Hertfordshire County Council is developing a long term transport planning framework for the county, known as the Hertfordshire 2050 Transport Vision. The framework will help to identify the transport improvements and investment required between now and 2050 in order to prioritise and deliver economic growth within the county, in the form of housing and jobs.
INTRODUCTION

THE HERTFORDSHIRE 2050 TRANSPORT VISION

There have been significant changes to the national and local planning and economic context since the development and adoption of Hertfordshire County Council’s third Local Transport Plan (LTP3) in 2011. At the national level, enabling and supporting economic growth is a more prominent theme now than during the development of LTP3. At the local level, actual and forecast population growth both within and beyond the county boundary means that Hertfordshire’s ten constituent districts and boroughs need to accommodate more housing.

There is a strong commitment to enabling economic growth in the county through the Hertfordshire Local Enterprise Partnership; this is a business-led partnership with local authority representation (including Hertfordshire County Council).

As a result of these changes, Hertfordshire County Council is updating the county’s transport planning framework to ensure that the transport network is able to support and unlock growth.

A fundamental aspect of this review is the development of a new Transport Vision for Hertfordshire to 2050; a strategic plan for transport infrastructure in, through and to Hertfordshire that will set out the priorities for investment in the network in the short, medium and long term.

The Hertfordshire 2050 Transport Vision will form the foundation of the case for major investment in Hertfordshire’s transport infrastructure, making the case both within the county and with external stakeholders for a visionary approach for Hertfordshire’s transport network.

THE HERTFORDSHIRE 2050 TRANSPORT VISION: AN OVERVIEW OF THE PROCESS

The development of Hertfordshire’s Transport Vision is a three-stage process. This report is a component part of the Stage 2 work.

Stage 1, completed earlier in 2015, involved the collection and analysis of data to establish a robust evidence base for the key challenges for Hertfordshire in the period 2015-2050. The ways in which these key challenges would impact or influence, either positively or negatively, Hertfordshire’s transport network and services in the long term, were explored, and the associated challenges for transport (and the role of transport in addressing or mitigating these impacts) were set out.

Stage 2 builds upon the evidence base established in Stage 1 to establish a series of broad options for transport investment in Hertfordshire in the short (2015-2021), medium (2021-2031) and long term (2031-2050).

Stage 3, the final phase, will involve the development of those options following the Stage 2 engagement process, and detailed appraisal.

IDENTIFYING OPTIONS FOR TRANSPORT INVESTMENT

Stage 2 identifies transport schemes, packages [2015-2031] and scenarios [2031-2050] for consideration.

The individual, spatially-specific schemes have been identified in response to the priorities and objectives of the Transport Vision, and the known challenges and opportunities. The schemes are a combination of ‘known’ schemes which are committed, planned or at concept-stage, and entirely new schemes, as identified through a gap-analysis process.

Schemes which have a short to medium term implementation period have been grouped into four transport packages. As a result of adopted or emerging District and Borough Local Plans, the quantum and location of housing development within Hertfordshire is generally known. This means that schemes identified for short or medium term implementation can be designed and packaged to address a specific spatial development challenge or opportunity.

The spatial pattern of development beyond 2031 is less certain, however, and it is not the role of this document or the Hertfordshire 2050 Transport Vision to provide the direction for planning decisions which are the responsibility of Hertfordshire’s District and Borough Councils. To provide an entry-point into the discussion about where transport investment should be prioritised in the long term [2031-2050], Stage 2 considers three concept spatial development scenarios, and identifies the transport schemes which could be required to support each of those scenarios in turn.
INTRODUCTION

THE FOUNDATION OF THE TRANSPORT VISION: THE ROLE OF TRANSPORT IN ECONOMIC GROWTH

The process of identifying options for transport investment has been driven by an understanding of the role of transport in economic growth, both at a national/global level, and at the local level within Hertfordshire.

Figure 1.1 presents a schematic overview of the relationship between transport investment and wider economic impacts.

For the purpose of the Transport Vision, the following observations have been used to frame the priorities, objectives and the transport schemes recommended:

- Economic performance is eroded as a result of congestion. A priority is therefore to alleviate congestion, particularly where it relates to nodes or destinations that are especially important, either currently or prospectively, in economic and spatial terms.
- Intra-urban connectivity – linking one part of a settlement with another and allowing both to function better as a consequence, is critical, particularly in relation to quality of life and (physical) growth priorities.
- The role of transport investment in relation to the process of agglomeration needs to be recognised and harnessed fully. It ought to be recognised at two spatial scales:
  - Inter-urban: linking stand-alone towns more effectively, thereby allowing greater effective scale, with implications for labour markets, supply chains and networks.
  - Out-of-county: linking to international gateways, the rest of the UK and, especially, to London.

**FIGURE 1.1: TRANSPORT INVESTMENT AND ECONOMIC IMPACTS**

- **Intervention**
  - Transport investment
  - Connectivity improvements

- **Drivers**
  - Higher capacity
  - Unlocking development potential
  - More reliability
  - Time savings

- **Outcomes**
  - Greater access to economic mass
  - Step-change in economy activity

- **Economic impacts**
  - 1. GVA growth
  - 2. Higher private investment
  - 3. Higher land values
  - 4. Employment growth
INTRODUCTION

THIS REPORT

This report provides a summary of the process undertaken to develop the transport packages and scenarios recommended for further consideration as part of Hertfordshire’s 2050 Transport Vision.

The schemes identified in this report, grouped into short to medium term transport packages, and long term concept spatial scenarios, do not represent an exhaustive or definitive list of all transport investment to be considered by Hertfordshire County Council from now until 2050 – most of the schemes identified are major infrastructure schemes which require substantial forward planning in order to be delivered. In most cases, major infrastructure schemes will need to be supported by complementary initiatives such as demand management in order to fully harness their potential.

Planning for major transport infrastructure takes considerable time, and it is important that steps are taken to start planning for 2050 well in advance of 2031. The packages and scenarios presented in this report are intended to facilitate the discussion about post-2031 planning.
CHAPTER 2
PRIORITIES AND OBJECTIVES

The priorities and objectives which frame the Hertfordshire 2050 Transport Vision have been guided by the priorities contained within the Strategic Economic Plan. There is a well-established need to firmly root the Transport Vision within the wider growth narrative for Hertfordshire.
Hertfordshire’s Strategic Economic Plan – Policy Priorities

Hertfordshire’s Strategic Economic Plan, Perfectly Placed for Business, was developed in 2013/14 in response to Government requirements for Local Enterprise Partnerships to set out their local growth aspirations and identify priority interventions in response. These were to be delivered through Local Growth Deals, as part of the Government’s commitment to the devolution agenda.

Hertfordshire’s Strategic Economic Plan sets out a long term blueprint for economic and housing growth. Figure 2.1 summarises the four policy priorities which structure the Strategic Economic Plan.

Hertfordshire’s Strategic Economic Plan – Spatial Priorities

In functional economic terms, Hertfordshire is complicated. Within Hertfordshire there is not a natural ‘economic centre’ playing a role that is akin, say to that of Cambridge within Cambridgeshire. Instead, the county is polycentric.

Within the Strategic Economic Plan, Hertfordshire’s economy is depicted spatially as three Growth Areas, each of which is defined around strategic road and railway links and the corridors these create. All three Growth Areas have strong London links and substantial growth forecasts, as shown in Figure 2.2 overleaf.

- The M1/M25 Growth Area: in the west of Hertfordshire is the M1/M25 Growth Area which is defined spatially in terms of five local authority districts: Dacorum, Hertsmere, St Albans, Three Rivers and Watford. On most metrics (population, GVA and jobs) it accounts for about half of Hertfordshire’s economy.
- The A1(M) Growth Area: running North to South through the centre of Hertfordshire, this area has been defined spatially in terms of three local authority districts: North Hertfordshire, Stevenage and Welwyn Hatfield.
- The A10/M11 Growth Area: the third of the Growth Areas is the smallest in absolute terms; and it is defined around two local authority districts (Broxbourne and East Hertfordshire).
PRIORITIES AND OBJECTIVES

Hertfordshire 2050 Transport Vision Stakeholder Engagement Report

FIGURE 2.2: HERTFORDSHIRE’S THREE GROWTH AREAS AND HEADLINE STATISTICS

A1(M) GROWTH AREA
Projected population to 2031: 386,700 (+17.6% from 2013)
Projected population to 2050: 472,500 (+43.7% from 2013)
Projected jobs to 2030: 210,400 (+13.1% from 2013)
Total GVA, 2013: £8.3bn

A10/M11 GROWTH AREA
Projected population to 2031: 275,100 (+16.5% from 2013)
Projected population to 2050: 333,700 (+41.3% from 2013)
Projected jobs to 2030: 134,000 (+10.5% from 2013)
Total GVA, 2013: £4.8bn

M1/M25 GROWTH AREA
Projected population to 2031: 682,300 (+18.5% from 2013)
Projected population to 2050: 836,300 (+45.2% from 2013)
Projected jobs to 2030: 392,700 (+13.6% from 2013)
Total GVA, 2013: £14.0bn
THE HERTFORDSHIRE 2050 TRANSPORT VISION
PRIORITIES AND OBJECTIVES

Taking each of the four Strategic Economic Plan policy priorities in turn, consideration has been given to how transport investment can support progress towards that priority; specifically, what are the accessibility, connectivity, capacity and/or quality impacts that are required, in transport terms, to support wider economic objectives. The Transport Vision priority statements are therefore a translation of the Strategic Economic Plan priorities into transport terms.

The priorities and objectives for the Hertfordshire 2050 Transport Vision are shown in Table 2.1.

APPLICATION OF THE TRANSPORT VISION PRIORITIES AND OBJECTIVES

The priorities and objectives provide the overall framework for the Hertfordshire 2050 Transport Vision.

They were used to inform the development of the assessment framework, allowing an assessment of the extent to which individual schemes are consistent with the priorities of the Transport Vision as a whole.

<table>
<thead>
<tr>
<th>TABLE 2.1: THE HERTFORDSHIRE 2050 TRANSPORT VISION PRIORITIES AND OBJECTIVES</th>
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<tbody>
<tr>
<td><strong>Priority 1: Maintaining global excellence in science and technology</strong></td>
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<tr>
<td>Deliver an efficient and resilient transport network that supports Hertfordshire’s continuing success as a national focus for the commercialisation of science and technology.</td>
</tr>
<tr>
<td>• Objective 1a: To increase employers’ labour market catchments at appropriate skill levels.</td>
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<tr>
<td>• Objective 1b: To improve journey times and journey time reliability to improve business to business connectivity.</td>
</tr>
<tr>
<td>• Objective 1c: To improve access to sites with a strong (actual or planned / potential) focus on science and technology (both ‘first mile last mile’ and in relation to wider connectivity).</td>
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<tr>
<td><strong>Priority 2: Harnessing our relationships with London (and elsewhere)</strong></td>
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<tr>
<td>Protect and enhance Hertfordshire’s strategic connections to London - and its national and international connections - to support accelerated growth and development.</td>
</tr>
<tr>
<td>• Objective 2a: To protect and increase connectivity and capacity for journeys between Hertfordshire and London, specifically to enhance rail connectivity to central London and improve road and rail connectivity between south Hertfordshire and north London.</td>
</tr>
<tr>
<td>• Objective 2b: To enhance local connectivity to key transport hubs in Hertfordshire.</td>
</tr>
<tr>
<td>• Objective 2c: To improve journey times and journey time reliability to international gateways, including particular airports (Heathrow, Stansted, Luton), ports (East Coast and Thames Gateway especially) and Eurostar.</td>
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<tr>
<td>• Objective 2d: To identify growth opportunities from regionally and nationally significant schemes (HS2, Crossrail 1, Crossrail 2) and to consider local connectivity to maximise the benefits of investment.</td>
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<tr>
<td><strong>Priority 3: Re-invigorating our places for the 21st century</strong></td>
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<tr>
<td>Support development and enable the sustainable transformation of Hertfordshire’s towns.</td>
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<tr>
<td>• Objective 3a: To provide sufficient network capacity to support new development and related travel.</td>
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<tr>
<td>• Objective 3b: To embrace the opportunity afforded by new vehicle and digital technologies.</td>
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<tr>
<td>• Objective 3c: To provide solutions that better integrate existing and new modes of transport to provide sustainable travel options.</td>
</tr>
<tr>
<td>• Objective 3d: To enhance the quality of key public spaces in Hertfordshire’s urban areas to make them more attractive places to live, work and invest, and enhance quality of life for all.</td>
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<tr>
<td>• Objective 3e: To improve access to employment opportunities.</td>
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<tr>
<td><strong>Priority 4: Foundations for growth</strong></td>
</tr>
<tr>
<td>Ensure that the transport network is not a major constraint on economic life across the county.</td>
</tr>
<tr>
<td>• Objective 4a: To link business parks and employment sites to the wider network.</td>
</tr>
<tr>
<td>• Objective 4b: To improve the resilience of the network.</td>
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<tr>
<td>• Objective 4c: To ensure that, as the population ages, older people in Hertfordshire are able to access key services.</td>
</tr>
<tr>
<td>• Objective 4d: To improve the health outcomes linked to transport through improved air quality and greater physical activity.</td>
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CHAPTER 3
THE WIDER CONTEXT

In developing Hertfordshire’s 2050 Transport Vision, account must be taken of the wider context and future drivers of change, including developments and influences outside of the county.
THE WIDER CONTEXT

GROWTH AND SPATIAL PLANNING

London

The London Plan (March 2015) is the Mayor’s Spatial Development Strategy for London. It sets out a vision for London and identifies the means by which this vision might be achieved. A key theme of the London Plan is the need to increase housing provision to meet the needs of a growing and ageing population, which is increasingly more ethnically diverse. Key issues identified over the next 20-25 years include:

- A growing population: London’s population is expected to grow from 8.2 million in 2011 to 10.11 million by 2036.
- A changing population: London will continue to have a higher proportion of young (school-aged) people than anywhere else in England and Wales, and an increasing number of those aged over 90.
- More households: the total number of households is forecast to rise from 3.28 million households in 2011 to 4.26 million households by 2036, an anticipated increase of 980,000 households by 2036.
- Lower growth in jobs: net growth in London between 2006 and 2036 is projected at 861,000 jobs (51,000 lower than in the 2011 London Plan).

Inevitably, this has implications for adjoining areas like Hertfordshire given existing commuting patterns, and the Duty to Co-Operate necessitates some kind of response. The authorities in London have recognised the need for ‘wider south east engagement’, and there are proposals for a joint commission between London, the East of England (including Hertfordshire) and the South East to explore mechanisms to agree and understand common issues – including strategic infrastructure - underpinning the economic future of London and the wider south east.

Luton

Luton is located immediately to the north-west of Hertfordshire, around 10-12 miles from both Hemel Hempstead and St Albans. Luton Airport is an important international gateway and Luton, like Hemel Hempstead, is close to the M1 motorway. There are plans to extend Luton Airport to accommodate some 18 million passengers per year (noting that it currently handles about 12 million passengers). By 2025, Luton’s intention is to create around 18,000 jobs and make provision for 5,700 dwellings1 – although Luton as a borough has limited capacity for growth within its boundary and there are particular implications for North Hertfordshire.

Harlow

To the east of Hertfordshire is the New Town of Harlow. It too has limited capacity for growth within its boundary, and its boundary with East Hertfordshire has long been a complex one in relation to development ambitions. Harlow has stagnated over recent decades and the imperative for Harlow to grow has been frequently stated2. For Harlow, the demise of the East of England Plan signalled a halt to a particular growth narrative. Five years later, and broadly similar aspirations are being codified at a local level. Harlow has an Enterprise Zone [with a particular focus on medical technologies] and it is also part of the London-Stansted-Cambridge Consortium. Its future growth will have both direct and indirect implications for eastern Hertfordshire.

Cambridge

Further afield, the growth of Cambridge is a further important, albeit more indirect, consideration. Cambridge has seen substantial growth, and more is planned. In employment terms, the planned relocation of Astra Zeneca to Cambridge Biomedical Campus will generate significant numbers of new jobs and it will further strengthen the position of Cambridge in bioscience. Links between Cambridge and London are increasingly important in these terms and there are associated opportunities for Hertfordshire, particularly (given transport infrastructures) for Stevenage.

Stansted Airport

Finally, it is important to acknowledge the scale of planned growth linked to Stansted Airport. A substantial increase in passenger numbers is expected over the next decade. This will present an important opportunity for Hertfordshire’s businesses. Substantial numbers of jobs are likely to be created and this in itself could prove quite challenging in labour supply terms, particularly in the area around Bishop’s Stortford.

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1 Luton’s Investment Framework, 2015-2035 – Think Luton. Think outside the box.
2 See for example Harlow Futures Prospects Study: Linking Regeneration and Growth Nathaniel Lichfield and Partners, for Harlow District Council, 2013
THE WIDER CONTEXT

MAJOR TRANSPORT SCHEMES

Smart Motorway Programme (2015+)
Highways England is currently in the process of building a network of smart motorways, known as the ‘Smart Spine’. Smart motorways are motorways that use Active Traffic Management technology to manage traffic flows and increase capacity. The core part of the Smart Spine will include the M1 from London to Leeds, the M6 from Rugby to Wigan, and the M60/M62 from Liverpool to Leeds. Parts of the M1 and M25 in Hertfordshire have already been converted to smart motorways. While the next tranche of ‘Smart Spine’ schemes will be delivered outside of the county, they should deliver journey time reliability improvements to one of the busiest corridors in Hertfordshire (the M1).

In addition, Highways England is planning to improve the reliability of journeys on the A1(M) through the introduction of smart motorway between junctions 6-8 following the award of funding to the scheme through the Roads Investment Strategy.

Croxley Rail Link (2017)
The Croxley Rail Link is an extension of the London Underground Metropolitan line from Croxley to Watford Junction via Watford High Street. This scheme is being promoted by Hertfordshire County Council in partnership with London Underground and Network Rail. The target date for trains to start running on the new link is 2018. This should deliver significant connectivity and congestion benefits at a local level.

Thameslink Programme and TSGN Franchise (2018)
The Thameslink Programme aims to deliver new trains, capable of automatic drive in central London, and new services. From 2018, six off-peak services calling at stations between London, Peterborough and Cambridge will no longer terminate at King’s Cross. Instead, they will run to St Pancras and continue south through central London towards Brighton. This means that it will soon be possible to travel directly from Royston, Letchworth Garden City, Hitchin, Stevenage, Knebworth, Welwyn Garden City, Hatfield and Potters Bar to Gatwick Airport via St Pancras, Farringdon and London Bridge.

High Speed 2 (2018 – 2026)
Construction on a new north-south High Speed railway – High Speed 2 (HS2) – is expected to commence in 2018. When HS2 services commence in 2026, virtually all long-distance services (up to 15 per hour) will transfer from the West Coast Main Line to HS2. This presents a significant opportunity to radically enhance commuter and medium distance services on this corridor, which could deliver connectivity, capacity and reliability benefits for Hertfordshire’s commuters. It will also open up the opportunity for more long-distance journeys to call at Watford and potentially St Albans.

East West Rail Improvements (2019+)
A number of local authorities are promoting the development of a new East-West rail link between Oxford and Cambridge (via Milton Keynes). This new route would be delivered by using existing freight railways, some branch lines, and some new build railway. Although this project sits mostly outside the county of Hertfordshire, it will make it possible to travel from parts of Hertfordshire to Oxford by rail without travelling to central London. In the long term, it could deliver faster journeys to Cambridge although the precise route of the central section of this project has not yet been agreed.

Crossrail 2 (2030+)
Transport for London is developing a proposal, known as Crossrail 2, to construct a new high frequency heavy-railway from South West London to North East London. This proposal includes potential service extensions into Surrey, East Hertfordshire and Stansted Airport. In order to make this project work, it will be necessary to build additional tracks on the West Anglia Main Line and consolidate suburban services on this line. In the very long term, this scheme has the potential to deliver significant connectivity improvements for Cheshunt and potentially beyond.
DEVOLUTION AND GOVERNANCE

In March 2014, and again in September 2015, all Local Enterprise Partnerships were given the opportunity to present a ‘deal’ to government of power and resources they wanted devolved from central Government to promote high rates of economic growth at the local level. Powers could include greater certainty of transport budgets for longer periods of time; greater flexibility to spend those budgets; capital to revenue budget switches; ability to retain a greater portion of locally generated tax receipts based on improved delivery of outcomes (or Tax Incremental Financing models); greater control over bus franchising and smart ticketing; greater influence over programmes, schemes and operation of the strategic national networks; greater control over the local planning system with Enterprise Zones and Urban Development Corporations and the like.

This list is not exhaustive, nor is it all available and applicable to every Local Enterprise Partnership area, but across the spectrum the collective potential is vast for greater determination locally of the transport and planning system to deliver improved outcomes and impacts, such as higher house building levels and increasing levels of investment by employers.

Examples of this which have been approved or have been discussed include formation of Combined Authorities; elected ‘Metro’ style mayors; ‘unitarisation’ (i.e. the removal of districts and boroughs or the transfer of planning authority powers to the county); simplification of the planning system; and acceleration or increased house building compared to Local Plan levels. Each option has its complexities and requires extensive policy formulation and meaningful engagement.

Local Enterprise Partnerships across England are willing to move at different paces in embracing this Government’s form of decentralisation and devolution. Those that are moving fastest are likely to garner the greatest rewards. It is recommended that through consultation with the Local Enterprise Partnership and key stakeholders, engagement remains ongoing and is prioritised as to the options that should be explored in more detail. The engagement on this document and the final stage of Transport Vision development provide such opportunity for this.

FUTURE TRENDS

Technology is both a driver and an enabler of change and is arguably not only a future ‘theme’ in its own right, but a cross-cutting driver and enabler of other trends. It is therefore useful to consider the future role of technology in the development of the transport network in Hertfordshire, and to identify some ‘enabling’ schemes (schemes that allow the positive aspects of technological innovation to be harnessed) that should be considered within the context of the Transport Vision.

Technology, in the context of transport, can enable change because it has the capacity or potential to:

- Acquire data about the network from roadside sensors, in-vehicle platforms, and personal communication devices (e.g. smartphones).
- Exchange data between sensors and infrastructure.
- Collate and process information.
- Share information about the network and its performance to optimise services.

In conjunction with wider trends such as the growth of the ‘sharing economy’; lower levels of car use among the ‘Millenials’ generation (people between the ages of 16 and 34); and an increased demand for accessible public transport options, the enabling aspects of technology could lead to transport-technology schemes such as:

- Urban mobility options, particularly shared mobility services such as car clubs, taxi sharing and cycle hire.
- Shared mobility options providing demand responsive and community transport-like services.
- Real time journey planning.
- Dynamic pricing for all modes of travel (for example, individual and integrated schemes such as variable road user charging tariffs by distance, time of day, congestion, type of vehicle and occupancy; and monthly bills, tariffs and allowances).
- Autonomous vehicles with the potential to reduce congestion and collisions.
This chapter discusses the issues and opportunities associated with growth in Hertfordshire, and the role of transport investment in solving or mitigating those issues and helping to realise opportunities for growth. The issues and opportunities are discussed in terms of congestion and agglomeration – the two main ways in which focused transport investment can facilitate economic growth.
ISSUES AND OPPORTUNITIES

CONGESTION AND CAPACITY ISSUES

Economic performance is eroded as a result of congestion, and so network congestion must be alleviated to ensure that the quality of the existing network is improved, allowing the network to function better as a whole.

The most congested links and routes on the road and rail networks in and through Hertfordshire have been identified through analysis of vehicle delay data from TomTom, information on network performance from Highways England, and National Rail. A summary of the issues is as follows:

Road

- The greatest level of congestion is between Hertfordshire and London, and in particular between south Hertfordshire and London.
- Links to Heathrow are particularly constrained from all of Hertfordshire, and especially from Dacorum and St Albans.
- There are significant levels of congestion on flows between Hertfordshire local authority districts and local authority districts in London. These flows are 66% and 73% more congested during the peak respectively than the same flow under free-flow conditions.
- On the M1, vehicle hours delay (congestion) is particularly acute on the section north of St Albans towards Luton and beyond.
- The most congested section of the A1(M) through Hertfordshire is from junction 6 (Welwyn North) to junction 8 (Stevenage), where the route is currently only two lanes (but due for upgrade to smart three lane running).

Rail

There are capacity constraints and crowding issues on all radial routes to London including:
- West Coast Main Line
- Midland Main Line
- East Coast Main Line
- West Anglia Main Line

There is very limited capacity for these routes to accommodate any further demand.

Cross Corridor

As previously discussed, Hertfordshire’s north-south links (radial routes to and from London) influence the county’s economic geography; it is therefore appropriate that the Growth Areas are north-south in nature and that north-south transport assets are considered as a matter of priority.

However, this means that the role and importance of east-west links can be overlooked. This risk is exacerbated by the short term issue of insufficient modelling or user-data to adequately describe the strategic function and constraints of east-west assets.

In the context of this study and review of evidence, it is recognised that the A414 is the county’s most important east-west ‘asset’. The A414 runs between Hemel Hempstead and Harlow, parallel to the M25. It is known that the route provides connectivity and capacity for local trips between Hertfordshire towns, but also as an alternative or ‘relief road’ option for the M25.

It is recognised that some journeys on the A414 are subject to delay, particularly at times of network stress (such as disruption on the M25). Demand on the A414 will only increase in the short to medium term given the planned housing development along this corridor.

In the medium to long term the congestion concerns on the A414 would warrant consideration of major capacity enhancements, such as widening and bypasses. However, major capacity enhancements would risk increasing the A414’s attractiveness as an alternative to the M25, perpetuating further problems. It is suggested that the working assumption for the future role of the A414 is that it retains its function as a link between Hertfordshire’s towns (including Hemel Hempstead, Welwyn, Hatfield and Hertford), and supports future housing growth along this route.

Before we can develop appropriate interventions for the A414 route, more data and analysis is required to substantiate the available evidence about the role and function of the route.
AGGLOMERATION POTENTIAL

To assist with the identification of where transport investment should be concentrated in order to deliver greatest impact in growth terms, key employment and productivity metrics have been collated to develop an ‘agglomeration potential’ measure.

The analysis suggests that the M1/M25 has the highest existing agglomeration and the greatest potential to gain from transport-related agglomeration improvements – for example by improving connectivity between St Albans, Watford and Dacorum districts to encourage the area to function more as a functional urban area or cluster. Similarly, the A1(M) Growth Area displays similar potential, and more so the southern sections between Welwyn and Stevenage.

In each case, linkages to London and being part of the wider London economy will also be important. The substantial growth of London employment will increase the agglomeration of London and its immediate hinterland, of which both the M1/M25 and A1(M) are integrally linked – and further enhancements of these links will support further growth and productivity.

1 See Technical Report for Stage 2 for the analysis and methodology.
CHAPTER 5
SCHEME IDENTIFICATION AND ASSESSMENT

This chapter provides an overview of the process undertaken to identify schemes considered for inclusion in the short and medium term transport packages and the long term concept spatial scenarios.
SCHEME IDENTIFICATION

The schemes were identified in response to the issues and opportunities highlighted in the preceding chapter, with specific reference to the overall priorities and objectives for the Transport Vision.

The process for identifying schemes suitable for inclusion in the subsequent assessment exercise included:

- A review of adopted and emerging local planning documents (Local Plans) from the boroughs and districts in Hertfordshire. This review identified some major transport schemes for consideration and some transport infrastructure deficits.
- A review of national infrastructure planning strategies such as Network Rail’s London and South East Route Utilisation Strategy (2011), and Highways England’s Delivery Plan 2015-2020, to identify capacity constraints that affect Hertfordshire, and programmed or concept transport schemes to be led at a national-level.
- A review of planning documentation developed by neighbouring authorities (such as the Greater London Authority’s London Infrastructure 2050 Update), to identify cross-boundary schemes (or opportunities), or schemes which had the potential to deliver benefits within Hertfordshire.
- A business workshop, held with representatives of Hertfordshire businesses.
- A Hertfordshire County Officer workshop.

SCHEME ASSESSMENT

Each of the schemes identified have been subject to a strategic assessment as to their potential impact and feasibility, and general fit with the Hertfordshire 2050 Transport Vision’s priorities and objectives. Specifically, the assessment criteria are:

- the transport outputs that the scheme would deliver: accessibility, connectivity, capacity or quality, and the area in which those outputs would be delivered;
- the objectives which the scheme would best support/deliver;
- consistency of fit with the remaining objectives (the extent to which the scheme would be consistent with the priorities and objectives to which it does not directly relate / support);
- the scale of impact (anticipated or known). This relates to both the spatial scale of the anticipated or known impact of the scheme, as well as the quality of impact (for example, a scheme may be geographically compact but have significant impacts that reach beyond the intervention area); and
- the delivery risk, including an assessment of overall feasibility, planning risks, business case eligibility and affordability.

GAP ANALYSIS

Following the initial process of identifying the objectives to which schemes were most relevant and best supported, a gap analysis exercise was undertaken to highlight areas in which there were an insufficient number or range of schemes to meet the overarching objective.

Additional schemes were identified at this stage to seek to address the identified gaps or deficiencies, or to ensure some of the opportunities presented by the original schemes could be capitalised upon. Those additional schemes have been subject to the same assessment as the schemes identified through document review and engagement exercises.

SCHEMES NOT TAKEN FORWARD

A small number of the schemes considered as part of the high-level assessment have not been recommended for further consideration as part of the Hertfordshire 2050 Transport Vision.

In each case, this was because the forecast impacts of the scheme were limited, or because the scheme did not sufficiently address the issues and opportunities identified.
CHAPTER 6
SHORT AND MEDIUM TERM TRANSPORT PACKAGES

The four transport packages are alternative options for supporting the spatial priorities identified in approved and emerging Local Plans, as well as supporting the priorities of the Hertfordshire Strategic Economic Plan, and the transport priorities and objectives of the Hertfordshire 2050 Transport Vision. Each package presents a transport planning approach that is representative of a significant body of stakeholder views. Local Plans and the Strategic Economic Plan cover the period through to 2031, and for the purpose of the Hertfordshire 2050 Transport Vision the period from 2015 to 2021 is the ’short term’ and from 2021 to 2031 is the ’medium term’.
The Highways package contains schemes that support a sustained and high-level of demand for individual mobility throughout the county. In the short to medium term, ‘individual mobility’ applies to cars and greener and cleaner alternatives, including electric vehicles.

The schemes within this package are not concentrated within any one Growth Area, reflecting the need for capacity and quality enhancements across the county’s network if an independent mobility form of short and medium term model of development is to be pursued.
SHORT AND MEDIUM TERM TRANSPORT PACKAGES

M1/M25 GROWTH AREA

In the short to medium term the improvements to the highway network in this area is confined to a smaller, urban scheme that connects to the strategic network to reduce levels of intra-urban congestion. Given relatively recent modifications and schemes specifically designed to address congestion on the M1 and M25 (including widening, parallel routes for local traffic, and upgrade of sections to smart motorway), the immediate need for additional capacity enhancements is unproven, and the cost of such measures is likely to prove prohibitive in the short and medium term.

A1(M) GROWTH AREA

To address the most congested parts of the A1(M) and to support planned development in the centre and to the west of Stevenage; to the south and east of Welwyn Garden City; and to the north and west of Hatfield, Highways England is investing in congestion relief on the A1(M) between junctions 6-8, Welwyn North to Stevenage. This scheme will improve journey time reliability for north-south trips on the A1(M), and will provide additional capacity between Welwyn and Stevenage – those urban areas that will be accommodating the highest levels of growth within this corridor.

A10/M11 GROWTH AREA

North-south congestion and capacity constraints on the A10/M11 corridor are more localised than in the M1/M25 and A1(M) growth areas, and the highway schemes for this Growth Area are therefore focused on enhancing east-west capacity, improving the quality of connections between the A1(M), A10, the M11 and Stansted Airport. In the short to medium term, improvements to these connections will support planned development to the north and south of Bishop’s Stortford and increased demand for air travel at Stansted. This package of schemes will also provide the additional network capacity required to support major development north of Harlow.

CROSS CORRIDOR

If a highways-led package of schemes is the preferred option for the county’s transport network in the short to medium term, schemes which lay the foundations for cleaner and smarter use of vehicles in the future must be prioritised. Establishing a county-wide electric vehicle charging infrastructure (building on the infrastructure already installed in Hertfordshire’s larger urban areas) will provide some (though limited) mitigation of the negative air quality impacts associated with greater highways capacity. As all vehicle trips start and end with a parking space, making parking easier through improved use of technology will help to reduce congestion associated with circulating traffic in Hertfordshire’s towns.
ADVANTAGES

- Supports better networking of the county in the short and medium term, improving links between Hertfordshire’s urban areas.
- Growth opportunities more evenly distributed throughout the county (less constrained to existing public transport corridors).

DISADVANTAGES

- Negative impact on local and county-wide air quality (though it has been assumed that uptake of electric vehicles and greener vehicle technologies will limit impacts in the medium term).
- Likely high cost.
- Supports dispersed model of development in the long term, limiting opportunities to serve the transport needs of the population by public transport or active modes in future.
- Limited scope for highways-led investment to support place-making objective in Hertfordshire’s urban areas.

ANTICIPATED IMPACTS ON WIDER OBJECTIVES

Environment

Likely negative impact on local and county-wide air quality given an increase in car trips that cannot be completely mitigated through the gradual transition to cleaner vehicle technologies. Land acquisition required for highway works.

Quality of Life and Social Inclusion

Likely neutral or minimal impact on quality of life and social inclusion objectives; the positive impact on social inclusion that a dispersal of development opportunities would bring would likely be offset by the fact that employment opportunities may be difficult to access by modes other than the private car.

Health

Potential negative or neutral impact on health and safety given that highways-focused investment will encourage use of the private car and limit the uptake of active travel modes, and have an overall negative impact on local air quality.
**SHORT AND MEDIUM TERM TRANSPORT PACKAGES**

**PACKAGE 1 (HIGHWAYS) SCHEMES**

1. Hemel Hempstead North East highway capacity improvements
2. New Junction 7A on the M11

**COMMITTED SCHEMES**

- Croxley Rail Link
- A1(M) Junctions 6 to 8 congestion relief
- A602 Stevenage to Ware improvements
- A120 improvements (including Little Hadham Bypass)
- Improved frequency of services in the Lea Valley on the West Anglia Main Line
- M25 J25 improvement

**CROSS CORRIDOR SCHEMES**

- Comprehensive electric vehicle charging infrastructure
- Use of social media and emerging technologies to facilitate on-street parking
PACKAGE 2
PUBLIC TRANSPORT

Supports:
• Urban Extensions and Densification Long Term Scenario
• New Settlements Long Term Scenario

The Public Transport package contains schemes that support an increased use of public transport within and between Hertfordshire’s larger urban areas. This package of schemes would support an increased density of development in settlements such as Watford, St Albans and Stevenage, and would facilitate better connectivity between urban areas in the south and south west of Hertfordshire.

The Public Transport package is most applicable in the M1/M25 corridor, where there is the greatest concentration of urban areas, and the greatest level of opportunity for complementary schemes associated with major national infrastructure projects (namely Crossrail 1 and High Speed 2).
M1/M25 GROWTH AREA

There is greatest potential for public transport-led network capacity and connectivity improvements within the M1/M25 Growth Area, given the existing concentration of major urban areas (Watford, Hemel Hempstead and St Albans) and associated density of population. In the short to medium term, the priorities for improvements within this corridor are focused on delivering further capacity, both for inter-urban trips within the county, and for out-of-county trips (to London, as a priority), and ensuring that current frequencies and capacities on the high-speed stopping rail services on the West Coast Main Line are maintained. A strengthening of the quality and capacity of the connection between St Albans and Watford would mean a strengthening of the agglomeration potential in both areas.

There are major opportunities for Hertfordshire associated with major national infrastructure projects, including Crossrail 1 and High Speed 2. These schemes will enhance the county’s links to London, and release capacity on the existing West Coast and Midland Main Lines, creating potential for additional high speed stopping services through Watford and St Albans.

A1(M) GROWTH AREA

It has been assumed that the existing level of connectivity to Cambridge and London via the East Coast Main Line and branch line is at least retained in the short and medium term. The planned housing developments to the east of Welwyn, in Hertford and south of Stevenage will lead to increased demand for public transport services in the Hertford Loop area; the Hertford Loop Metro scheme would increase the number of trains per hour from two to four, achieving a ‘metro-standard’ of service.

A10/M11 GROWTH AREA

Those schemes identified for the A10/M11 Growth Area are essential precursors for Crossrail 2, which has the potential to deliver additional capacity for growth within this corridor in the long term. In the short and medium term, these precursor schemes will provide better quality connections with London (specifically Stratford and Docklands areas) via the West Anglia Main Line, meeting the anticipated uplift in demand associated with planned housing development in Cheshunt, Hoddesdon and Broxbourne.

CROSS CORRIDOR

A county-wide integrated system has the potential to drive demand for public transport use, because a single ticket, valid for a complete public transport journey, regardless of operator or mode, makes the experience of using public transport simpler and more convenient. The complexity of introducing an integrated system when there are multiple operators can be prohibitive, however, and a more immediate alternative may be to consider the opportunities associated with facilitating contactless payment for public transport.

SHORT AND MEDIUM TERM TRANSPORT PACKAGES
ADVANTAGES

• Builds on existing infrastructure and existing patterns of development.
• Supports increased density of development in the medium and long term, facilitating greater mode choice (greater breadth of transport interventions appropriate and workable with increased densities).
• Supports a reduction in car use (and/or ownership), contributing to the place-making objectives within Hertfordshire’s urban areas.

DISADVANTAGES

• Future growth area opportunities limited to areas with good public transport infrastructure.
• Requires very substantial level of investment and engagement, and partnership working with multiple delivery partners.

ANTICIPATED IMPACTS ON WIDER OBJECTIVES

Environment
Likely positive impact on the environment in terms of air quality and carbon emissions as users are provided with suitable alternatives to private car use. Development of the transport network is concentrated around existing routes and hubs, limiting land acquisition required to facilitate this package and allowing retention of greenfield and green belt land.

Quality of Life and Social Inclusion
Likely positive impact through the provision of public transport options as an alternative to car travel, increasing access to employment opportunities and key services for more vulnerable groups, at reasonable cost.

The focus on existing urban areas will contribute to a greater “sense of place”, supporting regeneration and enhancing quality of life within urban areas.

Health

Minimal to positive impact on issues of public health. A reduction in use of the private car and greater use of public transport alternatives has the potential to improve public health through a reduction in transport based emissions.
### PACKAGE 2 (PUBLIC TRANSPORT) SCHEMES
1. Abbey Line (Watford to St Albans Abbey) improvements
2. Watford Junction interchange redevelopment
3. Crossrail 1 to Watford Junction and Tring
4. Long distance stopping services at St Albans City
5. High Speed 2 Phase 1 – West Coast Main Line opportunities
6. Improved connectivity between St Albans Abbey and St Albans City rail stations
7. Hertford Loop Metro (improved frequency of services)
8. Four-tracking of the West Anglia Main Line

### COMMITTED SCHEMES
A. Croxley Rail Link
B. A1(M) Junctions 6 to 8 congestion relief
C. A602 Stevenage to Ware improvements
D. A120 improvements (including Little Hadham Bypass)
E. Improved frequency of services in the Lea Valley on the West Anglia Main Line
F. M25 J25 improvement

### CROSS CORRIDOR SCHEMES
- County-wide integrated ticketing system for public transport
The Sustainable Travel package provides an acknowledgement that a large number of trips made within Hertfordshire’s larger urban areas could be made by sustainable travel modes and not by private car. The schemes recommended for the Sustainable Travel package are therefore concentrated within the M1/M25 Growth Area, recognising that this is where densities are greatest, trip lengths are shorter, and the area demographics are such that there is a greater propensity for walking and cycling journeys to replace single-occupancy car journeys.

This package of schemes encourages fewer short-distance trips on the public transport and highways network, thereby enabling better use of the existing capacity to accommodate medium to longer distance trips across the county. The schemes and the broader transport strategy supporting them would prioritise the ease and quality of interchange between modes.
**M1/M25 GROWTH AREA**

The sustainable travel schemes within the M1/M25 Growth Area are focused on providing quality, non-motorised capacity for shorter intra-urban and inter-urban trips. The urban areas of Hemel Hempstead, Watford and St Albans could be better networked, and the wider economic impacts analysis suggests that it is these locations which would benefit the most from improved agglomeration potential. Providing additional capacity, or better managing existing capacity, by investing in sustainable travel options here would improve connections between transport hubs and employment areas as well as providing integrated and more sustainable options for complete journeys.

**A1(M) GROWTH AREA**

The opportunity for providing additional capacity and improved connectivity between and within towns is slightly less in the A1(M) Growth Area than in the M1/M25 Growth Area given that the relatively small distances between Hemel Hempstead, Watford and St Albans present a fairly unique opportunity within the county for sustainable travel options. Nevertheless, there is still substantial opportunity to improve ‘first mile and last mile’ connectivity within larger towns such as Stevenage, Welwyn and Hatfield, and it is these towns that should be the focus for investment of this type within the A1(M) Growth Area.

**A10/M11 GROWTH AREA**

A more dispersed settlement pattern within the A10/M11 Growth Area represents a less significant opportunity to provide additional capacity through sustainable travel solutions. The focus therefore for schemes within this Growth Area is in offering cleaner and greener options for motorised travel, where trip lengths and patterns dictate that independent car trips are necessary.

**CROSS CORRIDOR**

At the cross corridor level, the major opportunity is to better link towns on the A414 corridor by providing sustainable travel capacity between Hemel Hempstead, St Albans, Welwyn, Hertford and north of Harlow.

**ADVANTAGES**

- Lower overall cost than public transport package, making better use of existing capacity through demand management.
- Supports a reduction in car use (and/or ownership), reducing congestion and contributing to the place-making objectives within Hertfordshire’s urban areas.
- Encourages more sustainable travel behaviours in the short and medium term, enabling a substantial change in the long term.
- Potentially positive impact on local and county-wide air quality and public health objectives.

**DISADVANTAGES**

- Limited impact beyond largest urban areas, with limited investment in smaller settlements and rural areas.
- Limited networking of Hertfordshire towns.
- Future development opportunities likely to be concentrated in largest urban areas.
ANTICIPATED IMPACTS ON WIDER OBJECTIVES

Environment
Likely positive impact on the environment in terms of air quality and carbon emissions as users are encouraged to walk or cycle for shorter trips instead of travelling by private car or public transport.

Quality of Life and Social Inclusion
Likely positive impact through the provision of sustainable travel alternatives to car travel, increasing access to employment opportunities and key services for more vulnerable groups. The focus on existing urban areas will contribute to a greater ‘sense of place’, supporting regeneration and enhancing quality of life within urban areas.

Active travel modes are not appropriate for all users, however, and the focus on existing urban areas, and the tendency for these solutions to apply to younger users could mean that older people, and those in more rural areas see no improvement in access to key services.

Health
Likely positive impact on health given increased use of active travel modes, improving air quality and enhancing individual users’ activity levels, and reducing risk of disease and illness related to low physical activity levels.
PACKAGE 3 (SUSTAINABLE TRAVEL) SCHEMES

1. Improved connectivity between St Albans Abbey and St Albans City rail stations
2. Watford Junction interchange redevelopment
3. Cycle hire in Watford, Hemel Hempstead and St Albans
4. A to B electric car clubs in Watford, Hemel Hempstead, Stevenage and St Albans
5. Stevenage cycle hire
6. Improved east-west inter-urban access (non-motorised)
7. High-occupancy lanes on A10, A414, M1 and A1(M)

COMMITTED SCHEMES

A. Croxley Rail Link
B. A1(M) Junctions 6 to 8 congestion relief
C. A602 Stevenage to Ware improvements
D. A120 improvements (including Little Hadham Bypass)
E. Improved frequency of services in the Lea Valley on the West Anglia Main Line
F. M25 J25 improvement

CROSS CORRIDOR SCHEMES

- Comprehensive electric vehicle charging infrastructure
- Use of social media and emerging technologies to facilitate on-street parking
- Use of Uber and similar emerging technology for demand responsive transport services
- County-wide integrated ticketing system for public transport
The scale and location of the required development within Hertfordshire may not lend itself to any one solution theme. The Blended Transport package is therefore a combination of schemes from the Highways, Public Transport and Sustainable Travel packages which, as a standalone package, seeks to reflect the fact that growth opportunities will not be uniform in scale or in spatial terms, and that transport investment should be as evenly distributed as possible in the short to medium term, while recognising the different nature of the growth opportunities and challenges in each Growth Area.
M1/M25 GROWTH AREA
Congestion around the towns of Watford, Hemel Hempstead and St Albans has a negative impact on the area’s capacity to deliver growth, and it is within the M1/M25 Growth Area that transport investment should be focused in order to alleviate the negative impacts of congestion, and better support agglomeration potential. This package of schemes would deliver both better connectivity to London (and other destinations beyond the county boundary) and better intra-urban connectivity.

A1(M) GROWTH AREA
To address the most congested parts of the A1(M) and to support planned development in the centre and to the west of Stevenage, to the south and east of Welwyn Garden City; and to the north and west of Hatfield, Highways England are investing in congestion relief on the A1(M) between junctions 6-8, Welwyn North to Stevenage. This scheme will improve journey time reliability for north-south trips on the A1(M), and will provide additional capacity between Welwyn and Stevenage – those urban areas that will be accommodating the highest levels of growth within this corridor. The A602 improvements between Stevenage and Ware will help to accommodate growth at either end of this east-west route.

A10/M11 GROWTH AREA
Those schemes identified for the A10/M11 Growth Area are essential precursors for Crossrail 2, which has the potential to deliver additional capacity for growth within this corridor in the long term. In the short and medium term, these precursor schemes will provide better quality connections with London (specifically Stratford and Docklands areas) via the West Anglia Main Line, meeting the anticipated uplift in demand associated with planned housing development in Cheshunt, Hoddesdon and Broxbourne.

CROSS CORRIDOR
At the cross corridor level, capacity constraints on the A414 (which will support planned housing growth in Hemel Hempstead, St Albans, Welwyn, Hertford and north of Harlow), could be eased by better management of the existing capacity, in the form of high-occupancy lanes on the A414.

ADVANTAGES
• Likely to be seen by stakeholders as ‘best of all worlds’ and viewed as most pragmatic response to current transport challenges and growth opportunities.
• Supports better networking of the county in the short and medium term, improving links between Hertfordshire’s urban areas.
• Growth opportunities more evenly distributed throughout the county (less constrained to existing public transport corridors).

DISADVANTAGES
• High cost.
• Could be perceived as a less coherent element of the strategy – less ‘visionary’ because it accommodates alternative approaches.
ANTICIPATED IMPACTS ON WIDER OBJECTIVES

Environment
Likely neutral or tending towards positive impact on the environment, given the focus on public transport schemes and the potential to reduce the demand for private car travel. This may be partly offset by the land acquisition required to facilitate some of the larger schemes.

Quality of Life and Social Inclusion
Likely positive impact through the provision of public and some sustainable travel options as an alternative to car travel, increasing access to employment opportunities and key services for more vulnerable groups, at reasonable cost.

The focus on existing urban areas will contribute to a greater ‘sense of place’, supporting regeneration and enhancing quality of life within urban areas.

Health
Minimal to positive impact on issues of public health. A reduction in use of the private car and greater use of public transport – and some active travel - alternatives has the potential to improve public health through a reduction in transport-based emissions.
**PACKAGE 4 (BLENDED) SCHEMES**

1. Watford Junction interchange redevelopment
2. Abbey Line (Watford to St Albans Abbey) improvements
3. Improved connectivity between St Albans Abbey and St Albans City rail stations
4. Crossrail 1 to Watford Junction and Tring
5. High Speed 2 Phase 1 – West Coast Main Line opportunities
6. A to B electric car clubs in Watford, Hemel Hempstead and St Albans
7. Stevenage cycle hire
8. Four-tracking of the West Anglia Main Line
9. New Junction 7A on the M11
10. High-occupancy lanes on A10, A414, M1 and A1(M)

**COMMITTED SCHEMES**

A. Croxley Rail Link
B. A1(M) Junctions 6 to 8 congestion relief
C. A602 Stevenage to Ware improvements
D. A120 improvements (including Little Hadham Bypass)
E. Improved frequency of services in the Lea Valley on the West Anglia Main Line
F. M25 J25 improvement

**CROSS CORRIDOR SCHEMES**

- Comprehensive electric vehicle charging infrastructure
- Use of social media and emerging technologies to facilitate on-street parking
- Use of Uber and similar emerging technology for demand responsive transport services
- County-wide integrated ticketing system for public transport
CHAPTER 7
LONG TERM SPATIAL SCENARIOS

Three long term concept spatial scenarios have been considered in the context of the Hertfordshire 2050 Transport Vision. These reflect different spatial development scenarios that could be pursued in Hertfordshire to accommodate the forecast level of development required in the long term to 2050. Each concept spatial scenario is outlined in the section that follows along with, where possible and appropriate, an indication of the transport schemes that would be required in the three Growth Areas to support that spatial scenario.
POST 2031 PLANNING

The different short and medium term transport packages will facilitate different patterns of movement and travel behaviours by users and ultimately support different spatial patterns of development in the period to 2031. By 2031, these patterns of movement and travel behaviours will be the new ‘norm’, and the transport network in Hertfordshire in 2031 will look very different, and will operate differently, to how it does today.

Planning for the long term is therefore not independent of planning for the short term; the long term spatial development choice needs to be facilitated in the short and medium term by a transport package which develops or focuses the transport network in locations that are likely to be the focus for major development in the future.

Different short and medium term transport packages therefore support different long term concept spatial scenarios. The decision to opt for a specific short and medium term transport package should be made with reference to the long term scenarios that they facilitate.
SCENARIO 1
DISPERSED DEVELOPMENT

Preceded by:
- Highways Transport Package; or
- Blended Transport Package

This long term spatial scenario reflects planned growth taking place in a relatively diffuse way, largely continuing the current spatial patterns of all districts taking a proportionate target for housing growth relative to its existing population.

Housing growth would take place on available brownfield and town centre plots first, but this scenario would also require edge of town brownfield, greenfield and some satellite developments to achieve the additional capacity required.
WHAT THIS SCENARIO MEANS FOR TRAVEL AND TRANSPORT IN HERTFORDSHIRE

The dispersed development scenario would result in fairly evenly distributed growth, and Hertfordshire would continue to look similar to the Hertfordshire of today. Distributed growth means that Hertfordshire’s urban areas do not grow to city-size, nor do they densify into larger urban settlements, making public transport or sustainable travel solutions less viable.

This form of spatial development is best served by car-based transport, as complex origin as destination patterns of travel continue.

The schemes identified within this scenario therefore reflect the need for greater capacity on Hertfordshire’s major transport routes in the long term.

ADVANTAGES

• Supports equitable distribution of growth throughout the county.
• Densities of development remain comparable to what they are today: Hertfordshire’s urban areas do not look substantially different and retain their Hertfordshire characteristics.
• Level of transport investment required to support this model of spatial development lower than requirement for other models.

DISADVANTAGES

• Represents less sustainable form of growth, best served by car-based transport, with associated air quality impacts.
• Likely that there are too few brownfield sites available to accommodate level of development required – requires greenfield development.
LONG TERM SPATIAL SCENARIOS

SCENARIO 1 (DISPERSED DEVELOPMENT) SCHEMES

1. M1 widening
2. A1(M) widening
3. Crossrail 2 to Cheshunt, Hertford East and Stansted Airport
4. Crossrail 2 to Cheshunt and North East Hertfordshire
5. New East-West A-road between Luton, Stevenage and Stansted

1 Alternative options for the Crossrail 2 route. Both should be considered but only one will be implemented.
SCENARIO 2
URBAN EXTENSIONS AND DENSIFICATION

This long term development scenario reflects a combination of development scenarios to accommodate the housing growth required. Urban extensions would mean large-scale extensions to existing Hertfordshire towns (for example, a doubling of the size of Stevenage), as well as significant densification of Hertfordshire’s larger towns such as Stevenage, Hemel Hempstead, Watford, Welwyn Garden City and Hatfield, making those towns feel more ‘city-like’ in nature. This development scenario clearly has some disadvantages in that it does involve some fundamental change to the look and feel of some of Hertfordshire’s urban places, and would require a very robust approach to planning and implementation. The advantage, however, would be that more innovative, density-dependent transport solutions would be more effective under this scenario.

Preceded by:
- Public Transport Package; or
- Sustainable Travel Transport Package; or
- Blended Transport Package
WHAT THIS SCENARIO MEANS FOR TRAVEL AND TRANSPORT IN HERTFORDSHIRE

Public transport and sustainable travel options are more viable under this development scenario, and much of the capacity requirements could be met by public transport investment. Developing a number of Hertfordshire’s existing towns into much larger settlements would mean that the travel patterns throughout the county were less complex, and public transport options would be more relevant.

ADVANTAGES

• Supports development of larger, more dense urban areas which are better able to function as independent yet networked settlements. Public transport and sustainable travel options are more viable with increased densities.
• Hertfordshire’s largest towns will develop into more city-like settlements, reducing the polycentric nature of Hertfordshire’s urban areas (and associated challenges of networking).

DISADVANTAGES

• A densified model of development represents a model of urban area development which is different to what Hertfordshire looks like now.
• Densities of development are different to what they are today: Hertfordshire’s urban areas would not retain their original characteristics.
### SCENARIO 2 (URBAN EXTENSIONS AND DENSIFICATION) SCHEMES

1. M1 widening
2. High Speed 2 Phase 2 – Midland Main Line opportunities
3. High Speed 2 Phase 2 – East Coast Main Line opportunities
4. A1(M) widening
5. Crossrail 2 to Cheshunt, Hertford East and Stansted Airport
6. East-West Rail central section – Hertfordshire Southern option¹
7. East-West Rail Luton-Stevenage-Stansted option¹
8. A414 public transport expressway²
9. South West and Central Hertfordshire passenger transit system²

¹ Both East-West rail options should be taken forward for consideration but it is likely only one will be taken forward for development.
² These schemes are discrete options for improving connectivity and capacity east-west along the A414 corridor. Only one would be taken forward for development.
SCENARIO 3
NEW SETTLEMENTS

This long term spatial scenario reflects a scenario in which the vast majority of Hertfordshire’s required housing growth is accommodated in one or more very large new settlements.

Though this development scenario would be very complex as it would necessarily involve building on greenfield and possibly green belt land and would be extremely contentious as a result, it is one of the more positive solutions to accommodating growth: one or more very large new settlements could accommodate all of Hertfordshire’s required housing growth in the long term, without a need for urban extensions or fundamental changes to how Hertfordshire’s existing towns and settlements look at present. There is the opportunity to provide the necessary infrastructure in advance of need, rather than allowing piecemeal development.

Preceded by:
- Public Transport Package; or
- Sustainable Travel Transport Package; or
- Blended Transport Package
WHAT THIS SCENARIO MEANS FOR TRAVEL AND TRANSPORT IN HERTFORDSHIRE

This longer term spatial scenario is concept only and the purpose of the Hertfordshire 2050 Transport Vision is not to suggest or recommend a location for this development; it is to facilitate the debate on spatial planning from a transport needs perspective. The transport infrastructure recommended as part of this long term scenario is therefore discussed in general terms, because location specific transport schemes cannot be identified.

A major new settlement would need to be served by a high-capacity public transport route. If a new settlement was proposed for a location without such a route – or on a route where there were existing capacity constraints, additional capacity would need to be provided. As with all scenarios, and the preceding transport packages for the short and medium term, good links to London and other key locations beyond the county-boundary would be crucial.

It is likely that the scale of the development would further the case for an additional east-west connection within Hertfordshire, to reduce pressure on the A414 as the main east-west link.

ADVANTAGES

- Accommodates the level of development required through one or two single and focused (though extensive) solutions.
- Minimal impact on districts in which new settlements are not developed; existing Hertfordshire urban and rural areas retain their Hertfordshire characteristics.
- Opportunity for innovative solutions through starting afresh; opportunity to plan for sustainable forms of travel in advance of development.

DISADVANTAGES

- The location of the development is constrained by the availability of sites able to accommodate major new settlements. A capacity-led decision may result in a potential disconnect between housing and employment locations (poor jobs / housing balance).
- Requires very substantial greenbelt development for both housing and associated transport links; likely to be complex planning process.