TPA/006

East Herts District Plan: Topic Papers

March 2017

Transport

Contents

1 Introduction

1.1 The purpose of this Topic Paper is to detail the District Plan's approach in seeking to accommodate movement occasioned by planned development in East Herts. It seeks to provide a commentary on the transport impacts of development included in the Strategy and discusses the mitigation measures which are proposed to ameliorate these.

1.2 In understanding current transport issues within the East Herts Council area, the Topic Paper summarises the results of strategic transport modelling, which has been supplemented by detailed localised modelling and proposed mitigation, where appropriate.

1.3 Beyond discussing transport at the strategic allocations level, the consideration of transport in Development Management policy terms is also detailed.

2 Vision

2.1 Travel plays a key part in daily life. Whether to access work, education, health facilities, shopping, or for leisure purposes, journeys need to be made regularly. However, both the method chosen and distance to be covered can have a major influence on the impact that travel can have on the district's roads and environmental quality.

2.2 The overall aim of the District Plan's strategy in transport terms is, therefore, to minimise the need to travel by seeking to locate development in areas where daily needs can be met locally where possible. Complex journey patterns, especially in rural areas, can make the district difficult to serve by passenger transport; therefore, the policies of the District Plan aim to provide strategic development in areas where sustainable modes of transport are either readily available or can be provided to supplement existing provision.

2.3 It is recognised, however, that motorised trips will be generated by development and modelling work has therefore been undertaken to assess these. First and foremost this has been carried out to provide a 'picture of the future' to act as a baseline from which to test a package of mitigation measures to ameliorate effects. Notwithstanding this, the aim is always to ensure that the most sustainable options for travel are maximised through the provision of strategic development in the district.

3 Context

3.1 East Herts consists of dispersed towns, villages and hamlets based within a rural context. Over time, the transport network has evolved, resulting in the district being largely bypassed by strategic road and rail corridors. East Herts benefits from close proximity to the M25 London Orbital Motorway to the south; M11 to the east; and the A1(M) to the west.

3.2 The district's scattered settlement pattern, combined with relatively high levels of affluence and close proximity to London, has resulted in the district having high levels of car ownership, considerably higher than the county and national averages. East Herts has the highest level of car ownership in the county, with only 8% zero car households, compared to 11% in Hertfordshire and 25% nationally. Furthermore, 52% of households in East Herts have access to two or more vehicles[(1)].

3.3 The district responds to the presence of major settlements beyond its boundary and has travel to work relationships with the three New Towns of Stevenage, Harlow and Welwyn Garden City, which, along with London and Cambridge, provide key work destinations for those residents not working within the district.

3.4 In terms of passenger transport provision, direct train services to London and other wider destinations are available from four of the five towns in the district (only Buntingford is without rail provision), and also from three village locations. The Hertford East branch line feeds into the West Anglia Main Line, and the Hertford Loop (part of the Great Northern service), provides links to the East Coast Main Line to the west. Bus and coach provision varies throughout the district, again being best served in the urban areas.

3.5 However, due to complex journey patterns, which have traditionally made the district difficult to serve by passenger transport outside urban areas, the car is often viewed as the only viable travel option. This, coupled with the prosperity of many of the district's residents, has exacerbated the use of the private car both for commuting and generally, with the corollary that congestion has become a major issue in some locations. Added to the local context, is the preponderance of through traffic in the district, which travels to wider locations. In particular, the A414, is the designated diversion route when issues occur on the motorway. The A414 is subject to peak time congestion in particular key areas, notably through Hertford (with its declared Air Quality Management Area (AQMA)) and in the area approaching the Eastwick roundabout, Harlow. Other localised hot-spots are also apparent throughout the district, such as the A120 at Little Hadham (although a strategic off-line solution for this congested area is due to be implemented by 2019), A602, etc, in addition to town centre congestion in all five towns.

3.6 Therefore, while it is acknowledged that the geography of the district means that sustainable modes are a more feasible option in some locations and for some journeys than for others, there is an imperative to ensure that future development can be accommodated without unduly exacerbating conditions. Therefore, in addition to physical measures aimed at reducing congestion, the focus for larger strategic residential developments in the District Plan will largely be to provide the conditions that will enable the modal shift of trips from car borne to sustainable travel modes.

3.7 The evidence to underpin measures identified in the Plan is largely informed by traffic modelling and other work undertaken by relevant bodies to support the Strategy. Key to the development of the Strategy has been close working relationships

1 Source: Hertfordshire County Travel Survey 2015, East Herts District Profile, HCC, 2017 https://www.hertfordshire.gov.uk/media-library/documents/highways/transport-planning/transport-and-accident-data/county-travel-survey/east-herts-district-profile.pdf

with the relevant Highway Authorities; namely, Hertfordshire County Council; Essex County Council; and Highways England, to ensure that delivery of development will be compatible with the safe movement and, where possible, free-flow of traffic on the highway network. A Memorandum of Understanding has been signed by all three above parties as part of the Co-operation for Sustainable Development Board, and also a further Memorandum of Understanding has been completed individually with Hertfordshire County Council (**SOC/001**).

4 Hertfordshire County Council - Transportation Matters

4.1 The following section details matters of relevance in respect of transportation matters relating to Hertfordshire County Council.

4.2 East Herts Council has worked with HCC, as transport authority, from an early stage in the Plan-making process to ensure that potential development options would be considered within the terms of Government Guidance in the NPPF and would be compatible with the County Council's wider remit in terms of managing the local network.

4.3 Under District Plan's initial 'Stepped Approach' sieving process, a series of 'traffic light' Topic Assessments were carried out as part of the early consideration of the possible options for spatial distribution of development. HCC Highways officers were heavily involved in the conclusions reached on the two highways related assessments for the Areas of Search at that stage.

4.4 Sub-sections within Areas of Search were considered on an individual basis in terms of the potential traffic impacts. However, particularly in respect of Hertford, it became apparent that these individual assessments would not be sufficient on their own and that cumulative impacts of development in and around the town and in the wider locale would also need to be considered. This was of particular concern in relation to additional movements on the A414 through Hertford, already the subject of peak time congestion.

4.5 At the time of the Preferred Options Consultation, work had been commissioned by HCC to, inter alia, better understand the likely impact of future development on the A414 corridor in this location. However, at that time the AECOM work had not yet concluded. Therefore, the transport element of the HCC response to the Preferred Options Consultation was couched in terms of the information available at that time:

> *A414 Hertford - The A414 is one of the strategic east-west routes across the County. It will therefore be impacted by all the proposed developments in Hertford and other developments proposed in the wider area. In Hertford, issues on the A414 put additional pressure on the Ware Road bus corridor which is the main access route for buses serving the area. As a consequence, and following the adoption of the Inter Urban Route Strategy, a Paramics transport model of the A414 corridor through Hertford has been prepared to test the cumulative impacts of growth in Hertfordshire against the suggested online interventions in the Hertford and Ware Urban Transport Plan.*

The tests have shown that the road is currently operating close to capacity, with the A414 roundabouts at Hale Road / Parliament Square and Ware Road / London Road / Fore Street (Bluecoats) junction in particular, having capacity issues. These areas form critical parts of the local bus network and would have significant issues for local bus operators in terms of service provision and the viability of services.

Though the work undertaken to date has indicated that the A414 corridor performance between the A10 and Hale Road can potentially be improved by the combination of individual junction improvement options, the potential release of latent demand is likely to lead to pinch-points elsewhere along the corridor.

These measures tested to date would not free up enough capacity to accommodate large volumes of additional development and hence the issues on the A414 are therefore a potential constraint on growth. A clearer understanding of this issue will be required prior to submission, hence further transport analysis work is therefore required to consider what further mitigation measures exist and their respective feasibility.

4.6 Subsequent to the Preferred Options response, the final iteration of the options testing in the A414 Study was released in January 2015 (A414 Transport Strategy, Strategic Study – Feasibility Review – Stage **TRA/009**), which concurred with HCC's previous Preferred Options response position that there were very limited opportunities for online improvements to significantly increase capacity on the A414 at Hertford.

4.7 Dialogue with HCC was continued in order to understand what the potential implications of these findings might be for the emerging Development Strategy. In particular, there was a need to understand how HCC would view these options in relation to applying the 'severity test' for assessing the residual cumulative impacts of growth proposed in the emerging District Plan. The need for this test is established both within the NPPG and NPPF as follows:

NPPG (paragraph 003) which highlights the need for Local Plan transport evidence bases to "consider the cumulative impacts of existing and proposed development on transport networks";

and

NPPF (paragraph 32) which states that "development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe".

4.8 Given that no definition of what constitutes "severe" has been formally established, and in the absence of relevant case law, this is therefore currently generally accepted as a matter of local determination. Therefore, the importance of understanding HCC's position in relation to the severity of any proposed development which would impact on the A414 through Hertford was considered crucial in taking forward the emerging District Plan.

4.9 To this end, and following several discussions on the subject in relation to the form of the A414 Study as it currently stood in terms of not including all necessary information, a written request was sent on 10th June 2015 seeking written clarification of HCC's position (**TRA/015**). This set out the key matters which were viewed as being essential to be addressed in order to allow East Herts Council to have a sufficiently robust evidence base on the A414 issue to allow progression to the Pre-Submission stage.

4.10 Following further clarification to HCC regarding the information being sought, a letter of response was received on 27th July 2015 (**TRA/010**).

4.11 There were several key messages in that letter of response that needed to be understood by the Council at that time. Firstly, it was considered likely that it would be possible for planned development identified in the first five years of the emerging District Plan to be accommodated, subject to detailed assessment and suitable mitigation measures being identified.

4.12 However, beyond that period, congestion (occasioned both by traffic movements generated by development as proposed in the Preferred Options consultation and from wider areas outside of the district) would be such as to preclude delivery without a strategic intervention for the A414 through Hertford.

4.13 In particular, the letter highlighted that indicators of the anticipated severe traffic congestion identified from HCC's studies on the A414 beyond the first five years' level of growth would include:

- Regular instances of traffic blocking key junctions and queuing back on the current free flowing lanes of the A10.
- Significant increases in delays were also predicted on the wider local road network that would resulting [sic] in
    - subsequent impacts on key public transport routes,
    - inappropriate routing of traffic through the town centre and residential roads (including villages)
    - The likely expansion of the existing traffic related air quality management area (AQMA).

4.14 Furthermore, the letter acknowledged that further work would be required to provide further information to plug the evidence gap and that HCC was, at that time, developing a County-wide Transport Model (COMET) to provide a platform to test strategic mitigation measures to growth scenarios across Hertfordshire. However, the COMET model was unavailable at that point to inform HCC's position.

4.15 As updated information became available, further letters received from HCC in relation to the A414, either directly (26 January 2016 (TRA/011)), or in relation to the impact of development to the North and East of Ware (26 January 2016 (**TRA/012**), 19 May 2016 (**TRA/013**) and 17 June 2016 (**TRA/014**)).

4.16 However, the common theme running through these missives is that the upper limit of 3,000 or even 2,000 dwellings could not be supported by HCC for development to the North and East of Ware.

4.17 During 2016, the COMET model became available to test development options across the county. The model was designed to take account of proposed growth within each of the ten boroughs and districts in Hertfordshire up to 2031. It was specifically developed to feed into the emerging HCC 2050 'Transport Vision' and subsequent Local Transport Plan 4 (a successor to the current LTP 3), which will identify packages of transport interventions to enable growth across the county to 2050.

4.18 Although the model does not take account of identified development locations outside of Hertfordshire (instead using growth projections from the Department for Transport), so the projections may not fully reflect the level of growth that is being proposed within neighbouring areas, it does serve to provide an indication of potential impact. Using TEMPRO growth assumptions in this way aligns with government guidance contained within WEBtag. Additionally it enables a better understanding of the impact of growth in Hertfordshire. Importantly, it does not preclude a run of the model which includes local plan data for neighbouring counties, which HCC will be carrying out for the east of the County in order to examine any cross boundary impacts.

4.19 Following the development of the COMET model, a draft 'Transport Vision' was subsequently published in Autumn 2016 (**TRA/003**). This included a draft list of prioritised schemes that were subject to public consultation. While the county-wide strategic outcomes following HCC's yet to be considered recommendations resultant from the public consultation are not currently available, these are expected to be forthcoming in summer 2017.

4.20 However, whilst the full county-wide picture in terms of measures to be introduced going forward is currently unclear, there are a number of key issues that appertain to East Herts which were identified through the consultation. In particular, the A414 corridor has been highlighted and, for Hertford, a strategic off-line mitigation is proposed post-2024 to address congestion issues in the town. A bypass would further provide the scope for sustainable transport modes to utilise some of the existing road-space and allow Hertford to become a Sustainable Travel Town, including potentially becoming part of a Hertfordshire Bus Rapid Transit Network.

4.21 However, as the data from the model had become available to HCC prior to the 2050 Transport Vision consultation, this was able to add to the knowledge base and inform HCC's approach in respect of any updates to its response to the strategy that had originally been proposed in the Preferred Options consultation.

4.22 The issues identified in the letters of 26 January 2016 (x2), 19 May 2016 and 17 June 2016, and subsequent discussions directly informed East Herts' consideration of development distribution as it became clear that a maximum of 1,000 dwellings would be able to be accommodated to the North and South of Ware within the plan period (with a further 500 dwellings to be provided in the longer term in the event that suitable mitigations measures to identified constraints on both the local and wider strategic road networks could be identified and agreed by HCC). This, ultimately, influenced the final development strategy in the District Plan, Pre-Submission Version.

4.23 The outcomes of the initial COMET model run at the county-wide level subsequently informed the content of the representations made by HCC on the Pre-Submission version of the District Plan in respect of potential impact for East Herts. In this regard, the County Council is generally satisfied with the approach taken by East Herts in relation to the proposed locations for growth, and in transport terms considers the Plan to be 'sound' and, therefore, fit for purpose.

4.24 Since the publication of the Pre-Submission District Plan, there has been a progression in the knowledge base emanating from the COMET model. Beyond the initial high-level COMET modelling carried out by HCC, district-level data has subsequently become available which has enabled more detailed information to be provided on the local context.

4.25 In October 2016, and supported by HCC (who were at that point able to confirm acceptability of the COMET model for more localised modelling purposes), East Herts Council commissioned Aecom to carry out COMET model interpretation at the district level. Two runs of the model have been commissioned, the reports on both of which have now been completed.

4.26 The first run is reported in the 'East Hertfordshire Local Plan Support – Do Minimum Model Run Report, Aecom, January 2017' (**TRA/001**). This takes account of all proposed growth in the district, but only assumes that currently permitted highway schemes, or those that are highly likely to be permitted in due course, will take place in order to mitigate the impact. A full list of schemes is included on page 14 of the report. In addition, a small number of other highway works linked to some of the very large strategic sites were also taken into account; i.e. access to the Gilston Area development and the proposed link road that would be provided as part of development to the North and East of Ware.

4.27 The purpose of the initial model run was to identify where stresses on the highway network are likely to be experienced as a result of proposed growth. These outputs can then be used in order to identify where further mitigation measures will be required.

4.28 The report focuses on the outputs of the initial COMET run considered to be of relevance to East Herts. In particular, it identifies potential impacts on twelve specific junctions within East Herts. These are identified in Table 2 on page 16 of the report. In addition to these junctions, analysis in relation to the five largest

proposed development locations (the Gilston Area, Bishop's Stortford South, North and East of Ware, East of Stevenage and East of Welwyn Garden City) was also completed.

4.29 The technical paper identifies areas on the highway network where greater delays would be experienced at peak times as a result of planned development. It also provides a summary of potential mitigation options. The report further includes an assessment of likely impacts of growth in relation to the three Air Quality Management Areas (AQMAs) that currently exist in East Herts. This analysis is presented on Page 30.

4.30 The technical work undertaken through the East Herts related Do Minimum Model Run has subsequently informed a second run of the COMET model, which takes account of further identified mitigation measures.

4.31 The East Hertfordshire Local Plan Support – Do Something Model Run Report, Aecom, March 2017 (**TRA/002**), follows on from the Do Minimum Report and uses these results as a comparison to the latest 2031 Do Something Forecast Year scenario (version 2, January 2017), which was only completed at the county-wide level shortly before East Herts commissioned the assessment of more detailed impacts at the beginning of March 2017.

4.32 Following on the assessment of Do Minimum modelled junctions and mitigation measures to address identified issues, the Do Something Report includes an assessment of potential further mitigation options that could be included to further improve performance, subject to further testing. These are included at Table 5 on page 29 of the report.

4.33 It is important to note that the Report does not solely concentrate on highway-based capacity upgrades, but also comments that "longer term and more sustainable mitigation should be achieved through transport strategies/schemes that promote modal shift (i.e. encouraging trips to be made by walking, cycling or public transport). Encouraging modal shift is of particular importance in new developments before car-dominant travel patterns are established".

4.34 The March 2017 East Hertfordshire Local Plan Support – Do Something Model Run Report, concludes that:

> *The available model scenarios indicate that highway network congestion in East Herts is likely to rise between the present day and 2031, particularly at key junctions where delay is already evident. The mitigation of this delay may be achieved through the introduction of new transport infrastructure schemes, as the one considered in the 2031 Do Something Scenario, the potential mitigations identified in the 2031 Do Minimum analysis, and some additional potential options, as shown in Table 5.*

4.35 Under Next Steps, the following recommendations are made:

8.2 Next Steps

8.2.1 The mitigation options outlined in this document have been tested at a strategic level to assess their potential impacts. If they are to be developed / investigated further there is a need for more detailed modelling work.

8.2.2 Notwithstanding the pursuit of highway-based mitigation schemes, it is critical that any transport strategy explores the development of sustainable transport and modal shift. These schemes should encourage travel though modes such as walking, cycling and public transport.

8.2.3 As stated in section 1, the 2031 COMET Forecast Year includes Local Plan growth in all 10 Hertfordshire districts. Outside Hertfordshire, growth projections are taken from central government (Department for Transport) forecasts (NTEM 7). Given the proximity of East Herts to Essex authorities (which have Local Plan assumptions that are different to current central government forecasts), it may be necessary to produce a 2031 Forecast Year that reflects the Local Plan growth of these neighbouring authorities. In this way, a higher level of cumulative growth (and therefore potential highway impact) can be assessed.

4.36 In respect of the final paragraph, it is important to note that East Herts has already been involved with work being undertaken involving other neighbouring authorities, of particular note being that appertaining to the four authorities comprising the Strategic Housing Market Area.

4.37 This work has been underpinned by modelling work that has been led by Essex County Council and is discussed in more detail in the section below.

4.38 It should also be noted that the need for future modelling work identified above is not considered to be critical to the delivery of the Plan as such, but will inform the site-specific detailed measures employed to mitigate development at the local level.

5 Essex County Council - VISUM Modelling

5.1 This section of the Topic Paper focuses on strategic modelling undertaken by Essex County Council, known as VISUM. The VISUM model has been prepared in order to inform the emerging local plans of the four District Councils that form the West Essex and East Hertfordshire Housing Market Area (East Herts, Harlow, Epping Forest and Uttlesford). The purpose of the model is to assess the high level impacts of planned growth on the highway network within Harlow and the surrounding area.

5.2 The modelling undertaken thus far comprises four separate technical papers that seek to explain the scenarios that have been modelled and the subsequent outputs from the work. The four technical papers are addressed in turn below.

Technical Note 1: Forecast Methodology Technical Report (TRA/016)

5.3 This report identifies the scope of the VISUM model, including:

- the time horizon covered (2014 – 2033);
- the highways mitigation measures that have been incorporated (including a new Junction 7a on the M11);
- assumptions of growth associated with Stansted Airport, HGV use, schools and other uses; and
- assumptions regarding background growth, trip rates and the use of sustainable forms of transport.

5.4 In order to assess the high level impacts of growth on the highway network in a manageable way, the model focuses on three specific time periods: the morning peak (8am to 9am), the inter-peak period (11am to 12pm) and the evening peak (5pm to 6pm).

5.5 Importantly, the VISUM model takes account of proposed housing and employment growth across the four authorities. It can therefore be concluded that it provides a more accurate assessment of highway impacts in the south eastern portion of East Herts District, when compared to Hertfordshire County Council's COMET model which only takes account of proposed development within the county itself.

Technical Note 2: Spatial Options A to E, March 2016 (TRA/017)

5.6 Technical Note 2 presents the outcomes of an initial run of the transport model which assessed the implications of five different growth options across the Housing Market Area. These spatial options, presented in Table 5.1 below, were initially identified through the Sustainability Appraisal of Strategic Spatial Options work (**HOP/002**) that was prepared on behalf of the four authorities.

Table 5.1 Options modelled by VISUM (housing numbers)

District / Area	Option A	Option B	Option C	Option D	Option E
East Herts	15,195	13,695	16,695	14,745	16,795
Epping Forest	8,731	6,581	6,581	7,952	10,631
Harlow	7,216	7,216	7,216	7,216	7,216
Uttlesford	9,763	13,263	9,763	9,433	9,763
Total	**40,905**	**40,755**	**40,255**	**39,346**	**44,405**
Wider Harlow Area Total	**13,466**	**9,816**	**9,816**	**16,966**	**16,966**

5.7 With regard to East Herts, one of the most significant variables between the five options was the level of growth proposed within the Gilston Area by 2033. This varied as follows:

- Option A – 2,750 homes
- Option B – 1,250 homes
- Option C – 1,250 homes
- Option D – 4,350 homes
- Option E – 4,350 homes

5.8 The different options also assessed varying levels of growth in other strategic locations in the Harlow area, outside of East Herts District.

5.9 Employment growth was also considered through the model. The inputs in this regard were largely based on the East of England Forecasting Model (EEFM), along with proposed employment locations contained within the respective emerging local plans. The jobs forecasts incorporated within VISUM are identified within Table 5.2 below.

Table 5.2 Options modelled by VISUM (job numbers)

District / Area	Option A	Option B	Option C	Option D	Option E
East Herts	2,847	2,847	2,847	1,484	2,847
Epping Forest	7,272	5,151	4,436	7,336	8,500
Harlow	8,531	8,531	8,531	8,531	8,531
Uttlesford	14,143	14,143	14,143	14,143	14,143
Total	**32,793**	**30,672**	**29,957**	**31,493**	**34,020**
Wider Harlow Area Total	**14,639**	**12,518**	**11,803**	**15,867**	**15,867**

5.10 In terms of the number of car journeys, the model shows that there would be an increase of approximately 37% in the AM and PM peaks when comparing the base year (2014) to the end date (2033).

5.11 Average speeds across the modelled area are forecast to drop by between 13% and 17% depending on which of the five spatial options is considered. However, the main impacts on average speed are forecast to occur within Harlow. Within the Bishop's Stortford and Sawbridgeworth area, speeds are forecast to reduce by between 1% and 6% in the AM Peak and between 0% and 3% in the PM Peak.

5.12 In seeking to assess the differences between the five spatial options, the VISUM model observes differences in journey times in the AM Peak for six routes in the Harlow area. These are as follows:

1. A414 Eastwick Road to Junction 7 M11 via A414 Edinburgh Way;
2. A414 Eastwick Road to Junction 7 M11 via A1019 and A1025;
3. The Pinnacles to Hatfield Heath via Fourth Avenue, First Avenue and B183;
4. Bishop's Stortford South to Junction 7 M11 via A1184 and A414;
5. Nazeing Common to A414 via A1025; and
6. Burnt Mill to A414 via Elizabeth Way and A1169.

5.13 From an East Herts perspective, the most relevant analyses are those related to Journeys 1, 2 and 4. As would be expected with the level of growth proposed, increases in journey times were observed for all five spatial options.

5.14 Overall, when considering the impacts of growth on the highway network in the wider Harlow area, Option A was observed to have the least impact despite not being the lowest growth option. This is likely to be because this option included strategic growth spread fairly evenly around Harlow. Options D and E, which are both 'high growth' options, were shown to have the greatest impacts on network speeds.

5.15 In general terms, the modelling showed that the following junctions/locations in the Harlow area experience greater stress as a result of growth, and therefore that additional mitigation may be required:

- Edinburgh Way/Howard Way junction in Harlow (including adjacent Retail Park access);
- A414/B183 First Avenue junction in Harlow;
- Howard Way/Tillwicks Road and Manston Way/Tripton Road junctions in Harlow;
- B183 Gilden Way in Harlow;
- A1169/A1025 Third Avenue Corridor in Harlow; and
- A1184 corridor in East Herts.

Technical Note 3: Stort Crossing/Northern Bypass Initial Testing, May 2016 (TRA/018)

5.16 The purpose of Technical Note 3 was to assess the potential impact of delivering two further strategic highway mitigation schemes, beyond those identified within Technical Note 2 (**TRA/017**): a Second Crossing of the River Stort and a Harlow Northern Bypass.

5.17 The delivery of these schemes was considered in three phases:

- Phase 1: New Junction 7a on M11 (this scheme was incorporated into the modelling of the five spatial options as identified within Technical Note 2 (**TRA/017**)

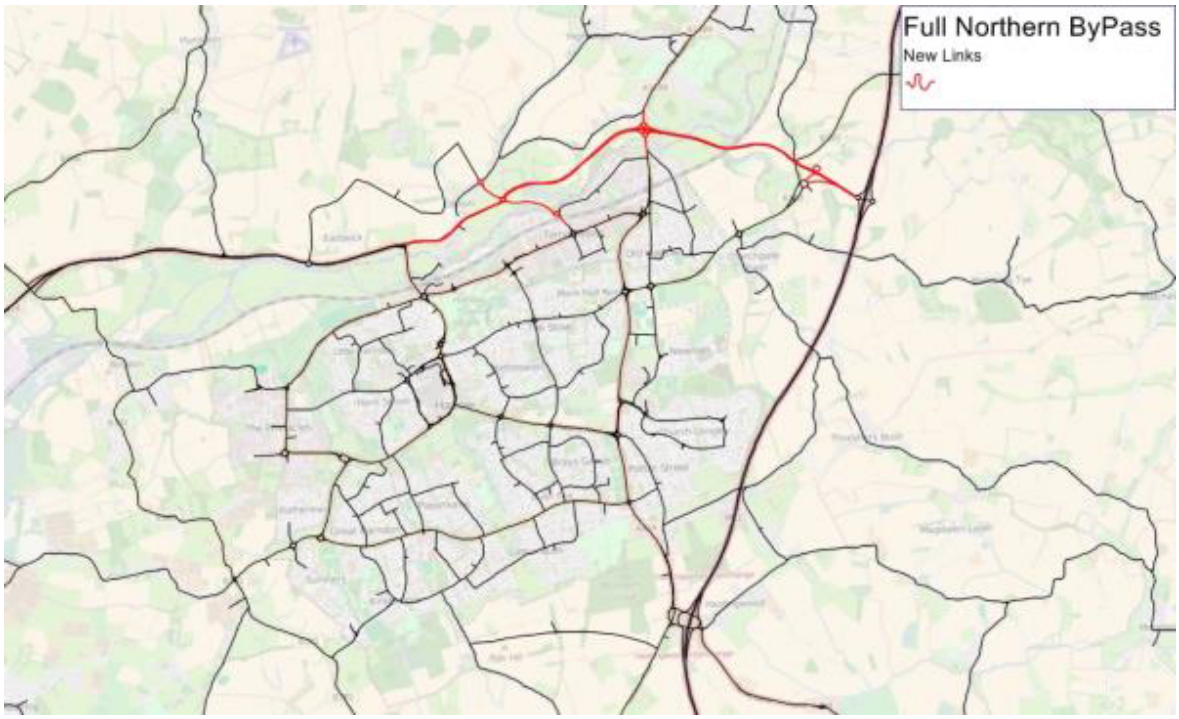
Figure 5.1 M11 Junction 7a

- Phase 2: A Second Stort Crossing, comprising a dual carriageway linking the A414 at Eastwick with a new three arm roundabout north of the River Stort, and a further single carriageway link to River Way towards the eastern end of the A414 Edinburgh Way.

Figure 5.2 Second Stort Crossing

- Phase 3: A Northern Bypass, comprising both Phase 1 and Phase 2, connected by a dual carriageway link with a grade separated junction at the A1184, north of Harlow Mill, and two further bridges (across the rail line and River Stort).

Figure 5.3 Northern Bypass



5.18 As noted in Technical Note 2 (**TRA/017**), Spatial Option A was identified as having the least impact on the highway network. For the purposes of Technical Note 3, Option A was updated to reflect the development strategies contained within the latest iterations of respective local plans. The overall quantum of development assumed for the Harlow area remained the same as Option A (13,450 homes). Technical Note 3 refers to the updated option as Spatial Option A1. The Technical Note therefore assessed the impact of Phases 2 and 3 on the highway network, taking into account proposed growth identified within Option A1.

5.19 The modelling demonstrated that delivery of a Second Stort Crossing (Phase 2) delivered significant flow changes when compared to Phase 1, particularly within Harlow itself. The western end of the A414 Edinburgh Way, and the existing A414 Stort Crossing between Eastwick and Burnt Mill roundabouts showed reduced flows which could enable the provision of a 'Sustainable Transport Corridor' utilising one of the lanes on the existing Stort Crossing. Some increase in flows on the westbound A414 towards the A10 was observed.

5.20 The modelling demonstrated that provision of a Northern Bypass (Phase 3) would likely lead to significant re-routing of traffic in the area. In particular, an increase in flows on the M11 and A414 were observed. With regards to Harlow itself, the overall effect of Phase 3 on the local road network did not indicate significant reductions in flows within the town when compared to Phase 2 in isolation.

5.21 In comparing average network speeds in the Harlow area, Phase 3 was demonstrated to have the greatest benefit overall, showing a 3.9% increase in comparison to Phase 2.

5.22 In order to better illustrate the impacts of delivering Phases 2 and 3, differences in journey times were observed:

1. A414 Eastwick Road to Junction 7 M11 via A414 Edinburgh Way;
2. The Pinnacles to Hatfield Heath via Fourth Avenue, First Avenue and B183; and
3. Bishop's Stortford South to Junction 7 M11 via A1184 and A414;

5.23 The modelling demonstrated that delivery of Phase 2 (Second Stort Crossing) would likely result in reduced journey times overall with the exception being an increase on the section of the A414 in Harlow between the A1184 and River Way junctions. Delivery of Phase 3 was shown to provide further benefits in journey time.

5.24 Consideration of the timing for delivery of a Second Stort Crossing, and the potential need to deliver of Northern Bypass, will be undertaken through further modelling work.

Technical Note 4: Emerging Option, September 2016 (TRA/019)

5.25 The latest iteration of VISUM modelling, presented within Technical Note 4, took account of the most up to date growth assumptions being considered through the respective local plans of the four local authorities. From an East Herts perspective this updated strategy, known as the Emerging Option, reflected the quantum and location of growth included within the Pre-Submission version of the District Plan. Overall, the Emerging Option is based on the delivery of 15,250 homes in the wider Harlow area and approximately 43,000 homes across the Housing Market Area overall.

5.26 The Technical Note presented the outputs of this modelling and compared this with a 2033 Reference Case which was based on a minimum growth forecast scenario (4,585 homes in the wider Harlow area).

5.27 When comparing the Emerging Option to the Reference Case, an expected increase in traffic flows on many routes is observed, including the A414 west of the Eastwick roundabout. Average network speeds observed for the Emerging Option in the AM Peak were 11% lower than the Reference Case and 17.3% lower than the 2014 Base Year.

5.28 The modelling demonstrated that the most significant impact on the road network, in terms of increased traffic by 2033, would result from the Reference Case, i.e. committed and most likely development. The step change between this committed development scenario and the Emerging Option was not as great by comparison. Nevertheless the Emerging Option would result in additional traffic on roads in the Harlow area. Comparison with flow diagrams provided in Technical Note 2 (**TRA/017**) indicates that a similar set of junctions could be put under additional pressure. Further work will therefore be required to understand how the impacts on these specific junctions can be mitigated.

Further Work

5.29 1.80 The VISUM modelling undertaken so far has presented a high level analysis of the likely impacts of planned growth on the highway network in the Harlow area. The following two areas of work are likely to be undertaken following the Examination Hearings stage, and are therefore not considered to be critical to the delivery of the Plan.

- Update the Emerging Option presented in Technical Note 4 (**TRA/019**) in order to take account of further work on the respective local plans of Harlow, Epping Forest and Uttlesford Councils;
- Analyse in more detail the potential to mitigate observed stress points on the highway network, and in particular the junctions identified within paragraph 5.15 of this Topic Paper.

5.30 It is anticipated that the final two elements of supporting work below will be undertaken and completed by Essex County Council by summer 2017 in order to inform the consideration of strategic transport issues at the Examination Hearing sessions.

- Confirm the timing for delivery of a Second Stort Crossing and other identified mitigation measures, taking into account planned growth in the wider Harlow area; and
- Model the impacts of delivering the full 10,000 homes in the Gilston Area, and any other potential development in the Harlow area beyond 2033, including consideration of the need to deliver a Northern Bypass.

6 Other East Herts Modelling

6.1 In addition to the strategic modelling that has been carried out and described above, two other discrete transport modelling assessments have been commissioned by East Herts Council, in conjunction with HCC, in respect of specific locations in the District. These are identified below.

Buntingford Transport Modelling Assessment (TRA/006)

6.2 Following a number of developments receiving planning permission in Buntingford in recent times, this modelling was undertaken in 2015 in order to observe the likely impacts of this committed growth, and any potential future growth, on the local highway network.

6.3 The Assessment identified that, in general terms, the network could cater for the identified level of growth. However, the potential for future pressure on the A10/London Road roundabout to the south of the town was identified. Following completion of this study, and a bid to the Hertfordshire Local Enterprise Partnership, funding has recently been secured to upgrade the roundabout, as reflected within the Infrastructure Delivery Plan (**IDM/001**).

East of Stevenage Development Test – Transport Modelling Report 2015 (TRA/007)

6.4 This initial study sought to assess the highway impacts of growth to the East of Stevenage, taking account of development proposals being proposed within the Stevenage and North Herts local plans at that time. The study identified that the existing Gresley Way/A602 roundabout would experience some pressure as a result of this growth, and therefore upgrades could be required.

6.5 However, the position presented within this report has since been superseded by work undertaken in support of the recent Stevenage Local Plan Examination, whereby the cumulative impact of development is considered likely to cause capacity issues on the local highway network. As such, it is feasible that funding for mitigation measures could be largely focused on sustainable transport measures in order to help deliver a modal shift away from car use.

6.6 East Herts intends to continue discussions with Stevenage Borough Council and the County Council in order to establish whether the Transport Modelling Report requires updating to reflect the current position. The potential for joint working in this respect will be explored. However, it is important to note that HCC has not currently identified any major impediment to development coming forward in this location.

7 Other Strategic Sites Modelling

Gilston Area

7.1 The site promoters have commenced Paramics modelling in order to provide a more detailed analysis of the likely impacts of delivering 10,000 homes in this location, in conjunction with other planned development in East Herts and neighbouring areas. This work is at an early stage and, as such, the emerging outputs have not yet been validated by either Essex or Hertfordshire County Councils. Work on the Paramics model will continue over the coming months and the outputs will be reported prior to the Examination Hearing sessions.

North and East of Ware

7.2 In order to support development at this strategic allocation, the site promoters have instigated Paramics modelling, which has been validated by HCC, in order to understand the effects of the development and its proposed mitigations on the local and wider highway network.

7.3 The outputs of this modelling informed HCC's responses both in letter form (as detailed above) in 2015 and 2016, and in terms of the Pre-Submission District Plan consultation.

7.4 Contrary to the position of HCC whereby 1,000 dwellings would be delivered in the plan period to 2033, with a further 500 dwellings being delivered in the longer term only in the event that suitable mitigations measures to identified constraints on

both the local and wider strategic road networks can be identified and agreed by HCC (as detailed in Policy WARE2), the site promoters consider that 1,500 dwellings can be successfully delivered in this location within the Plan period.

7.5 To support their position in this regard, the Paramics model has been expanded, with further counts having been undertaken by the site promoter's transport consultants, JMP, in February 2017. Results of the modelling are expected in coming months and any update to HCC's position on site delivery in light of its findings will be reported as it becomes available, prior to the Examination Hearing sessions.

8 Duty to Co-operate

8.1 Issues relating to transport have been regularly discussed through Duty to Co-operate meetings which have been undertaken in the Plan making process. These discussions and any related outputs are confirmed through the related Memorandum of Understanding (**SOC/001**). There are not considered to be any major impediments to development occasioned by these.

8.2 In certain locations, specific work streams in relation to transport matters and strategic site allocations remain on-going in respect of:

- The Gilston Area – through the Co-operation for Sustainable Development Board;
- Gresley Park, East of Stevenage – with HCC and Stevenage Borough Council; and
- Birchall Garden Suburb – with HCC and Welwyn Hatfield Borough Council (cross-boundary delivery).

8.3 However, rather than concerning issues in respect of the principle of development, it should be noted that their purpose is that of both informing and refining delivery in these locations.

9 Delivery

9.1 The transport modelling undertaken to date has identified the need to deliver a range of mitigation schemes. Where these schemes have already been confirmed as being necessary, these are included within the Infrastructure Delivery Plan (IDP) (**IDM/001**). Information concerning costs, funding and phasing are included, where this is currently known, within this document. The IDP is a live document and will be updated as information becomes available.

10 Development Management Policies

10.1 The Council is cognisant that the evidence required to underpin the strategic allocations is only the beginning of the process in relation to site delivery. Consequently, a series of policies have been provided, within Chapter 18 Transport, in order to aid the Development Management process.

10.2 The policies contained therein are aimed towards development proposals providing sustainable movement patterns and promoting modal shift, while ensuring safe and efficient use of the transport network.

11 Conclusion

11.1 This Topic Paper has described the processes which the Council has employed in respect of transport matters related to bringing forward the District Plan. Despite the many constraints which the district faces, the Council has endeavoured to provide a development strategy which is compatible with sustainable movement objectives. It has demonstrated extensive joint working and evidence gathering in order to underpin its strategic allocations.

11.2 HCC, as transport authority, is generally satisfied with the approach taken by East Herts in relation to the proposed locations for growth and in transport terms considers the Plan to be 'sound' and, therefore, fit for purpose. On-going work will further serve to refine the evidence base going forward to enable delivery of the proposed strategic allocations within the timescales outlined in the District Plan.