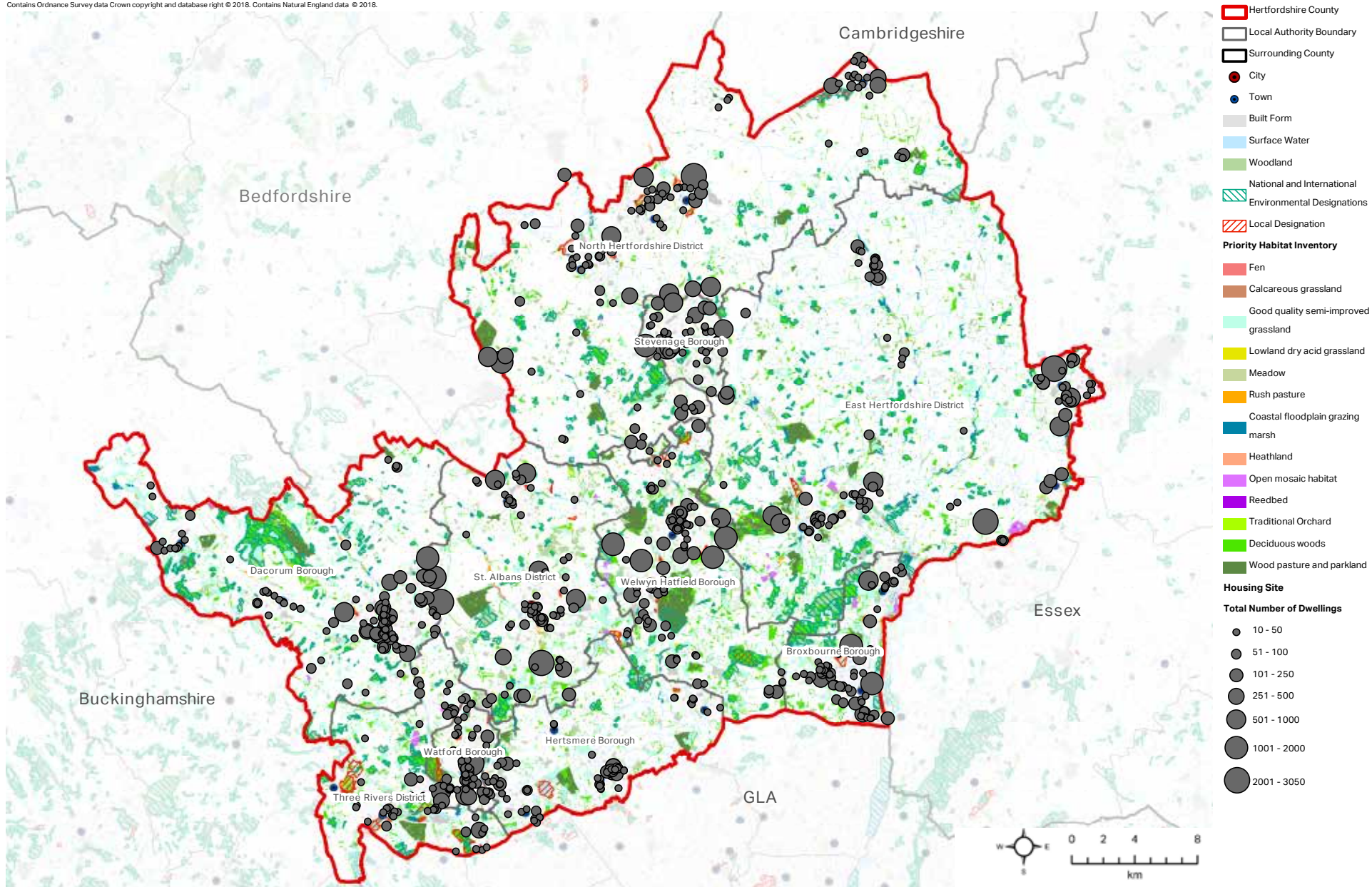


FIGURE 4.26 - PRIORITY HABITATS AND PROPOSED HOUSING SITES

Source: Hertfordshire County Council, Local Authority Assessments of Open Space



STRATEGIC GREENSPACE

Current Situation

Strategic greenspace describes the larger areas which span across multiple districts or counties, and therefore tend to demonstrate especially significant ecological and recreational functions as well as preserving and enhancing landscape and scenic beauty.

Strategic greenspace does not describe a particularly different set of sites to natural greenspace or open space, but instead concerns broader natural greenspace and open space, as well as sites which are designated for strategic-scale functions. This includes AONBs, regional parks, green corridors and the green belt. AONBs are national designations, with the purpose of conserving and enhancing the natural beauty of the landscape, and similarly regional parks are sites which are nationally designated for a variety of purposes including for recreation and which span local authority boundaries. Green corridors are linear spaces with the primary purpose of allowing walking, cycling or horse riding as well as opportunities for wildlife migration, and can include long distance access routes, towpaths, cycle paths, rights of way and disused railway lines. The green belt contains greenspace which is designated for planning purposes to control urban sprawl around larger cities.

There is one AONB that overlaps the west of the county; the Chilterns. The underlying chalk rock gives rise to chalk downland, farmland and woodland, with chalk steams. Hertfordshire also contains two regional parks: Lee Valley to the east of the county, part of which has been designated as both a SPA and Ramsar site for its ecological value, and Colne Valley Regional Park in the south-west corner (Figure

4.20). The area around Lee Valley is also associated with two zones of interest defined by the GreenArc partnership for their projects: Epping Forest north through Roydon, and Lee Valley Regional Park (which GreenArc emphasises the need to improve the links to). The majority of the county is covered by green belt associated with London, apart from part of North and East Hertfordshire.

There are also a number of potential green corridors in Hertfordshire including:

- The Hertfordshire Way (195 mile circular route around the county)
- Chiltern Way (134 mile circular route in the Chilterns to the west of Hertfordshire)
- Icknield Way (170 mile route passing by the north of the county)
- Alban Way (6 mile trail between St. Albans and Hatfield along a disused railway line)
- Sustrans Routes 6, 57, 12 and 61.
- Towpaths associated with the Grand Union Canal to the west and Lee Valley to the east

Headlines

The landscape character and quality of the Chiltern AONB is potentially threatened by development in Dacorum and Three Rivers, pressure from visitors, and by fragmentation caused by mineral extraction, development, transport links and agriculture. The issue of connectivity comes up in numerous documents, with habitats cut off from each other particularly by the road network and settlements, which could be an opportunity for green corridor improvement in the area (for example through use of green bridges). This

includes barriers in the Colne River corridor because of the A404 and Rickmansworth. Accessibility to strategic greenspace is particularly important due to the significance of sights, and green corridors can also enhance this accessibility. Similarly, it is important that connectivity is possible to green infrastructure assets in neighbouring counties, including those in Buckinghamshire and London.

There are important green corridors in Hertfordshire, particularly for ecological connectivity, but they sometimes suffer from disconnection and there are also some areas which suffer from lack of provision. St. Albans has a sparse coverage of rights of way around the north of the city, and this is also the case around Potters Bar in Herts. Rights of way can also be disjointed, have inappropriate surfaces, and they would benefit from improved information. The Green belt is also under pressure, including near St. Albans because of plans for a Rail Freight Terminal, and also particularly in Welwyn Hatfield around Welwyn Garden City.

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated. This is likely to be a significant underestimate as the evidence base and relative national policy has changed considerably since then, and the Hertfordshire Green Infrastructure Strategy is currently being updated and reviewed in light of this.

Cost = £171,160,000

Estimated Funding Gap = £94,330,000



4.7 UTILITIES



ENERGY: ELECTRICITY

Current Situation

In the UK National Grid owns, operates and maintains the 400 kV and 275 kV national transmission network. This system then connects to local networks owned by distribution companies.

In Hertfordshire County electricity is supplied via National Grid Infrastructure by Eastern Power, however demand is measured on a regional basis, not a site specific basis.

Eastern Power is responsible for 3.6 million customers (homes and businesses) as of 2016/17. The networks assets include over 33,000km of overhead lines and 64,000km of underground cables.

Figure 4.27 illustrates the electricity network for Hertfordshire County.

Eastern Power operates the local electricity network at three voltage levels; 133kV, 33kV and 11 kV. This is distributed through National Grid network cables; electricity is then distributed around the county via substations.

Supplies at 132kV to UK Power Networks' distribution network across Herefordshire are derived at grid supply point (GSP) interface sites with the National Grid transmission network at Elstree, Pelham, Rye House, Watford South and Wymondley. In addition to Grid substations (132/33kV) at Pelham, Rye House and Wymondley, the 132kV network supplies a further thirteen Grid substation sites which support Hertfordshire, namely; Holywell, Rickmansworth, Lye Green, Piccotts End, Bushey Mill, Cell Barnes, Hatfield, Welwyn, Stevenage, Letchworth, Melbourn, Harlow West and Bishops Stortford.

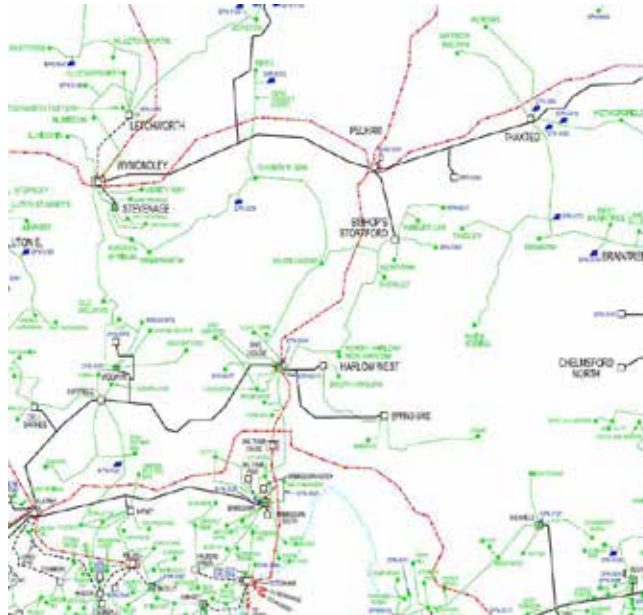


FIGURE 4.27 - EXTRACT FROM EASTERN POWER NETWORK PLAN

Source: EPN EHV Network Plan, 2018

The 33kV underground and overhead network, which is supplied by the above Grid substations, in turn supports Primary substations (33/11kV) across Hertfordshire. From Primary substation level the 11kV overhead and underground network supports larger industrial applications and feeds distribution substations, transforming voltage down for local network distribution serving domestic and smaller industrial connections.

Headlines

UK Power Networks forecasts required network reinforcement for the following 2 years based on; expectations of load growth, potential development, uptake of distributed generation and increased use of electric vehicles. Network enhancements are met in response to overall load, and not site specific requirements. Therefore improvement works are on a reactive basis.

In the past, electricity infrastructure was designed with significant capacity, including accommodations for the future. However, due to recent demand patterns, this spare capacity has been reduced. Presently the areas of St Albans, Hatfield, Welwyn, Stevenage and Watford have been recognised as areas with potential supply issues.

In particular, North Hertfordshire has two primary substations linked to the Wymondley grid; North Hitchin Primary and South Hitchin Primary. North Hitchin Primary has been identified as having limited capacity. Stevenage is served by the same grid at Wymondley, via the substation at Verity Way, this substation was built in 2006 and is now at capacity; current load growth is dealt with by load transfer.

Future Requirement to Meet Growth to 2031

Table 4.16 presents the proposed improvement works identified by Eastern Power at three grid locations within Hertfordshire to combat shortfalls in the network.

In addition the following electricity upgrades have been identified across Hertfordshire:

- North and East Ware; offsite electricity upgrades proposed for a 1,000 unit residential scheme (funded by the developer) proposed between 2022 to 2027.

- Gilston; Electricity infrastructure (funded by the developer) is proposed for beyond 2022, which will provide reinforcement to supplies. UKPN had investigated supplying the entire development load, but will instead look for opportunities to connect initial temporary construction supplies and smaller loads, i.e. 1-2MVA locally from the 11kV network. UKPN consider that the scope for installing a new 33/11kV primary substation equipped with 2 x 30/40MVA transformers to give N-1 (a first contingency; whether peak demand could still be met if the single largest piece of infrastructure fails) summer and winter firm capacities of 30MVA and 40MVA respectively, would be:

- At Harlow West Grid, install 2 x 33kV additional circuit breakers onto the new indoor switchboard
- Install 2 x 33kV cables 4km in length from Harlow West Grid to the Gilston development site
- Install new Primary Substation (33/11kV) equipped with 2 x 30/40MVA transformers and indoor 11kV switchboard to provide to give N-1 summer and winter firm capacities of 30MVA and 40MVA respectively
- St Albans; Upgrades required at two substations; Central Harpenden and Adelaide Street in order to accommodate projected growth specified in the Local Plan.
- Welwyn Hatfield; Upgrade at Hatfield Primary Substation in order to accommodate projected growth specified in the Local Plan.
- Watford; Borough wide maintenance, renewal and replacement of electricity supply infrastructure and delivery of additional capacity at Watford Junction.

Where there are no specific strategies for electricity outlined, National Grid planning is reactive in responding to the demands of the area, however it has a legal duty to connect new electricity generators to the electricity transmission network. Infrastructure reinforcement is likely required for new developments in the future, of which some of this will be provided for by the proposed substations at Pelham, Rye House and Wymondley.

Cost and Funding (Electricity and Gas)

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated::

Cost = £151,210,000

Estimated Funding Gap = £0

Area	Summary of Projects (RIIO-ED1 Regulatory Period to March 2023)	Status
Dacorum	Warners End Primary Reinforcement	Ongoing
Broxbourne	Rye House Grid 132/33kV transformer replacement	Ongoing
East Herts	Cherry Green Primary enhanced transformer cooling	Pending
East Herts	East Hertford Primary reinforcement	Pending
Hertsmere	Elstree 132kV switchgear replacement	Ongoing
Hertsmere	Merry Hill Primary 33/11kV transformer & 11kV switchgear replacement	Pending
St Albans	Cell Barnes Grid 33kV switchgear replacement	Pending
Stevenage	Stevenage Grid 33kV switchgear replacement	Pending
Watford	Watford South 132kV switchgear replacement	Pending
Welwyn Hatfield	Central Welwyn Primary 33/11kV transformer replacement	Ongoing
Welwyn Hatfield	Welwyn Grid 33kV switchgear replacement	Ongoing
Harlow	Harlow West Grid 3rd 132/33kV grid transformer	Ongoing

TABLE 4.16 - EASTERN POWER PROPOSED IMPROVEMENT WORKS

Source: Regional Development Plans (RIIO-ED1)



ENERGY: GAS

Current Situation

National Grid owns, operates and maintains gas infrastructure across the UK. National Grid does not supply gas but provides the conveyance system via a National Transmission System (NTS). The gas supplier in Hertfordshire is Cadent Gas.

National Grid is also responsible for operating the entire national transmission system (NTS), which transports gas from supply points to the Gas Distribution Networks (GDNs). The GDNs are further split into Local Distribution Zones. National Grid has a duty to extend or improve the NTS, where necessary, to ensure an adequate and effective network for the transportation of gas. Reinforcement projects for Local Distribution Zones (LDZ) are planned on a reactive basis.

Figure 4.28 illustrates the gas distribution network within Hertfordshire and its wider area.

Headlines

Hertfordshire's gas is supplied by three LDZs, conveyed by the NTS. New gas infrastructure is upgraded periodically to meet changes in demand. National Grid has suggested that new infrastructure will be required for the connection of new developments on a site by site basis, this will be the responsibility of the gas supplier.

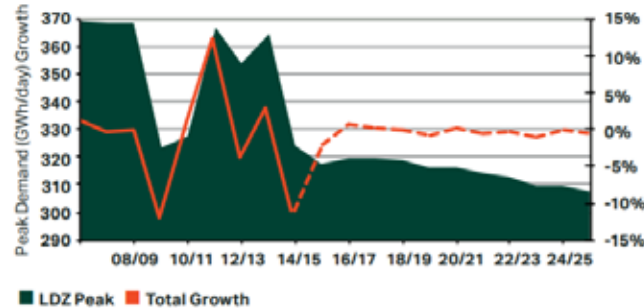


FIGURE 4.29 - EAST ANGLIA LIZ HISTORICAL & FORECAST 1 IN 20 PEAK GAS DEMAND

Source: Long Term Development Plan 2017, Cadent Gas

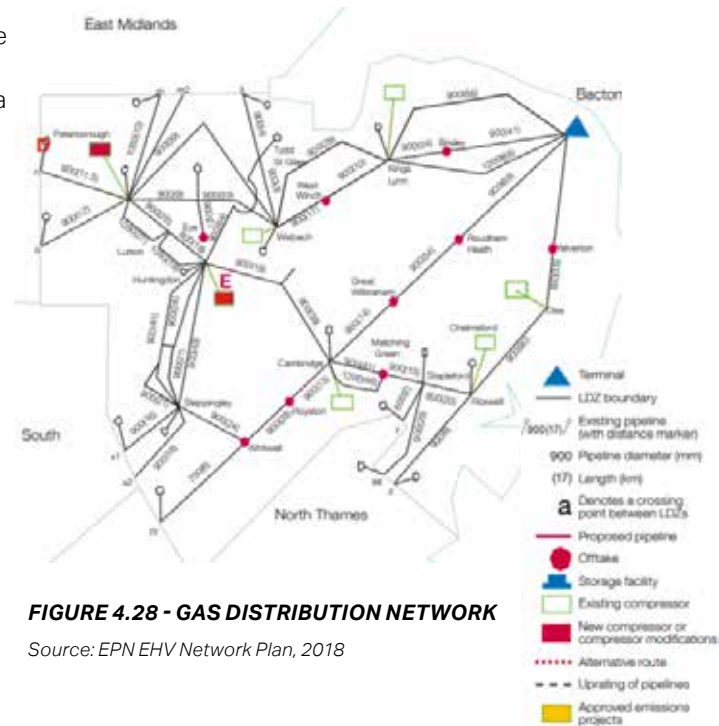


FIGURE 4.28 - GAS DISTRIBUTION NETWORK

Source: EPN EHV Network Plan, 2018

Cadent Gas has high pressure gas lines supplying the area, running from Luton, Stevenage and north east towards Cambridge, and from Hertford around Bishop's Stortford northwest towards Cambridge. Low pressure pipe lines then supply local areas with gas.

According to Cadent Gas, local reinforcement works are likely to be required to accommodate new developments.

In general, gas network developments are planned to meet the demands of the general region as opposed to specific developments. Currently, there are no known proposals for gas infrastructure.

Peak demand (Figure 4.29) is predicted to fall over the next 8 years; however consultation shall be required to ensure infrastructure has capacity to deal with localised increases from future development.

Future Requirement to Meet Growth to 2031

Currently, Cadent Gas has not publicised any proposals for new gas infrastructure in the Hertfordshire Region. Therefore there are no known planned gas infrastructure works in Hertfordshire. However, based on the potential population growth, it is anticipated that demand will increase and reinforcement works may be required,



ENERGY: RENEWABLES

Current Situation

Distribution and supply of electricity in the Hertfordshire is managed by UK National Grid and Eastern Power. Renewable energy development will depend largely on the policies and strategies of the district and county councils in future development.

In line with local and national policy, renewable energy is encouraged in developments to reduce the dependence on fossil fuels and moving towards more sustainable resources. There are a number of potential sources of renewable energy across Hertfordshire including biomass, anaerobic digestion, landfill gas, Energy From waste (efw) incineration, solar photovoltaics, and onshore wind.

Headlines

A review has been undertaken of the Renewable Energy Planning Database (April 2016 version) and presented in Figure 4.30. This reveals that there are 36 operational large scale (>1MW) renewable energy schemes in Hertfordshire. The largest of these include Fieldes Lock EfW Incineration with a capacity of 33.5MW, New Barnfield EfW Incineration with a capacity of 30MW and Folly Farm Solar with a capacity of 13.1MW.

Across Hertfordshire there are:

- 1 Advanced Conversion Technologies producing 9.6MW of capacity
- 7 Anaerobic Digestion facilities producing 14.4MW installed capacity
- 2 Biomass facilities with 12MW installed capacity
- 3 EfW Incineration facilities producing 113.5MW installed capacity
- 5 Landfill to Gas facilities producing 11.2MW installed capacity
- 14 Solar Photovoltaics producing 88.3MW installed capacity
- 4 Onshore Wind facilities producing 20.8MW installed capacity

Future Requirement to Meet Growth to 2031

There are no known major proposed Renewable Energy works in Hertfordshire. In the future, renewable energy is being increasingly encouraged within new developments in line with local and national planning.

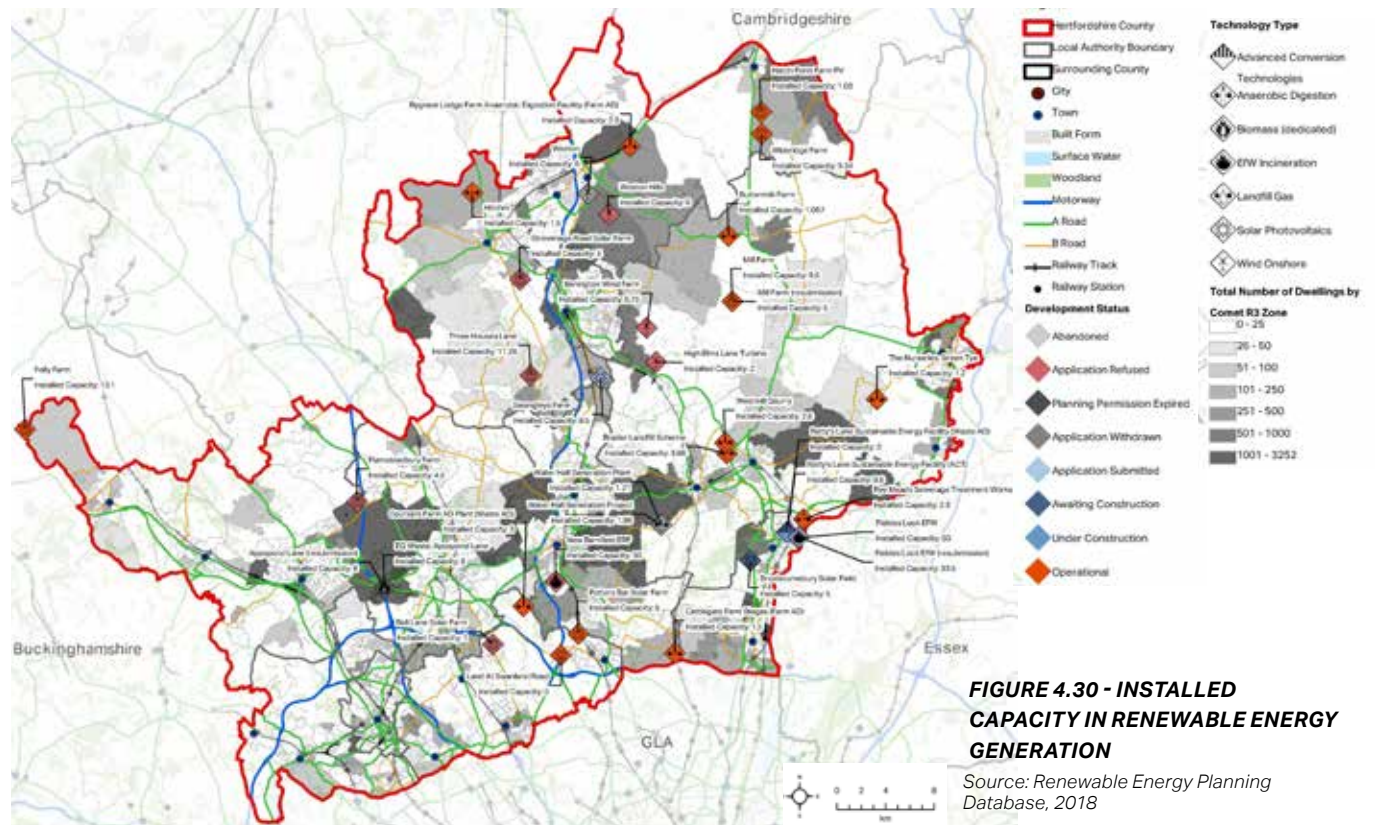


FIGURE 4.30 - INSTALLED CAPACITY IN RENEWABLE ENERGY GENERATION

Source: Renewable Energy Planning Database, 2018



BROADBAND

Current Situation

Hertfordshire County Council is looking to work with partners to extend the availability of broadband infrastructure across the county and is seeking to maximise the number of premises which can access superfast broadband. The County Council has been working on the Connected Counties Programme with Openreach, Broadband Delivery UK (BDUK), and Buckinghamshire County Council for the last four years to deliver over 79,000 premises with better broadband.

There are two main types of technology deployed:

- Fibre to the cabinet (Fibre cabling to the cabinet with speeds up to speeds up to 80 mbps)
- Fibre to the Premise (speeds up to 330 mbps)

In addition to these deployed technologies, there are a number of related technologies available which have the potential to support coverage across the county including: G.Fast, Satellite and wireless technologies.

Previous Work - Contract 1 (2014 – 2016)

This initial contract, with a value of £11million, was delivered from 2014 to 2016 with the successful extension of superfast broadband access to the counties on time and budget. In line with delivery targets, by March 2016, 90% of the homes and businesses in Hertfordshire could access superfast broadband from a broadband infrastructure operator of their choice, and 20,000 more premises had

access to high speed broadband as a result of this part of the programme.

Current Work - Contract 2 + Extension (2016 – 2019)

Contract 2 is currently underway and has delivered coverage between 2016 – 2018, and we presently have more than 96% of homes and businesses in Hertfordshire being able to access superfast speeds of more than 24 Mbps. As take up of broadband has been high in Hertfordshire, this triggered Gainshare/Clawback under the terms of the contract with BT and released additional funds back into the broadband programme. This has enabled the County to extend Contract 2 and has enabled the programme to plan for an additional 4,000 homes and businesses to receive superfast broadband which will be provided with coverage by the end of 2019. Current work, along with other commercial initiatives, will take the coverage to 98.5% by end of 2019.

Future Work: Contract 3 - Beyond 98.5% (2018 - 2020)

Hertfordshire County Council, without Buckinghamshire, now intends to conduct a further open procurement in respect of the remaining areas without broadband infrastructure, which comprises of around 1.5-2.5% of premises (approximately 10,000 premises). The overarching aspiration of HCC is to deliver high speed broadband to 100% of premises by 2020. To achieve this, Hertfordshire County Council intends, dependent upon funding provision, to procure further coverage of broadband infrastructure (capable of delivering download speeds of at least 30 Mbps) where such broadband is currently unavailable, by the end of 2020.

New Developments

As Hertfordshire seeks to become a county with 100% coverage of superfast broadband, it is essential that all new developments are constructed with Superfast Broadband availability. Access to broadband is a vital component of infrastructure in today's world. It is key to growing a sustainable local economy, vital for education and home working and an increasingly central part of community cohesion and resilience. Local Planning Authorities and Property Developers have a pivotal role to play in ensuring they do what they can to 'future-proof' new developments by installing direct fibre access. It is important to note that Installation of FTTP Broadband is free for developments of over 20 premises since a 2016 agreement.

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated::

Cost = £46,370,000

Estimated Funding Gap = £7,770,000

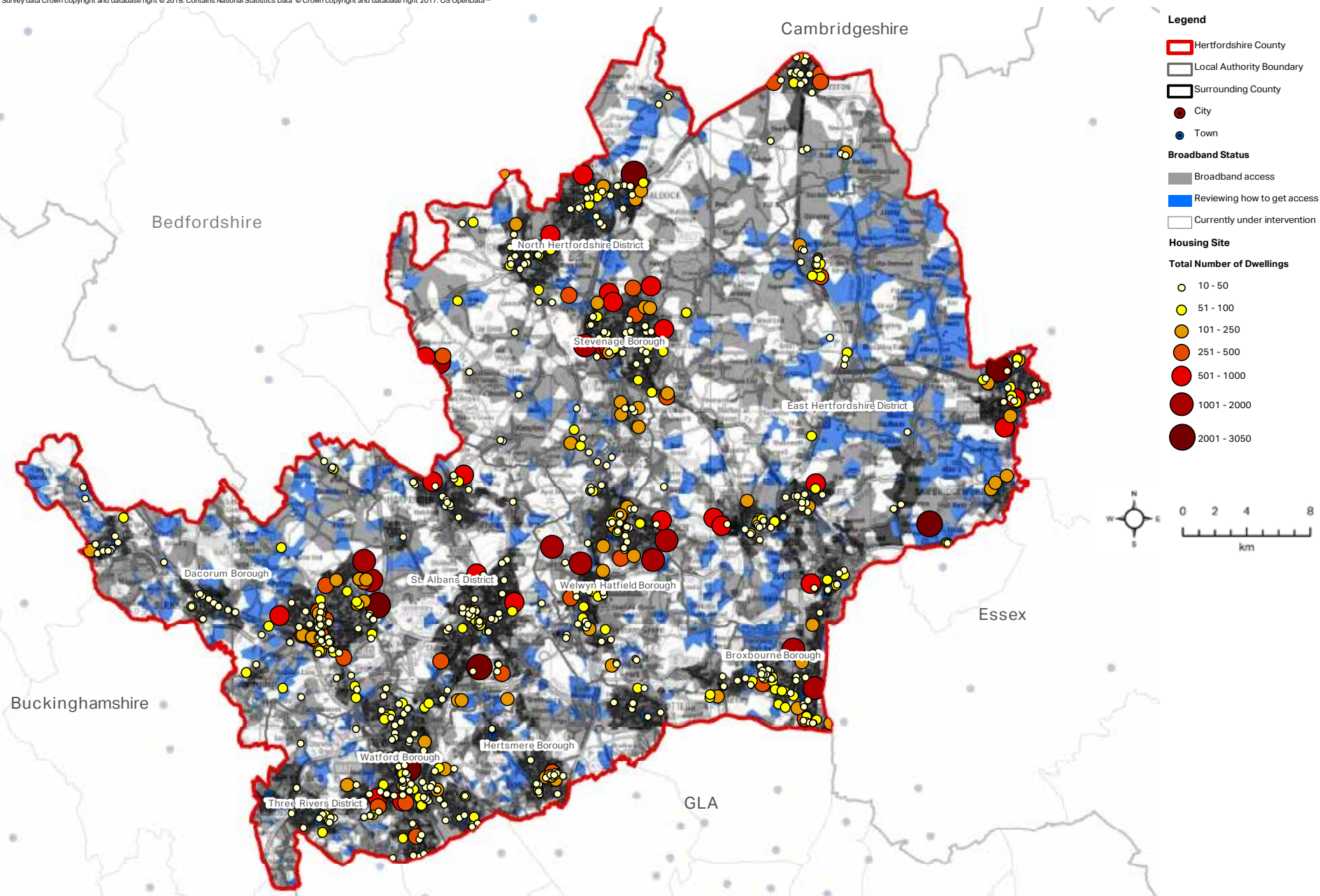


FIGURE 4.31 - NEXT GENERATION ACCESS AGAINST DEVELOPMENT

Source: Hertfordshire County Council, 2018



WATER SUPPLY

Current Situation

There are two water supply companies that are responsible for potable water in the Hertfordshire Area. These are: Affinity Water and Thames Water (Figure 4.32).

These companies have all prepared Water Resource Management Plans (WRMP) that cover the period from 2015 to 2040. Each water company has strategies in place that define how they will meet customer demand over the next 25 years, accommodate the potential increase in demand from new development and manage the existing supply of water, whilst accounting for future changes due to climate change. Water Resource Management Plans are updated every 5 years. The Affinity Water Draft Water Resource Management Plan was published in March 2018, while the Thames Water Resource Management Plan was published in December 2017.

Hertfordshire County Council is preparing a Hertfordshire Water Study that looks at the long term resilience of water provision in the County and the impacts that growth will have on the existing system in terms of capacity. The study will look to understand the current issues to 2021 as well as long term implications to 2051.

Headlines

For the purpose of this report, information has mainly been derived from the Affinity Water WRMP due to the area coverage, with input from the Thames Water WRMP. Affinity Water covers 9 of the 10 local authorities.

Hertfordshire falls under Affinity Water's Central Water Supply Region. The regions are further divided into Water Resource Zones (WRZs), Hertfordshire falls under WRZs Lee and Stort (Figure 4.32), in which the average demand has been calculated by Affinity Water as 72 MI/d.

Overall, Affinity Water abstracts 65% of water from groundwater supplies and is therefore the predominant source of water for all three supply regions. However, in order to meet demand, water is abstracted and treated from surface water sources and borrowed from neighbouring water companies.

Supply issues can occur where there is uncertainty regarding the potential yield from ground sources, during periods of drought and can be caused by leakages in the network. Where there are shortfalls, Thames Water, Anglian Water, South East Water and Southern Water transfer water to Affinity WRZ, this can reach as much as 94 MI/d from main supplier Anglian Water. This approach is regulated through the Great Ouse Act 1961 and associated regulation.

In the 25 year period it is anticipated that the population will increase by approximately 20%, the demand for water will increase as a direct result. This demand can be seen in Figure 4.33 below and will require improvements to infrastructure.

There are a number of major developments proposed in the area which could individually have a sizeable impact on future demand. High Speed Rail 2 and Crossrail will have similar impacts; currently demanding 0.2 MI/d.

However, the impact of the infrastructure projects is directly related to the expansion in employment projected. The forecasts for employment already show an increase that is consistent with these projects, and therefore the impacts of these are arguably already taken into account within the forecasts.

Thames Water have stated that new development can make use of any surplus capacity in the network, however, the developer will need to demonstrate that there is adequate water supply to serve the site. If this is not the case, new infrastructure will need to be funded by the developer.

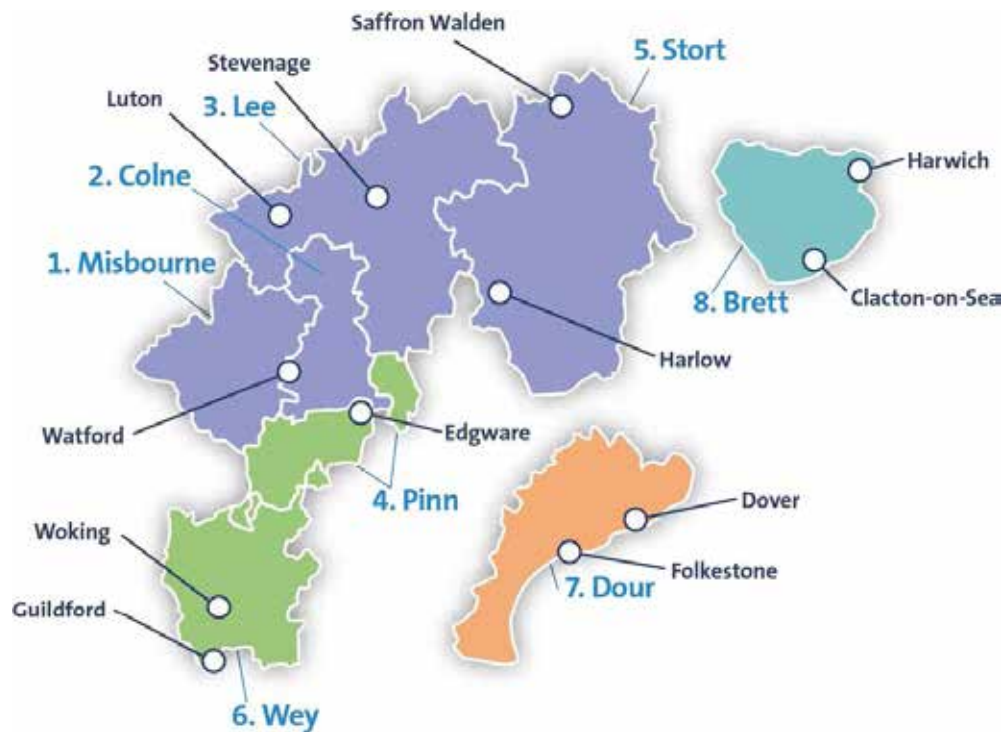


FIGURE 4.32 - AFFINITY WATER RESOURCE ZONE (WRZ)

Source: Affinity Water

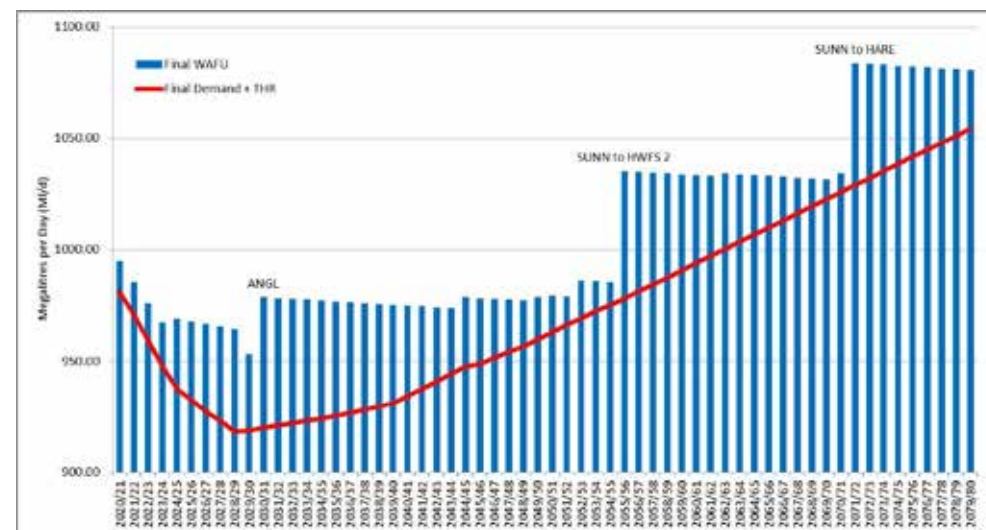


FIGURE 4.33 - AFFINITY WATER FINAL DEMAND/SUPPLY BALANCE

Source: Affinity Water

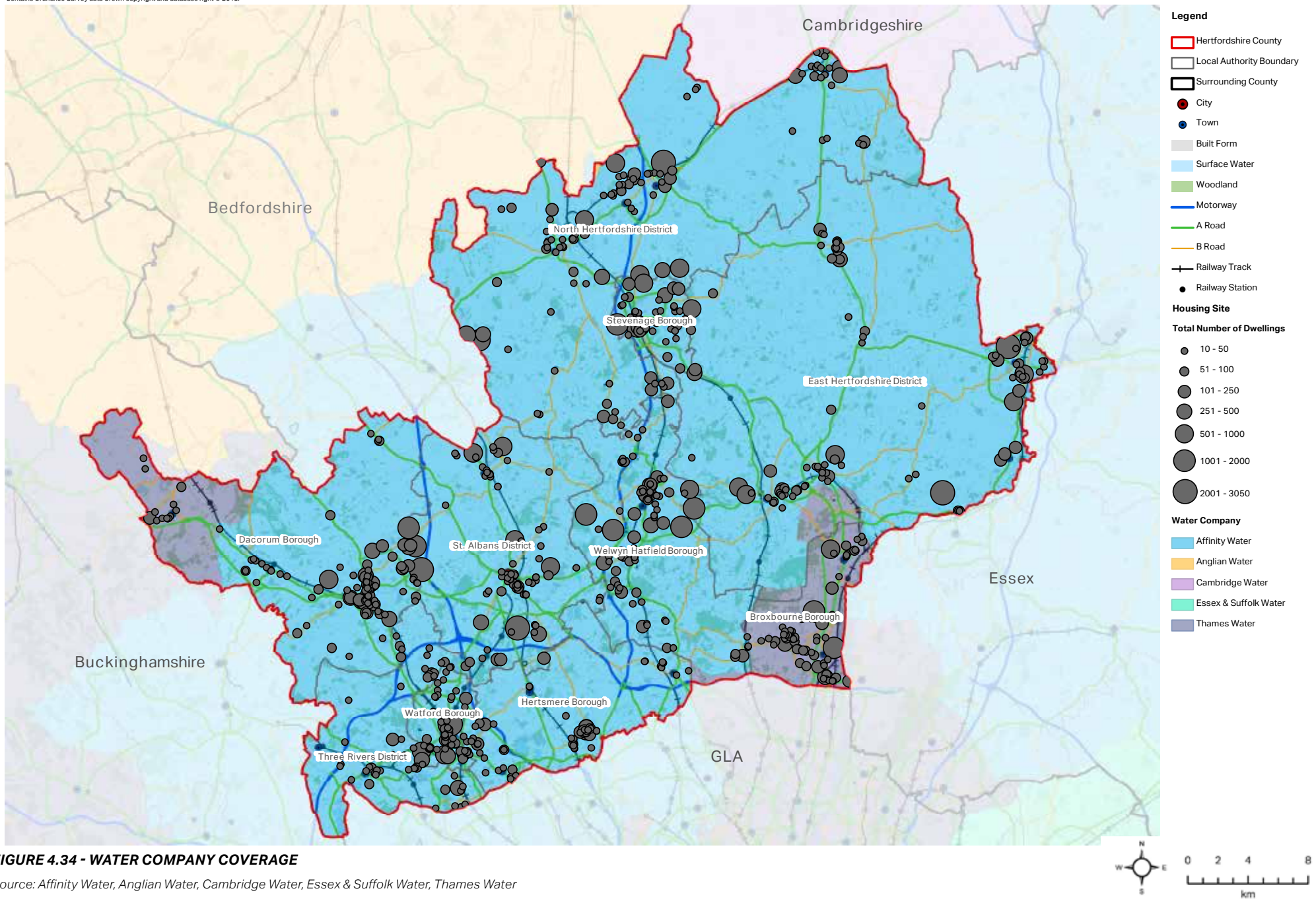
Future Requirement to Meet Growth to 2031

Affinity Water has a 'Preferred Plan' for providing water in the future and meet the demands of their customers. Currently the Water Resources Management Plan is in Draft format (published March 2018).

There are a number of measures included in this plan to reduce water consumption in the Central Region during the period to 2080. Affinity Water are currently implementing:

- Universal metering (smart metering) by end of AMP7 (2024/25) - 90% meter penetration by 2025 - which will involve installing approximately 525,000 meters across the Central Region
- Leakage reduction
- Temporary restrictions in times of drought
- Securing transfers as the Central Region does not have a coastline but shares borders with other water companies, including: Thames Water, Anglian Water, Cambridge Water, Essex and Suffolk Water. Sutton and East Surrey Water and South East Water)

In the long term, Affinity Water will seek to secure a reliable water source by transferring water from a new regional reservoir in the Upper Thames Catchment (by 2055).





WASTE WATER

Current Situation

Thames Water Utilities and Anglian Water Services are responsible for waste water within the Hertfordshire area.

Waste Water assets are managed on a 5 year planned basis (current Asset Management Plan cycle is AMP6 (2015- 2020) and are informed by Local Authority Local Plan discussions. This gives early indications of the quantum of development that will affect their networks. In order to determine the impact of proposed development on the existing infrastructure, network modelling can be required, in particular for large scale developments. Where there is a capacity constraint waste water companies will request phasing conditions to any approval to ensure that any necessary infrastructure upgrades are delivered ahead of the occupation of the relevant phase of development to ensure the occupation does not outpace the delivery of necessary infrastructure upgrades. Water companies are required under the Water Industry Act to serve their customers by extending the network where necessary.

Hertfordshire County Council is preparing a Hertfordshire Water Study that looks at the long term resilience of waste water in the County and the impacts that growth will have on the existing system in terms of capacity. The study will look to understand the current issues to 2021 as well as long term implications to 2051.

Highlights

Due to projected development associated with an increasing population in the UK, wastewater infrastructure,

including wastewater treatment works (WwTW), will need to cope with the increasing demand. This will require reinforcement works and increased capacity.

Within Hertfordshire, the following locations are treated by the Rye Meads WwTW; Stevenage, Harlow, Welwyn Hatfield, East Herts, North Herts, Broxbourne and Epping Forest. Maple Lodge provides service for the Three Rivers, Dacorum, East Hertfordshire and North Hertfordshire.

Other WwTW are located in Royston, Letchworth, St Albans, and Hitchin; where the areas of Royston and St Albans are key settlements and therefore infrastructure upgrades are anticipated.

The following capacity issues and waste water enhancements has been identified:

- The Rye Meads WwTW is estimated to reach capacity by 2021, with the increasing population. The Stevenage and Harlow Boroughs have been identified as areas that have insufficient capacity within the sewer system.
- In Rye Meads, upgrade works were proposed to be completed by 2019 to provide capacity equivalent to over 400,000 people. These improvement works are estimated to deal with flows up to 2036; three more years than the original proposal.
- Based on the analysis conducted in the Rye Meads Water Cycle Strategy Report, a base line net increase of 10,677m³/d, Dry Weather Flow (DWF) has been estimated.
- Excluding Stevenage and Harlow, there are no known proposed improvement works in the Rye Meads catchment. However, where new developments are proposed site specific connections to the existing system will be required.
- Investment is being proposed at Ashwell WRC relating to sewage treatment capacity and improvements to (foul) drainage capacity at Royston

Future Requirement to Meet Growth to 2031

Hertfordshire is estimated to grow in population in the coming years, key settlement areas have been identified as Stevenage, East Herts, Harlow and Welwyn Hatfield.

As such the stresses on the local infrastructure will need to be addressed. Maple Lodge is presently reaching its' current hydraulic capacity; any new capacity would require new assets and layout changes (this could cause problems due to proximity to the Grand Union Canal and associated flood risks).

Mill Green underwent upgrade works in 2017 to accommodate flows from Welwyn Garden City, however, any large scale development would require further upgrades.

Deephams (North London) requires reinforcement works to accommodate the large growth projected by north London. Blackbirds WwTW is anticipated to accommodate higher flows in the near future, but will require further capacity with the prospects of larger developments.

Maple Lodge in south Hertfordshire, currently offloads some of its demand to Blackbirds WwTW. Blackbirds WwTW in the St Albans district will require significant growth upgrades in 2020 – 2025 to cater for the estimated growth in population.

Capacity improvements are currently proposed to both Maple Lodge and Blackbirds to accommodate wastewater from development in the catchment up to 2031.

Cost and Funding (Waste Water and Water Supply)

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated::

Cost = £210,400,000

Estimated Funding Gap = £0

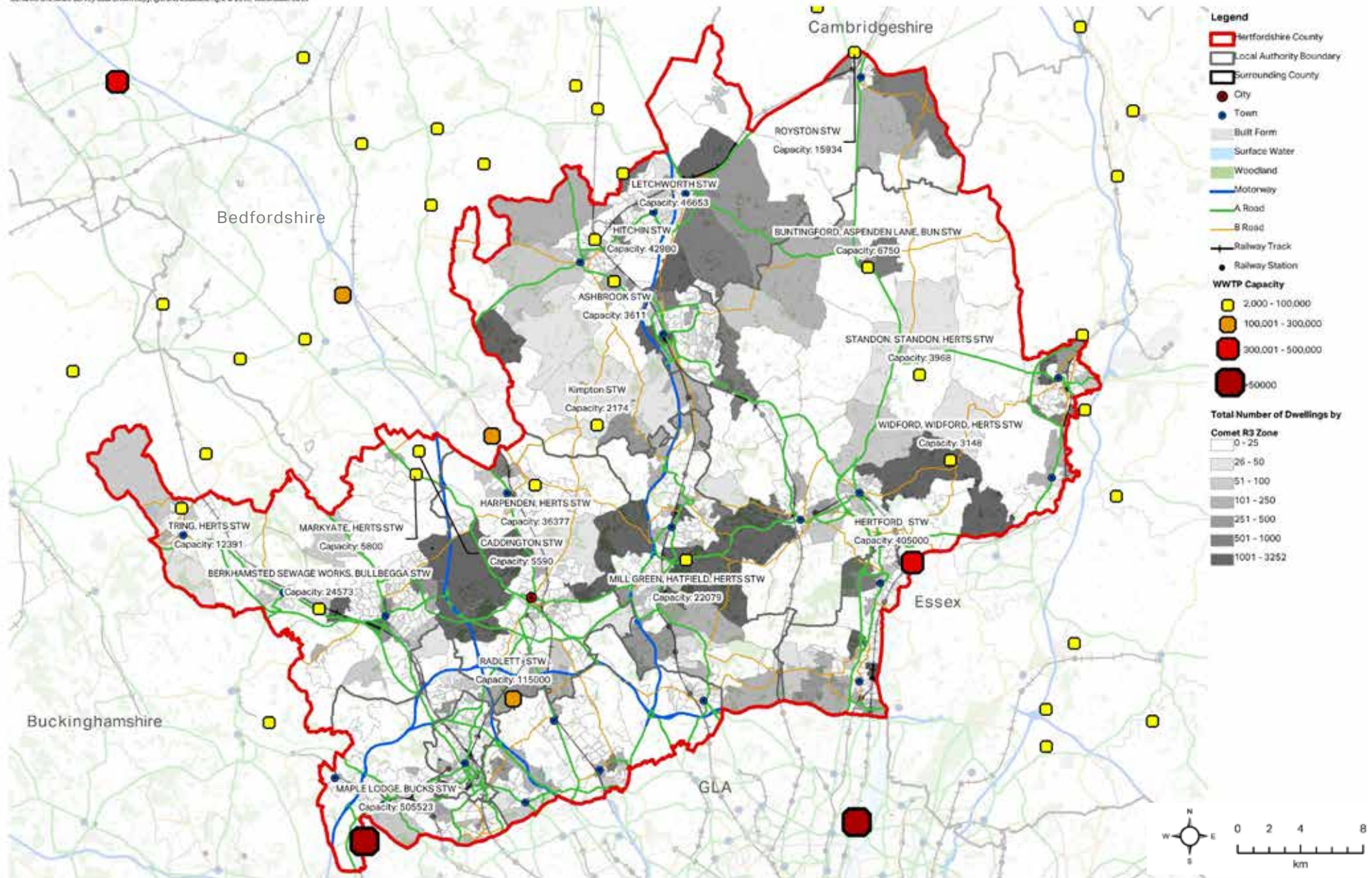


FIGURE 4.35 - WASTE WATER INFRASTRUCTURE

Source: European Environment Agency - Waterbase - Urban Waste Water Treatment Directive



WASTE

Current Situation

Hertfordshire County Council acts as both the Waste Planning Authority (WPA) and the Waste Disposal Authority (WDA) for Hertfordshire. However, these two functions operate independently of each other.

In its capacity as the Waste Planning Authority Hertfordshire County Council is responsible for determining planning applications for waste development and preparing waste development plan documents to guide future development. At present the development plan documents include the Waste Core Strategy and Development Management Policies Document (2012) and the Waste Site Allocations Document (2014). Collectively these two documents are known as the Waste Local Plan and are currently under review.

The Waste Local Plan forms part of the Development Plan for Hertfordshire, against which planning applications are assessed and determined. The WLP also identifies sites and areas that are suitable for future waste management uses. It is the WPA responsibility to plan for all types of waste and monitor the management capacity on an annual basis. There is a capacity gap in Hertfordshire for all types of waste and more facilities are needed to help treat, transfer and dispose of it.

Responsibility for the management of Local Authority Collected Waste (LACW) is split between the two council tiers. The ten District and Borough Councils make up the Waste Collection Authorities (WCA) and have a statutory responsibility to provide a waste collection service to

householders and local businesses upon request. As the WDA, Hertfordshire County Council is legally responsible for the safe disposal of all household waste and commercial waste collected by the WCAs. The WDA is also required to provide Household Waste Recycling Centres (HWRCs).

A network of 17 HWRCs are located throughout the county. The HWRC network has evolved over time with facilities traditionally developed to serve sizable settlements and the location and size of each centre principally determined by the availability of suitable land.

The level of service provision at each HWRC differs as some centres have been constructed in recent years and other, more historic centres, are barely adequate in terms of suitability. In 2017/18 the network handled c. 81,000 tonnes of LACW and received approximately two million visits.

In Hertfordshire the WDA and the WCAs work jointly through the Hertfordshire Waste Partnership (HWP) and have set a HWP recycling rate of 50%. In recent years the WCAs have introduced a number of service changes such as co-mingled kerbside recycling collections and the separate collection of food waste and green garden waste. Where implemented these changes have increased the amount of waste recycled and/or composted.

In 2017/18 the total amount of waste reused, recycled and composted /treated was 265,765 tonnes. Amounting to 50.3% of all LACW. The total amount of residual waste, that is the waste left over after materials have been separated for reuse, recycling and organic waste treatment, was 262,173 tonnes. Amounting to 49.7% of all LACW.

The WDA owns the Waterdale Waste Transfer Station (WTS), a strategically important facility in the southwest of the county. This facility bulks c.190,000 tonnes of LACW per annum for onward transport to waste disposal/treatment facilities. A second WTS facility in the north of the county is used to bulk c.21,000 tonnes of LACW per annum.

In 2017/18 the primary means of disposing of residual waste was by using regional Energy Recovery Facilities (ERFs). Within the county disposal facilities are limited to the Westmill landfill site which has permission to accept waste in the short term which means a reliance on out of county disposal via a network of transfer stations.

The long term vision of the WDA is to be able to treat/ dispose of residual LACW within Hertfordshire. Currently Hertfordshire County Council is in contract with Veolia Environmental Services Hertfordshire (VES) to deliver an ERF, which would provide a long term in-County solution but this remains subject to achieving planning permission following consideration by the Secretary of State post conclusion of a public inquiry in August 2018. If the ERF, at Ratty's Lane in Hoddesdon, is delivered, the facility would have a capacity to accept 320,000 tonnes per annum of waste and generate 33.5 Megawatt electricity gross of power.

Headlines

The amount of Local Authority Collected Waste has decreased since 2006/07. This reflects the fluctuating nature of waste and the close link between the economy and waste levels as well as operational improvements in the collection of waste across Hertfordshire.

Nearly 82% of residual waste in 2017/2018 was exported out of County, resulting in significant transfer and haulage costs.

Current arrangements for residual waste disposal/treatment include a limited amount of direct delivery by the WCAs into landfill sites and ERFs. Primarily WTSs provided by the WDA enable WCAs to deliver their waste within a reasonable distance for onward bulk transportation to landfill sites and regional ERFs. Suitable WTSs within the county are very limited and attempts to procure private bulking arrangements have previously been unsuccessful.

In 2017/18, 71% of residual LACW was sent to Energy Recovery Facilities (ERFs) located in London, Buckinghamshire and Oxfordshire. The remaining 29% of residual was sent to landfill facilities in Hertfordshire, Cambridgeshire and Buckinghamshire.

Figure 4.36 presents publicly and privately owned existing waste facilities in Hertfordshire by type. This includes 10 Waste Transfer Stations/WCA Depots of various sizes and five private transfer and bulking facilities. One Material Recovery Facility, designed to sort kerbside collected recycling - Pearce Recycling in St Albans. Three In Vessel Composting facilities (Cumberlow Green Farm, Ridge Wood Farm, and Reviva Composting), two Windrow Composting Facilities (Cumberlow Green Farm and Agrivert) and two Anaerobic Digestion Facilities (Bygrave Lodge Farm and Coursers Farm)

The HWRC Service provided by the WCA plays an important role in moving waste up the waste hierarchy. The service complements the kerbside recycling service provided by the WCAs by enabling residents to deposit additional waste types and excess waste for recycling or disposal.

Within the existing network of 17 HWRCs, seven are unsuitable in the short term (within five years) as they have limited parking spaces and an unsuitable layout that limits recycling facilities and makes the centre awkward to use. In the long term (in 10 to 15 years) a further six HWRCs will become unsuitable.

In May 2018 European ministers approved the Circular Economy Package. The package promotes a system where the value of products, materials and resources is maintained within the economy for as long as possible. Amongst other initiatives, the package introduced a municipal waste (waste from households and businesses) recycling rate target of 55% by 2025, 60% by 2030 and 65% by 2035. These targets will be transposed into UK law. The 11 Authorities in Hertfordshire will have to review their existing strategies in response to these new targets.

Future Requirement to Meet Growth to 2031

The Hertfordshire Waste Local Plan identifies eight Allocated Sites which are considered suitable locations for existing and future waste arisings during the plan period (2011-2026). It also identifies 60 Employment Land Areas of Search which may be compatible with waste uses. Together, these sites and areas should offer sufficient land area to meet the capacity gap. In addition to this, there is a criteria based policy to determine applications outside of these areas and all existing waste sites are safeguarded.

The sites identified in the Waste Local Plan may be suitable for different types of facility and/or waste (depending on the ground water vulnerability and other considerations) and rely on the waste industry or land owners to bring them forward for development. A number of facilities are needed to meet the capacity gap identified for all types of waste, including: construction, demolition and excavation waste, commercial and industrial waste and other, hazardous/special wastes in addition to Local Authority Collected Waste.

LACW is projected to increase by circa 70,000 tonnes in 2030/31 due to an increase in the number of households. The composition of this waste is largely dependent on national and local recycling targets and policies set by Central Government, the WCAs and the WDA.

The WDA considers there to be a need for improved waste infrastructure to sustain service delivery, meet the disposal needs of planned household growth in Hertfordshire, mitigate the increasing costs of waste transfer and treatment, provide resilience in service provision and further improve performance. Future arrangements will need to include facilities that are appropriately sized and capable of managing fluctuations in waste composition and volume. A network of infrastructure is necessary to manage waste efficiently and effectively for the future.

A facility to treat/dispose of residual LACW within Hertfordshire is required. A single, in-County ERF will provide the WDA and WCAs with surety of a proximate facility that is available for the long term treatment of residual waste.

Should provision of an ERF to serve Hertfordshire not be achieved, two new WTSs to complement the existing Waterdale WTS will be required, one to serve the north of the county and another to serve the east of the county. This would enable WCA collection vehicles to spend the majority of their time on collection rounds instead of travelling to and from a remote point of disposal. These facilities would also enable co-mingled recycled waste and segregated waste to be bulked.

The HWP already has an aspirational recycling rate target of 65%. To achieve this, the WCAs and WDA would need to 'capture' significant amounts of material currently within the residual waste stream. This additional waste would require processing and further provision of Material Recovery Facilities (MRFs) within Hertfordshire would increase competition and reduce the WDA and WCAs reliance on a single service provider. Consideration should be given to publicly funding the provision of an MRF through the HWP.

While there are a number of organic waste treatment facilities within the county they are not equally dispersed. The WDA would support the expansion of existing facilities or new commercial organic waste facilities.

Through the November 2017 Household Waste Recycling Centre (HWRC) Annex to the Hertfordshire Waste Spatial Strategy of November 2016, the WDA has identified a requirement for a robust HWRC service that is capable of fulfilling future demand over the period to 2031.

The WDA considers a well distributed network of HWRCs strategically located to serve a wide catchment area and meet guiding criteria set out in the HWRC Annex are required. The introduction of larger HWRCs or 'super sites' close to the primary road network combined with existing HWRCs that are considered fit for purpose will ensure a well distributed service is achieved and enable a reasonable journey time to a HWRC. The provision of new super site HWRCs will address population growth, promote waste up the waste hierarchy and improve service delivery.

The following projects are identified.

- Ware HWRC – Expansion of the existing centre.
- Stevenage – Expansion of the existing centre or relocation.
- Turnford – Relocation of the existing centre as part of the Brookfield Garden Village planning process.
- Cole Green – Relocation of the existing centre.
- Bishops' Stortford – Relocation of the existing centre.
- Hemel Hempstead – Relocation of the existing centre.
- Baldock – Provision of a new centre.

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list, the following Hertfordshire wide cost and funding gap has been estimated:

Cost = £61,130,000

Estimated Funding Gap = £21,560,000

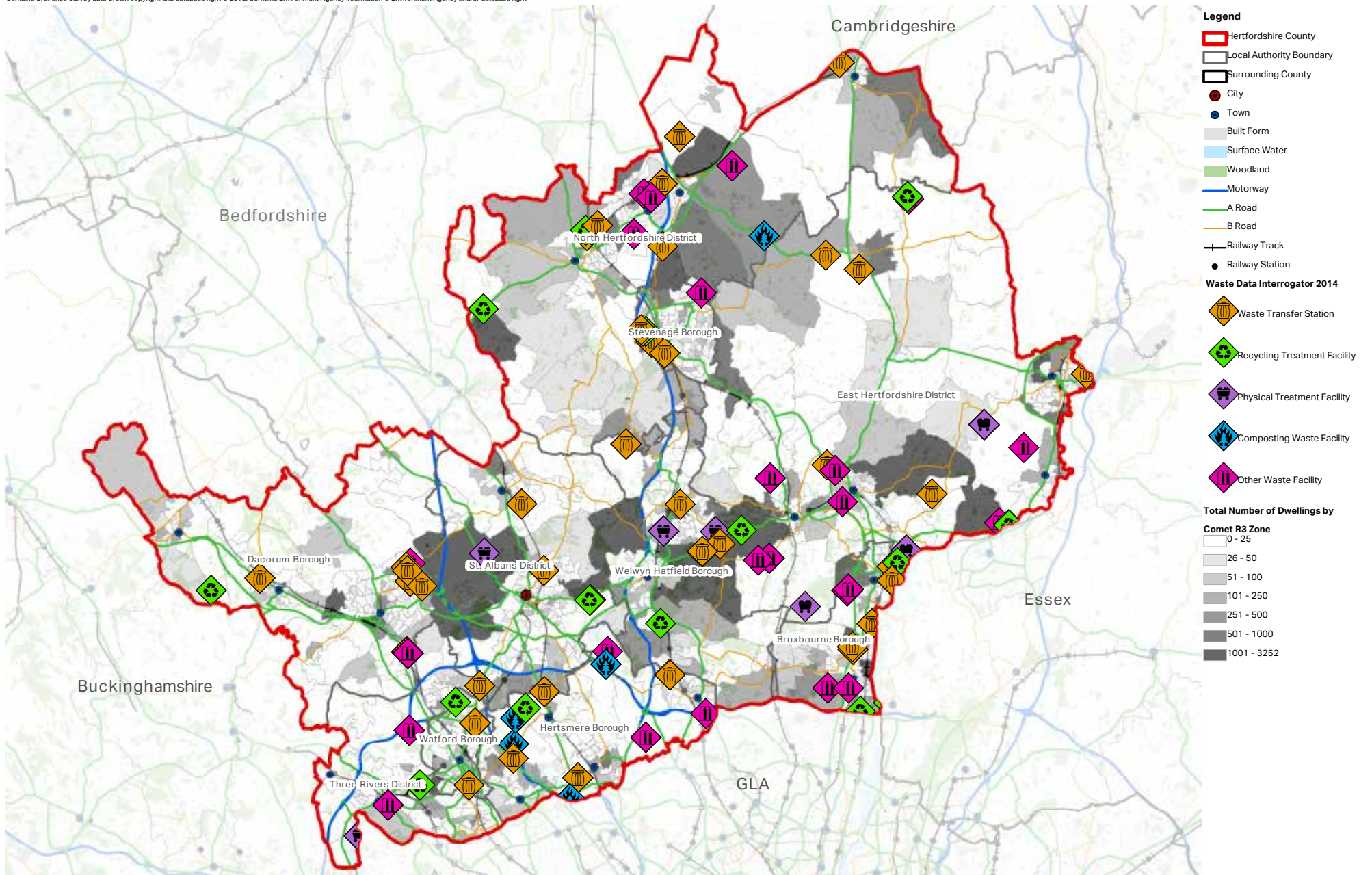


FIGURE 4.36 - WASTE PROCESSING FACILITIES AGAINST HOUSING GROWTH

Source: European Environment Agency - Waterbase - Urban Waste Water Treatment Directive

4.8 FLOODING & DRAINAGE



FLOODING

Current Situation

Hertfordshire County Council, as the Lead Local Flood Authority (LLFA), is responsible for developing and maintaining a flood risk strategy with the relevant Risk Management Authorities (RMAs) to manage flood risk from surface run-off, groundwater and ordinary watercourses across Hertfordshire. RMAs include district and borough councils. The Environment Agency (EA) is responsible for managing flood risk from main rivers and reservoirs.

Headlines

There are over 8,000 properties with a greater than 0.1% annual exceedance probability (AEP) of fluvial flooding (Flood Zone 2) and over 4,800 with a greater than 1% AEP (Flood Zone 3) within Hertfordshire. Fluvial flooding occurs when a watercourse reaches its capacity and water spills onto surrounding areas. The most significant levels of fluvial flood risk are in the south and south eastern parts of the county.

There are 53,000 properties in areas with potential risk of pluvial flooding with a greater than 0.5% annual exceedance probability (AEP) in the county. Pluvial or, Surface water flooding, is caused by overland flow during periods of heavy rainfall, where local drainage or infiltration cannot cope with the intensity.

The two main rivers in the south east of the county are the Lea and the Stort. Both flow through East Hertfordshire and their confluence is within Broxbourne. There are almost 7km of flood embankments along the River Lea and its tributaries

in Hertford and Ware and Bishop's Stortford is defended from the Stort by a series of flood walls and embankments.

The major flood alleviation scheme in the south east of the county is the River Lea Flood Relief Channel which, was designed to carry flood water and reduce fluvial flood risk in the Lea Valley. The Flood Relief Channel flows between Ware and Stratford, East London, and protects a combined 15,000 properties along its length. Whilst there have been no major incidences of flooding since its completion, the Flood Relief Channel has come close to capacity on several occasions; upstream developments leading to increased surface runoff rates and the effects of climate change are thought to have reduced the Standard of Protection (SoP), with limited opportunity to increase the channels capacity.

In the south of the county the largest rivers are the Ver, the Colne, the Chess and the Gade, all of which have had significant defence schemes implemented. There are significant flood storage areas on both the Ver and a tributary to the Colne. Upstream of Markyate, on the Ver, a 235m embankment retains flood waters and offers protection up to the 0.5% AEP event. At Hartsbourne, a 280m long and 6m high embankment provides protection up to the 0.5% AEP event. The Chess Wall and the Lower Colne Improvement scheme protect Rickmansworth from the River Chess and The Grand Union Canal respectively.

Key Findings include:

- Hertfordshire is primarily at risk from fluvial and pluvial flooding, with over 8,000 properties at risk of fluvial flooding and 53,000 in areas at risk from pluvial flooding. There is a low risk from groundwater flooding, with isolated incidents occurring around the county. There have been incidents of sewer flooding, particularly during heavy rainfall. There is no risk from tidal flooding.

- The areas with the greatest flood risk and the south and south east of the county, partly due to the south of the catchment being much more urbanised. In the south east the risk is greatest along the River Lea corridor. In the south, the Colne, the Gade and the Ver combine in the Three Rivers District.
- There are flood defences present in the areas with increased risk, the largest of these defences is the River Lea Flood Relief Channel.

Future Requirement to Meet Growth to 2031

The aim of Flood Alleviation Schemes (FASs) is to reduce existing flood risk rather than act as a catalyst to unlock development. The National Planning Policy Framework (NPPF) risk based approach aims to steer development towards areas at lower risk. However, the opportunity for development and growth can be a side effect of some FASs. FASs must demonstrate a strong cost benefit ratio if they are to receive funding, however FASs are unlikely to get complete government funding and must gain partnership funding from other sources such as local councils, businesses and utility companies.

In terms of capital cost, the Little Hadham A120 Bypass/ Flood Storage area is the most significant ongoing project within the county, and is being funded by both HCC and the EA. Sitting downstream of the confluence of three rivers, the largest of which is the River Ash, Little Hadham has 71 properties in Flood Zone 3. The proposed bypass will not only reduce journey times to Bishop's Stortford, which has a large number of proposed housing and employment sites, but also reduce flood risk to the village via a number of upstream storage areas where the new road intersects the rivers.

In North Hertfordshire, there are areas that have had confirmed surface water flooding and have been the subject of flood investigations under section 19 of the Flood and Water Management Act (2010). A number of flood alleviation schemes have been proposed but are dependent on the necessary partnership funding to progress.

This map displays the county of Hertfordshire, outlined in red, with its local authority boundaries shown in black. The map is overlaid with a grid of flood zones: Flood Zone 3 (light blue) and Flood Zone 2 (light green). Numerous housing sites are marked with black circles of varying sizes, representing the total number of dwellings at each site. The size of the circle corresponds to the number of dwellings, with a legend indicating ranges from 10-50 to 2001-3050. The map also shows major roads (A and B roads), motorways, and railway lines. Surrounding counties are labeled: Cambridgeshire to the north, Essex to the east, GLA (Greater London) to the south, and Buckinghamshire to the west. A legend in the top right corner provides details on the symbols used, including a north arrow and a scale bar (0 to 8 km).

Source: Hertfordshire County Council, Environment Agency



DRAINAGE

Current Situation

As the Lead Local Flood Authority (LLFA), Hertfordshire County Council is a statutory consultee to the Local Planning Authorities (LPAs), which includes district and borough councils, on all major developments in relation to drainage. The LLFA advises the LPAs on whether proposed drainage schemes meet the relevant policy standards. The LLFA also develops policies and provides guidance to support planning applications. Hertfordshire is covered by two water companies, Affinity Water and Thames Water, who have different approaches to drainage.

Headlines

There are 53,000 properties in areas with potential risk of pluvial flooding with a greater than 0.5% annual exceedance probability (AEP) in the county. Dacorum, North Hertfordshire and East Hertfordshire have the most vulnerable number of properties with approximately 8,700, 7,400 and 7,000 properties at risk in each district respectively. The settlements of St Albans and Watford have been shown to be areas of high surface water flood risk through the Department for Environment, Food & Rural Affairs (DEFRA's) Surface Water Management Plans (SWMPs) programme.

As the LLFA, Hertfordshire County Council ensures SuDS best practices are followed, including the SuDS hierarchy. Infiltration and other source control measures are the most desirable options, followed by discharge to a watercourse. Discharge to a surface water sewer and discharge to a combined sewer are the least preferable, as this increases

the chance of surcharged systems leading to Surface Water Flooding. SuDS schemes are often bespoke and depend on local site constraints; typically available space and geology.

Much of the county is underlain by white chalk bedrock, with Thames Group clay to the south east. The superficial geology is a mixture of glacial sand and gravel, clay with flints and Till deposits. Local geology varies and is a primary factor when considering infiltration SuDS technique; the permeability of chalk means there is potential for SuDS infiltration schemes, however significant clay deposits on a site mean infiltration is not possible. The new town of Stevenage was designed to incorporate sustainable drainage systems (SuDS) including conveyance ditches and water meadows. The water meadows were designed with the aim of both preventing the pollution of Stevenage Brook and reducing the surface water runoff. The number and size of the reservoirs has increased with further urbanisation and they now offer varying levels of protection.

New developments often mean larger impermeable areas, subsequent higher surface water runoff rates can lead to an increased surface water flood risk. Combined with the threat increased rainfall intensity due to climate change, the need for effective SuDS measures are essential in reducing surface water flood risk.

Key Findings include:

- Across Hertfordshire there are 53,000 properties with a greater than 0.5% annual exceedance probability (AEP) of surface water flooding to depths of over 0.3m. Two of the most densely populated urban areas, St. Albans and Watford, are highlighted as having the greatest risk due to their extensive impermeable areas.
- Hertfordshire County Council is only a statutory consultee on major developments and as such, it advises the Local Planning Authority if proposed drainage schemes meet the required policy standards. In all cases

it is down to the Local Planning Authority to approve any proposed developments.

- The complex geology of the county means it is not always possible to implement infiltration based SuDS methods, but viability of such schemes should be confirmed through site specific assessments.
- If successful, the pilot Natural Flood Management Scheme (currently underway in Hertfordshire) could lead to a wider rollout of NFM techniques across the county.
- SuDS schemes are best implemented as part of development, rather than retrospectively as a response to a flood event.

Future Requirement to Meet Growth to 2031

In their role as the Lead Local Flood Authority, Hertfordshire County Council is conducting a pilot study to investigate how Natural Flood Management (NFM) can reduce the surface water flood risk across the county. NFM methods include upstream storage, floodplain connectivity, SuDS schemes and channel naturalisation. The study has two sites, Long Marston and Harpenden. Both sites have suffered from surface water flooding, and were identified as having saturated upper catchments that contributed to surface water runoff. Pre-feasibility studies failed to outline any schemes with sufficient benefits to attract enough Flood Defence Grant in Aid (FDGiA) funding to make them viable. The NFM study allowed for natural processes to be explored at both sites to see if any betterment could be achieved. The two sites also give the opportunity to evaluate the effectiveness of NFM in slowing surface water flow in both rural and urban environments. Long Marston's rural characteristics are typically suited to NFM techniques such as disrupting flow paths or attenuating runoff. Harpenden has a quicker reacting urban catchment, more typical to Hertfordshire. NFM measures have previously been implemented in Bishop's Wood to the benefit of properties in Rickmansworth.

Properties on Travellers Lane, Hatfield reported flooding six times between 2013 and 2016 from a combination of surcharging sewer networks and overland surface water during heavy rainfall events. Multiple defects were identified and rectified in the sewer network following a Section 19 flood Investigation, which has resulted in no known repeated instances. There is still a risk from surface water, with a proposed option of adapting green spaces in the locality and formalising them into swales to infiltrate and drain water away from property. This option is still in the early stages of development and will require further design along with a key stakeholder and public consultation.

In Redbourn, St Albans, 20 properties were affected by surface water flooding in February 2014. A proposed alleviation scheme aims to reduce future flood risk by constructing a small flood storage area and directing flows away from property. This option is currently being designed for public consultation in 2019.

The county has several surface water flood risk studies, both ongoing and planned, looking into past surface water flooding incidents. The majority of these studies are led by HCC, and are focused on urban areas such as St. Albans, Rickmansworth and London Colney. As the LLFA, HCC are required to investigate any flood event which meets the criteria set out in the Local Flood Risk Management Strategy.

Cost and Funding

Based upon the aggregated cost of projects identified in the HIFP project list and from theoretical benchmark modelling where no tangible projects have been identified, the following Hertfordshire wide cost and funding gap has been estimated:

Cost = £31,630,000

Estimated Funding Gap = £15,570,000

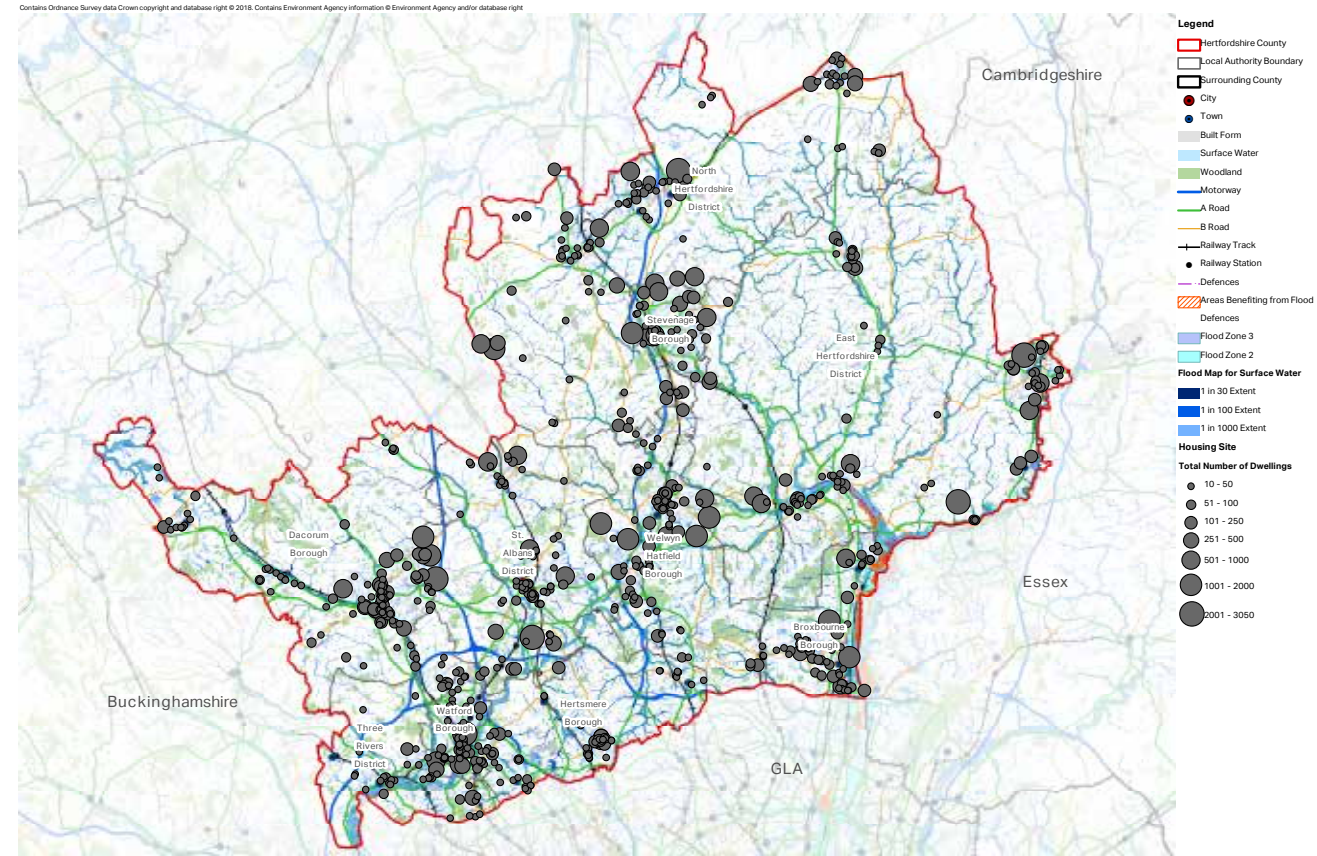


FIGURE 4.38 - CRITICAL DRAINAGE AREAS AND PROPOSED HOUSING SITES

Source: Hertfordshire County Council

05

LOCAL AUTHORITY FOCUS

This section analyses the infrastructure needs and costs identified in Section 4 on a geographic basis.

This section details a number of large projects that are not physically confined to infrastructure within Hertfordshire, but will have an impact in and well beyond the County. These key regional projects are presented in Table 5.2.

This section also details a number of significant projects that will occur within Hertfordshire, but will have an impact beyond a single local authority area. These key sub-regional projects are presented in Table 5.3.

These regional and sub-regional projects provide important context for reviewing the subsequent profiles of each local authority area, which show:

- Major development sites
- Mapping of key infrastructure projects
- Spatial mapping of development sites against identified transport and social infrastructure capacity issues
- Topic specific summaries of identified infrastructure projects, associated cost and estimated available funding
- Key infrastructure capacity issues across each infrastructure type analysed

Each profile should be reviewed in conjunction with regional and sub-regional project lists, noting that these lists are not reflected in individual profiles.

While these profiles present theoretically modelled increases in demand for various services at an individual authority level, it is likely that much of this infrastructure will be provided at sites serving a number of local authorities.

The data presented in this section has been drawn from a variety of sources. Detail of the sources for project data is set out in Table 5.1 opposite and detail of the sources for statistical information is set out in Chapter 8.

Significantly, the results presented in this section are the outputs of modelling undertaken for this study. Accordingly, owing to differing methodologies, the information presented in this document is likely to differ from that presented in individual authorities' IDPs or Local Plans.

UNIVERSAL LEGEND

Applicable to all maps from pages 139-157



		Key Source: LA IDP Project Schedule	Key Source: Hertfordshire County Council	Key Source: AECOM Benchmark Modelling	Additional Sources
Transport	Motorways	Yes			Emerging Draft South Central Growth and Transport Plan
	Highways	Yes	Yes		Draft South West Growth and Transport Plan
	Public Transport	Yes	Yes		Bishops Stortford Transport Options Report
	Rail	Yes			Emerging Draft North Central Growth and Transport Plan
	Other Strategic	Yes			A414 Corridor Strategy Long List Network Rail East Coast Main Line Route Study (June 2018) Anglia Route Study (2016)
Education	Primary Education	Yes	Yes	Yes	
	Secondary Education	Yes	Yes	Yes	
	AE / FE / HE	Yes		Yes	FE and HE Providers
	Early Years	Yes	Yes	Yes	
Health and Social Care	Primary Healthcare	Yes		Yes	NHS England / CCGs / Community Health Partnerships
	Acute Healthcare	Yes		Yes	NHS England / CCGs / NHS Trusts / Community Health Partnerships
	Mental Healthcare	Yes		Yes	NHS England / CCGs / NHS Trusts / Community Health Partnerships
	Adult Social Services	Yes	Yes	Yes	
Community and Recreation	Libraries	Yes	Yes	Yes	
	Youth Services	Yes	Yes	Yes	
	Community Facilities	Yes		Yes	
	Sports Facilities	Yes		Yes	Sports England
Green Infrastructure	Open Space & Recreation	Yes		Yes	Sports England
		Yes	Yes	Yes	
Utilities & Waste	Energy (Electricity & Gas)	Yes		Yes	Service Provider Investment Plan
	Water and Sewage	Yes		Yes	Service Provider Investment Plan
	Waste	Yes	Yes		
	Broadband	Yes	Yes	Yes	Broadband Provider Plans
Flood Defences		Yes	Yes		Environment Agency
Emergency Services		Yes			Police / Ambulance / Fire Service

TABLE 5.1 - PROJECT LIST SOURCE

REGIONAL INFRASTRUCTURE PROJECTS

A series of regionally significant transport infrastructure projects have been identified as critical to facilitating growth across Hertfordshire but impact and cross wider geographies than just Hertfordshire. Whilst not physically confined to the County these will have a direct impact upon the economic growth of Hertfordshire.

Total Infrastructure Costs: **£2,052,880,000**

Total Secured Funding: **£73,000,000**

Total Expected Funding: **£1,122,900,000**

Total Funding Gap: **£856,980,000**

Funding as % of Costs: **58%**

TABLE 5.2 - REGIONAL INFRASTRUCTURE PROJECTS

Strategic Road Network	Cost	Secured Funding
M11 Junction 7a including widening of Gilden Way.	£45m	£45m
M11 Junction 7	£34m	£0
M11 Junction 8 (Interim Option)	£13m	£1m
M25 Junction 25 capacity improvements	£27m	£27m
A1(M)	£0	£0
A1(M) Junction 8 and slip roads	£8m	£0
A1(M) Junction 7 and slip roads	£8m	£0
A1(M) Junction 6 including Clock Roundabout - improvements to the 4 roundabouts comprising this junction	£0.5m	£0
A1(M) Junction 4 satellite roundabout - Redesign of the satellite roundabout (aside from some minor reconfiguration of lanes)	£2m	£0
A1(M) Junction 3 - Possible new left turn from A414 to Comet Way plus dualling of Comet Way	£5.4m	£0
Capacity improvements to M25 J20	£10m	£0
M1 Junction 8a (additional junction)	£50m	£0
M1 Junction 8 enhancement	£50m	£0
M1 J10 southbound on slip capacity improvement	£50m	£0
M1 J4 upgrade	£50m	£0
M1 J6a/M25 J21 partial additional slips plus A405 partial downgrade	£100m	£0

Rail network	Cost	Secured Funding
Additional passenger peak capacity on inner-suburban services into Moorgate	£600m	£0
Digital Signalling for the ECML	TBD	£0
ECML South: journey time and reliability improvements	£1bn	£0
Increased capacity on ECML	TBD	£0
Provide improvements in journey time on the ECML	TBD	£0



SUB REGIONAL INFRASTRUCTURE PROJECTS

A series of sub regional infrastructure projects have been identified as critical to facilitating growth across Hertfordshire. These projects support growth and economic development in more than one Hertfordshire local authority or cross the boundaries of multiple local authorities.

Total Infrastructure Costs: **£723,260,000**

Total Secured Funding: **£103,200,000**

Total Expected Funding: **£254,110,000**

Total Funding Gap: **£365,950,000**

Funding as % of Costs: **49%**

TABLE 5.3 - SUB-REGIONAL INFRASTRUCTURE PROJECTS

Strategic Road Network	Cost	Secured Funding
A1(M) Junction 4 – 'Jack Oldings' roundabout	£250m	£0

Local Road Network	Cost	Secured Funding
HGV Park	£0	£0
Hemel Hempstead Northern Link (A41-M1 Major Link or Local Link to M1)	£50m	£0
Hemel Hempstead Eastern Spine Road	£10m	£0
Little Hadham Bypass	£30m	£30m
A602 capacity and traffic flow upgrades	£19.4m	£19.4m
New Second Stort Crossing to the east of the existing crossing	£50m	£50m
Northern link road connection A507 / A505, Baldock	£0	£0
Southern link road connection B656 / A507, Baldock	£0	£0
Designated Lorry Parks (M1 J8, A1M J4, A10 Cheshunt) and consolidation of laybys	£0	£0

Active Transport	Cost	Secured Funding
Stevenage to Hitchin Cycle Route	£5m	£0
B197 Sustainable Travel Corridor	£2.5m	£0
A405 St Albans-Bricket Wood Cycleway	£2.5m	£0
Nickey Line North-South 'Branch line'	£0.5m	£0

Public Transport	Cost	Secured Funding
Potters Bar-London Bus Services	£1m	£0
Hitchin-Luton Bus	£1m	£0
Enhanced local express bus services between Hemel Hempstead and Watford	£5m	£0
Maylands Hub: Bus/Coach Interchange and Centralisation of Car Parking in Maylands	£5m	£0
M1 dedicated coach service connecting Luton and Hemel Hempstead (or Greenline diversion)	£5m	£0
Watford M1 J5 Park and Ride	£10m	£0
A405 bus priority through M25 J21a	£10m	£0
Park and Ride transport hub at existing Kings Langley station	£10m	£0
Bus routes between urban centres - Hitchin, Letchworth, Stevenage 'triangle'.	£10m	£0
New bus service from Croxley Green/Watford Business parks and Rickmansworth	£1m	£1m
A414 Corridor Mass Rapid Transit	£215m	£0

Green Infrastructure*	Cost	Secured Funding
Grand Union Canal & Colne Valley Regional Park enhancement	£2m	£0
Woodland Arc	£0.5m	£0
Mardyke Valley Greenway extension	£2m	£0
Urban GI Heritage conservation & enhancement	£2m	£0
Mimram Valley greenspace	£2m	£0
Thames tributaries river valleys & corridors	£2m	£0
Lee Valley Regional Park - lateral links	£2m	£0
Chalk Arc	£0.5m	£0
Reconnect'	£2m	£0
'Green Hertfordshire/Greening the GreenArc' interactive map project	£0.1m	£0

**Projects developed as part of the Hertfordshire Green Infrastructure Strategy 2011. Work has been progressing on these projects and currently being updated as part of the emerging Hertfordshire Green Infrastructure Strategy*

BROXBOURNE

2018 - 2031

7,015
homes needed

7,100
new people (+7%)

7,650
homes planned

4,200
new jobs (+9%)

EXISTING CAPACITY ISSUES

- Overall existing surplus provision of primary school places as of 2018 - however there are localised deficits
- Overall existing surplus provision of secondary school places as of 2018 - however there are localised deficits in existing places and several secondary schools with small existing surplus places
- There are 16 GP practices, in which according to NHS standard of 1 GP per 2,000 patients, Broxbourne is oversubscribed with 1GP per 2,200 patients resulting in a theoretical deficit of nearly 11,000 patient places
- A10 congestion through Broxbourne with most junctions congested

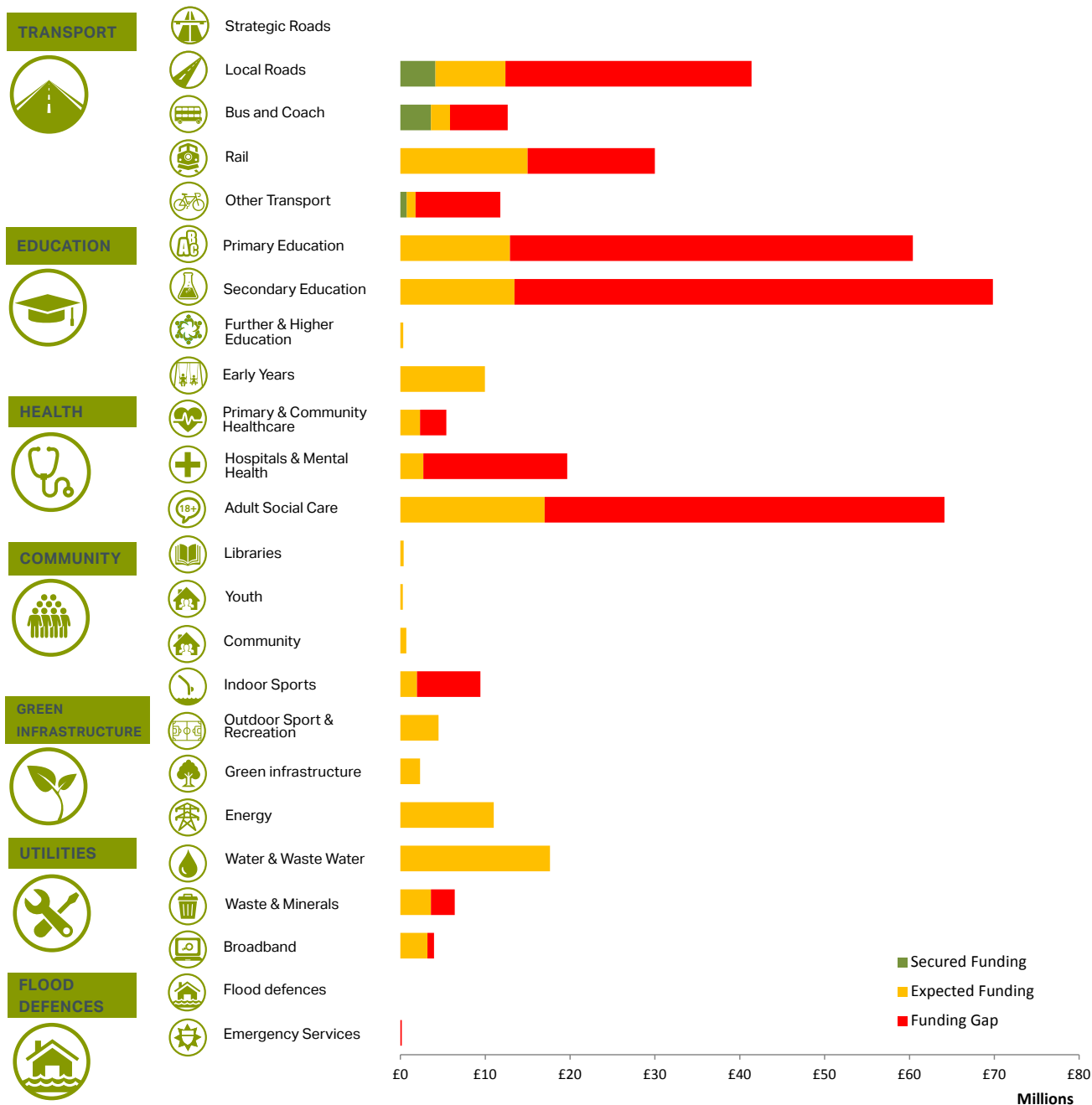
Total Infrastructure Costs: **£382,290,000**

Total Secured Funding: **£8,480,000**

Total Expected Funding: **£130,670,000**

Total Funding Gap: **£243,140,000**

Funding as % of Costs: **36%**



SUMMARY OF INFRASTRUCTURE PROJECT COSTS AND FUNDING GAPS (2018-2031)

TRANSPORT PROJECTS

- 'Hamburger' style junction with N/S priority to improve capacity flows at A10 junction with A121/B198.
- Construction of a Halfhide Lane to Turnford Interchange Link road.
- Provision of a new bridge on Essex Road.
- Provision of a new station between Cheshunt and Broxbourne.
- New routes/connections and improvements to cycle network.

WASTE PROJECTS

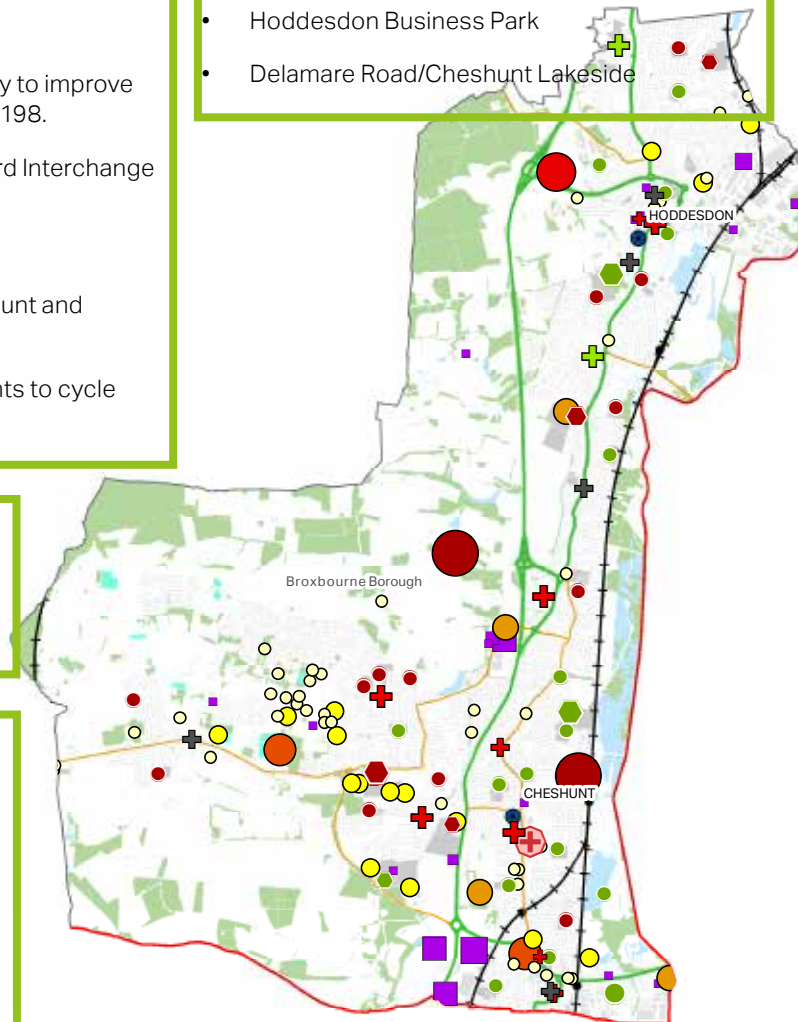
- New waste treatment facility at Hoddesdon

MAJOR HOUSING DEVELOPMENT

- Land to the west of Hoddesdon and east of the A10.
- Rosedale Park.
- Cheshunt Lakeside.
- Brookfield Garden Village.
- North end of High Street.

KEY EMPLOYMENT SITES

- Park Plaza West
- Brookfield Riverside Retail and Leisure Development
- Hoddesdon Business Park
- Delamare Road/Cheshunt Lakeside



EDUCATION PROJECTS

- Provision of 3 new Children's Centres.
- Provision of four new primary schools at Brookfield Garden Village, Cheshunt Lakeside, Rosedale park and Albury Ride.
- Extension of up to 7 existing primary schools
- Proposed New secondary school (6FE to 10FE).
- Extension of other existing secondary schools across the borough.

COMMUNITY INFRASTRUCTURE PROJECTS

- 6 court sports hall.
- 50-70 station fitness centres plus fitness gym facility.
- 22 youth/junior football pitches converted from full-size pitches.
- Expansion of Rosedale Sports Club.

HEALTH AND SOCIAL CARE PROJECTS

- New primary and community healthcare projects to meet future growth will be required but currently under review as part of the development of the STP
- New acute and mental healthcare projects to meet future growth will be required but currently under review as part of the development of the STP

FIGURE 5.1 - SUMMARY OF DEVELOPMENT & KEY LOCAL PROJECTS FOR BROXBORNE

Refer to Universal Legend at the start of Chapter 5 on page 136 to interpret Map icons

DACORUM

2018 - 2031

11,340

Homes needed

14,100

new people (+9%)

7,732

homes planned

2,850

new jobs (4%)

EXISTING CAPACITY ISSUES

- Congestion issues on A414/junction 8 M1 in Hemel Hempstead/Watford Road Kings Langley.
- Secondary school places at Tring and Berkhamsted, and primary school issues in the Two Waters and Apsley area and town centre, and Hemel Hempstead.
- Future of Hemel Hempstead Hospital site and health provision is unclear at this stage.
- Sewage Treatment issues in Hemel Hempstead, Berkhamsted and Tring.
- Lack of connectivity for sustainable modes of transport between Hemel Hempstead/Apsley Stations and Maylands Business Park.
- Congestion in the Two Waters area including London Road/Two Waters Road and Durrants Hill Road.

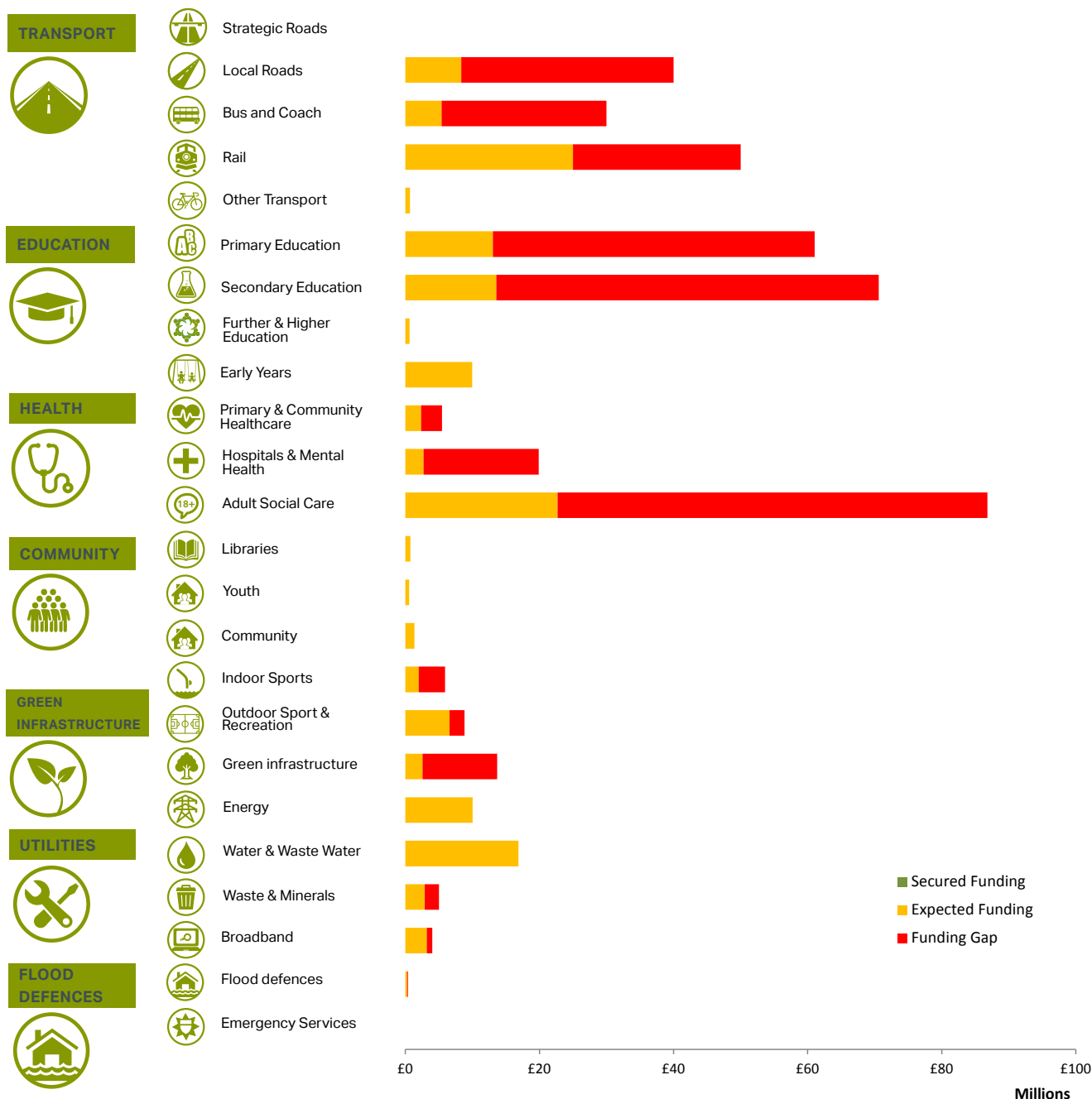
Total Infrastructure Costs: **£442,520,000**

Total Secured Funding: **£0**

Total Expected Funding: **£151,480,000**

Total Funding Gap: **£291,040,000**

Funding as % of Costs: **34%**



SUMMARY OF INFRASTRUCTURE PROJECT COSTS AND FUNDING GAPS (2018-2031)

MAJOR HOUSING DEVELOPMENT

- Spencers Park
- West Hemel Hempstead.
- West Herts College site
- Hemel Hempstead Hospital site.
- Two Waters site London Road east

EDUCATION PROJECTS

- Provision of five new primary schools to serve Hemel Hempstead
- Expansion of existing secondary schools in Hemel Hempstead
- Expansion of Tring School and detached playing fields.
- Expansion of Ashlyns School, Berkhamsted by up to 3 forms entry.

UTILITIES PROJECTS

- Relocation/expansion of Hemel Hempstead Waste Recycle Centre.
- Upgrades to Blackbirds/Maple Lodge Waste Water Treatment Works.
- Upgrades to Warners End, Frogmore, Ilmer Grid and Berkhamsted Substations.

COMMUNITY & GREEN INFRASTRUCTURE

- New community centres associated with Spencers Park and in Berkhamsted.
- Two Water urban park
- Replacement/refurbishment of Berkhamsted Sport Centre and Tring Sports Centre.
- New cemetery for Hemel Hempstead.

FLOOD DEFENCES

- Kings Langley Flood Alleviation Study.

TRANSPORT PROJECTS

- Enhancement to Hemel Hempstead station at existing location including access enhancements, car park capacity increase, new south-eastern platform access and footway.
- Maylands Multi Modal Transport Interchange
- M1 Junction 8 enhancements and new M1 Junction 8a
- Filtered permeability measures at Lawn Lane arm of Plough Roundabout

HEALTH AND SOCIAL CARE PROJECTS

- New primary and community healthcare projects to meet future growth will be required but currently under review as part of the development of the STP
- New acute and mental healthcare projects to meet future growth will be required but currently under review as part of the development of the STP

KEY EMPLOYMENT SITES

- Maylands Business Park.
- Former Sappi Site, Hemel Hempstead.

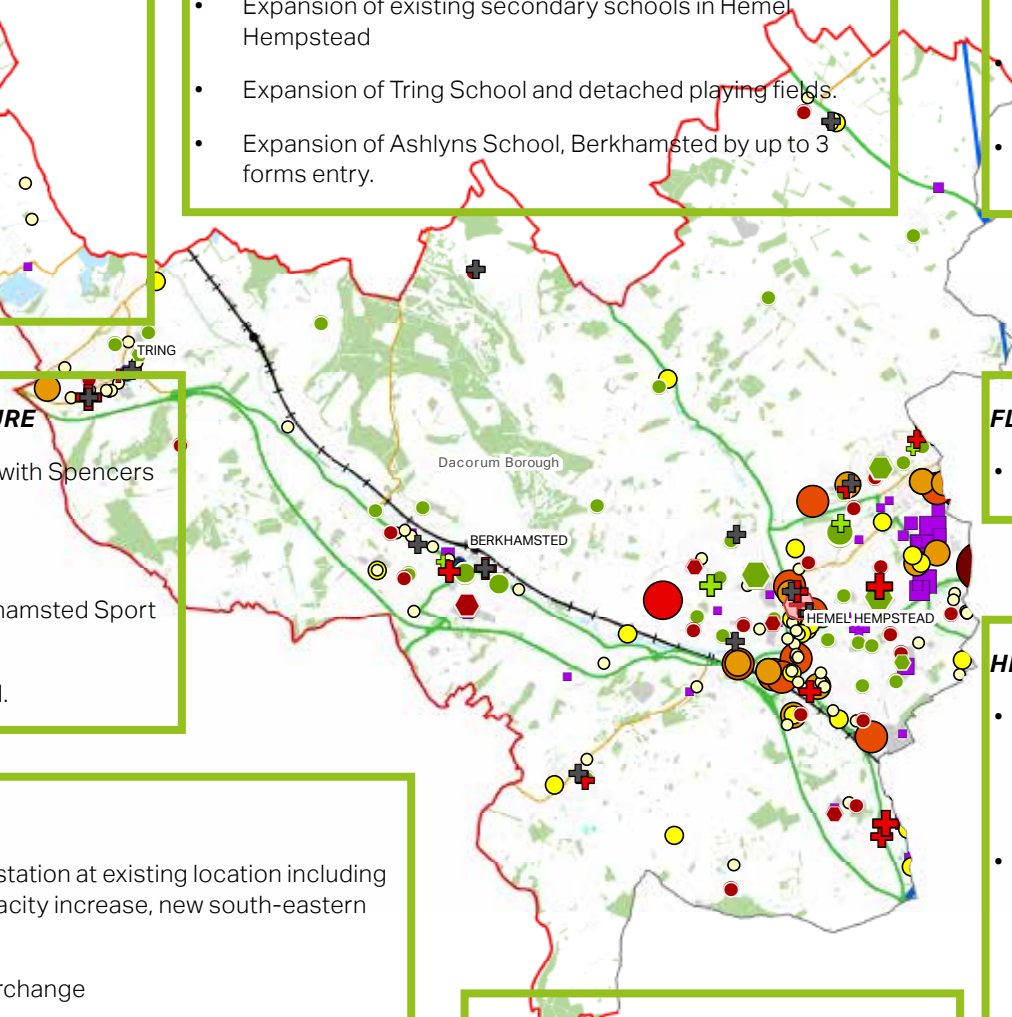


FIGURE 5.2 - SUMMARY OF DEVELOPMENT & KEY LOCAL PROJECTS FOR DACORUM

Refer to Universal Legend at the start of Chapter 5 on page 136 to interpret Map icons

EAST HERTS

2018 - 2031

12,585

homes needed

16,000

new people (+11%)

8,700

homes planned

4,800

new jobs (+7%)

EXISTING CAPACITY ISSUES

- Existing schools across the District are either full or nearing capacity, in particular secondary schools.
- Bishop's Stortford, Hertford, Sawbridgeworth and Ware town centres all experience congestion during peak times.
- Peak time congestion on the A414
- The district's strong transport links make it an attractive place to live, which creates pressure for new development and housing supply.
- Overall good GP provision, however there are localised over subscriptions.

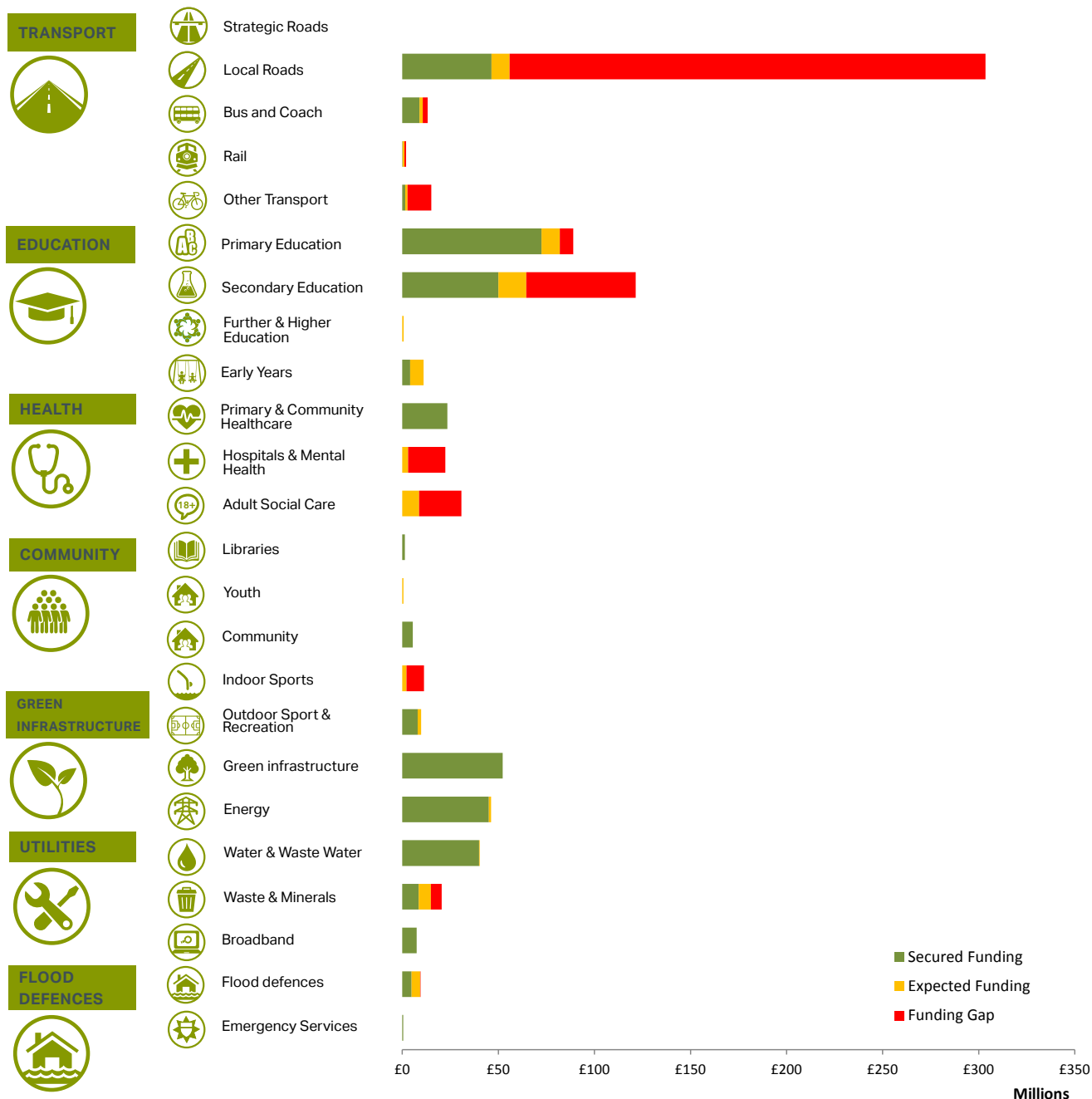
Total Infrastructure Costs: **£837,670,000**

Total Secured Funding: **£380,620,000**

Total Expected Funding: **£73,460,000**

Total Funding Gap: **£383,590,000**

Funding as % of Costs: **54%**



SUMMARY OF INFRASTRUCTURE PROJECT COSTS AND FUNDING GAPS (2018-2031)

UTILITIES PROJECTS

- New foul sewer North and East of Ware.
- Telecommunications infrastructure in the Gilston Area.
- Off-site electricity and gas upgrades North and East of Ware.
- Expansion of the existing Ware HWRC and relocation of the Bishops' Stortford HWRC
- Provision of a WDA Waste Transfer Station

FLOOD DEFENCES

- Little Hadham A120 Bypass flood storage area.

MAJOR HOUSING DEVELOPMENT

- Bishop's Stortford South
- Land East of Welwyn Garden City
- Land north and east of Ware
- West of Hertford
- West of Sawbridgeworth

COMMUNITY & GREEN INFRASTRUCTURE

- Provision of green infrastructure, country parks, play space, public amenity space and cemeteries in the Gilston Area.
- New community centre North and East of Ware.

KEY EMPLOYMENT SITES

- Gilston area
- Land at Bishops Stortford North/South
- GSK, Ware Campus
- Land north and east of Ware

TRANSPORT PROJECTS

- A120 Little Hadham Bypass
- A414 Hertford Strategic Intervention - Bypass and Town Centre Sustainable Transport Improvements
- Additional passenger peak capacity on inner-suburban services into Moorgate
- Infrastructure to support Gilston Garden Town development including Second Stort crossing

EDUCATION PROJECTS

- New 2FE primary school with early years able to expand to 3FE.
- Expansion of primary school provision in Ware by 1FE with early years.
- A new 6FE secondary school with potential to expand to 8FE in Bishop's Stortford South.
- New 3FE primary school and up to 8FE secondary school East of Welwyn Garden City.
- Provision up to 20 FE primary and secondary school provision in the Gilston Area
- Expansion of existing secondary provision in the District
- Secondary school provision north and east of Ware

HEALTH AND SOCIAL CARE PROJECTS

- New primary and community healthcare projects to meet future growth will be required but currently under review as part of the development of the STP
- New acute and mental healthcare projects to meet future growth will be required but currently under review as part of the development of the STP

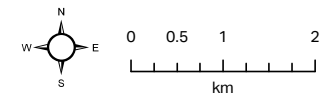
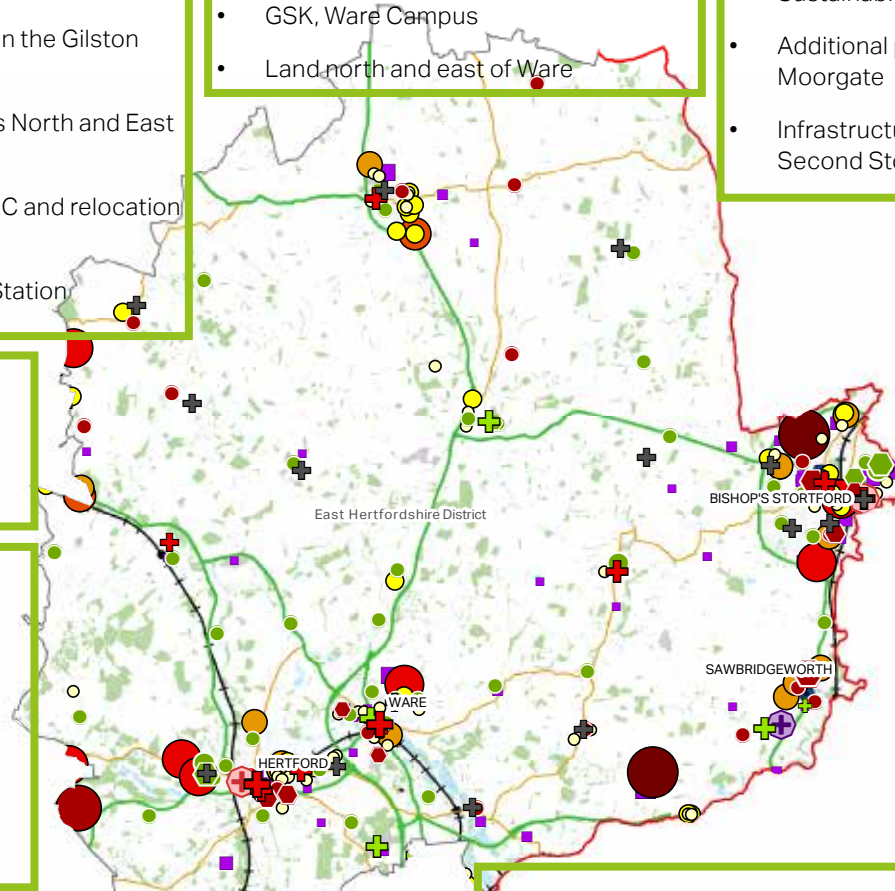


FIGURE 5.3 - SUMMARY OF DEVELOPMENT & KEY LOCAL PROJECTS FOR EAST HERTS

Refer to Universal Legend at the start of Chapter 5 on page 136 to interpret Map icons

HERTSMERE

2018 - 2031

8,985
homes needed

7,500
new people (+7%)

3,880
homes planned

2,700
new jobs (+4%)

EXISTING CAPACITY ISSUES

- Regular traffic congestion on the A1(M) and M25, particularly around junctions 22, 23 and 24.
- Peak time congestion on A414.
- Local congestion issues on Elstree Way Corridor in Borehamwood.
- Peak time congestion on trains, both on the Potters Bar and Borehamwood lines.
- Local bus service capacity issues due to TfL route reductions.
- Secondary school issues in Radlett, where there is no local secondary school facility.
- Deficits in provision of organised outdoor sports.

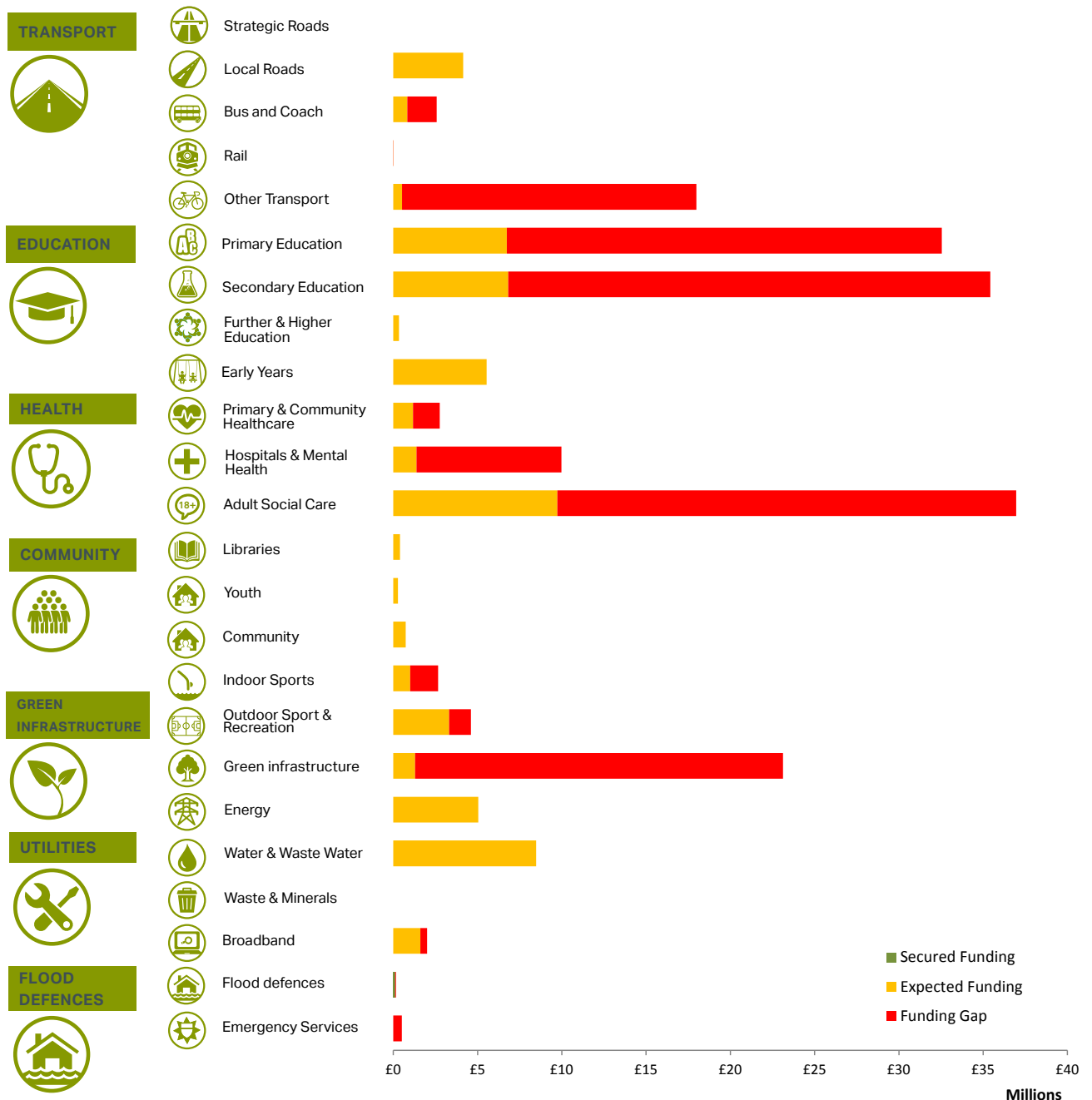
Total Infrastructure Costs: **£196,180,000**

Total Secured Funding: **£110,000**

Total Expected Funding: **£59,320,000**

Total Funding Gap: **£136,760,000**

Funding as % of Costs: **30%**



SUMMARY OF INFRASTRUCTURE PROJECT COSTS AND FUNDING GAPS (2018-2031)

COMMUNITY & GREEN INFRASTRUCTURE

- Provision of 13.5ha of parks to address shortfall of provision in Bushey and Potters Bar.
- Allotments in Borehamwood and Potters Bar.
- Greenway Strategy delivery in Watling Chase.
- Feasibility study of expanding outdoor sport and recreation facilities at Allum Lane.

FLOOD DEFENCES

- Borehamwood Combined Sources Flood Alleviation Study

UTILITIES PROJECTS

- Upgrading of Maple Lodge and Blackbirds waste water treatment works.

KEY EMPLOYMENT SITES

- Elstree Way, Borehamwood
- Centennial Park, Elstree
- Cranborne Road, Potters Bar
- Land on Rowley Lane (Safeguarded land)

MAJOR HOUSING DEVELOPMENT

- 21 Prowse Avenue, Bushey Heath
- Thrift Farm Lane
- The Fire Station site, and Job Centre site which form part of the Elstree Way Corridor in Borehamwood

TRANSPORT PROJECTS

- Potters Bar Bus Station upgrade / relocation.
- Station Roads/Allum Lane/Theobald Street/ Shenley Road Junction improvements.
- Baker Street Cycle Route and M25 'Crossing'.
- Cranborne Road Industrial Estate to Town Centre linkage.

HEALTH AND SOCIAL CARE PROJECTS

- New primary, community, acute and mental healthcare projects to meet future growth will be required but currently under review as part of the development of the STP

EDUCATION PROJECTS

- Provision of between 3FE-5FE primary school capacity in Borehamwood.
- Provision of between 1FE-2FE primary school capacity in Bushey, Aldenham and Patchetts Green.
- Expansion of existing secondary provision in Bushey
- Expansion of existing secondary provision in Borehamwood

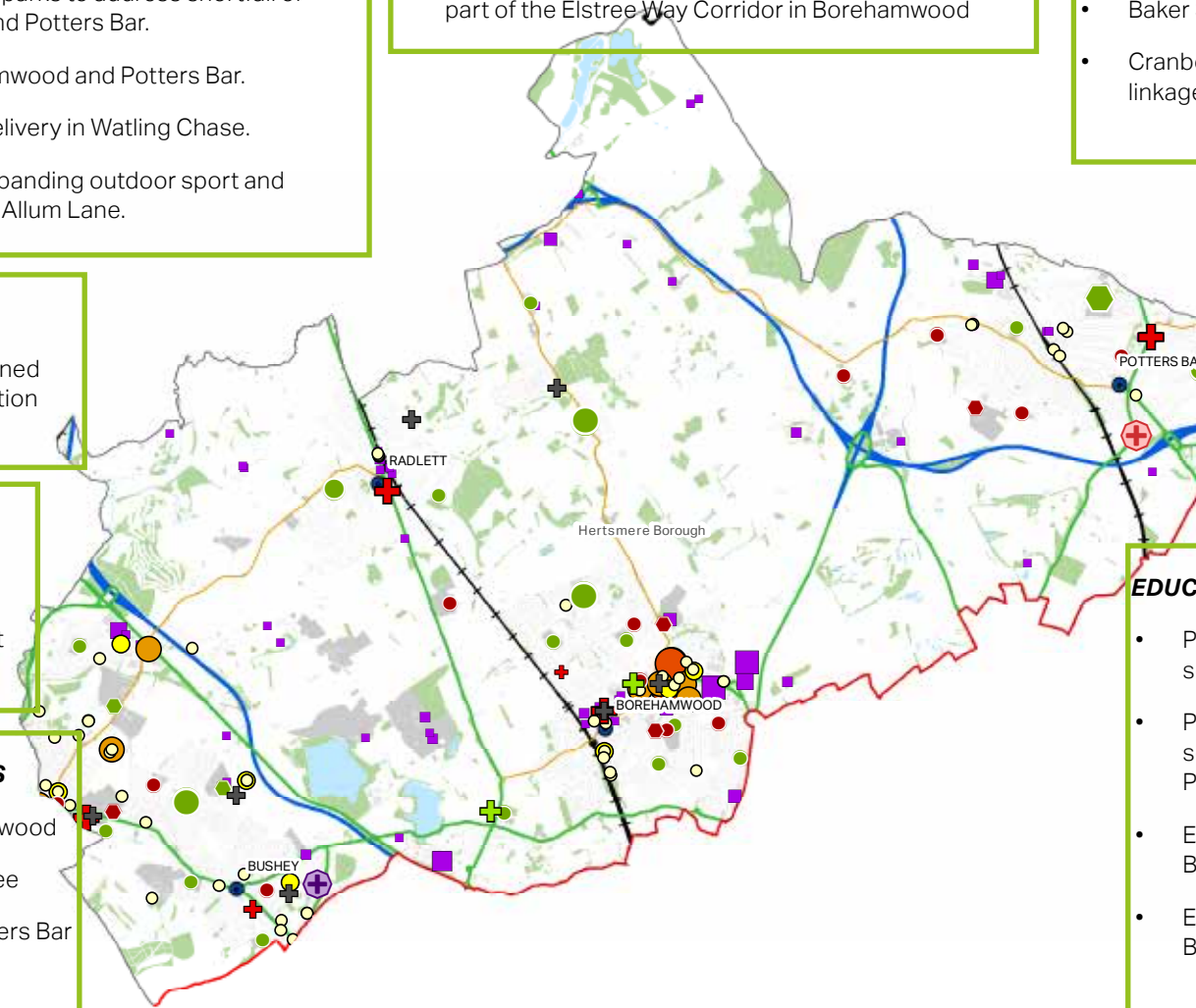
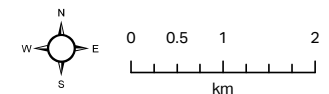


FIGURE 5.4- SUMMARY OF DEVELOPMENT & KEY LOCAL PROJECTS FOR HERTSMERE

Refer to Universal Legend at the start of Chapter 5 on page 136 to interpret Map icons



NORTH HERTS

2018 - 2031

10,350
homes needed

12,000
new people (+9%)

15,010
homes planned

2,000
new jobs (+3%)

EXISTING CAPACITY ISSUES

- Capacity issues of the A505 corridor in Hitchin and Letchworth Garden City, particularly at:
 - the Paynes Park junction and the 'Three Moorhens' junctions,
 - the restricted bridge outside Hitchin Railway Station,
 - the Cambridge Road/Woolgrove Road cross roads and
 - Junction 9 of the A1(M).
- The capacity of Junction 8 of the A1(M) and the A602.
- Restricted bridge height at Baldock Railway Station on the A507.
- Capacity issues at the sewage treatment works at Ashbrook and Royston.

Total Infrastructure Costs: **£577,620,000**

Total Secured Funding: **£80,000**

Total Expected Funding: **£210,850,000**

Total Funding Gap: **£366,690,000**

Funding as % of Costs: **37%**

TRANSPORT



Strategic Roads



Local Roads



Bus and Coach



Rail



Other Transport

EDUCATION



Primary Education



Secondary Education



Further & Higher Education



Early Years

HEALTH



Primary & Community Healthcare



Hospitals & Mental Health



Adult Social Care

COMMUNITY



Libraries



Youth



Community



Indoor Sports

GREEN INFRASTRUCTURE



Outdoor Sport & Recreation



Green infrastructure



Energy

UTILITIES



Water & Waste Water



Waste & Minerals



Broadband

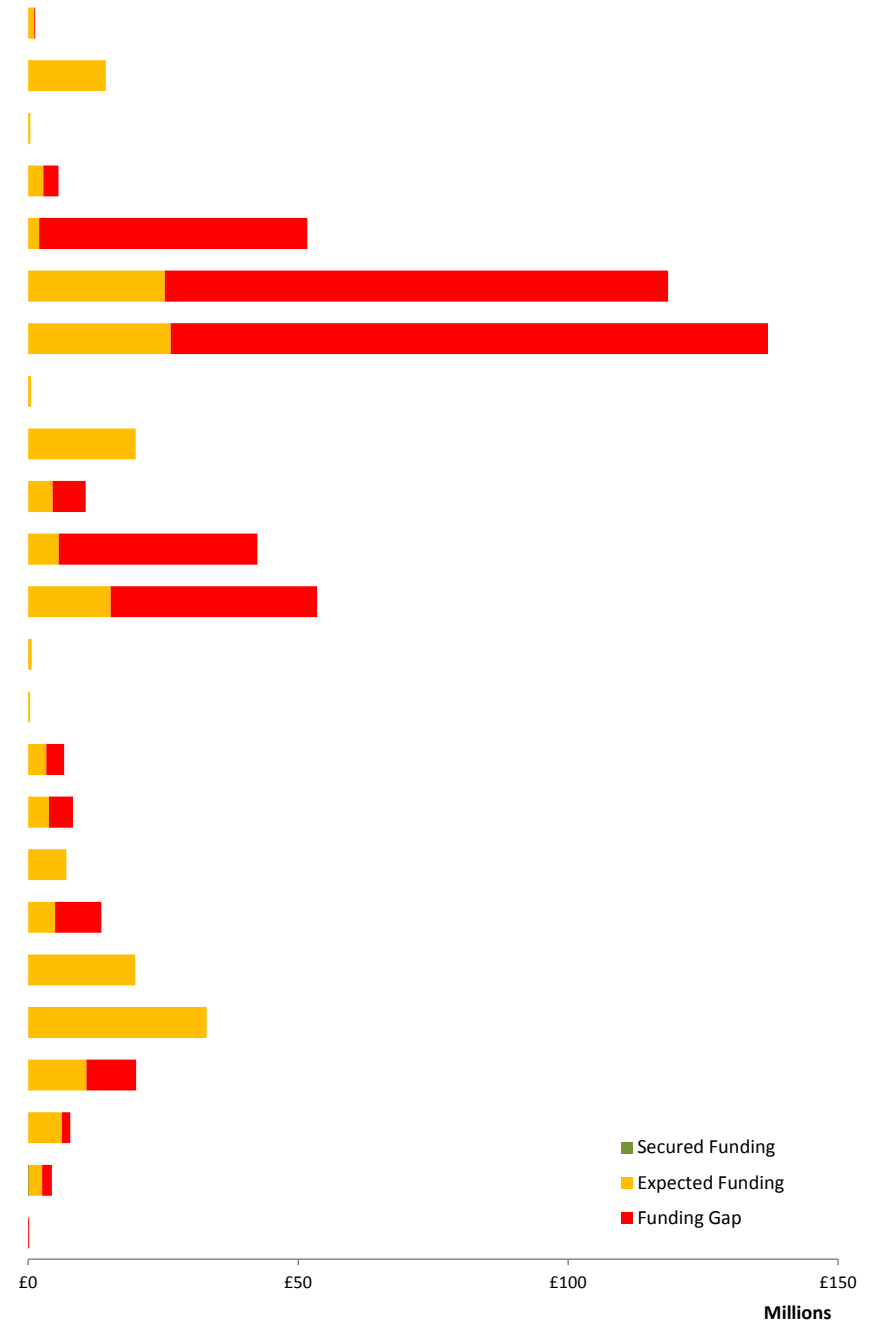
FLOOD DEFENCES



Flood defences



Emergency Services



SUMMARY OF INFRASTRUCTURE PROJECT COSTS AND FUNDING GAPS (2018-2031)

HEALTH AND SOCIAL CARE PROJECTS

- New primary and community healthcare projects to meet future growth will be required but currently under review as part of the development of the STP
- New acute and mental healthcare projects to meet future growth will be required but currently under review as part of the development of the STP

KEY EMPLOYMENT SITES

- Works Road Employment Area, Letchworth
- Orchard Road Industrial Estate, Royston.
- Royston Road Employment Area, Baldock
- Land north of York Way, Royston

MAJOR HOUSING DEVELOPMENT

- Blackhorse Farm
- Wandon Park
- Land west of Cockernhoe
- Land at Highover Farm
- Land north of Letchworth

UTILITIES PROJECTS

- Provision of a Waste Transfer Station, HWRC and WCA Depot, preferred location in the vicinity of the A1/A505 junction.

TRANSPORT PROJECTS

- A505 cycle route and junction treatment for cycle priority.
- Cycle and walking improvements to Hitchin Station.
- Baldock to Letchworth cycle route.
- Letchworth to Stevenage cycle route.
- B195/A505 junction improvement.
- Walking and cycling connections to Baldock.

FLOOD DEFENCES

- Baldock Flood Alleviation Study.

EDUCATION PROJECTS

- 6FE of primary school provision north of Baldock.
- 6FE-8FE secondary school North of Baldock.
- New primary school at Highover Farm.
- New primary and secondary education provision at East of Luton.
- 6 new children's centres or equivalent provision.

COMMUNITY & GREEN INFRASTRUCTURE

- New provision of indoor sports equivalent to 10 badminton courts.
- New provision of swimming pools equivalent to 6.26 lanes.
- Refurbishment of Royston Town Hall.
- Enhancement of 19 town parks and gardens and amenity green space.

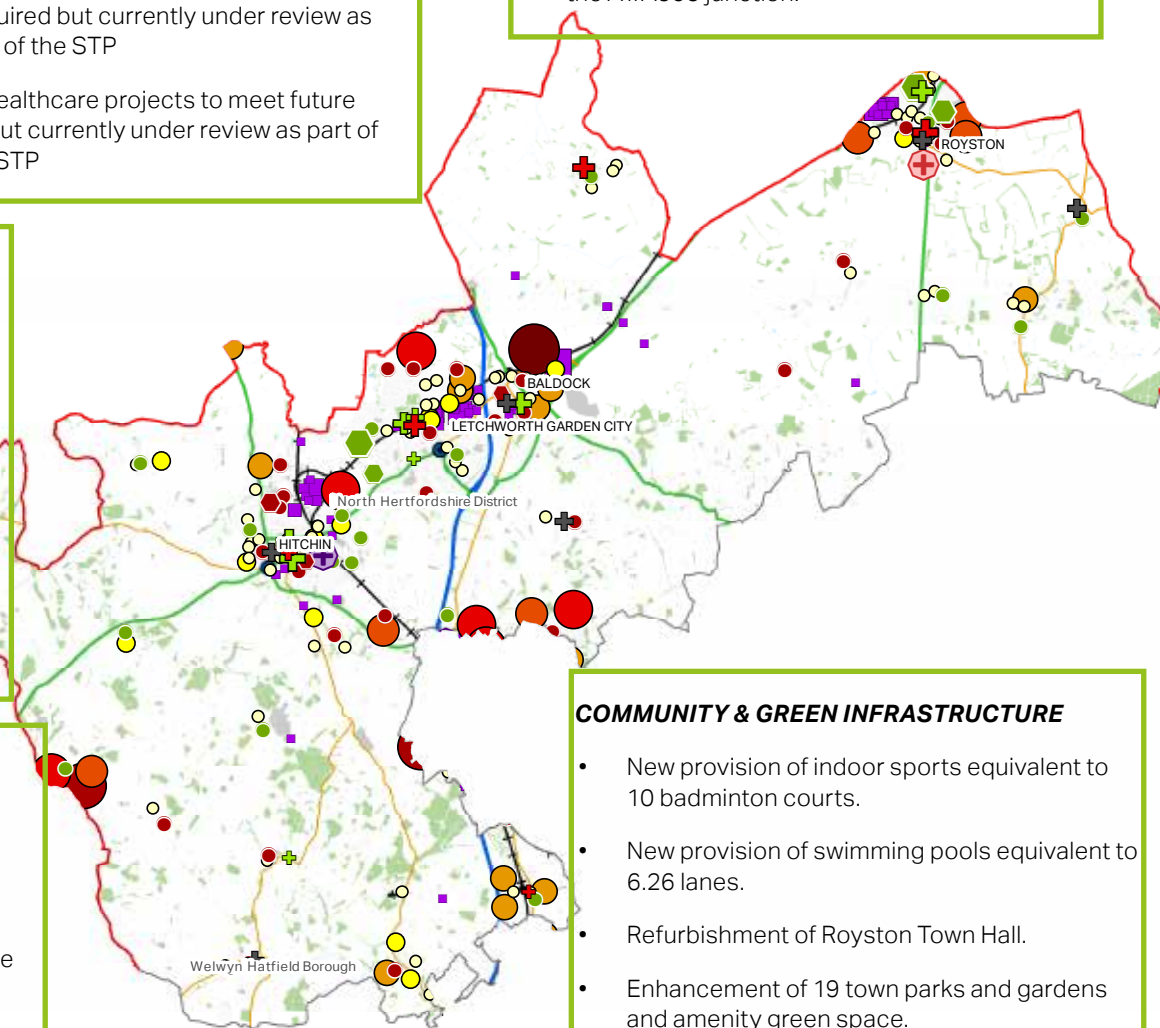


FIGURE 5.5 - SUMMARY OF DEVELOPMENT & KEY LOCAL PROJECTS FOR NORTH HERTS

Refer to Universal Legend at the start of Chapter 5 on page 136 to interpret Map icons

ST ALBANS

2018 - 2031

13,071

homes needed

10,300

new people (+7%)

12,788

homes planned

4,400

new jobs (+5%)

EXISTING CAPACITY ISSUES

- Primary school place issues in St Albans city centre.
- Secondary school place issues in the Harpenden school catchment area.
- Peak time congestion in St Albans city centre, Harpenden town centre and on the A414.
- Intra and inter-urban cycle network deficiencies in Harpenden and St Albans.
- Insufficient existing sport, recreation and cultural facilities.

Total Infrastructure Costs: **£544,000,000**

Total Secured Funding: **£0**

Total Expected Funding: **£187,550,000**

Total Funding Gap: **£356,450,000**

Funding as % of Costs: **34%**

TRANSPORT



Strategic Roads



Local Roads



Bus and Coach



Rail



Other Transport

EDUCATION



Primary Education



Secondary Education



Further & Higher Education



Early Years

HEALTH



Primary & Community Healthcare



Hospitals & Mental Health



Adult Social Care

COMMUNITY



Libraries



Youth



Community

GREEN INFRASTRUCTURE



Indoor Sports



Outdoor Sport & Recreation



Green infrastructure



Energy

UTILITIES



Water & Waste Water



Waste & Minerals



Broadband

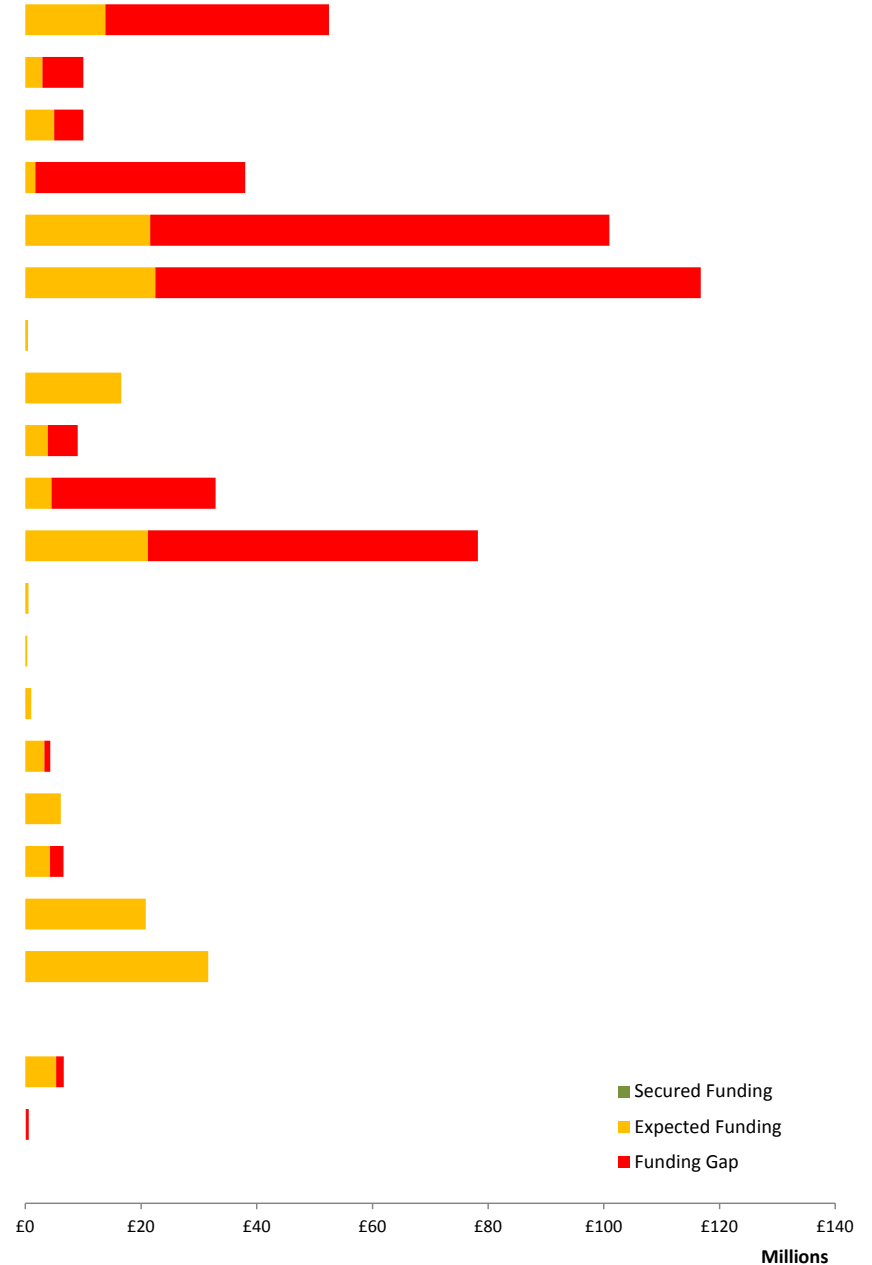
FLOOD DEFENCES



Flood defences



Emergency Services



SUMMARY OF INFRASTRUCTURE PROJECT COSTS AND FUNDING GAPS (2018-2031)

HEALTH AND SOCIAL CARE PROJECTS

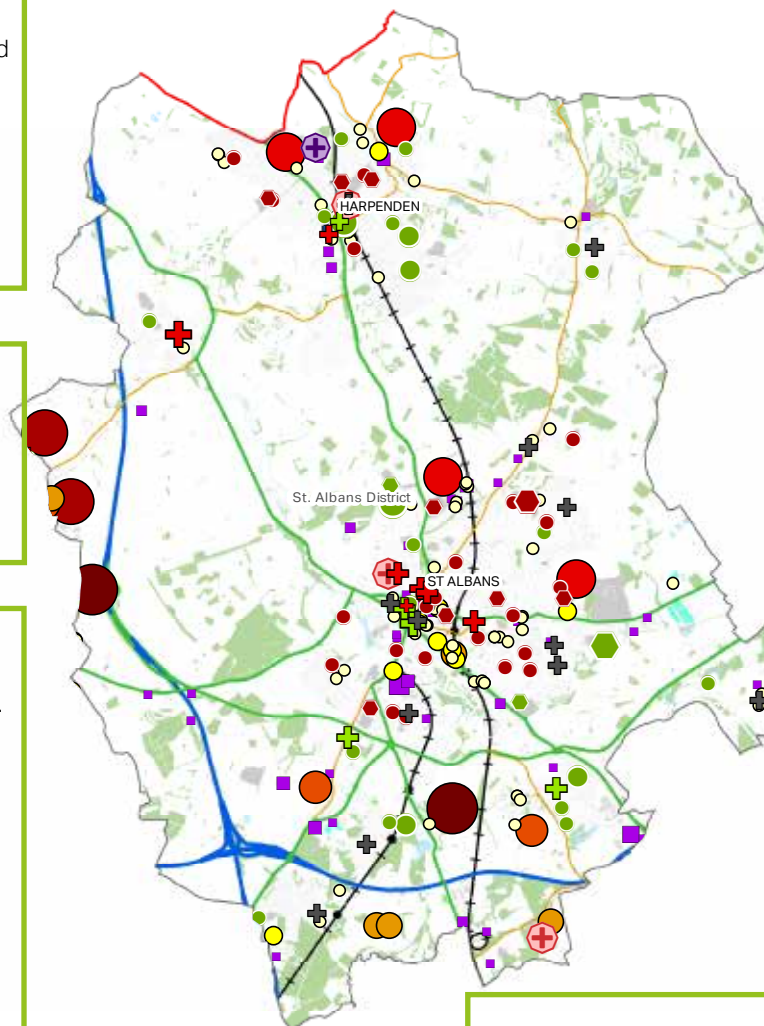
- New primary and community healthcare projects to meet future growth will be required but currently under review as part of the development of the STP
- New acute and mental healthcare projects to meet future growth will be required but currently under review as part of the development of the STP

FLOOD DEFENCES

- Redbourn Surface Water Study.
- Drakes Lane Surface Water and Flood Risk Study.

COMMUNITY & GREEN INFRASTRUCTURE

- Redevelopment of Harpenden Sports Centre.
- Long term improvements to Verulamium Museum.
- Re-provision of Pioneer Youth Centre
- Ellenbrook Country Park.
- Watling Chase Community Forest projects.
- Refurbishment of St Albans Library and co-location of Redbourn and Wheathampstead Libraries



KEY EMPLOYMENT SITES

- East Hemel Central EZ
- St Albans city centre
- Rothamsted & BRE

TRANSPORT PROJECTS

- A1081 Harpenden town centre active travel enhancements and streetscape improvements.
- Abbey Line/A414 Park and Rail Hub near Park Street
- Abbey Line Pedestrian and Cycle bridge over A414.
- Cycleway alongside the A1081 for cyclists to use route between Luton and Harpenden

EDUCATION PROJECTS

- New primary and secondary school provision to serve St Albans
- New primary provision in Harpenden
- New secondary school in Harpenden
- New primary and secondary provision to serve development to the east of Hemel Hempstead
- Expansion of Oaklands College through enabling of residential development as part of the East St Albans broad location.

MAJOR HOUSING DEVELOPMENT

- East Hemel Hempstead (south)
- Park Street Garden Village
- North Hemel
- North St Albans & East St Albans

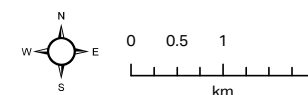


FIGURE 5.6 - SUMMARY OF DEVELOPMENT & KEY LOCAL PROJECTS FOR ST ALBANS

Refer to Universal Legend at the start of Chapter 5 on page 136 to interpret Map icons

STEVENAGE

2018 - 2031

5,700
homes needed

6,400
new people **(+7%)**

6,950
homes planned

2,300
new jobs **(+5%)**

EXISTING CAPACITY ISSUES

- Congestion on the A1(M) due to narrowing to two lanes between J6 and J8.
- Local road congestion.
- Peak time congestion on train services.
- Bus station requires relocation to enable town centre regeneration (new bus/train interchange proposed).
- New secondary school required to serve development.
- Out-dated arts and leisure centres and indoor sports facilities.

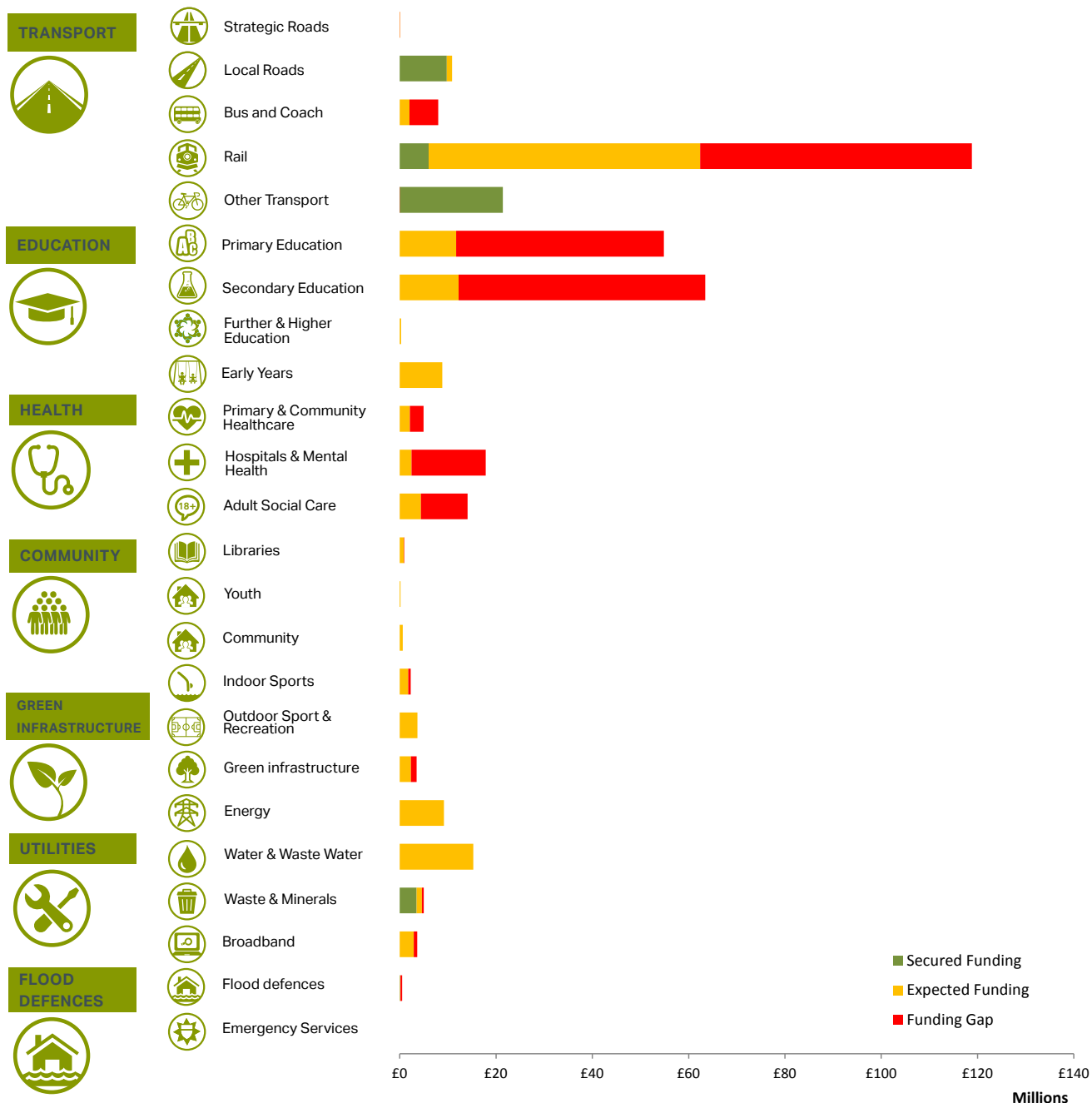
Total Infrastructure Costs: **£367,880,000**

Total Secured Funding: **£40,740,000**

Total Expected Funding: **£139,540,000**

Total Funding Gap: **£187,600,000**

Funding as % of Costs: **49%**



SUMMARY OF INFRASTRUCTURE PROJECT COSTS AND FUNDING GAPS (2018-2031)

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MAJOR HOUSING DEVELOPMENT

- North of Stevenage
- Stevenage Central sites
- Stevenage West
- South east of Stevenage

UTILITIES PROJECTS

- Long-term strategic solutions for waste water.
- Expand or relocation of the Stevenage Household Waste Recycling Centre

FLOOD DEFENCES

- Stevenage Brook Roebuck Gate Combined Flood Risk Assessment.

COMMUNITY & GREEN INFRASTRUCTURE

- Refurbishment/relocation/re-provision of Town Centre library.
- New full-size 3G football pitch.
- Skate park facilities at Hampson Park and St Nicholas Park.
- Re-provision of Bowes Lyon Centre as part of Stevenage Town Centre regeneration.

KEY EMPLOYMENT SITES

- Land west of North Road
- Stevenage Central
- Gunnels Wood Employment Area
- Stevenage West
- Land west of J8

TRANSPORT PROJECTS

- Stevenage Town Centre bus interchange relocation.
- New train station on the Hertford Loop Line to serve Broadwater.
- Improved rail station in Stevenage and station commuter car parking.
- Upgrades to existing active travel network,
- At Grade crossing of St George's Way and Lytton Way

EDUCATION PROJECTS

- New 3FE primary school in West of Stevenage development.
- New 2FE primary school provision in North of Stevenage development.
- New secondary provision to serve Stevenage
- New FEE provision to be made as part of new primary schools.

HEALTH AND SOCIAL CARE PROJECTS

- New primary and community healthcare projects to meet future growth will be required but currently under review as part of the development of the STP
- New acute and mental healthcare projects to meet future growth will be required but currently under review as part of the development of the STP

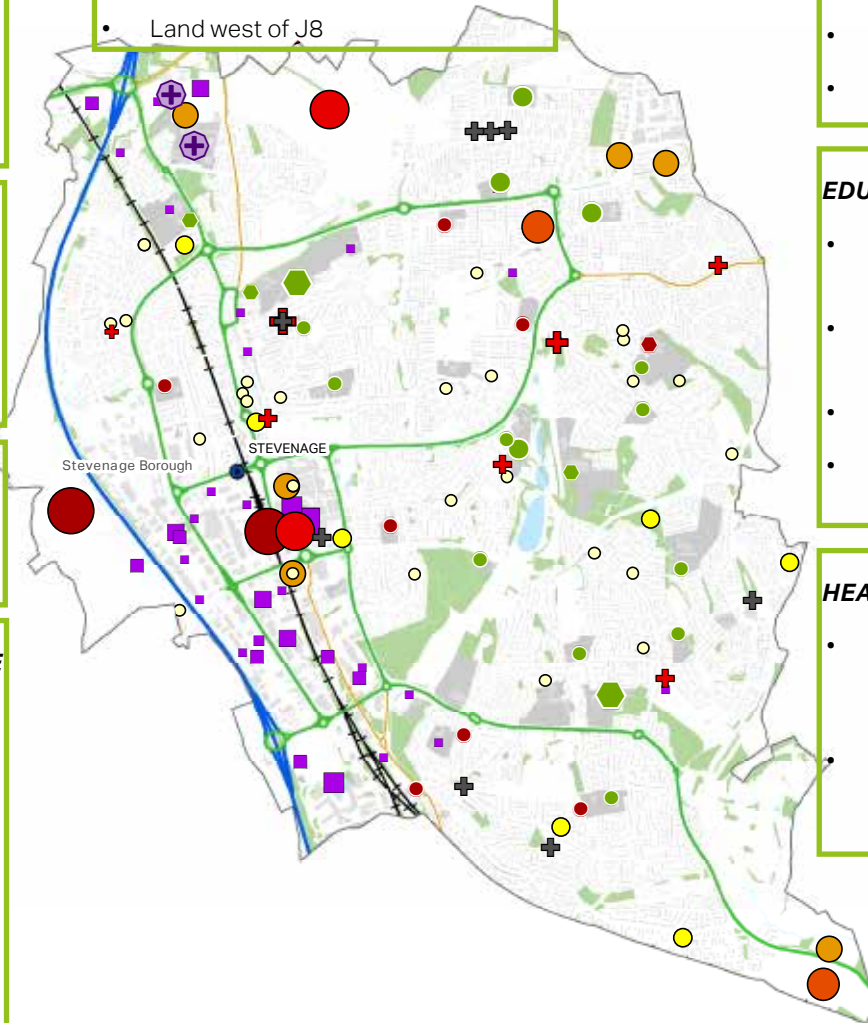


FIGURE 5.7 - SUMMARY OF DEVELOPMENT & KEY LOCAL PROJECTS FOR STEVENAGE

Refer to Universal Legend at the start of Chapter 5 on page 136 to interpret Map icons

THREE RIVERS

2018 - 2031

7,710

homes needed

8,700

new people (+9%)

1,970

homes planned

3,650

new jobs (+7%)

EXISTING CAPACITY ISSUES

- Congestion on A404 approach to M25.
- Local road peak time congestion.
- Bus service improvements in rural areas across the District required.
- GP and Health centres require increased capacity.
- Improvements to bus service across rural areas of District required.

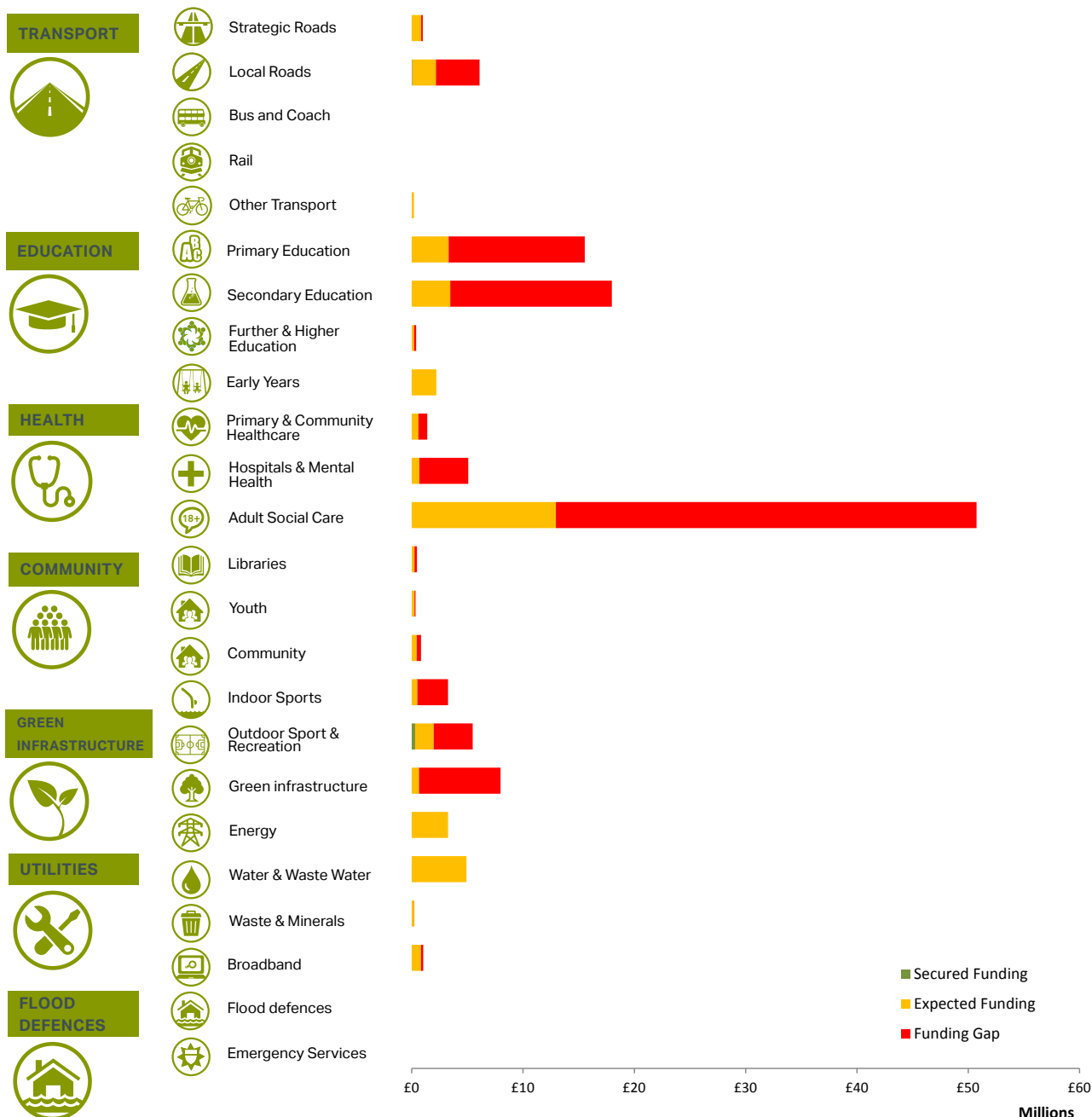
Total Infrastructure Costs: **£128,380,000**

Total Secured Funding: **£350,000**

Total Expected Funding: **£39,580,000**

Total Funding Gap: **£88,450,000**

Funding as % of Costs: **31%**



SUMMARY OF INFRASTRUCTURE PROJECT COSTS AND FUNDING GAPS (2018-2031)

KEY EMPLOYMENT SITES

- Kings Langley Employment Area.
- Croxley Business Park
- Tolpits Lane Employment Area
- Carpenders Park West
- Maple Cross

MAJOR HOUSING DEVELOPMENT

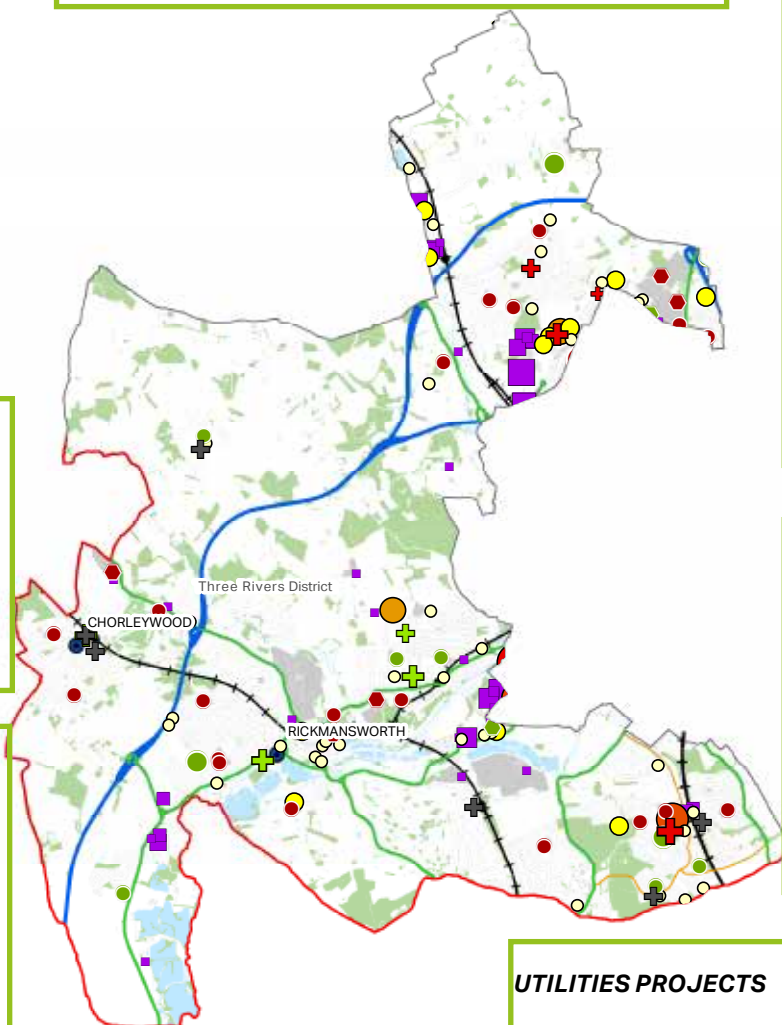
- Killingdown Farm
- Fairways Farm
- Land at St Andrews Road, South Oxhey
- Land Rear of The Queens Drive.

HEALTH AND SOCIAL CARE PROJECTS

- New primary and community healthcare projects to meet future growth will be required but currently under review as part of the development of the STP
- New acute and mental healthcare projects to meet future growth will be required but currently under review as part of the development of the STP

EDUCATION PROJECTS

- New secondary provision in Croxley Green
- Expansion of primary provision across the District



TRANSPORT PROJECTS

- M25 spur approach to Hunton Bridge roundabout - widening the approach/circulation.
- Increased circulatory capacity of the roundabout at A412/ A404 (Rickmansworth)
- Extension of cycle route between Rickmansworth and Chorleywood.
- Eastbury Road/Deacons Hill junction - possible left turn lane from Deacons Hill.
- New cycle route between Abbots Langley and Watford Town Centre.
- Pedestrian safety improvements and associated parking management on A404 Chenies Road.

COMMUNITY & GREEN INFRASTRUCTURE

- Refurbishment of Langleybury, South Way (Abbots Langley), Scotsbridge (Rickmansworth) and Baldwins Lane (Croxley Green) play areas.
- New play area in Ashridge Ward (South Oxhey).
- New skateboard park facilities in Carpenders Park.
- Reinstatement of South Oxhey allotments.

UTILITIES PROJECTS

- Reconfiguration of the Rickmansworth Household Waste Recycling Centre

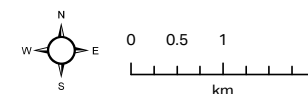


FIGURE 5.8 - SUMMARY OF DEVELOPMENT & KEY LOCAL PROJECTS FOR THREE RIVERS

Refer to Universal Legend at the start of Chapter 5 on page 136 to interpret Map icons

WATFORD

2018 - 2031

8,655
homes needed

9,600
new people (+10%)

7,880
homes planned

7,600
new jobs (+8%)

EXISTING CAPACITY ISSUES

- Peak time congestion at Bushey Arches, Hempstead Road, St Albans Road, Rickmansworth Road, Dome Roundabout and around the Ring Road.
- PM peak time congestion from Stephenson Way flow towards A41/M1 Junction 5.
- Existing school capacity to meet growth
- Existing GP capacity issues to accommodate growing requirement.
- Capacity improvements on waste water network to accommodate growing need.
- Fragmented cycle network limiting sustainable transport and other measures to mitigate congestion.
- Limited number of sites with vehicle charging points.

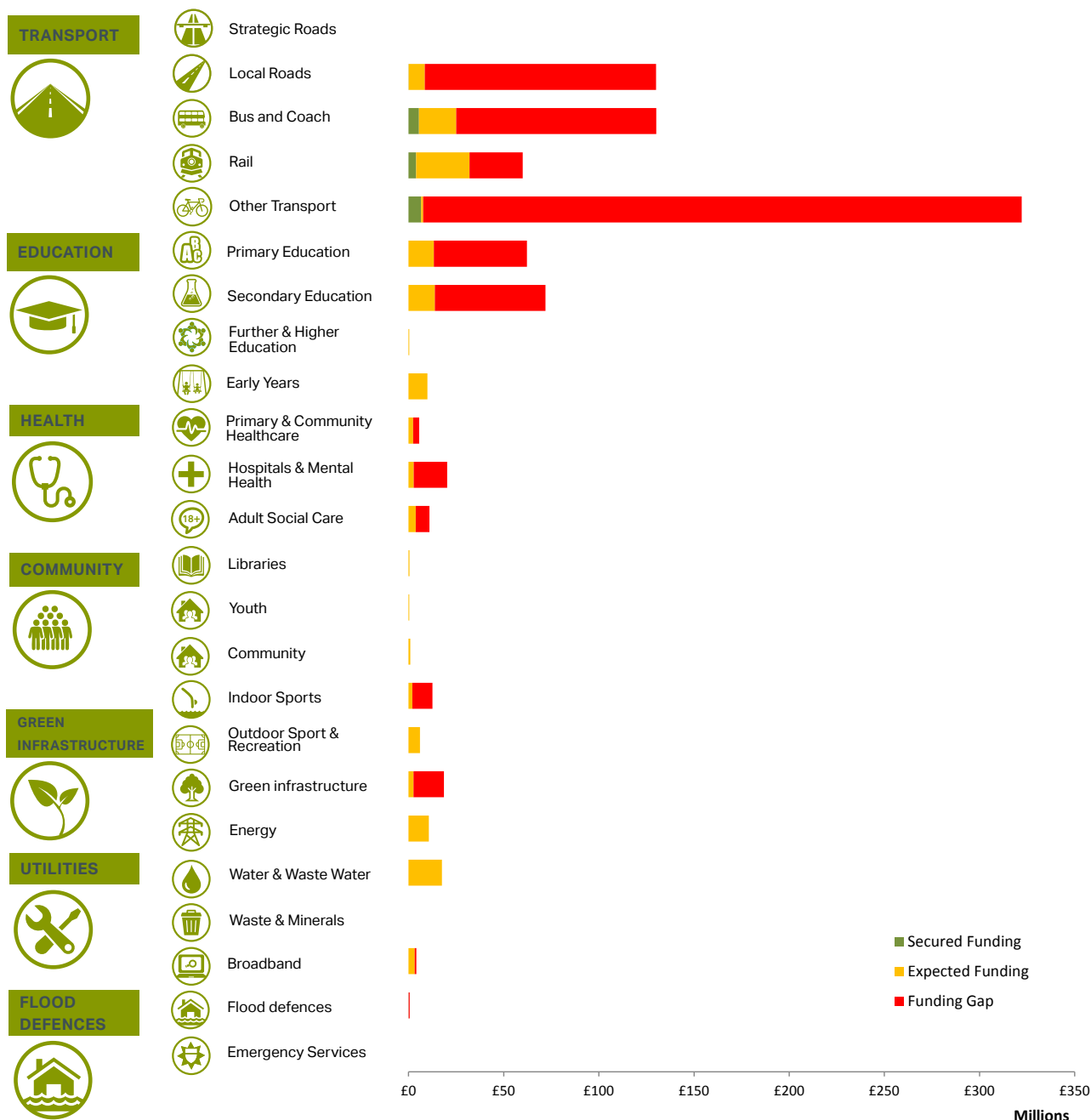
Total Infrastructure Costs: **£895,330,000**

Total Secured Funding: **£16,150,000**

Total Expected Funding: **£147,430,000**

Total Funding Gap: **£731,740,000**

Funding as % of Costs: **18%**



SUMMARY OF INFRASTRUCTURE PROJECT COSTS AND FUNDING GAPS (2018-2031)

UTILITIES PROJECTS

- Maintenance and ongoing renewal and replacement of waste water infrastructure.

FLOOD DEFENCES

- Watford Combined Surface Water and Flood Risk Study.

COMMUNITY & GREEN INFRASTRUCTURE

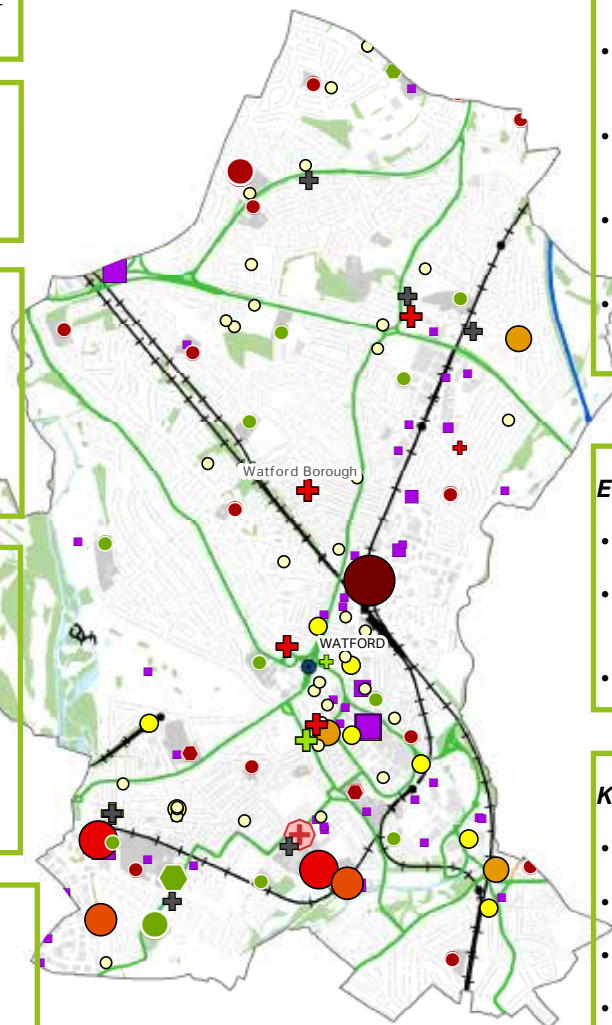
- Cassiobury Park enhancement.
- Colne Valley linear park.
- Oxhey Park North including skate park and cafe.

HEALTH AND SOCIAL CARE PROJECTS

- New primary and community healthcare projects to meet future growth will be required but currently under review as part of the development of the STP
- New acute and mental healthcare projects to meet future growth will be required but currently under review as part of the development of the STP

MAJOR HOUSING DEVELOPMENT

- Watford Junction
- Western Gateway
- Riverwell - Land south of Watford General Hospital.
- Croxley View



TRANSPORT PROJECTS

- Enhancing public transport routes through Bushey and Bushey Heath along A4140 by creating an enhanced bus route.
- Reduce Ascot Road from dual carriageway to a single carriageway, with the other lane becoming a bus priority lane.
- Enhancements to the Abbey Line to encourage modal shift to rail for journeys between St Albans and Watford.
- Exchange Road enhancements north-west of Vicarage Road junction.
- New walking connection between Tolpits Lane industrial area and Western Gateway via Ebury Way and Dwight Road.

EDUCATION PROJECTS

- Expansion of existing primary schools across the Borough
- Provision of new primary schools, including at Watford Junction and Riverwell.
- Expansion of existing secondary schools

KEY EMPLOYMENT SITES

- Watford Junction Employment Area- primarily for residential
- Western Gateway - primarily for residential
- Watford Business Park - primarily for residential
- Imperial Way/Colonial Way
- Greycaine Road
- Clarendon Road

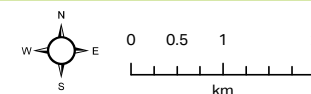


FIGURE 5.9 - SUMMARY OF DEVELOPMENT & KEY LOCAL PROJECTS FOR WATFORD
Refer to Universal Legend at the start of Chapter 5 on page 136 to interpret Map icons

WELWYN HATFIELD

2018 - 2031

12,000
homes needed

15,800
new people (+13%)

10,970
homes planned

10,150
new jobs (+13%)

EXISTING CAPACITY ISSUES

- Congestion at A1(M) motorway junctions 3, 4 and 6 and adjoining roads (particularly around Junction 4)
- Bus services are being cut, increasing difficulty for sustainable modal shifts.
- Trains at overcapacity during peak times.
- Waste water network and sewerage treatment works in need of upgrade to facilitate growth.
- Increased provision of school and education facilities required to support growth.
- Protection and re-provision of key green infrastructure, particularly at Ellenbrook Country Park.

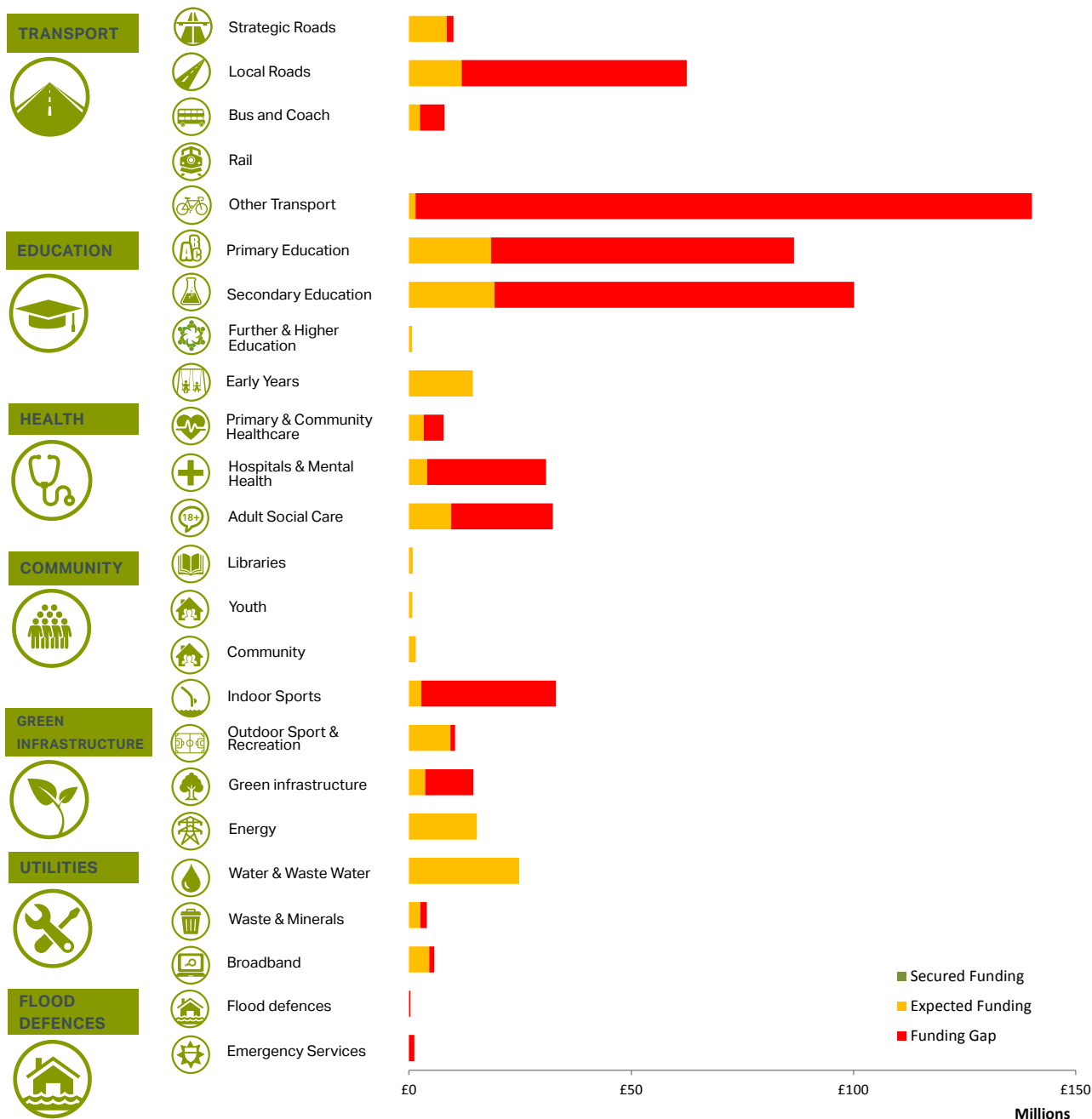
Total Infrastructure Costs: **£605,780,000**

Total Secured Funding: **£0**

Total Expected Funding: **£160,210,000**

Total Funding Gap: **£445,580,000**

Funding as % of Costs: **26%**



SUMMARY OF INFRASTRUCTURE PROJECT COSTS AND FUNDING GAPS (2018-2031)

UTILITIES PROJECTS

- Provision of a 700sqm household waste recycling facility to replace that at Cole Green.

FLOOD DEFENCES

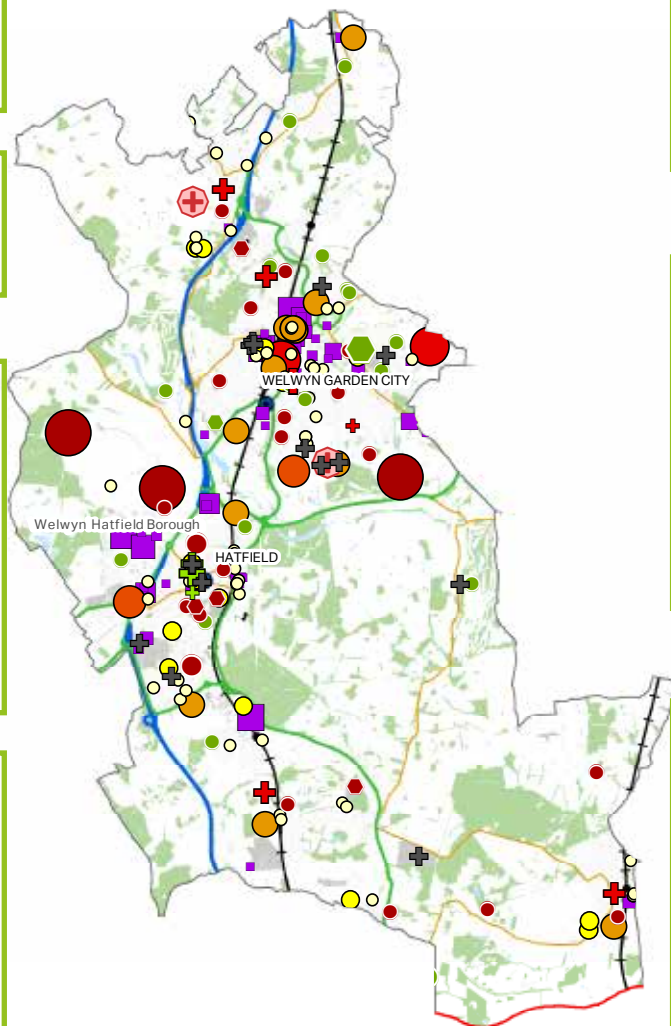
- Travellers Lane LLFA Study Area

MAJOR HOUSING DEVELOPMENT

- Stanborough Bury Farm
- Symondshyde
- Broadwater Road West
- Panshanger Airfield
- Land south east of Welwyn Garden City

KEY EMPLOYMENT SITES

- Marshmoor
- Broadwater Road West
- North West of Hatfield
- Hatfield Business Park
- Land at Falcon Way, Shire Park



TRANSPORT PROJECTS

- Replacing rail signals with digital technology.
- A1(M) cycle overbridge.
- Improved pedestrian bridge over the railway.
- Cole Green Way Signage at B195.

EDUCATION PROJECTS

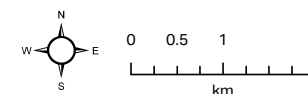
- 5 new children's centres or equivalent nursery provision.
- 22FE of primary provision through expansion of existing schools together with new schools as appropriate.
- 22FE of secondary provision through expansion of existing schools together with 2/3 new schools.

HEALTH AND SOCIAL CARE PROJECTS

- New primary and community healthcare projects to meet future growth will be required but currently under review as part of the development of the STP
- New acute and mental healthcare projects to meet future growth will be required but currently under review as part of the development of the STP

FIGURE 5.10 - SUMMARY OF DEVELOPMENT & KEY LOCAL PROJECTS FOR WELWYN HATFIELD

Refer to Universal Legend at the start of Chapter 5 on page 136 to interpret Map icons



A photograph of St Albans Cathedral at night, illuminated by warm lights. The cathedral's architecture features a large square tower and a smaller spire. The image is partially obscured by a green diagonal graphic element.

06

FUTURE FUNDING & DELIVERY

Funding is the biggest risk to the delivery of infrastructure projects, in which the current funding environment is complex and constantly changing. Closing this funding gap in Hertfordshire will require a broader and more sophisticated approach to infrastructure financing than currently exists.

As indicated in Section 4 and 5, there is a significant gap between the cost of the infrastructure Hertfordshire is likely to need by 2031 and the funding Hertfordshire expects to be available to deliver it.

The delivery of infrastructure is fundamentally dependent on timely and sufficient funding. To close Hertfordshire's infrastructure funding gap, a full range of funding mechanisms should be considered. This will also require HCC, the Hertfordshire Local Authorities, the LEP and infrastructure providers to collaborate closely and consider recently emerging innovative funding options. This in conjunction needs to align with a next generation pipeline of projects that have been identified and clearly scoped from feasibility to design to construction.

This section explores the traditional and emerging sources of funding for the infrastructure required in Hertfordshire and outlines emerging opportunities which may help to fill the significant funding gap. Specifically:

1. It starts by considering the current arrangements for funding of different types of infrastructure, focusing on mainstream grant funding from the public sector.

2. It then considers the potential for developer contributions (Section 106 agreements and the Community Infrastructure Levy) to fill the funding gap, in the context of overall scheme viability relating to land values across Hertfordshire.

3. Finally, alternative options for funding infrastructure are described for consideration by the Hertfordshire local authorities and which infrastructure type they could potentially support.

This section reflects current knowledge of approaches to the delivery and funding of infrastructure. However, the funding context is complex, and changing regularly. Alternative infrastructure funding options will need to be continually reviewed to take account of changing circumstances.

Over the document time period (to 2031) at least two general elections will take place. Future policy towards various types of infrastructure (health, education, transport etc.) is difficult to predict. Local authorities must therefore be flexible so that the inevitable changes to delivery and funding over the planning period can be accommodated.

Total Infrastructure Costs: £5,700,910,000

Total Secured Funding: £549,710,000

Total Expected Funding: £1,554,210,000

Total Funding Gap: £3,597,000,000

Funding as % of Costs: 37%

6.1 ORGANISATIONS WITH ACCESS TO PUBLIC FUNDING

The role of local authorities, Central Government and the private sector in funding and delivering infrastructure varies according to infrastructure type. Roles and responsibilities also change over time in reflection of evolving policy and practice. Generally, education, health, and general community facilities, are the responsibility of the local authority with funding provided by both Central Government grants and local taxation. The role of the market is minimal, reflecting that these services are public goods which meet social objectives (though developers can be required to contribute as a condition of planning permission). Other forms of infrastructure are delivered by a mixture of non-governmental public bodies and private companies within strongly regulated markets (e.g. rail). Most utilities are delivered in semi competitive markets by highly regulated private companies.

This section begins with an overview of the different tiers of local government in Hertfordshire, and their funding streams and delivery responsibilities. It goes on to set out the organisations and funding sources relevant to the delivery of each category of infrastructure considered within this HIFP.

LOCAL AUTHORITIES

Hertfordshire County Council

HCC is responsible for funding and providing many key local services including schools, social services, the fire service, roads, libraries, trading standards, land use, transport planning and waste management. HCC is the transport authority responsible for delivering the majority of the transport-related infrastructure to support development proposals in each local authority within Hertfordshire. In 2016/17, HCC's budget was £790m. The greatest proportion of expenditure was on Adult Care (£322.3m), followed by Children's Services (£170.0m) and Roads and Waste (£103.4m).

Borough / City / District Councils

The main services provided by the second tier of local government include planning and development control, environmental health, housing, leisure and recreation, and waste collection.

Parish and Town Councils

These elected corporate bodies vary in size and in the services / facilities they provide, which can include village halls, recreation facilities, cemeteries, allotments and public conveniences. They receive a share of council tax (the precept). Town / Parish councils and associated neighbourhood forums also now receive a "meaningful proportion" of Community Infrastructure Levy receipts

(typically 15-25%) when new homes are delivered; this can be spent on anything to help mitigate the impact the development has on the town or parish.

Public Sector Funding: Context and Outlook

Sources of finance for local authorities include receipts from council tax distributed by Central Government, government grants, developer contributions (S106 or CIL) for specific local level infrastructure and service income.

Since 2011 all local authorities in the UK have seen year on year reductions in funding received from Central Government via the Revenue Support Grant. The devolution agenda has seen many traditional sources of funding to local authorities pooled into the Single Local Growth Fund and reallocated to Local Enterprise Partnerships as part of Local Growth Deals. Against this reduction in budgets, April 2013 saw the Local Government Finance Act come into force allowing Local Authorities to keep half the business rate income in their area. In the Autumn Statement 2015, the Government announced full localisation of business rates by 2020; however current plans are to allow English Councils to retain 75% of business rates in 2020, with 100% retention pilots in some parts of the country. An additional funding source for Councils is the new homes bonus, which commenced in April 2011 and will match fund the additional council tax raised for new homes and empty properties brought back into use, with an additional amount for affordable homes, for the following six years. However there are also uncertainties about the future of this funding stream (discussed further in this chapter).

The overall context for Local Authorities is therefore one of reducing budgets, and increased reliance on competitive funding and the private sector to deliver services and new infrastructure. In recent years some new funding streams, in particular retained business rates, have emerged but the scale of their potential contribution towards infrastructure is currently uncertain.

OTHER INFRASTRUCTURE PROVIDERS

The main delivery agencies and funding sources for each infrastructure type covered in the HIFP are described below.

Roads

Capital funding for strategic roads is the responsibility of Highways England (HE), a publicly owned corporation since April 2015. HE reports to the Department for Transport and has responsibility for managing the Strategic Road Network in England. HE undertakes large scale improvements through a programme of major schemes, carries out routine maintenance of roads, structures and technology to make the network safe, serviceable and reliable and makes 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 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. HE have announced

that RIS2 will cover the period 2020 to 2025, and produced a Strategic Road Network Initial Report which sets out the investment priorities for the second Road Period. Priorities include safety, cycling and walking provision and the environment. Schemes being considered for investment in RIS2 will need to successfully progress through HE's Project Control Process.

Local roads in Hertfordshire are the responsibility of HCC. The main source of capital funding for local roads is Council borrowing. The government are currently in the process of creating a Major Road Network (MRN), and this would open opportunities for relevant roads to be funded from the National Roads Fund. The MRN will seek to reduce congestion, support economic growth, facilitate the delivery of houses and support all road users.

More broadly, HCC is responsible for the Local Transport Plan, and for planning and delivering the majority of the transport-related infrastructure to support development proposals in each local authority within Hertfordshire. 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 National Productivity Investment Fund which focused capital expenditure on housing, research and development and economic infrastructure, including transport and digital communications.

The Hertfordshire LEP contributes to road infrastructure funding through the Single Local Growth Fund (SLGF). Currently, Hertfordshire LEP has received £204.2m through

three rounds of growth deals through the Local Growth Fund allocated by Government. This in turn has been partially invested to help road infrastructure projects. The Hertfordshire LEP has also supported construction of road infrastructure through Department of Transport funding routed through the LEP.

Rail

Network Rail is an arms-length public body with responsibility for the rail network. 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 20 of the biggest and busiest of them (none of which are within Hertfordshire), all the other stations being managed by one or other of the various train operating companies. Track renewal, the ongoing modernisation of the railway network by replacing track and signalling is carried out by private engineering firms under contract.

Projects for capital investment in the local rail network need to meet the Investment Decision Framework process to be planned / funded within a 5-year Control Period. Capital funded projects that require Government funding are now in a Rail Network Enhancements pipeline, which are not included in the 5-year control period cycle. Control Periods are now for setting out Operations, Maintenance and Renewals (OMR) expenditure by Network Rail. 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. The next Control Period (CP6) covers the period 2019-2024 with expenditure of up to £47bn.

Capital funding is also made available through various initiatives, such as the DfT's New Station Fund and Access for All Fund.

Integrated Transport (Buses, Cycling, Walking)

The County Council is responsible for the delivery of the Local Transport Plan. Its responsibilities include cycling schemes, walking routes and passenger transport improvements.

A number of cycle routes through the County belong to the Sustrans National Cycle Network and there are Rights of Way for walking, cycling and horse riding. There are also some tow paths associated with the Grand Union Canal in Berkhamsted and the Lea and Stort Rivers between Hertford and Bishops Stortford.

The bus network comprises services that are operated commercially through Arriva, Uno and Centrebus. TfL does provide some cross boundary routes to and from towns in the south of the County with HCC also providing support to a small percentage of local bus services. A number of commercial express coaches also operate providing local towns with connections to central London, Oxford and Stansted Airport. HCC also provide some door to door services run by HCC and Clinical Commissioning Groups.

Recent funds made available for sustainable transport have included the Local Sustainable Transport Fund and the Transforming the Cities fund, which aims to improve

intra-city transport through investment into public and sustainable transport, however these funds are all now closed.

Education

Capital funding for primary and secondary education is derived from the Basic Need Central Government grant scheme, as well as Local Authority borrowing. Basic Need funding allocations were announced in 2018 to enable local authorities to create new school places until 2020.

The Priority School Building Programme (PSBP) has been in place since 2011; the last round of funding was in 2015. Schools across England were invited to bid for the fund and awards were allocated to those deemed most in need of rebuilding or maintenance.

The Education and Skills Funding Agency delivers major projects and operates key services including school capital programmes. It is accountable for £63bn of funding across the education and training sector. In Hertfordshire, along with the European Social Fund, the Agency will help to fund the Hertfordshire Adult and Family Learning Service. Capital funding in 2019 to 2020 for investment in the maintenance and regeneration of schools will be delivered through a series of funds: Devolved Formula Capital; School Condition Allocations; Condition Improvement Fund (CIF); and Healthy pupils capital funding.

Further and higher education have received significant capital investment funding through the College Capital Investment Fund and the Further Education Capital Investment Fund which have provided funding to multiple colleges include North Hertfordshire College and West

Herts College. In addition Hertfordshire LEP is currently allocating £1 million from its Single Local Growth Fund (SLGF) to a new skills capital equipment and estates fund to deliver projects that support skills development in Hertfordshire.

Health

CCGs are groups of general practices which come together to commission health services. There are over 200 CCGs, two of which cover Hertfordshire's population. The CCGs manage most of the NHS commissioning budget; however NHS England commissions specialised services, primary care, offender healthcare and some services for the armed forces. 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 also key healthcare providers and utilise a portfolio of facilities, some of which will be owned and others leased. They have access to funds which are sometimes self-generated or a result of bids to the centre. Co-ordinated by the STP, commissioners and providers have developed Strategic Estates Plans which list the current assets and identifies projects that have both capital and revenue costs. As previously written all proposals will be subject to public engagement or consultation and must be affordable to the health system. The Strategic Estates Plans are identifying the capital investment likely to be needed in the years up to 2020/21.

The Strategic Estates Planning Service, part of NHSI and NHSE, provide support to STPs in the development of their investment plans. The Department of Health and Social

Care owns two property companies, NHS Property Services and Community Health Partnerships, which support the delivery of individual projects

Adult social care is means tested, and approximately 75% of care is self-funded. Approximately 25% is funded by the local authority through council tax, currently partly supported by the Revenue Support Grant and the Social Care precept (which allows Councils to increase council tax by an additional 2% to meet the Duties introduced under the Care Act 2014). Within Hertfordshire, the County Council currently commissions 49% of the residential care market and 23% of the nursing market (NHS commissions 16% of the nursing care market). The remainder is funded by the private sector.

The Better Care Fund aims meet Government objectives for more social care to take place outside of hospitals, reducing the burden on admissions and readmissions.

Emergency Services

Hertfordshire is policed by Hertfordshire Constabulary whose headquarters are in Welwyn Garden City. The main source of funding for the police force is the Central Government grant. 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 Police Grant Report For England Wales 2018/19 indicates the proposed grant for each local policing body, with Hertfordshire being allocated £116.5m.

Hertfordshire Fire & Rescue Service (HFRS) services are generally free, although there are charges for some services. Funding comes from two principal sources: a Central Government grant, and a levy (precept) on the local council tax. Total income for fire and rescue authorities has fallen substantially in real terms in recent years.

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 East of England Ambulance Service NHS Trust (EEAST) with 11 stations located across Hertfordshire. Funding for this organisation is from the NHS rather than Central Government, like the other two emergency services however the ambulance service has experienced reductions in overall funding in recent years.

Community, Sports and Leisure

Most community services, including the running and development of leisure centres, museums and galleries, are the responsibility of the lower tier Councils within Hertfordshire. Libraries are managed by HCC.

Local Parish and Town Councils can provide some facilities themselves, or contribute towards their provision by others. Parish Councils have the power to raise money locally through the precept, the parish council's share of the council tax. This is an increasingly important source of funding for local services. Parish councils may also secure support from a range of specialist organisations such as Sports England, the Arts Council or the Lottery Fund.

Green Infrastructure, Parks and Outdoor Sports

Natural England is the non-departmental public body which provides advice to ensure that England's natural environment, including its land, flora and fauna, freshwater and marine environments, geology and soils, are protected and improved. Natural England promotes the concept of green infrastructure as a way to deliver a wide range of benefits for people and the natural environment together, and delivery of green infrastructure via the spatial planning system.

Local Authorities and parishes have responsibilities for local parks and recreation areas. Other organisations whose purpose is to maintain and improve green infrastructure across Hertfordshire include Hertfordshire Landscape and Green Infrastructure Group (Sub-group of Hertfordshire Planning Group (HPG), Hertfordshire and Middlesex Wildlife Trust and Hertfordshire Local Nature Partnership).

Utilities

Delivery and funding of utilities infrastructure is largely the responsibility of the relevant utility companies, with connections to services for new sites funded by site developers.

In Hertfordshire, electricity is supplied via National Grid Infrastructure by Eastern Power. Eastern Power is managed by UK Power Networks, the distribution network operator. National Grid also owns, operates and maintains gas infrastructure across the UK. The gas supplier in Hertfordshire is Cadent Gas. The energy market is regulated by OFGEM. In principle the regulator will not support installing new infrastructure on a speculative basis, rather providers are reactive and 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 Regulator, advance funding may be approved.

Renewable energy is also delivered and funded by private operators; however it can be encouraged via planning policy and central government funding programmes.

Broadband infrastructure is delivered and funded by commercial operators in partnership with public sector agencies. HCC has been working with Openreach, Broadband Delivery UK (BDUK), and Buckinghamshire County Council for the last four years to deliver better broadband, to 98.5% of the county (2018 - 2020). HCC intends to conduct a further open procurement in respect of the remaining areas without broadband infrastructure. While HCC looks to connect the remaining 1.5% of the County to superfast broadband, it has also instituted that the Installation of FTTP Broadband is free for developments of over 20 premises since a 2016 agreement.

There are two water suppliers in Hertfordshire: Affinity Water and Thames Water. Water supply companies have prepared Water Resource Management Plans (WRMP) that cover the period 2015-2040, informed by Local Plans

which set out the planned scale and timing of growth. Water recycling centre upgrades are wholly funded by the water companies through their Asset Management Plan. Foul network improvements are generally fully funded by the water companies and cost recovered from Infrastructure Charges. The cost and extent of the required network improvements are investigated and determined by the water company. Where there is a capacity constraint, water companies will request where appropriate, phasing conditions to any approval to ensure that any necessary infrastructure upgrades are delivered ahead of the occupation of the relevant phase of development to ensure the occupation does not outpace the delivery of necessary infrastructure upgrades. 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

Hertfordshire County Council acts as both the Waste Planning Authority and the Waste Disposal Authority (WDA) for Hertfordshire. However, these two functions operate independently of each other.

The ten District and Borough Councils make up the Waste Collection Authorities (WCA) and have a statutory responsibility to provide a waste collection service to householders and local businesses. As the WDA, Hertfordshire County Council is legally responsible for the safe disposal of all household waste and commercial waste collected by the WCAs. The WDA is also required to provide Household Waste Recycling Centres (HWRCs).

Flood Risk Management and 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. This includes delivery of flood risk management schemes to reduce the risk of flooding. Hertfordshire County Council is the Lead Local Flood Authority (LLFA) in Hertfordshire and is responsible for managing local flood risk, including from surface water, ground water and ordinary watercourses

An appraisal process is carried out to secure funding for flood risk projects to ensure that value for money is maximised from the investment. The appraisal tests the economic viability, technical feasibility and environmental impacts.

The EA can secure direct government funding; however, where there is a shortfall a partnership approach to funding is taken and investment is sought from other organisations such as local councils, businesses and utility companies. As the LLFA, HCC can 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. £692.4m has been allocated by Central Government in 2017 / 18 for these purposes.

The LLFA's responsibilities include:

- To prepare and maintain a strategy for local flood risk management.

- To coordinate views and activity with other local bodies and communities through public consultation and scrutiny.
- To deliver planning.
- To maintain a register of assets (i.e. physical features that have a significant effect on flooding in the area).
- To investigate significant local flooding incidents and publish the results.
- To provide statutory planning advice for design, building and operation of Sustainable Drainage Systems (SuDS) in relation to major (10 plus homes) planning applications.

Table 6.1 on the following spreads summarise the funding responsibilities and major public funding streams for capital investment in infrastructure identified in this section.

TABLE 6.1 - OVERVIEW OF FUNDING RESPONSIBILITIES AND MAJOR PUBLIC FUNDING STREAMS FOR CAPITAL INVESTMENT IN INFRASTRUCTURE



Infrastructure Themes	Management Body	Remit	Current Public Funding Stream (s)
Transport			
Strategic road network	Highways England	Operates, maintains and improves England's motorways and major A roads. In Hertfordshire, the A1/A1(M), M1 and M25 are Highways England's responsibility as well as a section of the A414 between M1 J8 and the A405 to the south of St Albans. Highways England have published the Strategic Road Network Initial Report which sets out potential proposals and recommendations for the second Road Period.	Highways England, set for 2020-2025 as a part of the Road Investment Strategy 2, Major Road Network (MRN) fund
Local road network & transport projects	Hertfordshire 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. National Productivity Investment Fund, Safer Roads Fund"
	Hertfordshire Local Enterprise Partnership	Funding for major local transport schemes was devolved to LEPs as part of the Single Local Growth Fund in 2015. In Hertfordshire a number of transport projects will be funded wholly or in part by the Hertfordshire LEP Growth Deal.	Local Growth Deal (potentially replaced by Shared Prosperity Fund post 2021)
Rail	Network Rail	Network Rail is the 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). CP6 runs from 2019 to 2024, in which funding will be determined on a case-by-case basis. Note: funding for rail improvements do not all have to be from Government.
Integrated transport (buses, cycling, walking)	HCC	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. Transforming the Cities Fund
	Hertfordshire LEP	The Hertfordshire LEP Growth Deal includes some bus and cycling improvement schemes.	Local Growth Deal Local Growth Deal (potentially replaced by Shared Prosperity Fund post 2021)
	Bus companies	The area is served by a number of bus and coach companies providing part subsidised services (Arriva, Uno, Centrebus, TfL).	n/a



Education

Early years & childcare, primary education, second education, sixth form education	Hertfordshire County Council	Local authorities have a duty to ensure that there are sufficient school places in their area.	DfE Basic Need capital allocations, Local Authority Borrowing, Education and Skills Funding Agency maintenance and regeneration funds, Primary School Building Programme
Higher Education (HE), Further Education (FE), Adult learning	Colleges, universities, education providers	Investment in FE and HE is determined by Central Government, education providers and the Education and Skills Funding Agency	Skills Capital Fund from the Skills Funding Agency for capital funding for FE colleges and training organisations; Office for Students for higher education capital investment.



Health and Social Care

Primary care services	Clinical commissioning groups (CCG), NHS England, NHS Property Services, Community Health Partnerships	The CCGs and NHS England commission primary care services. NHS England also provides 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 commissioning budget, public-private partnerships, competitive funds e.g. NHS England Estates and Technology Transformation Fund
Hospitals & mental health	CCGs, NHS Hospital Trusts, NHS England, NHS Property Services, Community Health Partnerships.	Services in these sectors are commissioned by the CCGs, NHS England and specialist national groups. Some central capital funding is available for premises, IT and equipment replacement as well as from NHS Property Services and Community Health Partnerships. Foundation Trusts and non-NHS providers draw on private equity either via public sector vehicles such as PFI, NHS LIFT and PPP, or borrow from private funds.	Department of Health programmes and a range of alternative funding sources

Adult social care, public health and well-being	Hertfordshire 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.
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Community, Sports and Leisure

Library services	Hertfordshire County Council	HCC funds, runs and manages library services.	Local authority budget
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Community, Sports and Leisure services	District and Borough councils	Leisure Centres and sports facilities are managed by the district councils from their own budgets.	Local authority budget, Sports England, Arts Council, Lottery Fund
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Green Infrastructure, Parks and Outdoor Recreation	Local Authorities, Parish Councils	Local Authorities and parishes have responsibilities for local parks and recreation areas. Some areas of strategic environmental interest are under the responsibility of charities and public organisations.	Local authority budget and other potential sources of funding for specific projects e.g. Environment Agency and private finance through Corporate Social Responsibility
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Utilities and Waste

Energy / Gas	Electricity and gas suppliers, network operators	Utilities infrastructure delivery and funding is largely the responsibility of the relevant private utility companies with new connections to services part-funded through site developers.	Private operators, although Central Government programmes may be available to encourage investment in renewable energy at local level.
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Broadband	BT Open Reach and other Commercial Operators	A large share of the investment in broadband infrastructure is by commercial operators.	Central Government funding, EU match-funding
	Hertfordshire County Council	The public sector is working with commercial operators and providing funding in order to achieve 98.5% coverage of Hertfordshire's population, and intends to conduct further Procurement to get to 100% coverage.	Local Authority Budget

Water & waste water	Potable water: Affinity Water, Cambridge Water	Water recycling centre upgrades required to provide for additional growth are funded through water companies' Asset Management Plans. Some upgrades and strategic schemes are funded through developer contributions in line with relevant sections within the Water Industry Act 1991. Water recycling centre upgrades are not in all cases considered appropriate and new investment in WRC facilities could occur.	n/a
	Waste water: Anglian Water and Thames Water	Charging mechanisms have recently been simplified, with most companies now introducing a standard charge for all new dwellings which will be used to fund water supply and foul sewerage network improvements.	

Waste	District, Borough and County Authorities	Waste collection is the responsibility of the District and Boroughs Councils and waste disposal is the responsibility of the County Council. A number of waste management services are contracted out to the private sector funded by local budgets.	n/a
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Flood Protection and Drainage



Flood risk

HCC	HCC is the Lead Local Flood Authority (LLFA) responsible for managing local Flood Risk. They receive grant funding from Central Government, the Environment Agency and other partnership	Central Government Funding and partnership funding.
EA	EA 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

Drainage	Internal Drainage Boards	Internal Drainage Boards (IDBs) are responsible for managing water levels in low-lying bodies. They are independent bodies with elected members and Local Authority representatives. The Bedford and Ivel IDB cover a small area of North Hertfordshire and only receive contributions from North Herts Council.	Drainage rates collected from agricultural land and buildings within the Internal Drainage District; Special Levies issued on District and Unitary Authorities within the Internal Drainage District; Contributions from the Environment Agency.
	RFCC	The Regional Flood and Coastal Committee (RFCC) was established by the EA to bring together members appointed by LLFAs to ensure: there are plans for managing Flood Risk, to encourage risk based investment and provide a link between the EA, LLFAs and other RMAs.	n/a



6.2 DEVELOPER CONTRIBUTIONS

The town planning process provides the means for developers to contribute to the cost of infrastructure necessary to support new development. Developer contributions can take the form of planning conditions, Section 106 agreements between local authorities and developers, Section 278 agreements which cover contributions to highways, and the Community Infrastructure Levy (CIL).

Section 106 Agreements

Planning obligations under Section 106 of the Town and Country Planning Act 1990 (as amended), are commonly known as Section 106 (s106) agreements. The legal tests for use of an s106 agreement are set out in regulation 122 and 123 of the Community Infrastructure Levy Regulations 2010 as amended. The tests are:

- 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.

Planning obligations commonly include a requirement for developers to provide affordable housing (of various types and at various times) and secure financial contributions and land from developers for all types of supporting infrastructure.

S106 agreements should be focused on addressing the specific mitigation required by a new development. CIL has been developed to address the broader impacts of development, and the introduction of CIL has resulted in a tightening up of the s106 tests.

Section 278 Agreements

Where highway objections to proposals can be overcome by improvements to the existing highway, developers can enter an agreement that requires them to pay for or undertake such works. These works may include minor highway realignments, roundabouts, traffic signals, right turning lanes, passing bays, etc. S278 funds are exempt from CIL pooling restrictions.

Community Infrastructure Levy

The Community Infrastructure Levy (CIL) is a fixed, tariff-based planning charge, which allows Local Planning Authorities (LPAs) to require developers to pay a levy on development (per square metre), depending on the location, use, size and type of development.

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.

Funds raised through the CIL must be applied to provide the infrastructure projects or types specified on an LPA's Regulation 123 list. Parish councils and associated neighbourhood forums also receive a "meaningful proportion" of CIL receipts (typically 15-25%) which can be spent on anything to help mitigate the impact the development has on the town or parish.

Since the relevant provisions of the Planning Act 2008 came into force in 2010, only Dacorum, Hertsmere, Three Rivers and Watford have adopted CIL charging schedules. However, North Hertfordshire, St Albans, Stevenage and

Welwyn Hatfield have draft charging schedules that are currently being reviewed. Only Broxbourne and East Herts have not adopted or progressed towards a CIL schedule. This is illustrated in Figures 6.1.

Relationship Between CIL and Section 106

There should be no circumstances where a developer is paying a CIL and contributing under an s106 agreement in relation to the same infrastructure. While s106 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 s106 agreements of separate but complementary developments to fund large scale infrastructure such as roads and schools. The Community Infrastructure Regulations 2010 introduced restrictions which limit the maximum number of s106 agreements that can be pooled for a single project to five. This restriction has reduced contributions towards infrastructure schemes that would previously have benefited from pooled contributions received from more than five developments.

Following Government consultation on 'Supporting Housing Delivery Through Developer Contributions' and CLG's Land Value Capture Inquiry, which is currently underway, the Government has pledged in the 2018 Autumn Budget that CIL and s106 will be reformed. Further details outlined in the following section.

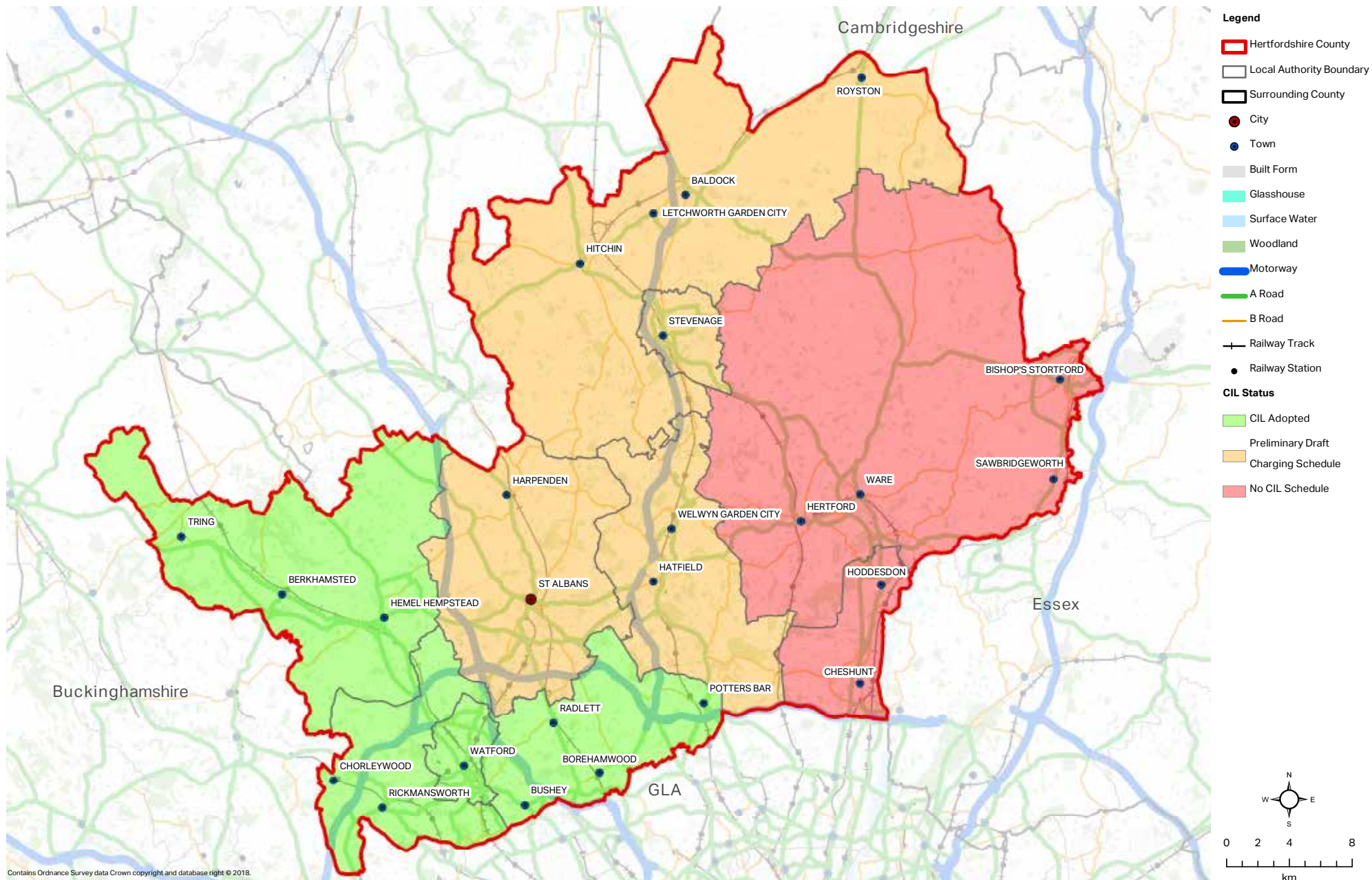


FIGURE 6.1 - ADOPTED AND DRAFT RESIDENTIAL CIL RATES ACROSS HERTFORDSHIRE

Source: Local Authority published Draft and Adopted CIL Charging Schedules

* North Hertfordshire District Council have developed a Draft CIL Schedule, however the Council is not looking to adopt a CIL in the immediate future - NHDC will continue to review

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.

The VOA data represents an estimate of land values, prepared on a consistent theoretical basis, to support a comparison across Hertfordshire. These estimates do not represent true land values and do not accurately indicate variation or conurbations within each local authority area.

The average price per hectare in each local authority in Hertfordshire varies from £3,995,000 per hectare in Stevenage to £9,565,000 per hectare in St Albans according to the Valuation Office Agency (VOA) 2017 estimates. The local authorities with the best connection into London (M25 and M1 in the west of the County) or with strong rail connectivity have the highest land values generally. St Albans in particular has strong transport connectivity, but it is also a significant centre for employment, resulting in the highest land values in the County. Conversely, areas to the north of Hertfordshire generally have lower land values (Stevenage and North Hertfordshire), due to fewer transport connections in terms of strategic roads and rail. Figure 6.2 illustrates the VOA land values for Hertfordshire.

Proposed Changes to Developer Contribution

The Government commissioned an independent review into CIL and its relationship with planning obligations, and the subsequent report entitled 'A New Approach to Developer Contributions' was published in February 2017.

The review found that the system of developer contributions was not as fast, simple, certain or transparent as originally intended. CIL has not removed the need for s106 obligations for large sites, and there are broad exemptions (in some areas, over 40% of developments are exempt from CIL).

Between March and May 2018, the Government consulted on reforming developer contributions to affordable housing and infrastructure. The key proposals are:

- Dis-applying regulation 123 pooling which prevents local authorities from using more than five S106 planning obligations to fund a single infrastructure project in certain circumstances.
- Allowing CIL charging schedules to be based on the uplift in land to reflect value generated through planning permissions;
- A Strategic Infrastructure Tariff (SIT), introduced by combined authorities and joint committees with strategic planning powers, to fund specific strategic infrastructure where there is a funding gap. Joint committees can be agreed to on a voluntary basis by local authorities who wish to prepare joint policies or plans across their areas. The SIT is intended to operate in the same way as the London Mayoral CIL, and will be collectable alongside any localised form of developer

contribution. A SIT should only be charged where there is a specific piece of strategic infrastructure that requires funding, or where the impacts of strategic infrastructure will need mitigating across local authority boundaries.

The Government pledged to consult on improving arrangements for capturing uplifts in land value for community benefit in its Housing White Paper (February 2017) and the Autumn Budget 2017. A Land Value Capture Inquiry was subsequently launched by the Communities and Local Government Committee (CLG). The Committee's report (published September 2018) broadly endorsed the above-mentioned proposals for reform to CIL and S.106. The potential for new and improved land value capture mechanisms to contribute to infrastructure funding is considered in more detail in Section 6.3.

The Autumn Budget in October 2018 has since reformed the Community Infrastructure Levy to remove the current pooling restrictions on S106 Agreements that limit funding for the provision of the same infrastructure to a maximum of five planning obligations. The Government has pledged to encourage a simpler developer contribution system, with the aim of providing more certainty to developers and local authorities.

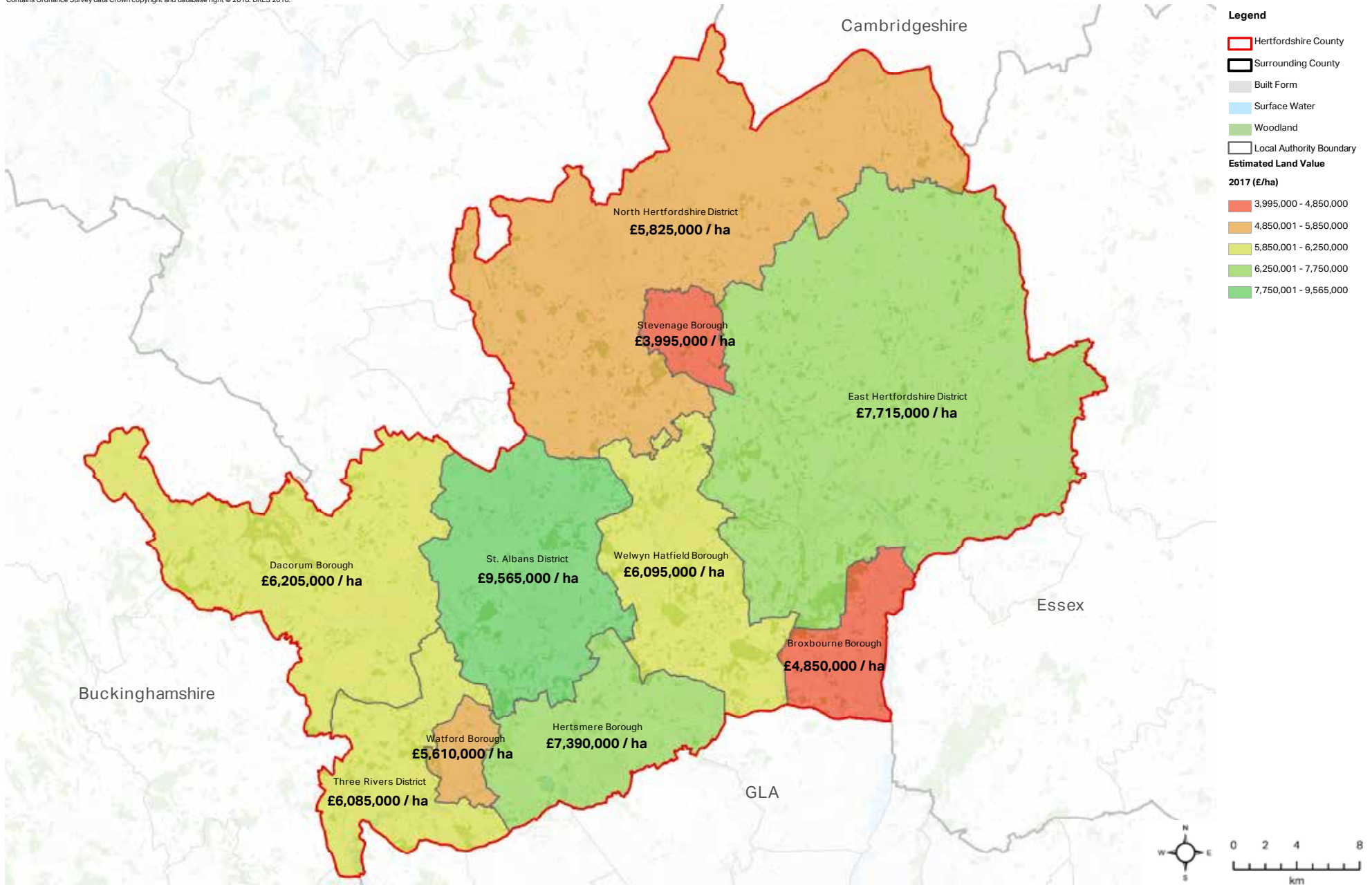


FIGURE 6.2 - LAND VALUES ACROSS LOCAL AUTHORITY AREAS IN HERTFORDSHIRE

Source: Valuation Office Agency (VOA)

6.3 GAP FUNDING OPTIONS FOR CONSIDERATION

ALTERNATIVE FUNDING OPTIONS: CLOSING THE GAP

Given the limitations of mainstream public sector funding sources and developer contributions to fully fund future infrastructure requirements across Hertfordshire, consideration must be given to alternative, more innovative funding mechanisms that are being developed by the public and private sectors.

This section provides an overview of current options for such alternative funding, drawing on the experience of local authorities across the UK. The options considered are divided into five categories within the analysis:

- Public funds
- Borrowing
- Borrowing against local revenue
- Local taxes and Levies
- Leveraging local authorities' own assets and resources
- Other.

A summary is provided in Table 6.3.

It should be noted that funding sources evolve over time with emerging priorities and changes in regime at local, regional or national level, and it is not within the scope of this report to describe all potential funding sources. Rather,

the key funding instruments of potential relevance to Hertfordshire's local authorities are explored, including a range of financial and market-based mechanisms.

PUBLIC FUNDS

European Funding and Shared Prosperity Fund

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). Funding is combined into a single 'EU Structural Investment Funds (ESIF) Growth Programme' and made available to Local Enterprise Partnerships (LEPs) on a competitive basis. The ESIF 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.

The Hertfordshire LEP has secured funds of €69.5m, covering the ERDF and ESF, under the 2014-2020 EU SIF Programmes. An additional €1.889m was received from the EAFRD in December 2013. The LEP's EU SIF Fund

Strategy sets out priority areas for investment, including: maintaining global excellence in science and technology via sectors such as life science, genomics and synthetic biology, regenerative medicine and agri-science; exploiting opportunities in financial and business services and high-end logistics; and reinvigorating the four Phase 1 New Towns, where economic functions and roles need to be re-defined and regeneration is urgently needed.

A number of other European funds can support infrastructure investment including: Connecting Europe Facility for road and rail infrastructure with significant EU added value; LIFE for measures to mitigate and adapt to climate change; and 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.

Government has agreed to continue to fund EU SIF projects signed off before the UK leaves the EU as long as they provide value for money and support domestic priorities. Funding will therefore continue until the current programmes end; in the main, this means 2020, although some programmes may go on a little longer.

In July 2018 the UK Shared Prosperity Fund (UKSPF) was announced; this will replace European funding. The UKSPF will be allocated in line with the priorities set out in the Local Industrial Strategies (LIS) which LEPs have been tasked by government to produce and which will be agreed with government by March 2020. The LIS must in turn reflect the Government's Industrial Strategy (2017) which identified the foundations of productivity and four 'grand challenges'

which must be addressed to address inequality across the UK and enable people to benefit from economic prosperity. The value of the UKSPF has not been confirmed as of yet, however a recent report by Locality states that if the SPF is to replace the European Structural Fund then it must match or constitute an increase over current EU funding, which is currently worth over £1bn per annum to the UK.

The UK will not be eligible for new loans from the EIB after the UK leaves the EU. There have been some suggestions that the Government could create its own replacement for the European Investment Bank, if its preferred option of a continuing relationship with the EIB was not acceptable to the EU. However, it would be a substantial undertaking to start such a bank and build it up to the requisite size. In its first National Infrastructure Assessment (July 2018), the National Infrastructure Commission recommends that if access to the EIB is lost then a new, operationally independent, UK infrastructure finance institution should be established by 2021, with government consulting on a proposed design of the new institution by Spring 2019.

One-Off Public Sector Grants

Mainstream public sector funding sources are reviewed earlier. In addition, Government regularly makes capital funding available for specific types of infrastructure projects in the form of one off pots accessed via a competitive bid process. Recent examples include the Housing Infrastructure Fund (Homes England), the Local Infrastructure Fund (Homes England) and the Pinch Point Fund (Department for Transport). While these grant funding pots have now closed, there are likely to be other one-off

funding opportunities arising to 2031 and these may be suitable for Hertfordshire’s infrastructure projects identified within this report.

The scale of funds made available via one off government competitions can be substantial. However they are finite in size, have specific eligibility criteria and applicants

Case Study: 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.
- **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.
- **The Fund is available over four years from 2017/18 to 2020/21. All funding must be committed by March 2021.**

must meet defined timescales for application and project delivery. They are therefore an unpredictable and short term funding source.

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 (the match funding was initially for the following six years). Since 2015, NHB has included a requirement that some resources are pooled to support LEP growth plans.

The NHB was designed to incentivise housing growth. It is not ring fenced so local authorities can decide how the income is spent. However, the NHB can be viewed as a reallocation of funding that was previously allocated to local authorities through the Central Government Local Authority Financial Settlements.

As the NHB did not appear to be increasing housing supply to the extent intended, in 2016 the Government consulted on options for ‘Sharpening the Incentive’. From 2017, a national baseline for housing growth was set to 0.4% so that if housing growth was below this NHB would not be paid to a local authority. While the Government may adapt the baseline again in future years, the 0.4% baseline implies

many Local Authorities will not receive any NHB at all as the 'average' growth rate in the 10 years before the introduction of New Homes Bonus was 0.7%. In addition, Government has reduced the scale of NHB funds: it paid Council tax equivalent to 5 years in 2017/18 (rather than 6 years), and this declined again to four years in 2018/19. The cumulative result of these changes is a future reduction in funding being paid out through New Homes Bonus nationally with 'under-delivering' authorities being hit the hardest.

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. In 2014-15, 76% of external borrowing by Local Authorities was from the PWLB. 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 it can help meet the upfront costs of infrastructure, the loan must obviously be repaid with interest and overall costs will therefore be higher than grant funding due to the need to service debt on the loan (in the broader context of falling revenue income for local government). It places 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.

Case Study: Croydon Council

The 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. A PWLB loan of around £300 million will be repaid via a Tax Increment Financing (TIF) funding model involving the retention of enhanced Business Rates. Forward funding of £7m has been provided by Government to fund interest repayments in the early years.

There are a variety of PWLB rates available and they vary over time. To incentivise the construction of new infrastructure, the government has recently made available £1bn of lending at the Local Infrastructure Rate of gilts + 60bps to English local authorities. There are two bidding rounds (May–July 2018 and January - March 2019). The infrastructure must fall into the categories of transport, energy, flood defences, water, waste or digital communications, and projects must commence before April 2022.

Local Authority Bonds

Bonds allow local authorities to raise substantial sums of capital immediately. In recent decades, municipal bonds have not been used much by Local Authorities. However in 2010 PWLB interest rates increased, making alternative approaches to raising finance such as bonds a more attractive option.

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 Tax Increment Finance (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. TIF takes this form in many cities in the USA. 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.

In 2016, a new UK Municipal Bonds Agency (UKMBA) was established. It is owned by some 56 shareholding local authorities, (it will however also be open to other 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; and 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; 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.

There was speculation that the agency would issue a bond before Christmas 2016 but this was delayed. In March 2018 the UKMBA received an Aa3 rating from Moody's and indicated that it was ready to go to market. Its first deal will be a private placement raising tens of millions of pounds for a test group of four 'financially top-quality councils'.

Case Study: 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.

Case Study: Royal Docks Enterprise Zone (EZ)

The Royal Docks Enterprise Zone is projected to generate 35,000 jobs, 4,000 homes and £5bn in inward investment. The EZ structure enables the area's new business rate income to be retained and recycled for a period of 25 years to support further development across the Royal Docks area and trigger further private sector investment.

BORROWING AGAINST LOCAL REVENUE

Business Rate Retention

The business rate retention system was introduced in April 2013. Councils retain up to half of the rates revenue raised from businesses in their local area (though this revenue is subject to a tariff and top up system), with the remainder retained centrally by the government and used to provide grant funding for local authorities. Councils also keep up to 50 per cent of growth in their business rate receipts arising from new or expanding businesses. 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. Government's aim is to incentivise local authorities to grow these revenues by promoting the expansion of the local economy.

Business rates revenue 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. Use of business rates to pump prime infrastructure requirements would need to be weighed up against other council funding priorities, in a context of growing needs and constrained funding.

In the Autumn Statement 2015, the Government announced full localisation of business rates by 2020; however the Local Government Finance Bill was not reintroduced after the 2017 general election and current plans are to allow English councils to retain 75% of business rates in 2020, with 100% retention pilots in some parts of the country. How the system will operate is not yet clear, and this uncertainty may impact on local authorities' willingness to invest in longer term projects such as infrastructure.

Within Hertfordshire, the Enviro-Tech Enterprise Zone came into being on 1 April 2017. Enterprise Zone status provides for the entire growth in Business Rates to be retained for 25 years with priority use of the funds to be to stimulate the growth for the participating local authorities focused in agri-tech and sustainability.

Tax Increment Financing (TIF)

By enabling local authorities to retain business rates, the Local Government Finance Act 2012 removed the most important barrier to Tax Increment Finance (TIF) schemes. TIF enables local authorities to borrow against future predicted increases in business rates resulting from infrastructure investment. The loan is used for upfront funding of the infrastructure which unlocks growth and economic development. TIF schemes in England have so far been based on business rate revenues, but could potentially use stamp duty uplift if this could be attributed locally and devolved to local authorities.

Borrowing for TIF schemes falls under the prudential system. 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.

TIF arrangements were put into practice as part of various ‘city deals’, for example in Newcastle, Nottingham and Sheffield, and have overlap with the arrangements for Enterprise Zones (EZs). EZs are guaranteed 100% of business rates growth for 25 years, and business rate rises within EZs are automatically protected from the resetting process, meaning greater certainty over future business rates income. There is relevant experience within Hertfordshire to draw upon in this context; Hertfordshire LEP plans to use business rates growth in the Hertfordshire Enviro-tech EZ as part of the funding package for infrastructure required at Maylands.

Case Study: 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 s106 and CIL 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 made, in part, through future growth in business rates revenue within the Nine Elms Enterprise Zone.

Case Study: Brent Cross West Thameslink Station

The Brent Cross Cricklewood regeneration is aimed at delivering a new town centre of 7,500 new homes, 27,000 jobs and 455,000 square metres of commercial space. The early delivery of a new Thameslink rail station at the site unlocked development. In 2015, government announced that, as well as providing £97m of for half the cost of the station, business rates raised at new retail development would be ring-fenced from periodic resetting. The Council will use extra business rates income from the planned extension of Brent Cross shopping centre to repay the loan to fund the other half of the station’s construction costs.

LOCAL TAXES AND LEVIES

Business Rate Supplement

The Business Rate Supplements Act 2009 provided a discretionary power for county councils, unitary district councils and the Greater London Authority (GLA) to levy a supplement on the National Non-Domestic Rate or business rate. Levying authorities can retain the revenue raised from the supplement and use it to invest in projects aimed at promoting the economic development of their local area.

Once implemented the charge is predictable as rateable values are revalued only every 5 years. Business rates remain liable even with unoccupied properties meaning that tax revenues are maintained during economic downturns. Also, the collection rate is high – for example in 2013-14 the average collection rate of business rates in London was 98.5%. However, the BRS is not easy to implement. If they wish to levy a BRS, authorities must set out proposals in a prospectus, covering the amount to be levied, the duration of the supplement, how the expenditure is additional to the levying authority's existing plan. Once they have consulted on this prospectus, a ballot must then go out, in which the majority of business rate payers must agree to the supplement.

Tourism Tax

A tourism tax (also known as an occupancy or bed tax) is usually charged per person, per night on top of the cost of a hotel room. It is paid directly by hotel guests, and varies according to the star rating of the hotel and accommodation.

Case Study: Crossrail

In 2010, the Mayor introduced a 2p levy on non-domestic properties with a rateable value of £55,000 in London (around 20% of London non-domestic rate-payers). The revenue from the BSR helped pay for Crossrail, a train link from east to the west of London expected to provide a major boost to London's economy. The Crossrail BRS has been used to finance £4.1 billion of the costs of the project, of which £3.3 billion has been borrowed with the remaining £0.8 billion being funded directly using BRS revenues. The BRS has helped to support additional borrowing by the GLA, forecast to be paid back by 2030.

While the tourism sector makes an important contribution to the economy, there are a number of arguments for a tourist levy. First, foreign tourists are able to enjoy free or subsidised cultural attractions without bearing the same costs as UK taxpayers. Secondly, tourists enjoy the benefits of many public goods such as parks, policing or elements of the transport network for which they also do not bear the full social costs. Thirdly, tourists impose costs on society such as pollution and congestion from use of the transport network, which affects residents and other tourists. Revenues could be used to support the tourism sector in a number of ways, from maintaining the public realm to education and training.

At present, UK local authorities do not have power to implement a tourist tax, though some localities have systems whereby tourists pay a levy on a voluntary basis. Several cities are considering adopting a tourist tax including Camden, Bath, Oxford and Edinburgh. Most of these have had unanimous backing from their city councils, and are lobbying government for new primary legislation in Parliament which would allow implementation. However, the UK has the highest VAT rate on hotel accommodation in the EU and imposing an additional tourist tax might discourage tourists from visiting.

Case Study: International Precedent

In New Zealand a new tax of up to \$24.40 New Zealand dollars per person will start in mid-2019 in order to fund for conservation and infrastructure for the country. In Europe, a tourist levy has become common practice in many locations, though as noted, these taxes are offset to varying degrees by lower rates of VAT on hotel accommodation than in the UK. In France, *taxe de séjour* is a form of municipal transient occupancy tax on tourists or visitors that stay in hotels or accommodation; municipalities have a degree of autonomy in setting the tax rate as long as it is within the General Municipal code. Berlin charges 5% of the accommodation cost. Lisbon charges a flat €1 per person per night. Ibiza and Majorca also have a 'sustainable tourist tax', in which all revenue collected from this tax goes towards the protection of the resources on the island.

Workplace Parking Levy (WPL)

A huge number of people in England commute to work by car. The Workplace Parking Levy (WPL) is an annual charge placed on a number of workplace parking spaces used by employees. The WPL is paid by businesses instead of employees. Local authorities were given the power to introduce such a levy in the Transport Act 2000.

The first local authority to introduce a WPL was Nottingham in 2012, and has raised over £44m for a tram network and complementary bus services. A number of local authorities, in London and elsewhere, are actively considering WPLs although in London, only the London Borough of Hounslow has begun feasibility work, completing a parking survey earlier this year

The aim of the levy is to discourage commuting by car and to raise funds to invest in alternative modes (proceeds are ring-fenced for transport investment). Additional potential benefits include reduced carbon emissions, low scheme costs (both of implementation and operation), and reduced congestion. A recent study carried out by Transport for London found that if the potential for converting short car trips to walking and cycling was delivered there would be a net gain for Londoners of around 61,500 years of healthy life and economic benefits of £2 billion.

However, despite the relatively low implementation cost, such schemes require much up-front work. Residents and businesses must be consulted, and an audit of all parking spaces provided by all employers in the target area requires numerous site visits to gather and validate information. Additional documentation work and communications

between the executive local authority and numerous stakeholders are required throughout the launching process. The Levy represents a cost for businesses and may discourage future inward investment. Further work is required to examine the key outcomes.

Case Study: Nottingham

Nottingham introduced the WPL with four key aims:

- Provide attractive alternatives to the car;
- Continue to develop high quality public transport;
- Protect the city's commerce and inward investment;
- Improve city's environment and sustainability.

Over 42% of total parking spaces are eligible to pay £379 per year for the WPL. Multiple benefits have been realised, such as 33% reduction in carbon emissions and an increase in modal shift to public transport by 40%. The WPL generates annual income for the city with a small scheme cost. The revenue has funded Nottingham's new tram network, Link Bus Network and the redevelopment of Nottingham Railway Station. Only 10 FTE employees are now required to manage the whole scheme.

LEVERAGING VALUE FROM LOCAL AUTHORITY ASSETS

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. The importance of political buy-in and cross-party working has been emphasised by the recent collapse of LABVs in Haringey Borough Council and Croydon Borough Council in London.

Case Study: 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 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 buildings 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 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. These shifts have led to 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 and 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 Local Authorities seeking to proactively 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

Case Study: One Public Estate

Starting in 2013 One Public Estate is an 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. One Public Estate is now working with at least 250 councils aiming to create 44,000 jobs, release land for 25,000 homes, and raise £615 million from land and property sales..

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 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.

OTHER

PRIVATE FINANCE 2

While more than 90% of the government's capital investment is publically financed, delivering infrastructure investment using private finance is an important part of the government's infrastructure plan.

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. PFI contracts allow a local authority and other service providers to embark on large capital projects with little upfront commitment of resources. In December 2012, the Government announced the replacement of 'PFI' with 'PF2', which sought to address widespread concerns with the PFI and changes in the economic context. The key reforms were:

- **Public sector equity:** the public sector to 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 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 to disclose actual and forecast annual profits from deals. The new PF2 structure aims to curb gains to be made from refinancing and un-utilised funds in lifecycle reserves.
- More efficient delivery - An 18 month limit on procurement; failure to meet this limit will see the respective public sector body lose funding.
- Future debt finance - the tender process requires bidders to develop a long-term financing solution where bank debt does not provide the majority of the financing requirement; this aims to make Institutional investment an important source of finance for PF2.

Despite these reforms, PF2 has not been a popular capital financing option in recent years. Since its launch in 2012, only six PF2 projects have reached financial close: the £1.75 billion privately financed element of the Priority Schools Building Programme (PSBP), and the Midland Metropolitan Hospital. Other PPP deals have delivered much more investment than PF2 over this period. The last PF2 project agreed by the government was in April 2016. In the Autumn Statement 2016, the government announced that a new pipeline of projects for PF2 would be developed and published but this has been delayed. There are currently no projects in procurement although in July 2017 Highways England published documents outlining plans to use PF2 to

finance the £1.3 billion A303 Stonehenge tunnel and roads and the £1.5 billion approach roads to the Lower Thames Crossing.

The contracts have been criticised for allowing private companies to make excessive profits and the collapse of Carillion has highlighted the risks of private sector involvement in infrastructure delivery. There is a greater emphasis than previously on demonstrating that PF2 gives better value for money than other arrangements.

The NHS LIFT Programme (Local Improvement Finance Trust) is the Department of Health (DH) sponsored partnership between the public and private sectors. Community Health Partnerships (CHP) delivers the LIFT Programme through 49 individual LIFT Companies. LIFT Companies are the long term, Joint Venture partnerships between the public and private sectors. The focus of LIFT Companies is to support CCGs, NHS Trusts, GPs, Councils, CHP and NHS Property Services achieve their commissioning and estates requirements. NHS LIFT has delivered a portfolio of over 300 facilities across England.

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. There are 89 LGPS funds in England and Wales.

Case Study: Greater Manchester Pension Fund and GLIL

Greater Manchester Pension Fund (GMPF) is the largest LGPS in the country, with more than 350,000 members from 470 different employers across the 10 Greater Manchester boroughs and the nationwide probation service. It has £17.3 billion in assets under management. Investing locally is part of its strategy with the 'twin aims of securing commercial returns and supporting the area'. Local investment is limited to 5 per cent of main fund value, and is currently stands at around 1-2%. Several different strands of investment activity fall within this, including a £1.3 billion joint venture with LGPSs in London, Lancashire, Merseyside, and West Yorkshire to invest directly in infrastructure. Although this fund—called the GLIL—focuses on assets that are already up and running, it will take on some short-term construction risks. It has already invested a total of £250m in waste-to-energy plants, an onshore wind farm and new rolling stock for the East Anglia rail franchise.

The primary responsibilities of 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. In the future,

the LGPS may be able to invest part of its fund in supporting the development of local communities across the UK, and this could include infrastructure investment.

In recent years, the regulations on pension investment have been changed and new guidance issued so that economies of scale can be achieved in LGPS funds, with the primary aim of improving returns and reducing deficits but also to enable greater capacity for investment in infrastructure. LPFS authorities are required to produce Investment Strategy Statements, with investment decisions taking non-financial as well as financial factors into account. At the Budget 2016, the Government said it had received ambitious proposals from LGPS authorities to establish a small number of British Wealth Funds by combining assets into larger investment pools. On 22 January 2018, the Government said it would work with administering authorities to establish a new LGPS infrastructure investment platform to “boost their capacity and capability to invest in infrastructure”.

INSTITUTIONAL INVESTORS

The UK’s longstanding track record of private ownership and robust rule of law makes it amongst the most attractive jurisdictions for infrastructure investment. 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. The UK government has put in place measures to improve long term infrastructure planning to

give the market confidence to invest, including an annually updated National Infrastructure and Construction Pipeline and a UK National Infrastructure Plan.

Data from Prequin, a global venture capital consultancy, indicated that between 2013 and 2016 renewable energy assets accounted for the largest proportion (47%) of completed UK infrastructure transactions, while social assets including educational buildings, hospitals and police stations made up 30%, transport 10% and utilities 6%.

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. Institutional investors tend to favour assets which are up and running and which deliver steady income streams over new developments. Projects can however be designed to overcome this issue; for example, the Thames Tideway Tunnel, a £4.2bn project to upgrade London’s sewage system, has attracted investment from the UK Pensions Infrastructure Platform (PIP) and Macquarie by offering a return during the construction period.

LAND VALUE CAPTURE

Land value uplift which results from public investment and other government actions can be captured as a means to pay for infrastructure. Current methods of land value capture include CIL and planning obligations, and the definition sometimes (though not always) extends to Tax Increment Financing. The most direct means of land value capture is for government to assemble and develop land, as illustrated by the first generation of UK New Towns, when Development Corporations were able to acquire land at, or near to, existing use value.

Land value capture is most commonly discussed in the context of public transport projects where positive externalities in the form of land value increase within catchment areas. Recent analysis for Transport for London (TfL) estimates that Crossrail 2 could produce land value uplifts in the order of £61bn through increasing the value of existing properties and by inducing new development. Some 65% of value uplift will accrue on existing residential property, yet only a fraction of these overall value uplifts would be captured through existing mechanisms such as Stamp Duty, while over-station development and development taxes such as CIL and Mayoral CIL only relate to new development.

TfL has therefore identified a potential role for land value capture mechanisms to contribute to funding of its transport projects. Potential mechanisms include first, the Transport Premium Charge which would capture value uplift of both residential and commercial properties arising from improved accessibility to public transport. The TPC could be achieved through a reform of existing mechanisms

such as Stamp Duty Tax; alternatively, a more progressive approach could be taken by reforming Capital Gains Tax, which currently in the UK does not cover residential transactions. The taxable income would be the difference between the acquisition cost and the property disposal value. Secondly, the Development Rights Auction Model (DRAM) deals with the situation where a piece of land has multiple land owners but high development potential. The development rights are auctioned to participating land owners. In this case, no development taxes are paid, but any gains above the reserve price are shared between the participating landowners and the planning / auctioning authorities.

A Land Value Capture Inquiry was launched by the Communities and Local Government Committee (CLG) in early 2018. The Committee's report, published in September 2018, examined the existing land value capture framework and considered the potential for a more effective and fair system in the future. In general, the Committee recommend retaining and enhancing existing mechanisms of land value capture, including: simplification and speeding up of the CPO process; reform of the Land Compensation Act 1961 so that local authorities have the power to compulsorily purchase land at a fairer price; robust and up-to-date Local Plans which clearly set out the objectives and requirements for developer payments; reform of CIL so it is simpler and has fewer exceptions; and a transparent process for assessing development viability so that benefits from s106 can be enhanced.

Case Study: Hong Kong Mass Transit Railway

The Hong Kong MTR is used by more than five million people every day and has a total length of 221 kilometres. The Government owns land in Hong Kong and therefore has generated revenue via the MTR from a so-called "Rail plus Property" model. The Government grants MTR land development rights, for which MTR pays the government a land premium based on the market value without the development scheme/railway. The funding model not only provides a stable and sufficient source of income but also generates social benefits by attracting citizens to amenities and areas near the stations and facilitating urban regeneration. All retail/shop owners need to pay MTR a proportion of their profits by signing a co-ownership agreement, or otherwise accept property development fees.

CROWD FUNDING

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 fuelled 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.

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 tens-of-thousands. This would not be enough to support large projects that local government is involved with, such as transport infrastructure and educational projects. However, crowdfunding may represent 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.

Case Study: London

The Mayor's Civic Crowdfunding Programme aims to support 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. To date, through this and successive funding rounds, the Mayor has pledged over £1.2m to 77 successful crowdfunding campaigns across the capital, and pledges from nearly 9,000 backers have raised an extra £1.6m. The latest £1m fund opened in July 2018; the best ideas to attract £50,000 from the Mayor. Projects funded to date make up a diverse mix including the Peckham Coal Line, Good Food Catford, Wood Street Walls, The Community Kitchen, Punch and Juicy Market Place and more.

REVOLVING INVESTMENT FUNDS

Loans for infrastructure projects are available through the Growing Places Fund (GPF) administered by the LEPs. One aim of the GPF was for LEPs to establish a sustainable revolving fund that can be reinvested to unlock further development. However, there is potential for local authorities to pool funds to provide additional / alternative regional or sub-regional level loan facilities, in the face of major cuts to grant funding.

A loan facility dedicated to infrastructure projects would be set up (up-front sum(s) could be sourced from, for example, prudential borrowing and other funding mechanisms. Loans would then provide upfront finance to infrastructure projects. The funds (plus interest) would then be paid back in due course from the revenue generated by the development which is unlocked.

There is on the ground experience to draw on in establishing RIFs, for example the Evergreen North West Fund, London Green Fund and the Cambridgeshire Horizon's rolling fund, but the model is new and will require ongoing evaluation to ensure that ventures are supported that realise the best returns.

ALTERNATIVE FUNDING OPTION MATRIX

A funding matrix of alternative funding options (Table 6.2) to close the funding gap in Hertfordshire has been developed. The matrix provides an indicative assessment of the applicability of different funding options to the infrastructure topics in the Prospectus. The analysis is based on eligibility criteria, as well as examples to date of where these funds / mechanisms have been employed. The criteria used to assess the funding options against infrastructure are as follows:

Unsuitable: Funding option is not applicable to the infrastructure type

Potential Funding Source: Funding option could be applied to infrastructure type, however this depends on eligibility criteria or that in theory could be applicable but lacks precedent

Strong Potential Funding Source: Funding option that directly applies to a specific infrastructure type or has a strong existing precedent within the UK

Table 6.3 on the following spreads summarises in detail the various alternative funding options and their applicability against various infrastructure types.

TABLE 6.2 - ALTERNATIVE FUNDING OPTION MATRIX

Funding Source / Mechanisms	Infrastructure Type							
	Transport	Education	Healthcare	Emergency Services	Community, Sports and Leisure	Utilities	Waste	Flood Risk and Drainage
European Funding ¹								
One-Off Public Sector Grants ²								
New Homes Bonus								
Public Works Loan Board (PWLb)								
Local Authority Bonds								
Business Rate Retention								
Tax Increment Financing								
Business Rate Supplement								
Tourist Tax								
Workplace Parking Levy								
Local Authority Backed Vehicles								
Strategic Asset Management								
Private Financing Initiative ³								
Local Government Pension Funds ⁴								
Institutional Investment ⁵								
Land Value Capture								
Crowd-funding								
Revolving Infrastructure Funds								

¹ Eligibility criteria apply depending on precise fund. ESIF Programme 2014 to 2020 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)

² Depends on eligibility criteria for funding pot in question.

³ Generally linked to buildings (e.g. Schools, hospitals) but other projects can be suitable.

⁴ TBC - scope still emerging

⁵ Between 2013 and 2016 renewable energy assets accounted for the largest proportion (47%) of completed UK infrastructure transactions, while social assets including educational buildings, hospitals and police stations made up 30%, transport 10% and utilities 6%.

	Unsuitable
	Potential Funding Source
	Strong Potential Funding Source

TABLE 6.3 - FUNDING MECHANISMS SUMMARY TABLE

Funding Mechanism	Description	Project types	Maturity	Positives	Negatives
European Funds	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	Mature	Provides additional source of funding to National / local streams. This is one of the criteria for eligibility.	Post-Brexit, the UK Shared Prosperity Fund will replace EU funding, to be allocated to LEPs and spent in line with Local Industrial Strategies. Precise arrangements and scale of the UKSPF remain tbc. Access to EIB is likely to be lost
New Home 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 four years.	Any - 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.	Scale of payments has been reduced in recent years, and local authorities where housing delivery falls beyond a 'baseline' growth level receive no funds at all.
One-off Public Sector Grants	One-off capital grants available via a competitive bid process can offer finance for upfront infrastructure investment or plug a funding gap and therefore unlock development on a particular site.	Any	Mature	Additional funding for site-based development	Limited life cycle, eligibility criteria, unpredictable.
Public Works Loan Board (PWLB)	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 Rate Retention (BRR)	Local authorities can retain 50% of business rates revenue (rising to 75% by 2020) 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	If revenues are spent on infrastructure directly, there is 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.

Tax Increment Finance (TIF)	Enables local authorities to borrow against the value of the future tax revenue 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
Business Rate	The Business Rate Supplements Act 2009 provided a discretionary power for county councils, unitary district councils and the Greater London Authority (GLA) to levy a supplement on the National Non-Domestic Rate or business rate.	Any project which promotes the economic development of the local area.	Developing	Stable (rateable values set for 5 years); business rates have high collection rates and must be paid even during an economic downturn.	Under current legislation, levying authority must consult and obtain agreement of majority of rate payers via a ballot.
Tourist Tax	This levy (also known as an occupancy or bed tax) is usually charged per person, per night on top of the cost of a hotel room.	Revenue would be spent in reflection of the social costs imposed by tourists, or to benefit the tourism sector, e.g. public realm, transport, skills and education.	Emerging	Numerous precedents outside the UK; a number of UK Local Authorities are lobbying Central Government for devolution of the relevant powers.	Would require new primary legislation; UK has the highest VAT rate on hotel accommodation in the EU.
Local Asset Backed Vehicles (LABV)	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 secure 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 (SAM)	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 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. One 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.

Private Finance 2 (PF2)	Under a PFI/PF2, 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) but other projects can be suitable.	Mature	Enables a local authority to embark on large capital projects with little upfront commitment of resources.	Higher costs and risks than conventional funding; Value for Money 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. In the future, 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. Institutional investors prefer projects which are up and running rather than under construction.
Land Value Capture	Uplifts in land value which occur due to infrastructure investment or other public sector actions can be captured via a range of mechanisms, which in the UK currently include CIL and planning obligations and the assembly, acquisition and development of land by the public sector.	Any (depending on LVC mechanism)	Developing	Equitable - targets beneficiaries of new infrastructure; existing mechanisms could be made more effective and new mechanisms have been proposed.	Historical lack of successful implementation – politically unpopular and some mechanisms would require new legislation.
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
Revolving Investment Funds (RIFS)	A regional level loan facility dedicated to infrastructure projects. The loan provides upfront finance to infrastructure projects; funding (plus interest) is then paid back in due course from the revenue generated by the development which is unlocked.	Infrastructure projects which will unlock development at stalled sites.	Emerging	Would work well in counties or regions where priority strategic projects to unlock development have been agreed and partnership working is strong.	Requires upfront funding. Ventures which are supported must realise the forecast returns.
Workplace Parking Levy (WPL)	The Workplace Parking Levy (WPL) is an annual charge placed on a number of non-exempt workplace parking spaces used by employees. The WPL is paid by businesses instead of employees.	Proceeds must be spent on transport projects.	Emerging	Low administration/scheme costs; Potential impact on model shift; Multiple social and environmental benefits.	Costs to business and disincentive to inward investment; extensive pre-implementation research and validation required.

Autumn Budget 2018 - Update

The 2018 Autumn Budget was delivered on 29 October 2018. The Budget has set out a number of initiatives that could impact potential funding sources across Hertfordshire.

- Transport Investment: £28.8 billion for upgrading and maintaining the UK's national and local roads between 2020-2025. £25.3 billion will be spent as part of the second Road Investment Strategy (RIS).
- The National Productivity Investment Fund (NPIF): provides capital investment in areas critical to productivity – housing, transport, digital infrastructure and R&D. The 2018 Budget puts an additional £6bn into the NPIF and extends it to 2023/24.
- Housing Infrastructure Fund: Additional £500 million allocated to the capital grant programme. The total fund is now £5.5 billion
- Removal of S106 pooling restrictions: Government looks to encourage simpler developer contribution system, with the aim of providing more certainty to developers and local authorities. Reform to the Community Infrastructure Levy to remove the current pooling restrictions on S106 Agreements limiting funding for the provision of the same infrastructure to a maximum of five planning obligations
- Government will not be signing any more PFI and PF2 agreements, but will continue to honour existing contracts with a new centre of excellence to monitor deals and no more PFI for future projects.

CONCLUSION

The prospectus has identified a range of alternative funding sources to begin closing the existing funding gap, identified in Chapter 5. However, each of these funding sources have their strengths and weaknesses, in which Hertfordshire County Council and its local authorities will need to develop bespoke packages of funding options and delivery mechanisms from both mainstream and alternative options that meet the needs of the different types of infrastructure and local communities.

This may involve Hertfordshire prioritising portfolios of projects, which will have the greatest impact and be most attractive to investors. This will require further analysis to assess:

- Which funding sources are appropriate for Hertfordshire.
- 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 Hertfordshire's authorities' capability and capacity to develop and manage such instruments.



07

CONCLUSIONS

To understand the scale of the infrastructure challenges in Hertfordshire, AECOM was commissioned by Hertfordshire Infrastructure and Planning Partnership (HIPP) to develop the Hertfordshire Infrastructure and Funding Prospectus (HIFP).

The HIFP presents an overarching baseline of growth patterns, infrastructure projects and cost requirements and funding gaps. It has been produced drawing upon information initially obtained alongside Hertfordshire County Council officers and following a period of engagement with the Local Authorities and other infrastructure providers, including NHS, Environment Agency and Department for Transport. This offers an example of a collaborative process and approach to understanding infrastructure requirements between Hertfordshire County Council, Local Authorities and other stakeholders.

The study provides a “snap-shot” in time, reflecting a position from September 2018. However, consideration must be given that the growth and development context in Hertfordshire, much like the rest of the UK, is constantly changing, in which all LPAs in Hertfordshire are at varying stages in developing and implementing their local plans. The HIFP is not intended to supersede or replace local evidence studies. Findings are based on common funding and cost assumptions and modelling work that may differ from those used in individual local infrastructure delivery plans and documents.

KEY GROWTH FINDING FROM THE HIFP

The following key findings related to housing, population and employment growth have been established:

- Hertfordshire authorities have identified housing growth **over the 13 year period to 2031 of on average 6,425 dwellings per annum**. This compares to average annual completions of 3,189 dwellings per year across Hertfordshire from 2011/12 to 2016/17.
- This is a total **housing supply of 83,530 dwellings** that are expected between 2017/18 and 2031/32.
- Local authorities across Hertfordshire have identified **housing need for approximately 97,411 homes** between 2018 and 2031.
- ONS Population projections **forecast a population increase of 107,400 people** (an increase of 9%).
- **44,650 additional jobs** are forecast by the East of England Forecasting model (2017 run), an increase of 6%.

KEY INFRASTRUCTURE FINDINGS FROM THE HIFP

The Prospectus reviewed a comprehensive scope of infrastructure topics and has identified a series of key infrastructure issues facing Hertfordshire:

- Across most infrastructure topics, decades of growth have created deficits in existing infrastructure, both across Hertfordshire and in localised areas.
- There is significant congestion on the rail and road network across the County. This has led to unreliable journey times due to limited resilience on the motorways resulting in daily delays. Similarly, on the rail network congestion can be seen on most lines leading into London (in terms of seating capacity).
- Both road and rail network suffer from poor east-west connections, resulting in an over-reliance on private vehicle use within Hertfordshire.
- Future education demand will expand to 2031 for new primary and secondary schools. In many instances, it appears that there is an oversupply at the local authority level of schools, however as patterns of growth are shifting and occurring in localised areas, this will require significant investment in education infrastructure to ensure strong future provision and accessibility that meets growth requirements.
- Pressure on the health and social care sector will continue to grow. This is leading to a shift in the future provision of healthcare with a move towards a more integrated approach focused on co-location of healthcare facilities and development of new models of care delivery. Simultaneous to the development of the HIFP, Sustainable Transformation Plans (STPs) have been developed by NHS organisations and local councils in collaboration with NHS Trusts, and CCGs. This is a move to encourage greater integration of services and better scale of provision. The STP Estates Strategy will act as a key document guiding strategic planning in the healthcare system. While still being developed, this work has fed into the HIFP where possible.
- Pressure on the existing health and social care sector will continue to grow as Hertfordshire sees the greatest population growth in those aged over 65. This is leading to a shift in the future provision of healthcare with a move towards a more integrated approach by developing new models of care. As part of the development of STPs, there is a push to transfer services into the community - promoting realignment of community and primary care facilities to benefit the need of the changing population demographics. This will require a different approach to facilitate co-location of public services and other community facilities.
- Hertfordshire can generally be considered to have a high quality landscape and provision of open space and green infrastructure. This is partially due to its legacy of garden cities and new towns in the 20th century and the location of Chiltern Hills AONB to the west of the county. However, there are issues with the health of the natural environment including fragmentation. Planned housing and economic growth will need to be mitigated through provision of new strategic green infrastructure and enhancing the quality of existing provision and mitigating existing localised issues.
- There are no significant energy (electricity, gas, or gas) projects identified, however to meet future growth to 2031 it has been identified that there will need to be upgrades and reinforcement to the existing network across the county.
- To meet future water supply and waste water requirements, the water companies are focusing on a strategy in the short term of metering, leakage reduction, and temporary restrictions at times of drought. However, in the long term there will need to be upgrading of infrastructure to meet localised growth demands around existing settlements and in the case of water supply, securing a transfer for a new regional reservoir by 2055.

KEY COST & FUNDING FINDINGS FROM THE HIFP

- Delivering the necessary infrastructure to support that growth from now to 2031 is **estimated to cost at least £5.70 billion in 2018 terms**. This represents an estimate of capital delivery costs only and does not include the additional annual revenue requirements and maintenance costs.
- The study has reviewed the potential costs of delivery alongside currently identified secured funding, potential funding from public, private and developer contributions highlighting a **remaining funding gap estimate of over £3.59 billion at 2018 prices**.
- The study demonstrates that existing funding will not deliver the scale of infrastructure investment identified in this framework. Developer contributions (whether s106, s278 or CIL), local authority capital programmes or current public sector funds and grants will fall short.
- All local authorities in Hertfordshire need to work together to devise an integrated package of funding sources and delivery mechanisms that meet the needs of different areas and types of infrastructure. Chapter 6 of this Prospectus presents a summary of potential options and the benefits and limitations of each.
- The HIFP has identified a variety of additional funding mechanisms that could be explored (i.e. Public Works Loan Boards, Crowdfunding, Business Rate Retention, Tax Increment Financing, etc). This includes an assessment of which alternative funding mechanisms are best suited for each type of infrastructure.

- However, the challenge of meeting many of the infrastructure requirements may require in part an approach that involves new and innovative ways of delivering services in a more integrated approach. This has in particular been adopted by the NHS in its future delivery models of healthcare across the UK.

NEXT STEPS

The Hertfordshire Infrastructure and Funding Prospectus has identified several next steps that should be taken forward as a result of this document.

Short Term

- HIPP to endorse the HIFP
- LEP Board to endorse the HIFP
- HIFP Presentation to Leaders Group / Shadow Growth Board to gain support
- HIFP Presentation to Public Sector Leaders Group to gain support
- Hertfordshire County press release

Medium Term

- Each Local Authority to utilise the HIFP to inform their Local Plans, evidence bases and funding decisions
- Potential to hold a conference with stakeholders (County Council, Local Authorities and Service Providers) and the development industry on HIFP outcomes
- Hertfordshire County and Local Authorities to utilise HIFP in meetings with ministers and civil servants

Long Term

- Prioritise infrastructure Projects
- Commission study to project infrastructure need to 2050



Nick Page - Hertford Canal Lock - Flickr



08

CAVEATS, BENCHMARKS & ASSUMPTIONS

8.1 LOCAL AUTHORITY CAVEATS

BROXBOURNE BOROUGH COUNCIL

All information included in the document is based on the Broxbourne Local Plan 2018-2033 and associated evidence. The Broxbourne Local Plan is currently at Independent Examination, and as such, may be subject to

modifications. The quantity of housing proposed by the Plan remains a live issue. Once examination is concluded, the Council will provide an update to this matter. In addition, the location of a new secondary school (currently proposed on land between Church Lane and the A10 Turnford Link Road) remains a live issue at the Broxbourne Local Plan Examination. The Council will provide an update regarding this matter once examination has concluded.

DACORUM BOROUGH COUNCIL

The Council adopted a Core Strategy (2013) and Site Allocations DPD (2017). This infrastructure prospectus has been based upon 430 homes per year (as anticipated in the Core Strategy (2013) and Site Allocations DPD). These local plans run to 2031, and are in the early stages of being reviewed to take into account changes at both the national

and local level. A number of sites identified in the Site Allocations DPD are beginning to be progressed through the development management process.

A new target for housing will be developed through the new Local Plan process, in line with the requirements of the National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG). This new Local Plan will cover the period to 2036. This is anticipated to be quite a considerable increase to the current levels of growth delivered through the Core Strategy and Site Allocations DPD. Significant local detailed data work will be undertaken on a new IDP (and other supporting evidence for the new Local Plan) and this will be reflected more fully in further editions of this more general strategic infrastructure document.

HERTSMERE BOROUGH COUNCIL

Position derived from Local Plan 2012-27, which comprises the Core Strategy, Site Allocations and Development Management DPD and Elstree Way Corridor Area Action

Plan. The Council is in the process of updating this plan to 2036, and is also beginning work on a Joint Strategic Plan for SW Herts with Dacorum, Three Rivers, Watford and St Albans Councils. The housing target in the current Local Plan is very low at 266 dw/year. The latest objectively assessed need figure is yet to be confirmed, but is expected to be significantly higher. This will have wide ranging implications for future infrastructure needs, as will decisions on where this new growth will be located.

ST ALBANS DISTRICT COUNCIL

The position for St Albans set out in this prospectus largely pre-dates the draft Local Plan approved by the Council in July 2018.

NORTH HERTFORDSHIRE DISTRICT COUNCIL

The position for North Hertfordshire District Council is derived from the Council's new Local Plan 2011-2031, which was submitted for Examination in June 2017. The trajectory is based on information in the Housing and Green Belt Background Paper Partial Update 2017 prepared for the Local Plan Examination. It sets out a phased target of 500 dwellings per year for the period up to 2021 and 1,100 homes per year for the period 2021-2031. A significant amount of development in the trajectory is based on the release of significant development sites within the green belt. The District Council needs to adopt a sound Local Plan to ensure that this level of development is secured.

STEVENAGE BOROUGH COUNCIL

The housing data for Stevenage Borough Council is based on the housing allocations contained within the emerging Stevenage Borough Local Plan, which covers the period up to 2031 and which has received a positive Inspector's Report. The figures used for the purposes of this study were based on the most up-to-date data available at the time on existing completions and commitments (using a base date of 31 March 2017).

THREE RIVERS DISTRICT COUNCIL

The study is based on the current development sites allocated in the Site Allocations LDD for Three Rivers and does not reflect the likely future development or infrastructure requirements going forward.

WATFORD BOROUGH COUNCIL

The existing housing trajectory is based on the South West Hertfordshire Strategic Housing Market Assessment (2016) which covered the period 2013-2036. The projected housing need was for 577 dwellings per annum. The significant proportion of the new homes to be built in the borough will be reliant on strategic brownfield sites coming forward involving a number of stakeholders. This may affect the phased delivery of new housing.

Watford is a highly constrained borough with almost all available land being previously developed and the remaining being urban green space or green belt. A Housing and Employment Land Availability Assessment is being

undertaken to identify if there is enough developable land to support the growth forecast in the borough to 2036 which could affect the housing trajectory.

Watford is an important centre for office related jobs growth, however, has limited land available outside of existing employment areas that could accommodate projected employment growth in other sectors. The South West Hertfordshire Economic Study is currently being updated and will reassess the projected jobs growth.

A 30,000sqm retail extension to Intu in the Watford town centre is to open in Autumn 2018. This will affect retail, footfall and transport in the centre, however, the potential impact will be difficult to quantify until the development has time to establish itself over a period of time.

The new Watford Local Plan is in the early stages of its preparation and will extend the existing plan period to 2036. Anticipated to be adopted in 2021, the Plan will consider the Government's new housing methodology which will increase the housing requirement above the existing trajectory, be informed by revised employment figures and consider issues related to infrastructure needed support the growth which could affect the overall growth strategy.

WELWYN HATFIELD BOROUGH COUNCIL

The housing trajectory is based on the growth figures in the submitted Local Plan and does not include assumptions for the additional 4,000 dwellings, nor does it include the proposals for job growth in the Local Plan.

8.2 APPLICATION OF BENCHMARK MODELLING TO PROJECT SCHEDULE

Where local authority project lists have identified projects to support growth, AECOM have incorporated these into the HIFP Cost Model. However, in certain instances where project gaps exist, AECOM have applied benchmarks to assess the total impact of growth.

Table 8.1 below explains where the benchmarks have been applied. Section 8.3 Further elaborates on the benchmarks applied for each type of infrastructure and local authority.

Infrastructure	Broxbourne	Dacorum	East Herts	Hertsmere	North Herts	St Albans	Stevenage	Three Rivers	Watford	Welwyn Hatfield
Strategic Road Network	P	P	P	P	P	P	P	P	P	P
Local Roads	P	P	P	P	P	P	P	P	P	P
Public Transport	P	P	P	P	P	P	P	P	P	P
Rail	P	P	P	P	P	P	P	P	P	P
Other Strategic	P	P	P	P	P	P	P	P	P	P
Primary Education	P + B	B	P	B	P + B	B	P + B	P + B	P + B	P + B
Secondary Education	P + B	B	P	P + B	P + B	B	B	B	B	P + B
Adult Learning / FE	B	B	B	B	B	B	B	B	B	B
Early Years	P + B	B	P + B	B	P + B	B	P + B	B	B	P + B
Primary Healthcare	P + B	B	P	B	P + B	B	P + B	P + B	P + B	P + B
Acute & Mental Healthcare	P + B	B	B	B	P	B	B	B	B	P
Adult Social Services	B	B	B	B	B	B	P	B	P + B	P + B
Libraries	P + B	B	P	B	B	B	P	B	B	B
Youth Services	B	B	B	B	B	B	B	B	B	B
Community Facilities	B	B	P	B	P	B	B	B	B	B

Infrastructure	Broxbourne	Dacorum	East Herts	Hertsmere	North Herts	St Albans	Stevenage	Three Rivers	Watford	Welwyn Hatfield
Sports Facilities	P	B	P	B	P	B	P + B	P + B	P	P
Open Space & Recreation	B	B	P + B	P + B	B	B	B	P + B	P + B	B
Strategic Green Infrastructure	P + B	B	P	P	P + B	B	B	P + B	P	P + B
Energy (Electricity & Gas)	B	B	P	B	B	B	B	B	B	B
Water and Sewage	B	B	P	B	B	B	B	B	B	P + B
Waste	P	P	P	P	P	P	P	P	P	P
Broadband	B	B	P	B	B	B	B	B	P + B	B
Flood Defences	P	P	P	P	P	P	P	P	P	P
Emergency Services	P	P	P	P	P	P	P	P	P	P

TABLE 8.1- LOCAL AUTHORITY APPLICATION OF THEORETICAL BENCHMARKS

Project List
Benchmark
Project List & Benchmark

8.3 INFRASTRUCTURE NEED BENCHMARK

Estimates of infrastructure need by type presented in Section 4 are informed by estimates of future needs resulting from growth identified in Section 3 of this report.

For clarity the following infrastructure topics have been assessed using benchmarks (which are subsequently presented in Tables 8.2 to 8.7):

- Early Years
- Primary and Secondary Education
- Sixth Form and Adult Learning

- Primary, Acute and Mental Healthcare
- Social Care Accommodation
- Community, Library and Youth Spaces
- Indoor and Outdoor Sports facilities
- Open Space Provision
- Green Infrastructure

Each of the benchmarks set out in the following Tables has been applied to either:

- The projected increase in population to 2031, sourced from ONS population projections, as outlined in Section 3; or
- The number of planned dwellings to 2031, as outlined in Section 3.

Topic	Details	Benchmark	Benchmark Source
Early Year Facilities	Early year demand per Flat	0.045	Essex County Council as place holder for HCC guidance
	Early year demand per House	0.090	Essex County Council as place holder for HCC guidance
	Places per nursery	56	Essex County Council as place holder for HCC guidance
Primary Schools	Pupil Demand per Dwelling	0.42	Hertfordshire County Council Guidance - 1 FE per 500 Dwellings
	Primary School Pupils in 1 Form Entry	210	DfE
Secondary Schools	Pupil Demand per Dwelling	0.39	Hertfordshire County Council Guidance - 1 FE per 500 Dwellings
	Secondary & Sixth Form Pupils in 1 Form Entry	195	DfE (with HCC assumption that 75% sixth-form stay-on)

TABLE 8.2- EDUCATION INFRASTRUCTURE BENCHMARKS

Topic	Details	Benchmark	Benchmark Source
Primary Health Care	People per GP	2,000	Advised by NHS CCG at HIFP project workshop 2018
	GP per 1000 people	0.50	
	Sq.m per GP	199	NHS Guidance
Dental Practices	People per Dentist	1,760	Existing ratio of Dentists to population across England 2016 (based on General Dental Council 2016 Data)
	Dentists per 1000 people	0.57	
	Sq.m per Dentist	50	NHS Healthy Urban Development Model
Acute Hospitals	Beds per 1000 people	1.96	Existing ratio of Hospital Beds to population across England 2016 (based on NHS England Data)
	Sq.m per Acute Bed	160	AECOM Cost Consultants benchmark data
Mental Health Hospitals	Beds per 1000 people	0.40	Existing ratio of Hospital Beds to population across England 2016 (based on NHS England Data)
	Sq.m per Bed	85	AECOM Cost Consultants benchmark data
Adult Social Care	Nursing Home bedroom per 1000 persons over 75	25	The Housing Learning and Improvement Network (LIN) SHOP TOOL - Demand levels based prevalence rates from "More Choice, Greater Voice".
	Residential Care bedroom per 1000 persons over 75	65	
	Extra Care bedroom per 1000 persons over 75	45	
	Typical Nursing Care Unit Bed Number per facility	80	Kent and Medway Social Care Research - Estuary View Medical Centre Plans for Expansion
	Typical Residential Care Unit Bed Number per facility	80	
	Typical Extra Care Unit Bed Number per facility	80	AECOM Cost Consultants Extra Care Facility Planning Guidelines 2015

TABLE 8.3 - HEALTH AND SOCIAL CARE INFRASTRUCTURE BENCHMARKS

Topic	Details	Benchmark	Benchmark Source
Community Space	sq.m per 1,000 person	65	AECOM aggregate figures based on project Experience (Essex, Kent, Surrey)
Art & Cultural Space	sq.m per 1,000 person	45	Arts Council (Previously Museums, Libraries and Archives Council (MLA))
Library Space	sq.m per 1,000 person	30	Arts Council (Previously Museums, Libraries and Archives Council (MLA))

TABLE 8.4 - COMMUNITY INFRASTRUCTURE BENCHMARKS

	Swimming Pools	Sports Halls	Indoor bowls rinks	Artificial Turf Pitches	Benchmark Source
	Population per Lane	Population per Court	Population per Rink	Population per Artificial Turf Pitch	
Broxbourne	4,975	3,535	15,244	33,670	Sport England Facility Calculator 2018 - Local Authority specific
Dacorum	4,973	3,547	15,291	34,483	Sport England Facility Calculator 2018 - Local Authority specific
East Herts	4,995	3,563	14,684	35,587	Sport England Facility Calculator 2018 - Local Authority specific
Hertsmere	4,980	3,561	15,337	34,014	Sport England Facility Calculator 2018 - Local Authority specific
North Herts	5,025	3,587	14,599	35,587	Sport England Facility Calculator 2018 - Local Authority specific
St Albans	4,921	3,561	16,129	34,602	Sport England Facility Calculator 2018 - Local Authority specific
Stevenage	4,924	3,493	16,340	32,258	Sport England Facility Calculator 2018 - Local Authority specific
Three Rivers	5,008	3,583	14,948	35,211	Sport England Facility Calculator 2018 - Local Authority specific
Watford	4,808	3,433	19,417	30,864	Sport England Facility Calculator 2018 - Local Authority specific
Welwyn Hatfield	4,968	3,413	17,153	28,249	Sport England Facility Calculator 2018 - Local Authority specific

TABLE 8.5 - LOCAL AUTHORITY SPECIFIC SPORT FACILITY BENCHMARKS

Topic	Details	Benchmark	Benchmark Source
Outdoor Sports & Recreation	Playing Fields - ha. per 1,000 people	1.20	NPFA (Fields in Trust) standards (from 1.6 ha standard which includes 0.4ha for Parks which are covered below)
Children's play	Informal - sq.m per 1,000 Children (0-16)	6.90	GLA Play Space Standards - Recognised best practise superseding NPFA approach with 31% of requirement formal
	Designated Equipped sq.m per 1,000 Children (0-16)	3.10	

TABLE 8.6 - OPEN SPACE AND RECREATION BENCHMARKS

	Natural & Semi-Natural	Parks & Gardens	Amenity greenspace	Allotments	Benchmark Source
	ha Per 1000 people	ha Per 1000 people	ha Per 1000 people	ha Per 1000 people	
Broxbourne	1.26	0.28	0.46	0.20	Broxbourne Borough Council Open Space Study (2008)
Dacorum	1.00	2.80	0.00	0.35	Dacorum Open Space Study – March 2008
East Herts	3.20	1.40	1.40	0.30	East Herts Open Spaces Report (2017)
Hertsmere	0.00	1.00	0.00	0.13	Hertsmere Open Space Study October 2011
North Herts	3.92	1.63	1.63	0.30	North Hertfordshire Green Space Standards (2009)
St Albans	0.50	1.20	1.50	0.45	St. Albans Detailed Local Plan Technical Report - Green Spaces (2016)
Stevenage	1.78	0.73	1.10	0.09	Stevenage Green Space Strategy (2010) + Open Space Strategy (2015)
Three Rivers	0.00	0.00	0.00	0.00	Three Rivers DC: Open Space Assessment (2005)
Watford	0.00	0.00	0.00	0.13	Watford Open Space Study 2010
Welwyn Hatfield	6.29	14.40	1.36	0.13	An Assessment of Welwyn Hatfield's Open Space, Outdoor Sport and Recreation

TABLE 8.7 - LOCAL AUTHORITY SPECIFIC GREEN INFRASTRUCTURE BENCHMARKS

Note - Where no local standard was available the Hertfordshire average is applied.

8.4 INFRASTRUCTURE COSTING SOURCES & CAVEATS

The following infrastructure topic costs are based primarily on the following sources although this list is not comprehensive:

- Highways - HCC / Local Authority IDPs
- Motorways - Highways England / HCC / Local Authority IDPs
- Rail - Network Rail / HCC / Local Authority IDPs
- Public transport and other transport - HCC / Local Authority IDPs
- BDUK Broadband - HCC
- Flood Defences - HCC / Environment Agency
- Waste - HCC

AECOM costing estimates are provided within this document and should be caveated as high level estimates given a lack of detailed scheme information and in many cases applied to long term demand forecasts to 2031.

These cost caveats apply to the following topics within this report:

- Early years
- Education
- Adult Learning
- Healthcare
- Social Care Accommodation
- Community, Library and Youth Spaces
- Open Space Provision
- Indoor and Outdoor Sports facilities
- Green Infrastructure
- Electricity Connections
- Gas Connections
- Potable, Waste and Surface Water Infrastructure
- Communications

The following caveats apply to all costing provided by AECOM:

- All costs are indicative and based on the Outer London Area
- All costs should be treated with reserve, as they represent the average of prices from our records and cannot provide more than rough guide to costs
- Costs assume flat greenfield sites.
- Costs exclude any costs associated with site demolitions, site clearance etc.
- Costs exclude any abnormal ground conditions, obstructions in ground, contamination or archaeology
- Costs exclude external works
- Costs exclude specialist equipment and loose fixtures, fittings and equipment
- Costs exclude phasing and temporary works and professional fees
- All costs are at Q4 2018 prices and therefore exclude inflation
- Costs include an allowance for preliminaries and overheads and profit
- Costs excludes VAT

8.5 ASSUMPTIONS ON EXPECTED FUNDING

To prepare this document a significant quantity of data on future infrastructure projects and costs has been obtained from a variety of sources, including HCC officers, LPA IDPs (at various stages of finalisation) and other infrastructure providers. Where data has not been available, actual project data has been supplemented with theoretical modelling about the quantity and average cost of infrastructure required based benchmarks (see Section 8.2).

Significantly less certainty and reliable data is available about the likely sources of future funding for these projects. Where this data has not been available, actual funding data has been supplemented with theoretical modelling based on assumptions about the likely contribution of various funding sources.

Accordingly, caution should be applied in interpreting these estimates, in particular where infrastructure need has been determined theoretically, then costed using average benchmark costings, and funding need attributed on the basis of assumptions about likely funding availability.

We recommend that future iterations of this study are informed by further data, research and analysis to refine and improve these assumptions.

PUBLIC & PRIVATE SECTOR FUNDING ASSUMPTIONS

The study estimates likely funding towards infrastructure from various public and private sector infrastructure providers and partners, for the purpose of estimating the scale of the gap between the cost of needed infrastructure and likely available funding to 2031.

As the exact level of public and private sector funding is impossible to forecast, a rule of thumb percentage approach has been used. The percentage rates applied in the study are set out in Table 8.8.

A detailed analysis of potential public and private sector sources, undertaken in partnership with the relevant LPAs, is required to further refine these assumptions on expected funding levels.

Infrastructure Projects	Working Assumption on Expected Source after Developer funding	% Funded
Strategic Roads	Central Government (DfT)	85
Rail	Network Rail	50
Public Transport	Private Operators / DfT	15
Education (Schools)	Central Government (DfE)	10
Early Years	Private Sector Investment	100
Healthcare	National Health Service (NHS)	10
Social Care	Private Sector Investment	25
Energy	Utility Companies	100
Water and Sewage	Utility Companies	100
Waste	HCC	50

TABLE 8. 8 - HIGH LEVEL FUNDING ASSUMPTIONS FOR MODELLING

DEVELOPER CONTRIBUTIONS

The study also estimates likely funding towards infrastructure from developer contributions, for the purposes of estimating the scale of the gap between the cost of needed infrastructure and likely available funding to 2031.

The level of developer contributions attributed to the 'funded component' of the forecast infrastructure costing, assumes that:

- Developers will contribute approximately £7,400 per dwelling. This rate has been derived from a high-level analysis of typical developer contribution requirements and actual receipts recorded in South East local authorities (including Kent County, Medway Council, Surrey County, West Sussex County and Essex County). While this provides an average figure for the Hertfordshire area, the actual level of contributions in each LPA will vary to reflect the number of large-scale developments (and associated Section 106 or Section 278 agreements) in that LPA area, land values and whether or not a CIL is levied in that LPA.
- All the dwellings forecast in the aggregated Hertfordshire housing trajectories (set out in Section 3) will be built.

This estimate of contributions from developers should not be treated as secured funding, rather a source of expected funding for the purposes of the estimates in this study.

A detailed analysis of potential contributions incorporating Section 106 and CIL rates undertaken in partnership with the relevant LPAs is required to refine these assumptions on expected funding levels further.

