



# West Essex & East Hertfordshire Local Plans Modelling Technical Note 2

Essex County Council

Technical Note 2: Spatial Options A to E (March 2016)

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## West Essex and East Hertfordshire Local Plans Modelling Technical Note 2: Spatial Options A-E (March 2016)

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## **Limitation Statement**

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This report is part of a suite of technical notes on the WEEH Local Plans modelling project and should be read in conjunction with these other technical notes. The analysis and forecasts contained in this report make use of information and input assumptions made available to Jacobs at a point in time. As conditions change the analysis and forecasts would be expected to change. Hence the findings set out in this report should be understood as relevant to that point in time when the information and assumption were made.

The WEEH transport model is focussed on the Harlow district but covers adjacent districts in West Essex and East Hertfordshire. The WEEH model contributes to the understanding of strategic impacts between the districts but does not intend to replace local transport models used in the districts surrounding Harlow.

The information on which Technical Note 2 is based was provided in March 2016. The report on Technical Note 2, however, was only issued in March 2017.

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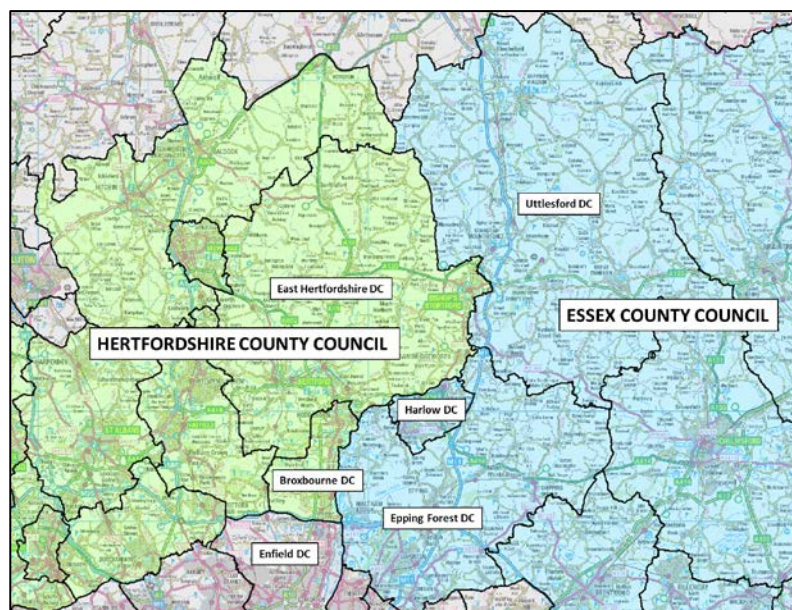
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## 1. Introduction

### 1.1 Introduction

Essex County Council (ECC) have been providing ongoing traffic modelling support through Essex Highways and Jacobs in relation to the emerging Local Plan proposals for the four districts which comprise the West Essex and East Herts (WEEH) Strategic Housing Market Area (SHMA). This has been conducted through the Co-operation for Sustainable Development Board, which comprises officers and Members from East Hertfordshire, Epping Forest, Harlow and Uttlesford District Councils, Hertfordshire and Essex County Councils, and Highways England.

Figure 1.1 – Local Authorities in the Vicinity of Harlow



It should be noted that this assessment work is based on early spatial options as defined at March 2016 that have since been refined and amended. As such, this report covers a particular stage in the Local Plan process, and explains the processes and outcomes that have fed into the overall process of the emerging Local Plan spatial option development for each of the districts.

### 1.2 Objectives

Five core spatial development options (named options “A” to “E”) were modelled using the Harlow VISUM Transport Model as part of initial option testing undertaken to evaluate various SHMA development scenarios and growth levels. The list of Local Plan developments (2014-2033) was provided by ECC on behalf of Harlow (HDC), Epping Forest (EFDC), Uttlesford (UDC) and East Hertfordshire (EHDC) District Councils to identify the appropriate developments to include in the Local Plan forecast modelling. The version of the Uncertainty Log used for this particular study was “160527 UL 2021 2036\_v2.xlsx”. Further detail on the developments included specifically in the wider Harlow area can be found in Section 2.

This technical note presents initial results arising from the testing of this set of options. The work followed the methodology as set out in the WEEH Local Plans Modelling Technical Note 1 on Forecast Methodology. The results set out in this technical note concentrate primarily on significant changes in predicted future year flows on the road network at the strategic level (Section 3), and then identify local changes in the wider Harlow area (Section 4). Changes to journey times along specific routes through Harlow are also investigated (Section 5) in order to highlight those areas of the network that are predicted to be most congested in the future and that therefore will require further study (and development of mitigation measures) using more detailed forms of traffic

modelling (e.g. individual junction modelling and micro-simulation modelling). The map and summary of these locations, which comprise the key outcomes of this technical note, are set out in the conclusion (Section 6).

It should be noted that the Harlow Model is focussed on the Harlow area, where there is greater confidence for outputs relating to this area. Outputs for areas beyond this should be treated with more circumspection, and only used to draw more general conclusions.

## 2. Development Assumptions

This section details the development assumptions for Options A-E as defined by ECC, for which each of the Options assumes that J7a is in place. These SHMA spatial options are set out in the AECOM file 'HMA-wide distribution options' dated 20<sup>th</sup> March 2016, which is shown in Appendix A for the period 2011-2033.

### 2.1 Housing

The information from the SHMA group was translated by ECC into an Uncertainty Log, "160321 Uncertainty Log\_HMA Update with Employment\_TK\_MY\_TK", included in Appendix B, in order to ensure that the modelling scenarios conformed to the forecast modelling time period of 2014-2033. The adjustment was done on the basis of completions information provided by each of the Districts as well as more detailed information on site locations, planning timeframes, quantum of development and associated infrastructure.

Already committed development within the SHMA area is also included in the modelling, and totals for each district are shown in Table 2.1, and all of these developments are in addition to, and have been included in, the modelling of each of the spatial options. Please note that no values have been included for Harlow itself as these committed developments (amounting to 3,800 homes) are included in the later tables.

Table 2.1 Committed housing developments across the HMA districts

District / Area	Committed
East Herts	3,642
Epping Forest	787
Harlow	-
Uttlesford	5,183
<b>HMA Overall</b>	<b>13,427</b>

The overall growth assumed within each of the five spatial options for each district is shown in Table 2.2, which also includes the quantum of housing development for each district within and immediately surrounding Harlow, referred to as the Wider Harlow Area.

The distribution of housing across the HMA is shown in Table 2.2, as detailed in the Uncertainty Log "160527 UL 2021 2036\_v2.xlsx". Option E has the greatest numbers of homes within the HMA and wider Harlow.

The housing development across the HMA by district and by spatial option (which includes the committed developments in Table 2.1), is set out in Table 2.2

Table 2.2 Distribution of housing developments across the HMA districts

District / Site	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
<b>HMA Overall</b>	<b>40,905</b>	<b>40,755</b>	<b>40,255</b>	<b>39,346</b>	<b>44,405</b>
<b>Wider Harlow Sub-Total</b>	<b>13,466</b>	<b>9,816</b>	<b>9,816</b>	<b>16,966</b>	<b>16,966</b>

In terms of overall growth, Option D has the lowest level of housing growth in the SHMA area, with C, B and A having increasing numbers, with Option E having the greatest numbers. For the wider Harlow area itself, Options B and C have the lowest level, at just under 10,000 homes, Option A provides a medium level of growth, at around 13,500 homes, and Options D and E include the highest level of growth, at just under 17,000 homes. We would reiterate that this was the planning position at the time of these spatial options tests, ie in March 2016.

The composition of the Wider Harlow Area housing, in terms of the strategic sites for each of the districts for each of the options, together with the sum of other housing development within Harlow itself, is summarised in Table 2.3.

Table 2.3 Distribution of wider Harlow area housing development across districts and sites

District / Site	Option A	Option B	Option C	Option D	Option E
<b>East Herts:</b>					
Gilston	2,750	1,250	1,250	4,350	4,350
<b>Harlow:</b>					
Rest of Harlow (rounded to nearest hundred)	5,700	5,700	5,700	5,700	5,700
East Harlow	1,500	1,500	1,500	1,500	1,500
<b>Epping Forest:</b>					
Latton Priory	1,250	1,350	350	2,000	2,000
West Sumners	1,000	0	1,000	1,100	1,100
West Katherines	750	0	0	800	800
East Harlow	500	0	0	1,500	1,500
<b>Wider Harlow Total (rounded):</b>	<b>13,450</b>	<b>9,800</b>	<b>9,800</b>	<b>17,000</b>	<b>17,000</b>

Figure 1.1 to Figure 2.5 show the location and illustrate the size of the developments for each of the Spatial scenarios.

Figure 2.1 : Spatial Option A

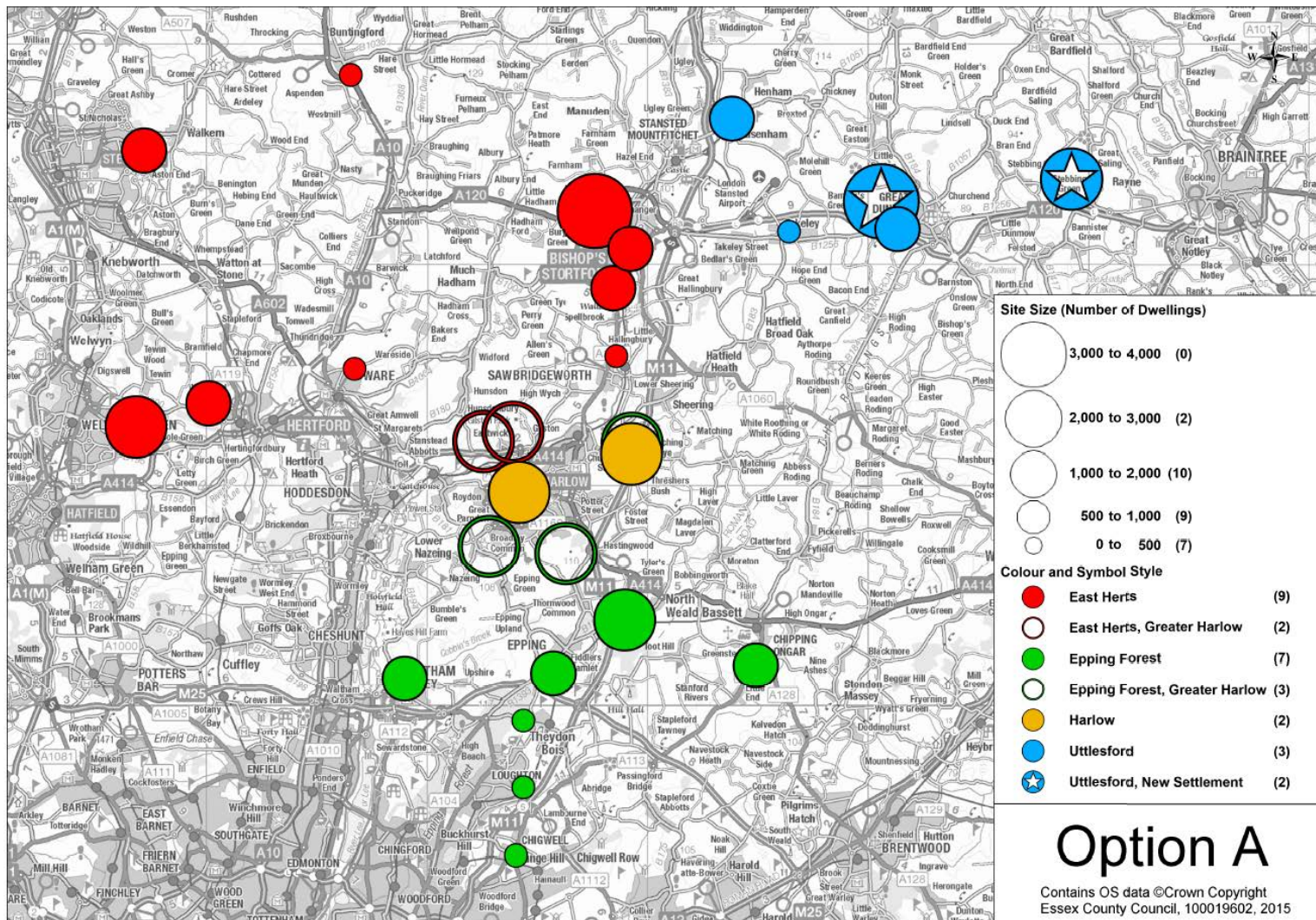


Figure 2.2 : Spatial Option B

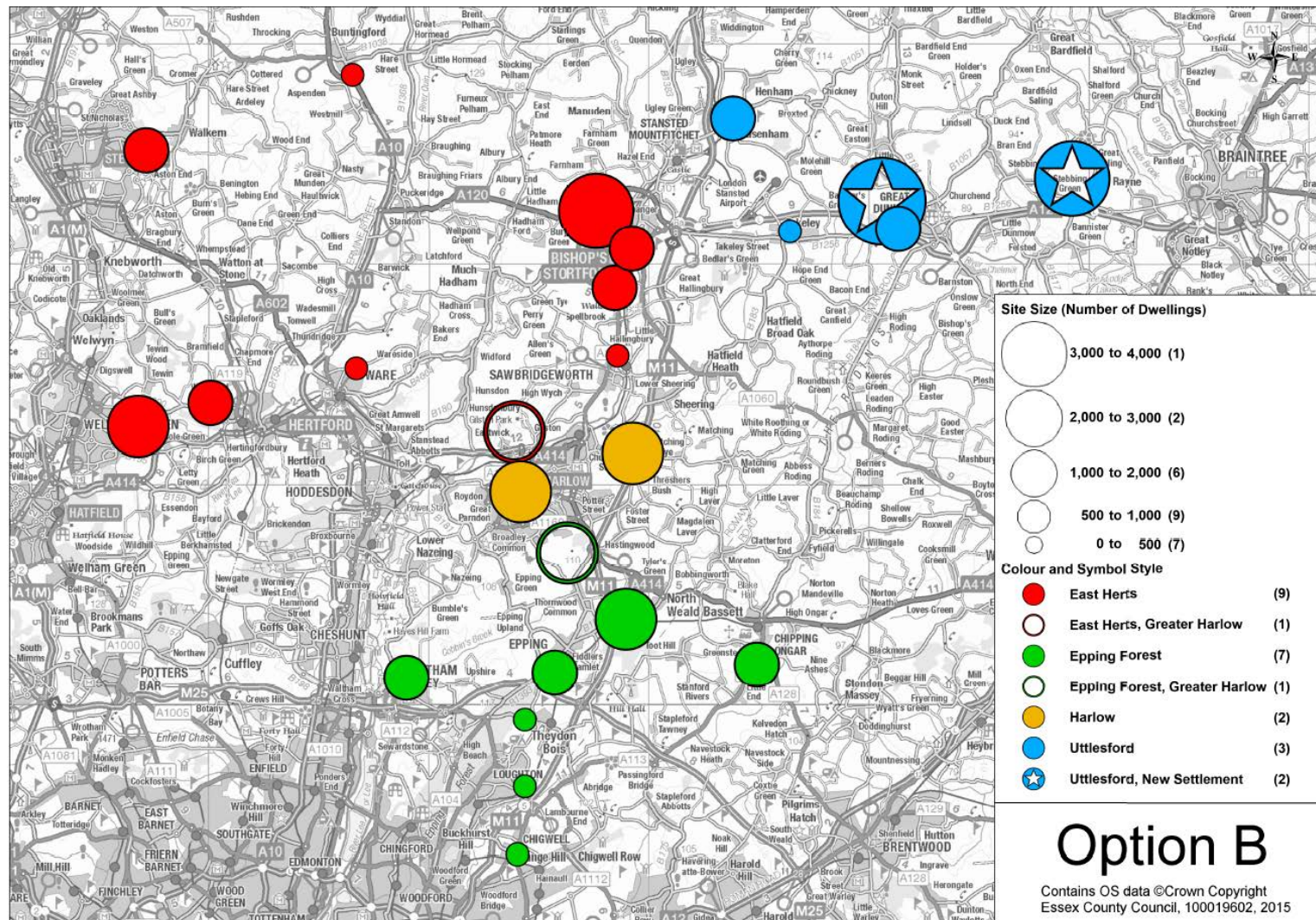


Figure 2.3 : Spatial Option C

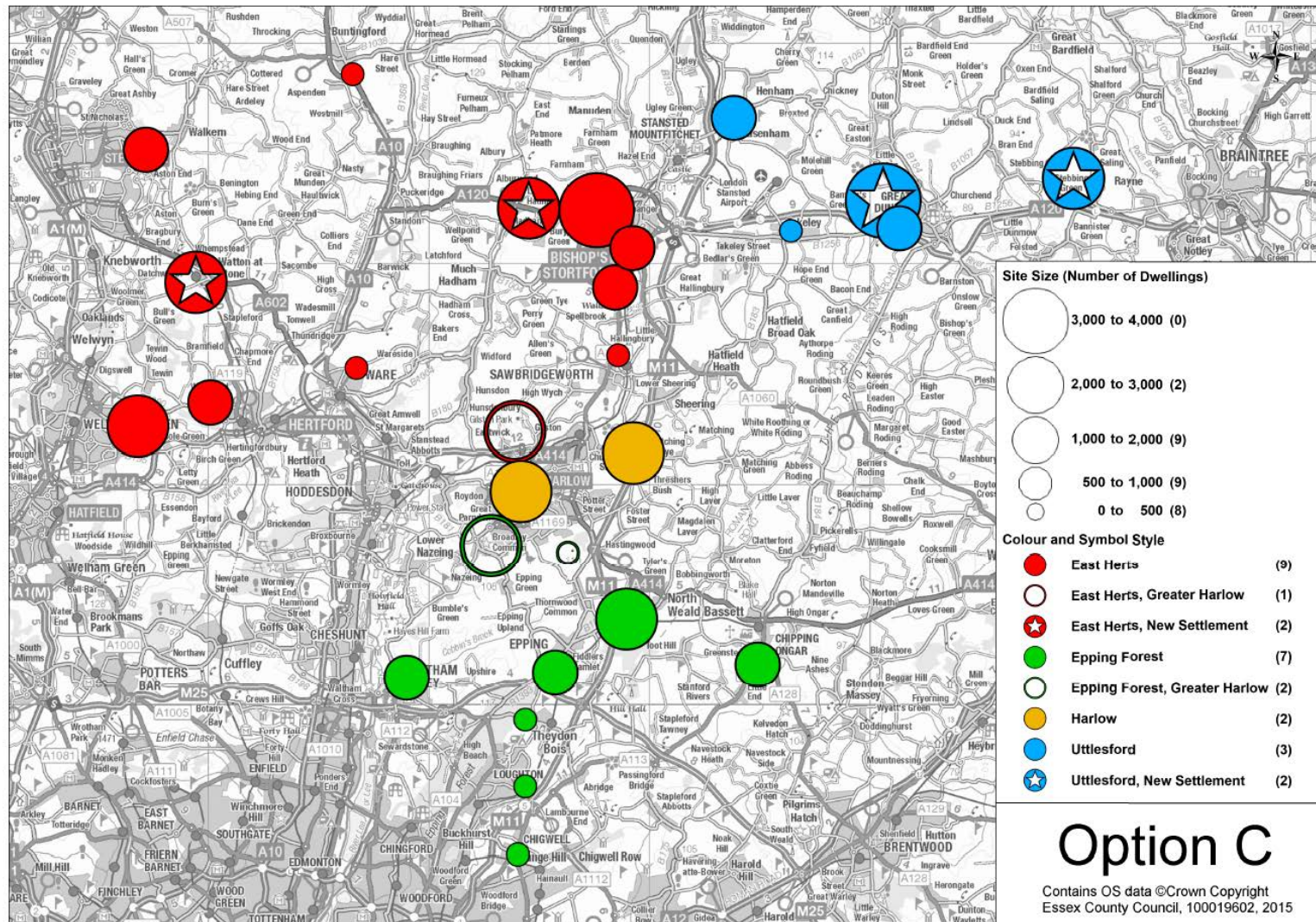


Figure 2.4 : Spatial Option D

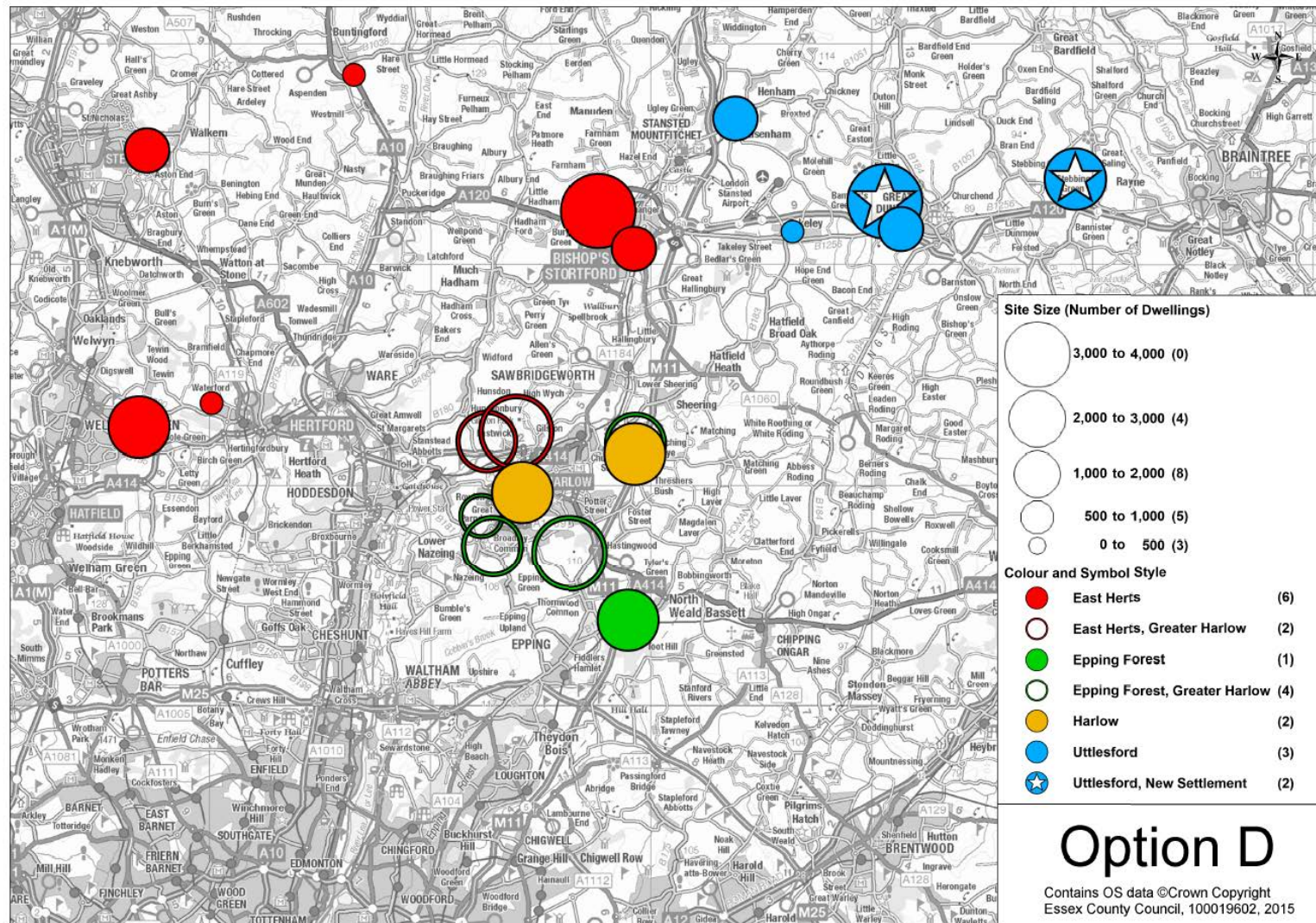
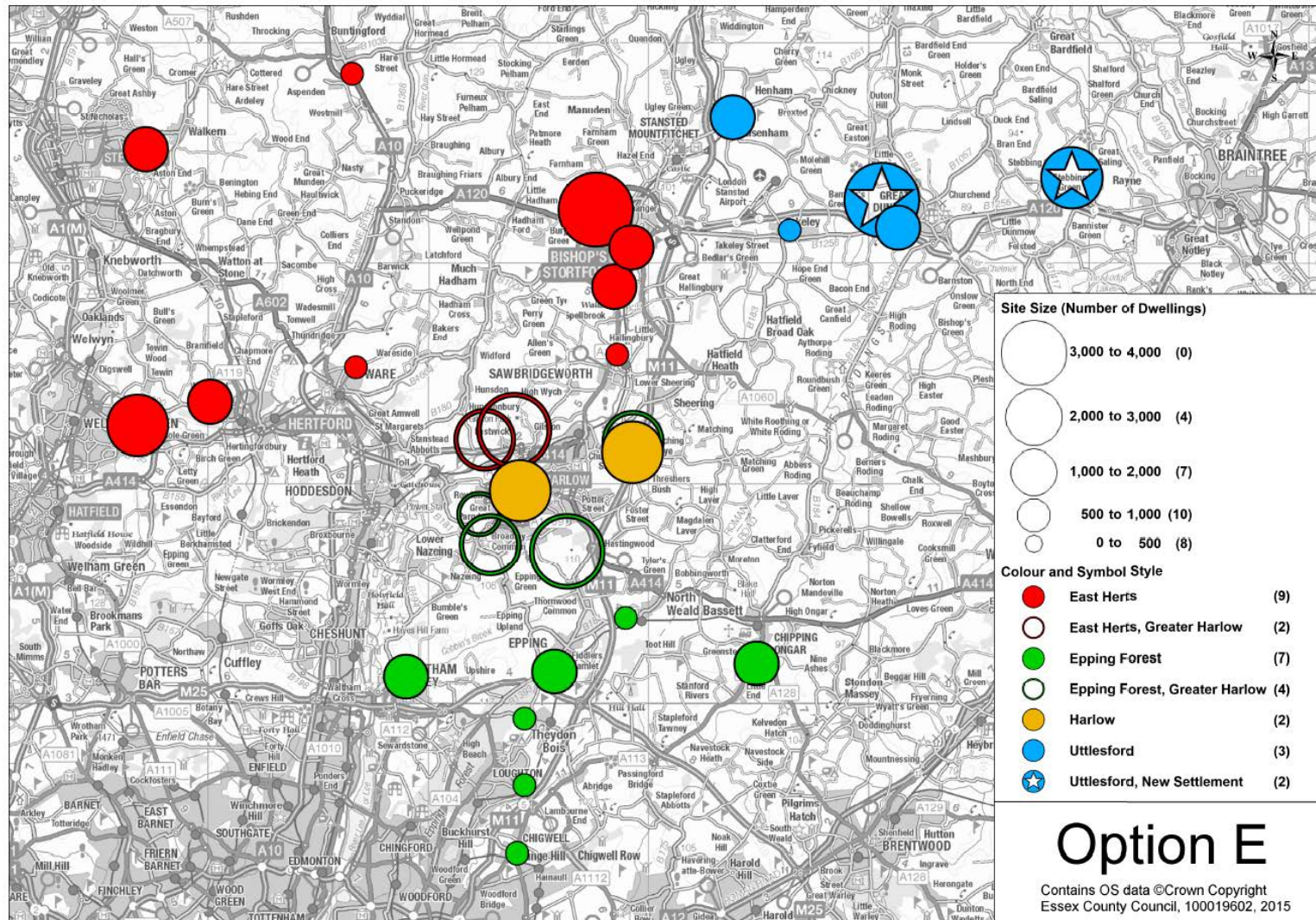


Figure 2.5 : Spatial Option E



## 2.2 Employment

There is less overall certainty with regard to the likely level of Employment within the SHMA area. The initial modelling was informed by information received from each of the districts, and referenced against overall jobs values in the East of England Forecasting Model (EEFM) which was considered to be a sensible basis for long-term planning. Like the SHMA, it has a different timeframe to the highway modelling, being 2011-2031. However, the EEFM specifies jobs per year, as shown in Table 2.4, and it was this that the modelled growth was checked against.

Table 2.4 EEFM Jobs Growth Forecast Basis for Highway Modelling

District	EEFM Jobs pa	Total 2014-2033
East Herts	403	7,651
Epping Forest	597	11,348
Harlow	461	8,754
Uttlesford	435	8,262
Total		36,015

The approach to incorporating employment growth into the model is described in Technical Note 1 on Forecast Methodology.

The distribution of jobs across the HMA is set out below in Table 2.5. It should be noted that the resulting spatial distribution of jobs, when compared with EEFM values set out in Table 2.4, varies considerably. This is a recognised shortcoming of the employment information contained within the Uncertainty Log as well as the coarse and simplistic nature of the methodology by which jobs numbers have been derived. It is understood that each of the districts has since undertaken, or is in the process of undertaking, Employment Land Reviews, and subsequent highway modelling will take this updated information into account wherever possible.

Table 2.5 Distribution of estimated growth in jobs across the HMA districts, 2014-2033

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

The jobs estimated for each of the major sites within the wider Harlow area is set out in Table 2.6 for each of the spatial options. It should be noted that jobs relating to the Harlow Enterprise Zone (EZ) are already committed but are included in the table for ease of reference.

It can be seen that the relative levels of growth in total jobs across the five options reflects that of the housing growth shown in Table 2.2, with Option C having the lowest, and Options D and E the highest.

Table 2.6 Development Assumptions –Wider Harlow Area Employment Sites Jobs

Log Ref	Site	Type	Option A	Option B	Option C	Option D	Option E
372	Latton Priory Farm	Employment	2,045	2,209	573	3,273	3,273
336	Harlow EZ – London Road North	Business Park	3,000				
456	PHE – The Pinnacles	Business Park	3,000				
378	Latton Park	Commercial	1,842	921	1,842	1,842	1,842
338	Harlow EZ – Templefields	Industrial Estate	1,479				
325	East Harlow	Employment	1,364	0	0	1,364	1,364
337	Harlow EZ – London Road South	Office	1,052				
374	Harlow Park Nursery		784				
386	Southfield Nursery		72				
		<b>Total</b>	<b>14,639</b>	<b>12,518</b>	<b>11,803</b>	<b>15,867</b>	<b>15,867</b>

The general locations of these wider Harlow area housing and employment sites are shown in Figure 2.6.

The highway network assumptions are the same for each of the spatial options and are as set out in Technical Note 1 on Forecast Methodology. It should be noted that the new M11 Junction 7a and its link road are assumed to be in place in all scenarios, as it had already been recognised that an additional or improved access to the strategic road network was needed.

The map displays the Harlow area with 19 numbered sites. The sites are distributed across the urban landscape, with a concentration in the central and eastern parts. The River Stort flows through the western and northern parts of the area. Major roads like the A10 and A130 are visible. The legend in the bottom right corner identifies the symbols: green circles for Residential Sites and purple squares for Employment Sites.

Site Number	Site Type	Approximate Location
1	Residential	North of Harlow, near the A10
2	Employment	Central Harlow, near the A10
3	Employment	Central Harlow, near the A10
4	Residential	Central Harlow, near the A10
5	Residential	Central Harlow, near the A10
6	Residential	Central Harlow, near the A10
7	Employment	Central Harlow, near the A10
8	Residential	South of Harlow, near the A10
9	Employment	South of Harlow, near the A10
10	Residential	South of Harlow, near the A10
11	Residential	South of Harlow, near the A10
12	Residential	South of Harlow, near the A10
13	Residential	South of Harlow, near the A10
14	Residential	South of Harlow, near the A10
15	Residential	South of Harlow, near the A10
16	Residential	East of Harlow, near the A10
17	Residential	East of Harlow, near the A10
18	Residential	East of Harlow, near the A10
19	Residential	East of Harlow, near the A10

### 3. Model Strategic Outputs and Results

#### 3.1 Forecast Growth in Demand by 2033

Table 3.1 displays the demand matrix totals i.e. the total forecast number of trips across the network for each peak period.

Table 3.1 Total Forecast Traffic Demand for Each Peak Period

Number of trips	Base Year	Option A	Option B	Option C	Option D	Option E
<b>AM</b>	186,796	256,543	256,326	256,202	256,156	257,319
<b>IP</b>	118,576	167,902	167,819	167,765	167,697	168,294
<b>PM</b>	189,929	261,544	261,353	261,237	261,091	262,310
<b>TOTAL</b>	<b>495,301</b>	<b>685,989</b>	<b>685,498</b>	<b>685,204</b>	<b>684,944</b>	<b>687,923</b>

The overall demand matrix totals are very similar between the options. Option E has the largest total demand which is expected since it represents the highest overall total housing aspiration of all the options. This information is also shown graphically below in Figure 3.1.

Figure 3.1: Total Forecast Traffic Demand for All Peak Period

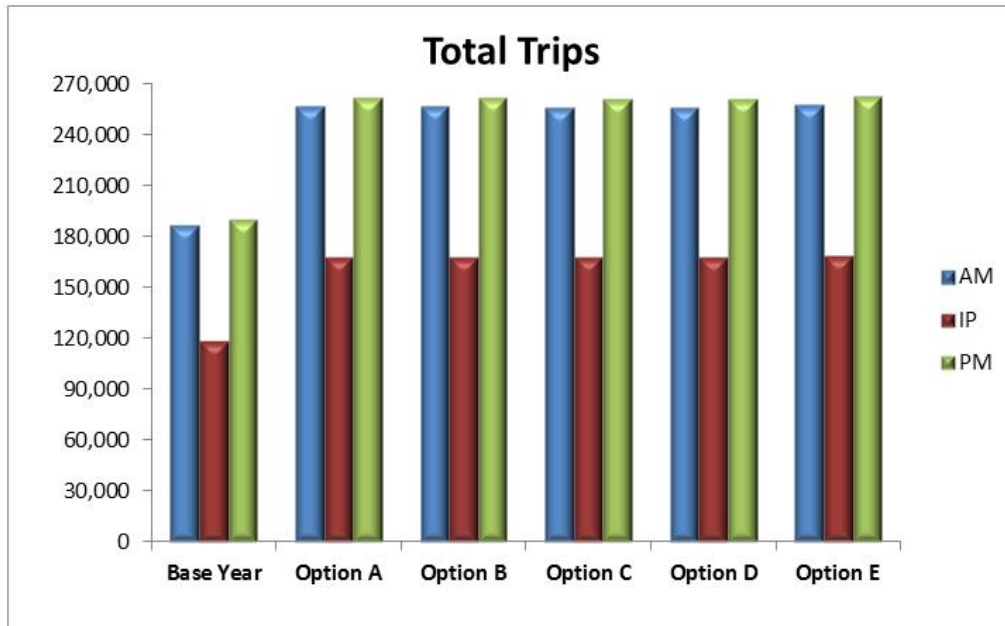


Table 3.2 displays the absolute and percentage increases in demand for each option compared to the base year.

Table 3.2: Change in demand in 2033 compared to the base year 2014

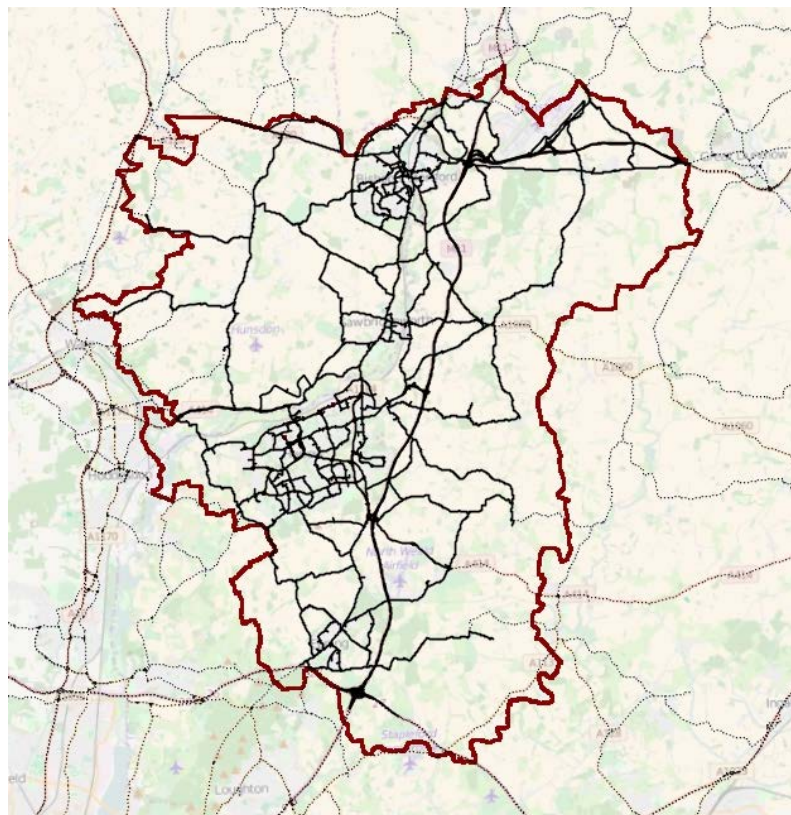
Increase in number of trips over base year										
	Option A	Option A %	Option B	Option B %	Option C	Option C %	Option D	Option D %	Option E	Option E %
<b>AM</b>	69,747	37	69,530	37	69,406	37	69,360	37	70,523	38
<b>IP</b>	49,326	42	49,243	42	49,189	41	49,121	41	49,718	42
<b>PM</b>	71,615	38	71,423	38	71,307	38	71,162	37	72,381	38

Table 3.2 indicates that the number of trips within the highway model would be expected to increase by approximately 37% in the AM and PM peaks and by approximately 41% in the IP between the 2014 base year and 2033. However, the main distinction between the options is that of spatial differences in housing and employment focus and so overall statistics across the whole modelled area would not be expected to vary greatly

Due to the overall similarities of the five spatial options over the wider modelled area when compared with the base year, the following section of this report primarily compares Option A to the 2014 base year in order to make general comparisons between the base year and the Local Plan proposals. In this way, we can begin to understand the general magnitude of change on the road network that could be expected by 2033. In the sections that follow, each of the other Local Plan options (B to E) are then compared to Option A in order to make more detailed comparisons and to understand the local differences between the options and their impacts.

The overall aggregated network statistics for the detailed modelled area (see Figure 3.2) for the base and Option A models are included in Table 3.3. These network statistics show clearly that the overall total distance travelled, total journey time and total delay increases across the modelled network due to the increase in trips in the future year. The average speed also reduces significantly in 2033 when compared to the base year.

Figure 3.2 : Detailed Modelled Area



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Table 3.3 Aggregate Network Statistics for Base and Forecast Models (detailed modelled area)

Network Statistic	Time Period								
	AM			IP			PM		
	2014	2033 Option A	Change	2014	2033 Option A	Change	2014	2033 Option A	Change
Total Trips	186,796	256,543	69,747	118,576	167,902	49,326	189,929	261,544	71,615
Total Vehicle Distance (miles)	248,967	376,931	+127,964	188,084	285,245	+97,161	272,829	397,765	+124,936
Total Vehicle Time (hours)	7,065	12,498	+5,433	4,695	7,578	+2,883	7,592	13,135	+5,543
Total Vehicle Delay (hours)	1,172	3,728	+2,556	447	1,248	+801	1,350	4,070	2,720
Average Network Speed (mph)	35.2	30.1	-5.1	40.1	37.7	-2.4	35.9	30.3	-5.6

### 3.2 Network Average Journey Speeds

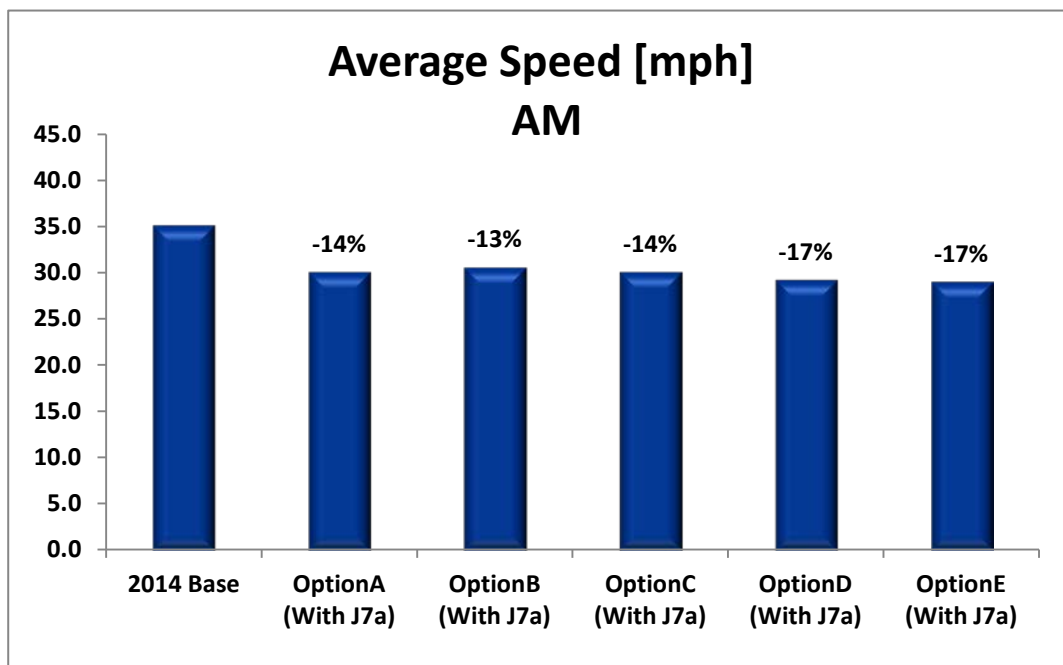
Table 3.4 below summarises the average modelled network speed across the entire detailed model area for all Options A to E for all three peak periods.

Table 3.4: Network Average Journey Speeds

Speeds [mph]	AM	IP	PM
<b>2014 Base</b>	35.2	40.1	35.9
<b>Option A (With J7a)</b>	30.1	37.7	30.3
<b>Option B (With J7a)</b>	30.6	38.2	30.8
<b>Option C (With J7a)</b>	30.2	37.8	30.5
<b>Option D (With J7a)</b>	29.3	37.4	29.1
<b>Option E (With J7a)</b>	29.1	37.2	28.9

Figure 3.3 displays the detailed modelled area average speeds for the AM Peak for all options. By 2033, average speeds across the modelled network are forecast to drop by 13 to 17% depending on the specific option. The overall impact of each of the options is fairly similar, but scenarios D and E show the greatest reduction in speed across the network, consistent with the fact that these options have the highest housing and employment growth levels both over the whole model and in and around Harlow itself.

Figure 3.3 Network Average Speed AM



In the inter-peak (IP) period, network average speeds are higher, on average, than in the morning or evening peaks due to lower traffic demand. Figure 3.4 displays the detailed modelled area average speeds for the IP and shows how, for 2033 Options A to E, the modelled speeds fall by 5 to 7%. Again Options D and E demonstrate the greatest deterioration in network-wide average speeds.

Figure 3.4 Network Average Speed - IP

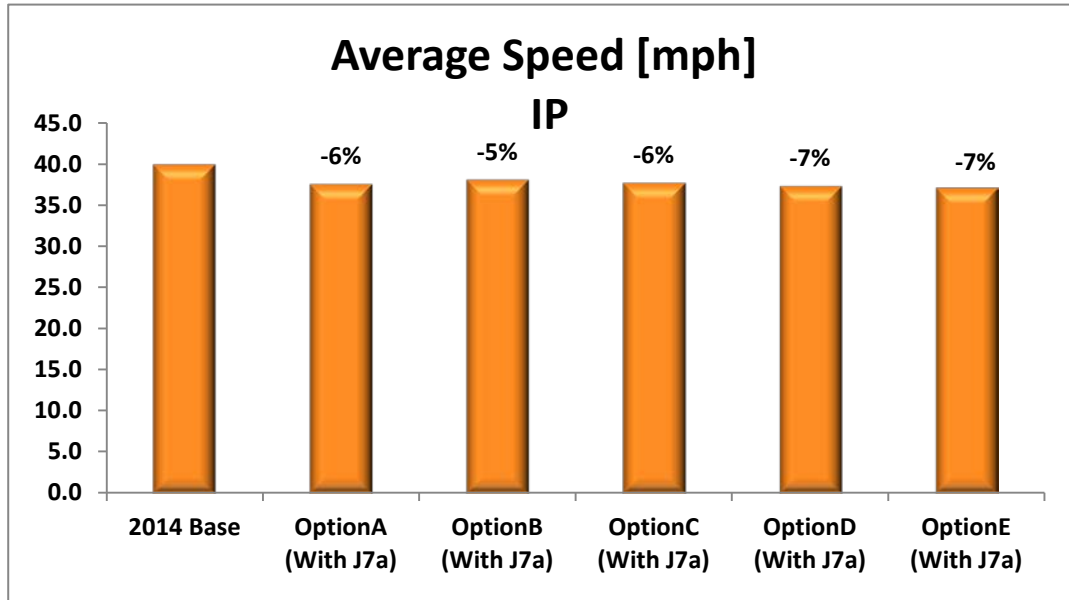
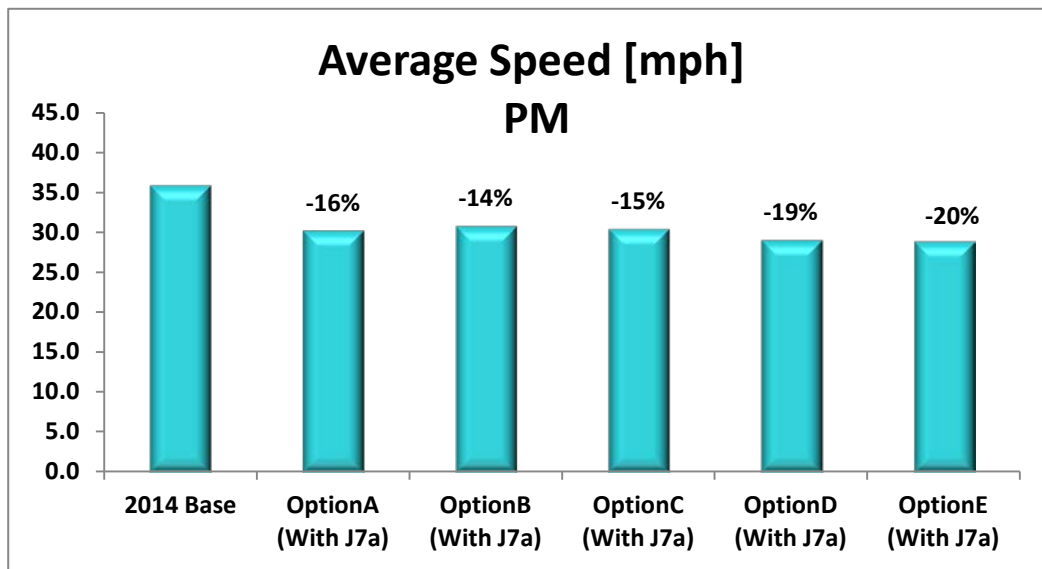


Figure 3.5 illustrates how average speeds across the detailed modelled area in the PM peak reduce by between 14 and 20%. As in the AM and IP periods, the impacts of the Options are fairly similar but Options D and E are considerably worse than Options A, B and C reflecting the increased level of development for those Options.

Figure 3.5: Network Average Speed - PM



## 4. Localised Model Outputs and Results

### 4.1 Wider Harlow Area and Bishop's Stortford

Due to the number of trips in the whole modelled area, reporting at whole model or strategic level does not enable the relative effects of the five spatial options to be easily drawn out. Accordingly this section looks at the more focussed 'wider Harlow area', and at an area centred on Bishop's Stortford. The areas of the model network reported are shown in Figure 4.1 and Figure 4.2 respectively.

Figure 4.1 Wider Harlow Area Speeds: Network Included

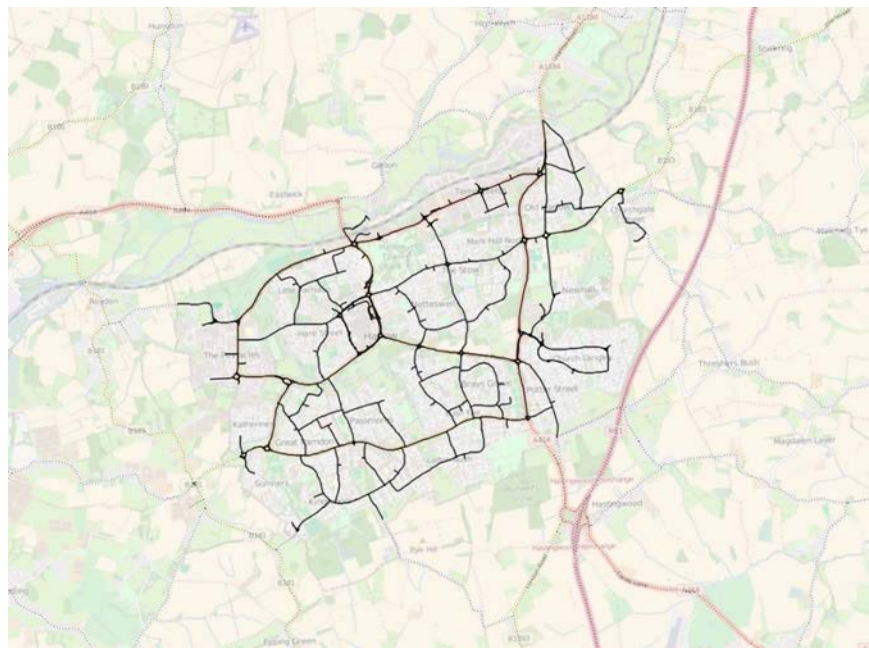
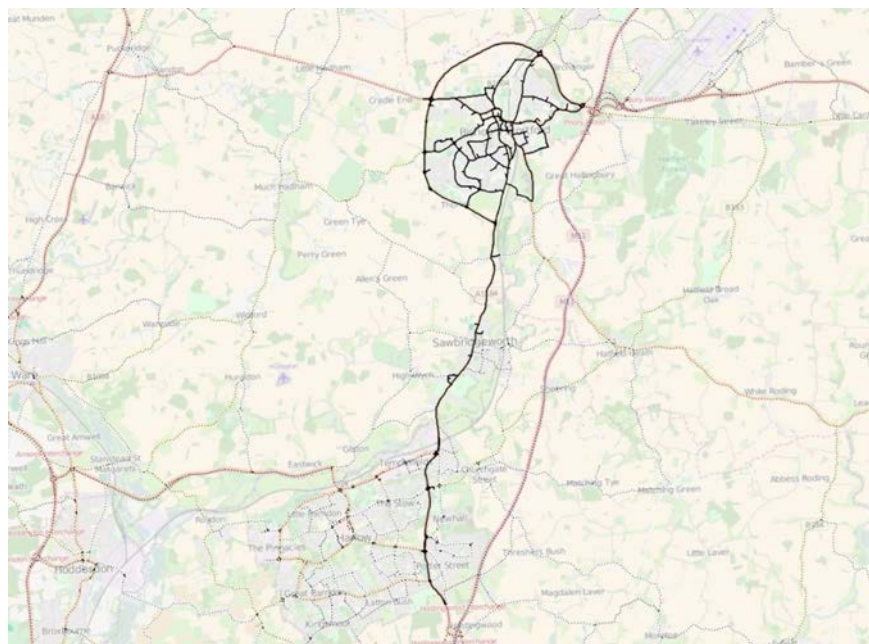


Figure 4.2 Bishop's Stortford Area Speeds: Network Included



## 4.2 Localised Average Network Speeds

The following charts show the change in localised network speeds across the modelled scenarios. Figure 4.3 and Figure 4.4 show the effects in the Harlow area. It can be seen that average speeds reduce in all scenarios, but that Option A demonstrates the least impact on the network, while both Options D and E show the greatest impact. For Options D and E this is as would be expected as they represent the highest growth. However, Option A represents a 'medium growth' scenario for the wider Harlow area. This indicates that the particular spatial configuration of the strategic development sites, which are spread all around the town in Option A, have least overall impact on the local road network.

Figure 4.3 Network Average Speeds Wider Harlow Area: AM (mph)

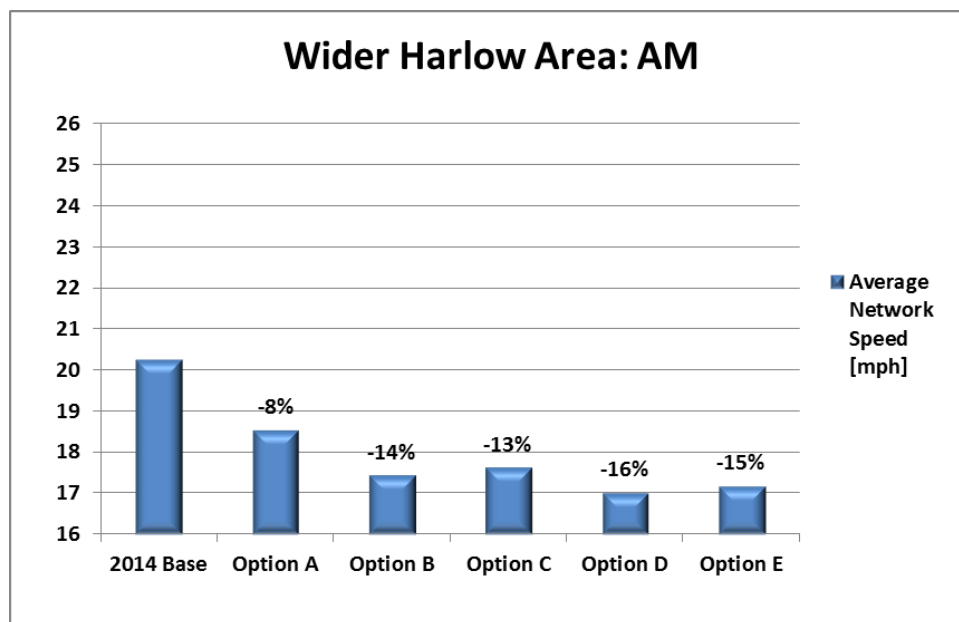
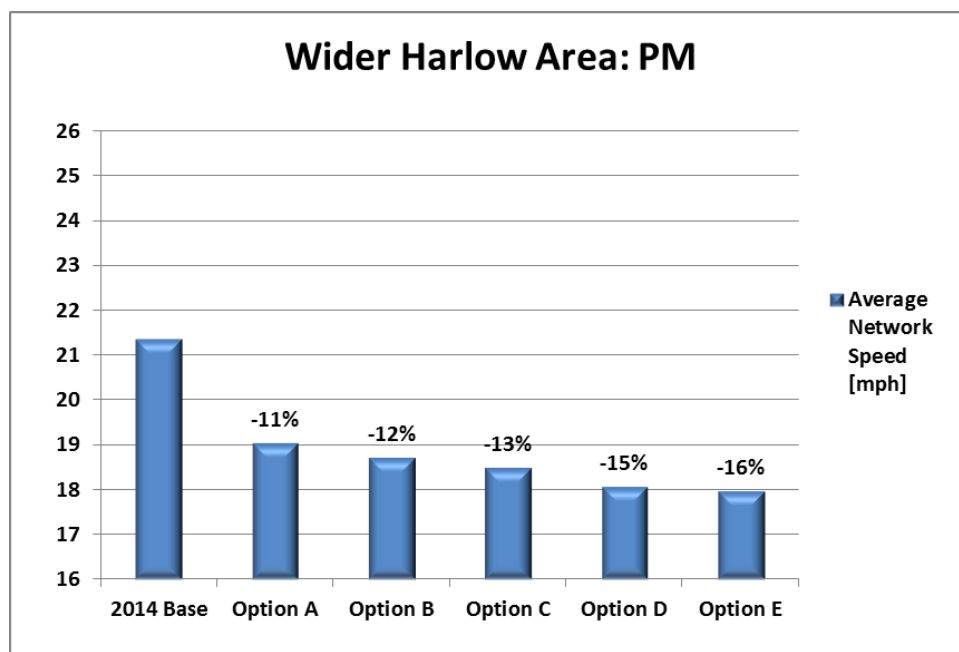


Figure 4.4 Network Average Speeds Wider Harlow Area: PM (mph)



For the Bishop's Stortford area, which has higher average network speeds than Harlow, the differences between the options are less defined, as shown in Figure 4.5 and Figure 4.6, particularly in the PM peak period. This reflects the lack of variation between the spatial options in this area. Option C includes a development of 1,500 homes along the A120 to the west of Bishop's Stortford, so represents the highest development option of the five. Option D has least development, with 1,200 fewer homes in Sawbridgeworth and Bishop's Stortford, and almost 1,500 fewer jobs in Bishop's Stortford. The other three options all have the same level of development in this area.

Figure 4.5 Network Average Speeds Bishop's Stortford Area: AM (mph)

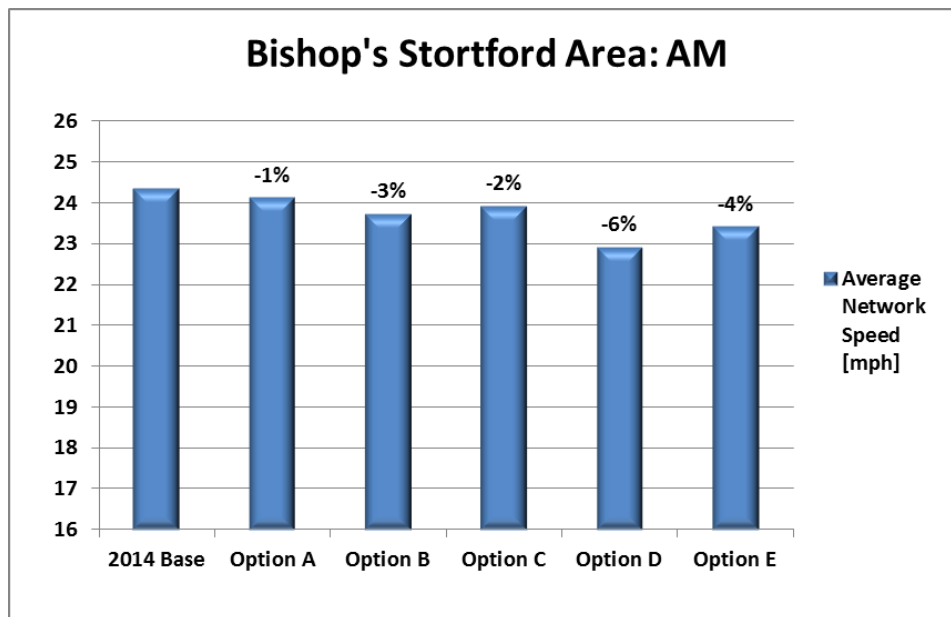
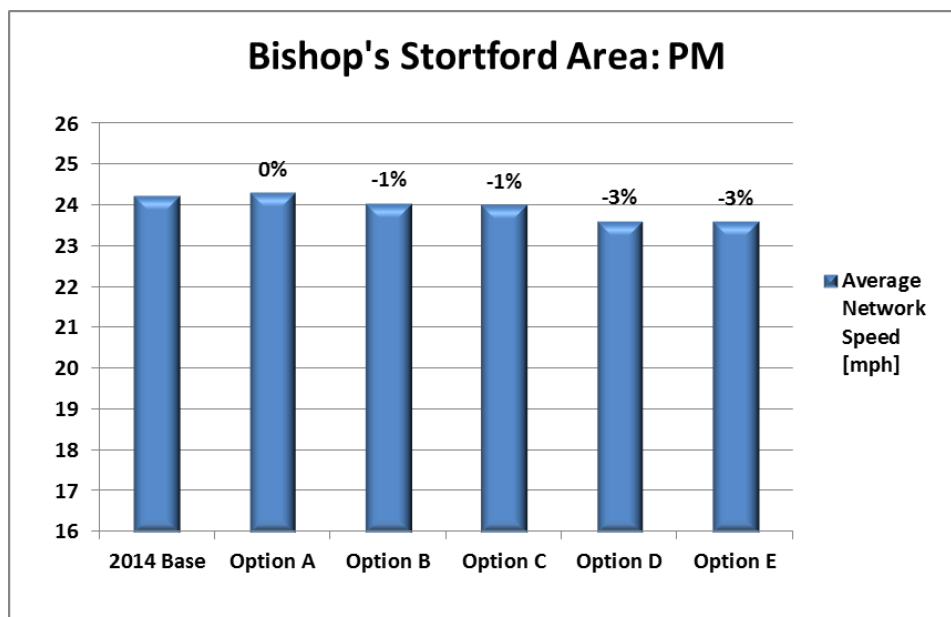


Figure 4.6 Network Average Speeds Bishop's Stortford Area: PM (mph)



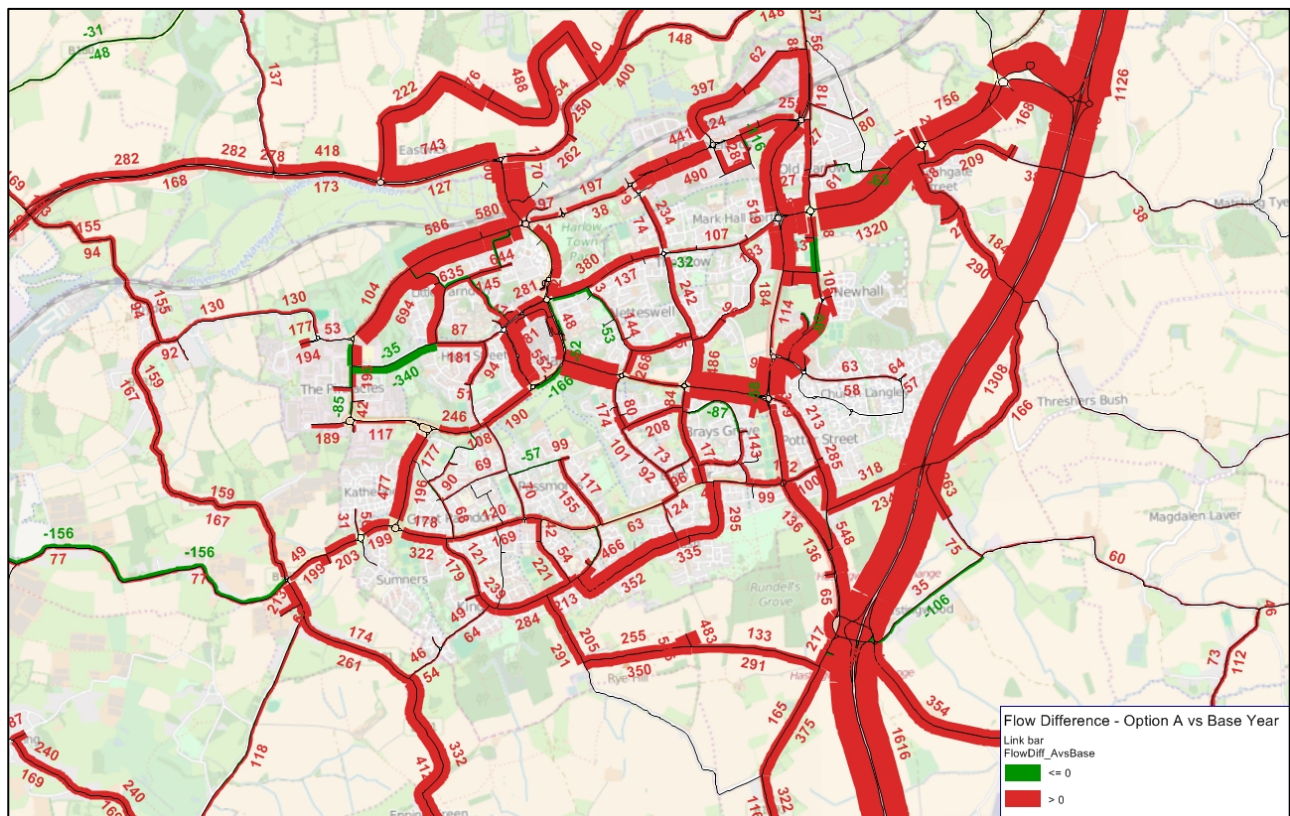
### 4.3 2033 Impacts Compared to Base Year – wider Harlow area

In this section, Option A is compared to the 2014 base year in order to make general comparisons between base and the Local Plan options. In this way, we can begin to understand the general magnitude of change on the road network that could be expected by 2033. It should be noted that all of the reported differences from the base year are significantly affected by the inclusion of M11 Junction 7a (J7a) within all five Spatial Options networks which leads to traffic growth in east Harlow over and above what would be expected by any of the individual scenarios

In the sections that follow, each of the Local Plan spatial options are then compared to Option A in order to make more detailed comparisons and to understand the local differences between the options and their impacts. Figure 4.7 below shows the predicted flow difference between Option A and the Base Year scenario. It illustrates a general increase in traffic throughout Harlow as a result of the future year forecast growth. This is particularly noticeable in East Harlow due to the impacts of M11 J7a and is a general pattern that can be seen to varying degrees across all spatial options.

With regard to the strategic housing development sites in this spatial option, the Gilston development traffic is evident to the north of Harlow, as is the Latton Priory development in the south of Harlow and that of West Katherines and Sumners in the south and west, the latter also showing the impact of the Public Health England employment site at the Pinnacles. The impact of the various committed and proposed east Harlow sites together with the Enterprise Zone employment growth on the eastern side of Harlow is more difficult to identify due to traffic reassignment as a consequence of J7a.

Figure 4.7 : Flow Difference in Option A vs Base Year - AM



#### 4.4 Spatial Option Flow Comparisons – wider Harlow area

This section considers the flow differences between each spatial scenario (Option B, C, D and E) compared to Option A to gain a better understanding of the local differences between the options and their impacts. For simplicity only the AM peak hour modelling is discussed.

Extracts from Table 2.3 above, showing the key development differences between each of the options, are included for each comparison.

##### 4.4.1 Option B vs Option A

Table 4.1 Differences in housing development numbers and locations between Options A and B

District	East Herts	Harlow		Epping Forest				Wider Harlow total	HMA total
Site	Gilston	Rest of Harlow	East Harlow	Latton Priory	West Sumners	West Katherines	East Harlow		
Location	North	n/a	East	South	South-west	South-west	East		
Option A	2,750	5,700	1,500	1,250	1,000	750	500	13,450	40,905
Option B	1,250	5,700	1,500	1,350	0	0	0	9,800	40,755
Difference to Option A	-1,500	0	0	+100	-1,000	-750	-500	-3,650	-150

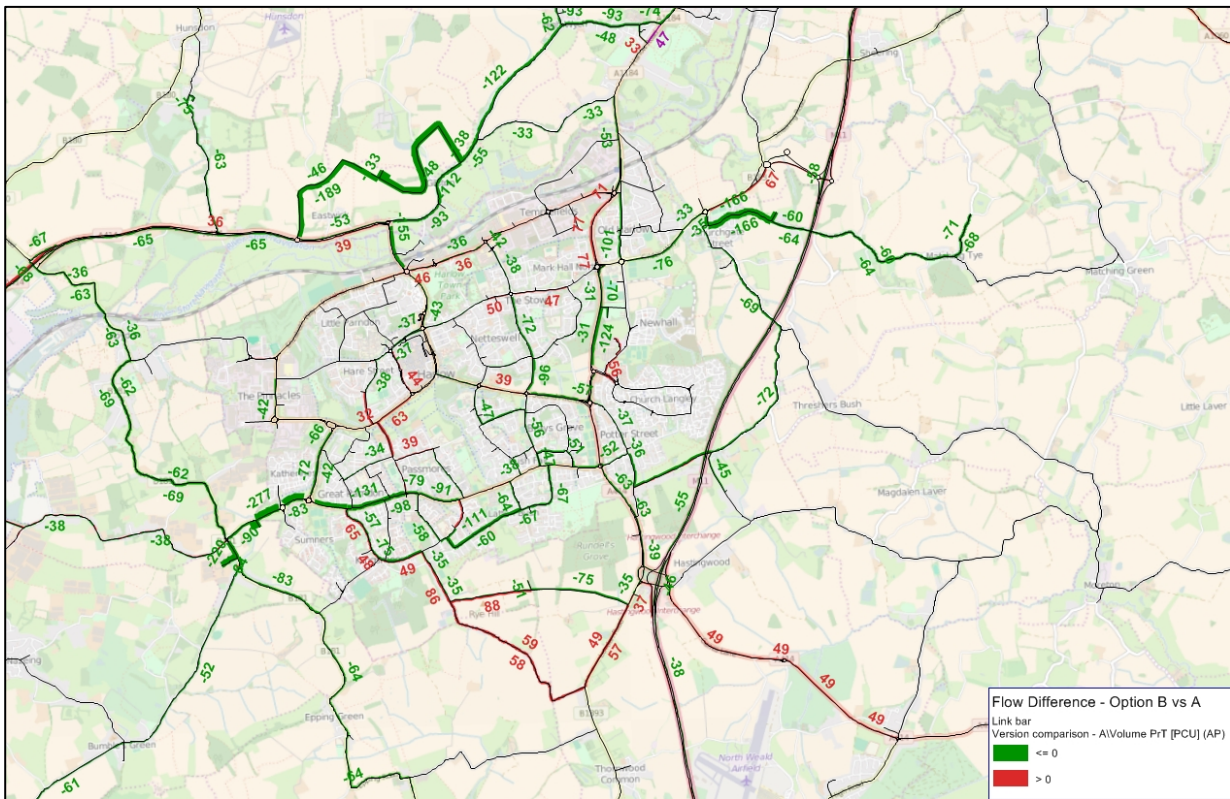
Option B has fewer homes than Option A at Gilston, West Sumners, West Katherines and East Harlow. There is a small increase in the number of homes at Latton Priory. The other sites have the same numbers of homes for both options. There are 3,650 fewer homes in total for Option B compared to Option A for the wider Harlow area and 150 fewer for the HMA as a whole.

Table 4.2 Differences in job numbers between development sites for Options A and B

Development site									
Site	Latton Priory Farm	Harlow EZ – London Road North	PHE – The Pinnacles	Latton Park	Harlow EZ – Templefields North East	East Harlow	Harlow EZ – London Road South	Harlow Park Nursery	Southfield Nursery
Location	South	East	West	South- east	North-east	East	East	South- east	South-west
Option A	2,045	3,000	3,000	1,842	1,479	1,364	1,052	784,	72
Option B	2,209	3,000	3,000	921	1,479	0	1,052	784	72
Difference to Option A	+164	0	0	-921	0	-1,364	0	0	0

With regard to the strategic housing development sites in this spatial option, the Gilston development traffic is evident to the north of Harlow, as is the Latton Priory development in the south of Harlow and that of West Katherines and Sumners in the south and west. The latter also showing the impact of the Public Health England employment site at the Pinnacles. The impact of the various committed and proposed east Harlow sites together with the Enterprise Zone employment growth on the eastern side of Harlow is more difficult to identify due to traffic reassignment as a consequence of J7a. From these option differences it can be assumed that there would be reductions or reassignment of flows in the north, south-west, south-east and east of Harlow, which is borne out by the changes shown in Figure 4.8.

Figure 4.8: Flow Difference between Option B vs Option A - AM



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#### 4.4.2 Option C vs Option A

Table 4.3 Differences in housing development numbers and locations between Options A and C

District	East Herts	Harlow		Epping Forest				Wider Harlow total	HMA total
Site	Gilston	Rest of Harlow	East Harlow	Latton Priory	West Sumners	West Katherines	East Harlow		
Location	North	n/a	East	South	South-west	South-west	East		
Option A	2,750	5,700	1,500	1,250	1,000	750	500	13,450	40,905
Option C	1,250	5,700	1,500	350	1,000	0	0	9,800	40,255
Difference to Option A	-1,500	0	0	-900	0	-750	-500	-3,650	-650

Like Option B, Option C has 3,650 fewer homes in the wider Harlow area than Option A, the reductions being at Gilston, Latton Priory, West Katherines and East Harlow (EFDC). Again, the reductions are spread around the

town, in the north, south, south-west and east. There are only 650 fewer homes across the whole HMA, reflecting both the wider spatial variation and the fact that Option C is one of the lowest growth options tested.

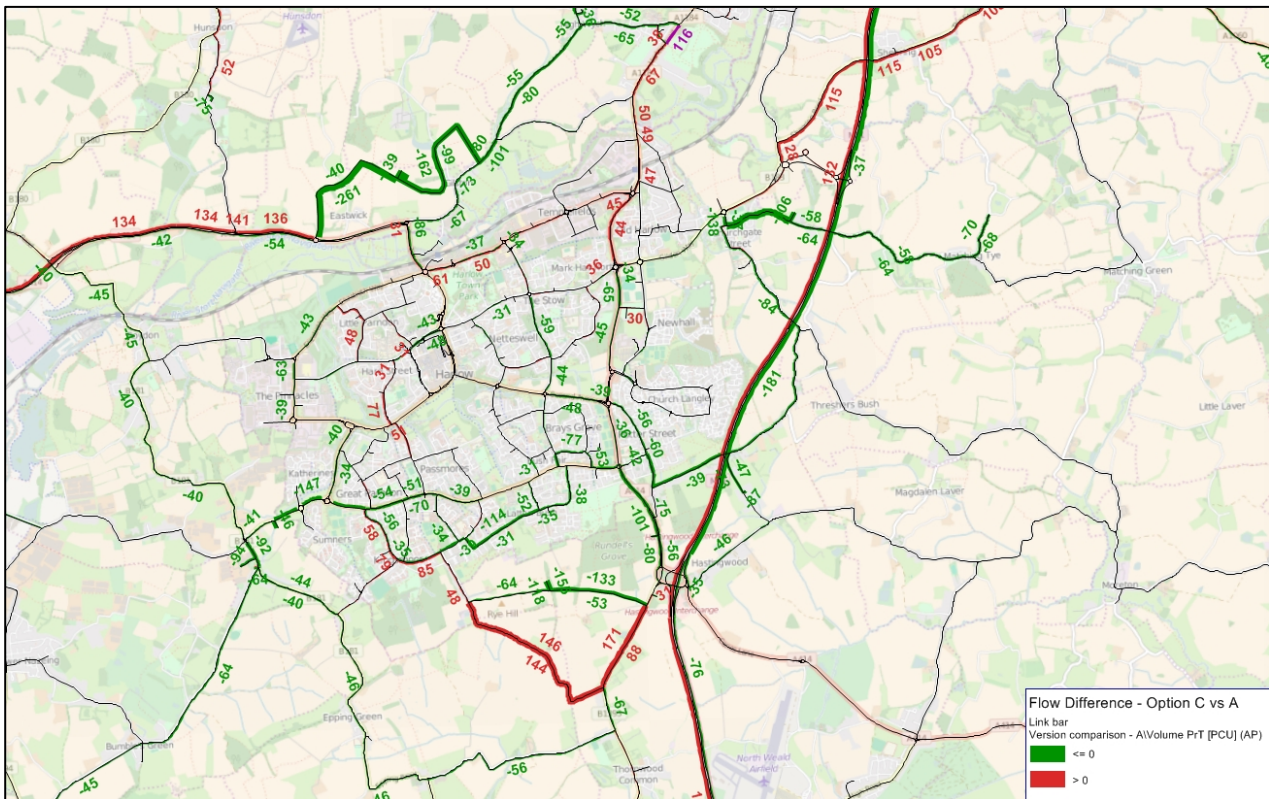
Table 4.4 Differences in job numbers between development sites for Options A and C

Development site									
	Latton Priory Farm	Harlow EZ – London Road North	PHE– The Pinnacles	Latton Park	Harlow EZ – Templefields North East	East Harlow	Harlow EZ – London Road South	Harlow Park Nursery	Southfield Nursery
Location	South	East	West	South- east	North-east	East	East	South- east	South-west
Option A	2,045	3,000	3,000	1,842	1,479	1,364	1,052	784,	72
Option C	573	3,000	3,000	1,842	1,479	0	1,052	784	72
Difference to Option A	-1,472	0	0	0	0	-1,364	0	0	0

Option C has a much reduced level of jobs at Latton Priory Farm and those at East Harlow are completely removed compared to Option A, resulting in a reduction of 2,800 jobs. This would be expected to reduce flows in both the south and east of the town. All other employment developments in the wider Harlow area and across the HMA are the same for both options.

From this it can be assumed that there would be fewer trips all around the town, but that the reduction of jobs could result in some reassignment of trips to elsewhere in the network. This is reflected in Figure 4.9 which shows the reductions in flows in the vicinity of Gilston, East Harlow and the sites to the south and south-west. The reduction in jobs has led to reassignment of trips particularly in the east and south, with increases on some links. The increases in the north are likely to be due to housing site locations on the wider network, i.e. at Little Hadham and on the A602 corridor.

Figure 4.9 Flow Difference between Option C vs Option A - AM



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#### 4.4.3 Option D vs Option A

Table 4.5 Differences in housing development numbers and locations between Options A and D

District	East Herts	Harlow		Epping Forest				Wider Harlow total	HMA total
Site	Gilston	Rest of Harlow	East Harlow	Latton Priory	West Sumners	West Katherines	East Harlow		
Location	North	n/a	East	South	South-west	South-west	East		
Option A	2,750	5,700	1,500	1,250	1,000	750	500	13,450	40,905
Option D	4,350	5,700	1,500	2,000	1,100	800	1,500	16,966	39,346
Difference to Option A	+1,600	0	0	+750	+100	+50	+1,000	+3,500	-1,559

Option D is one of the spatial options that has highest growth in the wider Harlow area at around 17,000 homes, with the additional 3,500 spread across most of the strategic sites, although the overall growth across the whole SHMA area has 1,559 fewer homes than for Option A. The reduction in overall growth is due to removal of some housing sites in both East Herts and Epping Forest districts.

Table 4.6 Differences in job numbers between development sites for Options A and D

Development site									
	<b>Latton Priory Farm</b>	<b>Harlow EZ – London Road North</b>	<b>PHE – The Pinnacles</b>	<b>Latton Park</b>	<b>Harlow EZ – Templefields North East</b>	<b>East Harlow</b>	<b>Harlow EZ – London Road South</b>	<b>Harlow Park Nursery</b>	<b>Southfield Nursery</b>
Location	South	East	West	South-east	North-East	East	East	South-east	South-west
Option A	2,045	3,000	3,000	1,842	1,479	1,364	1,052	784,	72
Option D	3,273	3,000	3,000	1,842	1,479	1,364	1,052	784	72
Difference to Option A	+1,228	0	0	0	0	0	0	0	0

Option D also has the highest level of jobs in the wider Harlow area (as does Option E), with an additional 1,228 jobs, all located at Latton Priory Farm, in the south of the town. However, across the whole SHMA area, there are 1,300 fewer jobs than with Option A, due to removal of some employment sites in both East Herts and Epping Forest Districts.

The higher level of localised growth in Option D would be expected to lead to overall increases in flows across the Harlow network, with a greater propensity for traffic to reassign to less suitable routes to avoid the most congested areas on the network. This is illustrated in Figure 4.10. The modelling is indicating that Gilden Way junctions would experience significant congestion, particularly at the London Road roundabout, which results in traffic avoiding this route completely, hence the apparent reduction in flows on this link. There are corresponding increases to the south-east of the town, where traffic appears to be using minor routes but also indicates that motorway traffic is avoiding J7a/Gilden Way and using J7 instead. There are also increases to the north, where some traffic may be reassigning away from the M11 onto the A1184 through Sawbridgeworth.

It should be noted that Option D includes 3,000 homes and 1,364 jobs on the East Harlow site. The issues highlighted by this option testing has resulted in further investigations of the Gilden Way corridor and the likely scale and impacts of the east Harlow site, which have been reported by ECC and Jacobs in Technical Note 5.

**Flow Difference - Option D vs A**

Link bar  
Version comparison - aVolume PRT [PCU] (AP)

Green:  $\leq 0$   
Red:  $> 0$

#### **4.4.4 Option E vs Option A**

District	East Herts	Harlow		Epping Forest				Wider Harlow total	HMA total
Site	Gilston	Rest of Harlow	East Harlow	Latton Priory	West Sumners	West Katherines	East Harlow		
Location	North	n/a	East	South	South-west	South-west	East		
Option A	2,750	5,700	1,500	1,250	1,000	750	500	13,450	40,905
Option E	4,350	5,700	1,500	2,000	1,100	800	1,500	16,966	44,405
Difference to Option A	+1,600	0	0	+750	+100	+50	+1,000	+3,500	+3,500

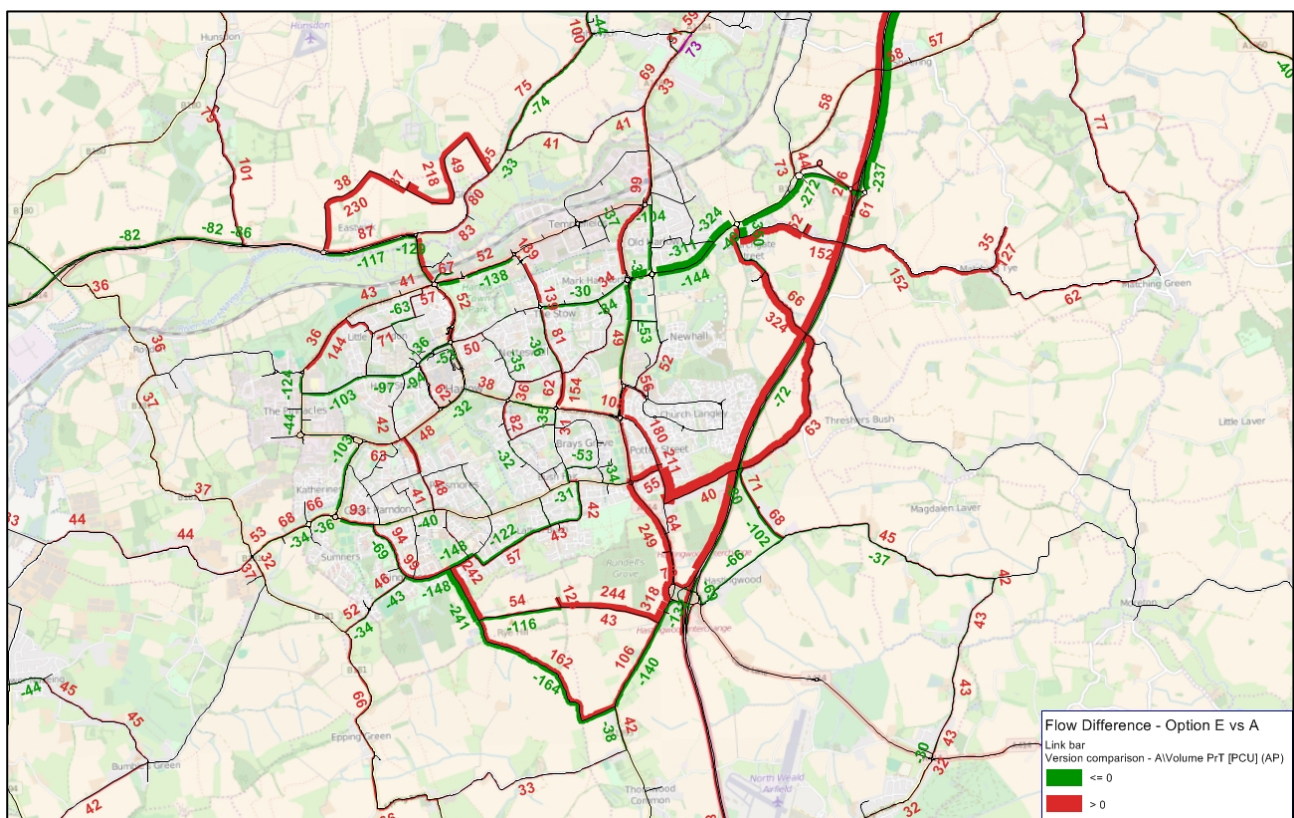
33

Table 4.8 Differences in job numbers between development sites for Options A and E

Development site									
	Latton Priory Farm	Harlow EZ – London Road North	PHE – The Pinnacles	Latton Park	Harlow EZ – Templefields North East	East Harlow	Harlow EZ – London Road South	Harlow Park Nursery	Southfield Nursery
Location	South	East	West	South- east	North-East	East	East	South- east	South-west
Option A	2,045	3,000	3,000	1,842	1,479	1,364	1,052	784	72
Option E	3,273	3,000	3,000	1,842	1,479	1,364	1,052	784	72
Difference to Option A	1,228	0	0	0	0	0	0	0	0

In the wider Harlow area the number and location of both homes and jobs in Option E are the same as for Option D and so the impact on this area of the model is very similar for the two options, which is illustrated in Figure 4.11.

Figure 4.11: Flow Difference between Option E vs Option A - AM



## 5. Harlow Journey Time Differences

Modelled journey times were compared for the following six routes within Harlow in order to better study any detailed differences between the spatial options:

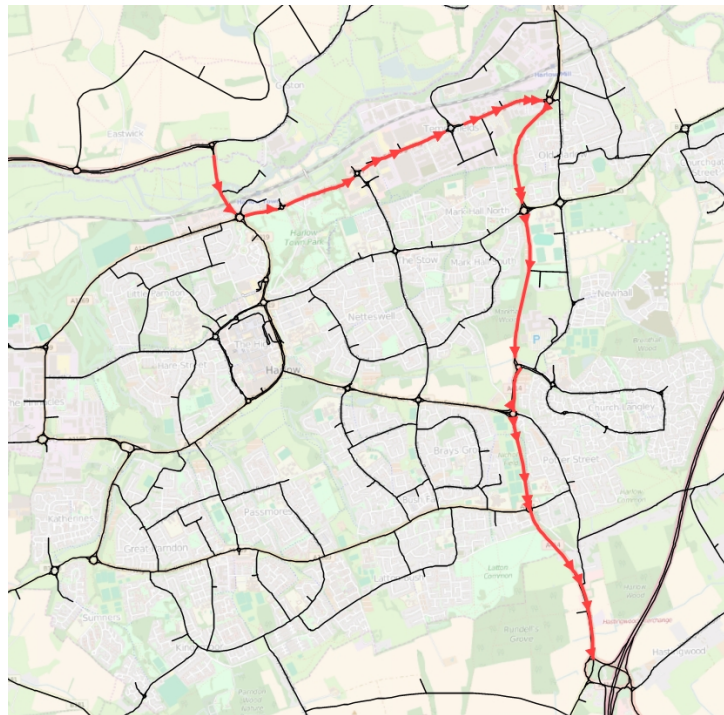
- 5.1 – Eastwick Road to Junction 7 M11 via Edinburgh Way and A414;
- 5.2– Eastwick Road to Junction 7 M11 via A1019 and A1025;
- 5.3 – The Pinnacles, Fourth Avenue to Hatfield Heath via First Avenue and B183;
- 5.4 – Bishop's Stortford to Junction 7 M11 via A1184 and A414;
- 5.5 – Nazeing Common to A414 via A1025; and
- 5.6 – Fifth Avenue to A414 via Elizabeth Way and A1169.

This section contains the route maps and tabulated and graphed cumulative journey times for each route for the base year and the five options A to E. Journey times would be expected to increase in the future with the level of growth that will take place in and around Harlow over the next 15 years, the next Local Plans period. This section comments on the key differences between each of the spatial options and on the overall change compared to the base year – by comparing the junction-by-junction journey times of each option compared to the base case it is possible to highlight the areas of the network that are likely to be most congested in the future and that may therefore require further study (ie identification and development of mitigation measures). This would be done using more detailed forms of highway modelling (e.g. individual junction modelling and micro-simulation modelling) .

### 5.1 Eastwick Road to J7 M11 via Edinburgh Way and A414

The A414 through route between the Eastwick roundabout and the M11 J7 along Edinburgh Way is shown in Figure 5.1. The journey time data southbound is shown in Table 5.1 and graphically in Figure 5.2. It should be noted that the northbound direction has the slowest journey times during the AM peak.

Figure 5.1 Route: Eastwick to M11 J7 via A414



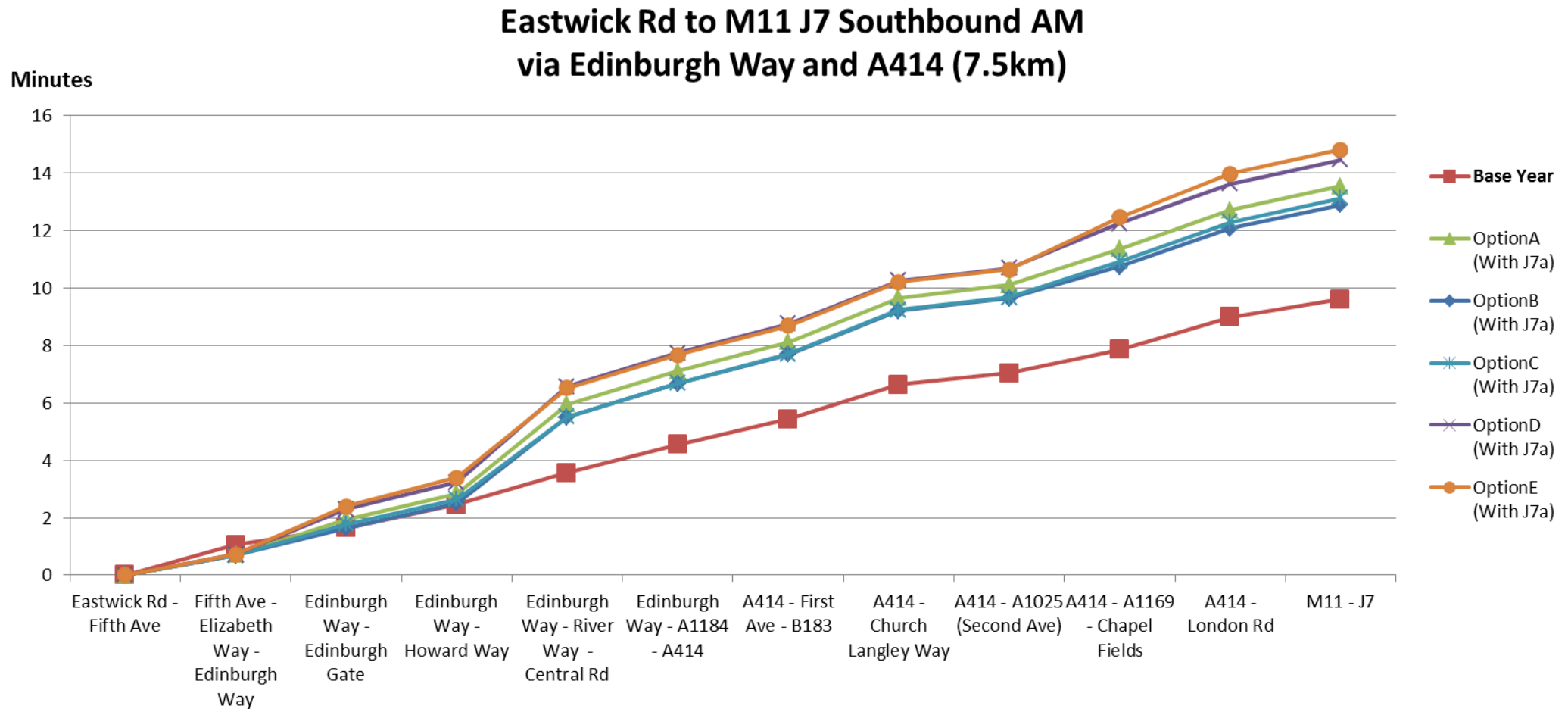
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Table 5.1 Total journey times (minutes) Eastwick Rd to M11 J7 Southbound AM via Edinburgh Way and A414 (7.5km)

	Base Year	OptionA (With J7a)	OptionB (With J7a)	OptionC (With J7a)	OptionD (With J7a)	OptionE (With J7a)
Eastwick Rd - Fifth Ave	0.00	0.00	0.00	0.00	0.00	0.00
Fifth Ave - Elizabeth Way - Edinburgh Way	1.05	0.70	0.69	0.69	0.72	0.72
Edinburgh Way - Edinburgh Gate	1.64	1.94	1.64	1.78	2.29	2.40
Edinburgh Way - Howard Way	2.45	2.85	2.51	2.64	3.23	3.40
Edinburgh Way - River Way - Central Rd	3.56	5.94	5.49	5.52	6.56	6.52
A414 Edinburgh Way - A1184 Cambridge Road	4.55	7.11	6.67	6.69	7.73	7.67
A414 - First Ave - B183	5.44	8.12	7.69	7.71	8.75	8.69
A414 - Church Langley Way	6.64	9.67	9.21	9.24	10.26	10.21
A414 - A1025 (Second Ave)	7.04	10.10	9.64	9.68	10.69	10.65
A414 - A1169 Southern Way	7.85	11.36	10.74	10.92	12.25	12.46
A414 - London Rd	8.99	12.71	12.08	12.30	13.64	13.99
M11 - J7	9.61	13.54	12.90	13.13	14.47	14.82
Increase over base year (minutes)		3.93	3.29	3.52	4.86	5.21
% increase over base year		41%	34%	37%	51%	54%

Table 5.1 shows that for the AM peak hour, journey times in the southbound direction are all expected to increase over the base year by at least 34%, with the increases in excess of 50% for both Options D and E. All journeys would be expected to take at least 3 minutes longer in 2033 than the 2014 base year with the greatest increases of around 5 minutes for Options D and E. Option B, which has the least impact on the journey times, has least development at Gilston, which would directly affect this route.

Figure 5.2: Comparison of journey times for Eastwick Rd to M11 J7 Southbound AM via Edinburgh Way and A414



There is a marked increase compared to the base year along A414 Edinburgh Way between the Howard Way and River Way / Central Road junctions – this suggests that this part of the network in particular is likely to experience increased congestion in the future. There is likely to be another smaller increase between the Second Avenue and Southern Way junctions for both options D and E. It would appear that the higher growth at Gilston (4,350 homes) in these options adds about a minute to the journeys on this route. Other than in these particular locations each of the Options have a similar journey time patterns.

The journey time data northbound is shown in Table 5.2 and graphically in Figure 5.3. It should be noted that journey times for this direction are slower than for the southbound direction.

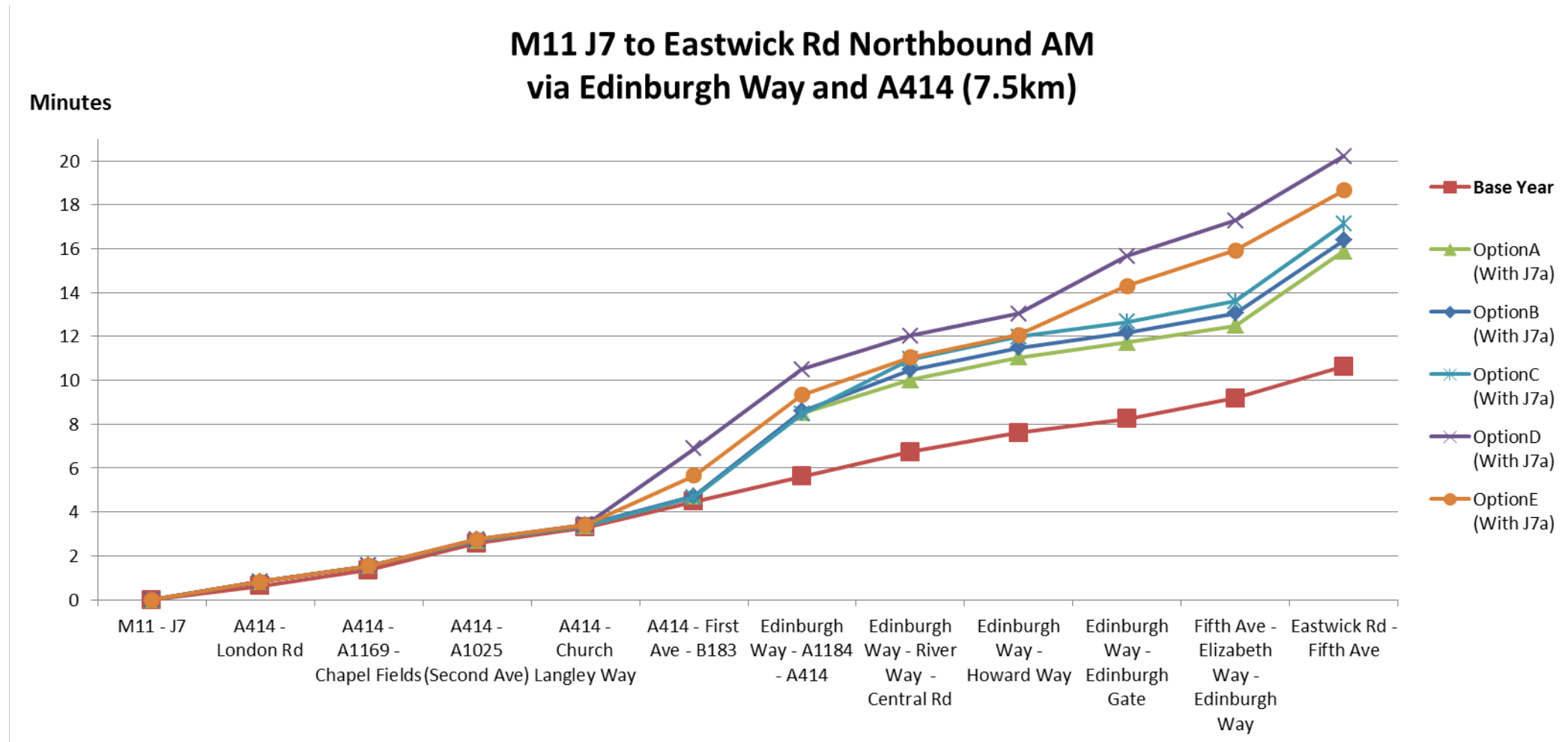
Table 5.2 Total journey times (minutes) for M11 J7 to Eastwick Road Northbound AM via Edinburgh Way and A414 (7.5km)

	Base Year	OptionA (With J7a)	OptionB (With J7a)	OptionC (With J7a)	OptionD (With J7a)	OptionE (With J7a)
M11 - J7	0.00	0.00	0.00	0.00	0.00	0.00
A414 - London Rd	0.62	0.83	0.83	0.83	0.83	0.83
A414 - A1169 - Chapel Fields	1.34	1.55	1.55	1.55	1.55	1.55
A414 - A1025 (Second Ave)	2.57	2.71	2.72	2.70	2.76	2.74
A414 - Church Langley Way	3.30	3.37	3.40	3.35	3.42	3.41
A414 - First Ave - B183	4.48	4.70	4.72	4.67	6.88	5.66
Edinburgh Way - A1184 - A414	5.62	8.51	8.59	8.46	10.49	9.34
Edinburgh Way - River Way - Central Rd	6.74	10.02	10.47	10.96	12.03	11.05
Edinburgh Way - Howard Way	7.61	11.03	11.49	11.98	13.03	12.07
Edinburgh Way - Edinburgh Gate	8.24	11.71	12.17	12.66	15.66	14.30
Fifth Ave - Elizabeth Way - Edinburgh Way	9.19	12.49	13.06	13.60	17.28	15.93
Eastwick Rd - Fifth Ave	10.63	15.88	16.38	17.12	20.22	18.66
Increase over base year (minutes)		5.25	5.75	6.49	9.59	8.03
% increase over base year		49%	54%	61%	90%	76%

Table 5.2 shows that for the AM peak hour, journey times in the northbound direction are all expected to increase over the base year by at least 49%, with Option D increasing by 90%. All journeys would be likely to take at least 5 minutes longer in 2033 than in the 2014 base year with the greatest increases for Options D and E, which are both in excess of 8 minutes.

The graph in Figure 5.3 indicates clearly that the likely delays in this route when compared to the 2014 base year occur between the A414 –Church Langley Way and Edinburgh Way – A1184 – A414 junctions, in particular at the B183 junction. This is likely to be the result of a number of elements: additional committed and proposed development in this area, a new signal controlled junction on the A414 for the Enterprise Zone, and additional traffic that would reassign to Gilden Way once J7a is in place. The journey times for Options D and E also show a further increase along Edinburgh Way from the Howard Way junction to Fifth Avenue.

Figure 5.3 : Comparison of journey times for Options A – E M11 J7 to Eastwick Road Northbound AM



As previously stated, the northbound direction for this route is the slowest, probably as a result of the greater level of traffic entering the town from the south via either the A414 or the M11 in the AM peak hour. The northbound journey times are virtually identical for the base and all of the spatial options until the new signalised junction for the Enterprise Zone. This is likely to be the result of the relief that J7a will provide on the southern end of this corridor, with traffic heading for the north and east of Harlow reassigning to the new junction instead of using this section of the A414. Any savings are then offset with additional delays as a result of the higher traffic flows on the remainder of the route. Options D and E journey times are both likely to be 2-3 minutes slower than the other options.

## 5.2 Eastwick Road to J7 M11 via A1019 and A1025 Second Avenue

The through route between the A414 at Eastwick and the M11 J7 via A1025 Second Avenue is shown at Figure 5.4. In all spatial options this route is likely to become more congested as a result of growth within and around Harlow.

Journey time data southbound is shown in Table 5.3 and graphically in Figure 5.5.

Figure 5.4 Route: Eastwick to M11 J7 via A1019 and A1025 Second Avenue



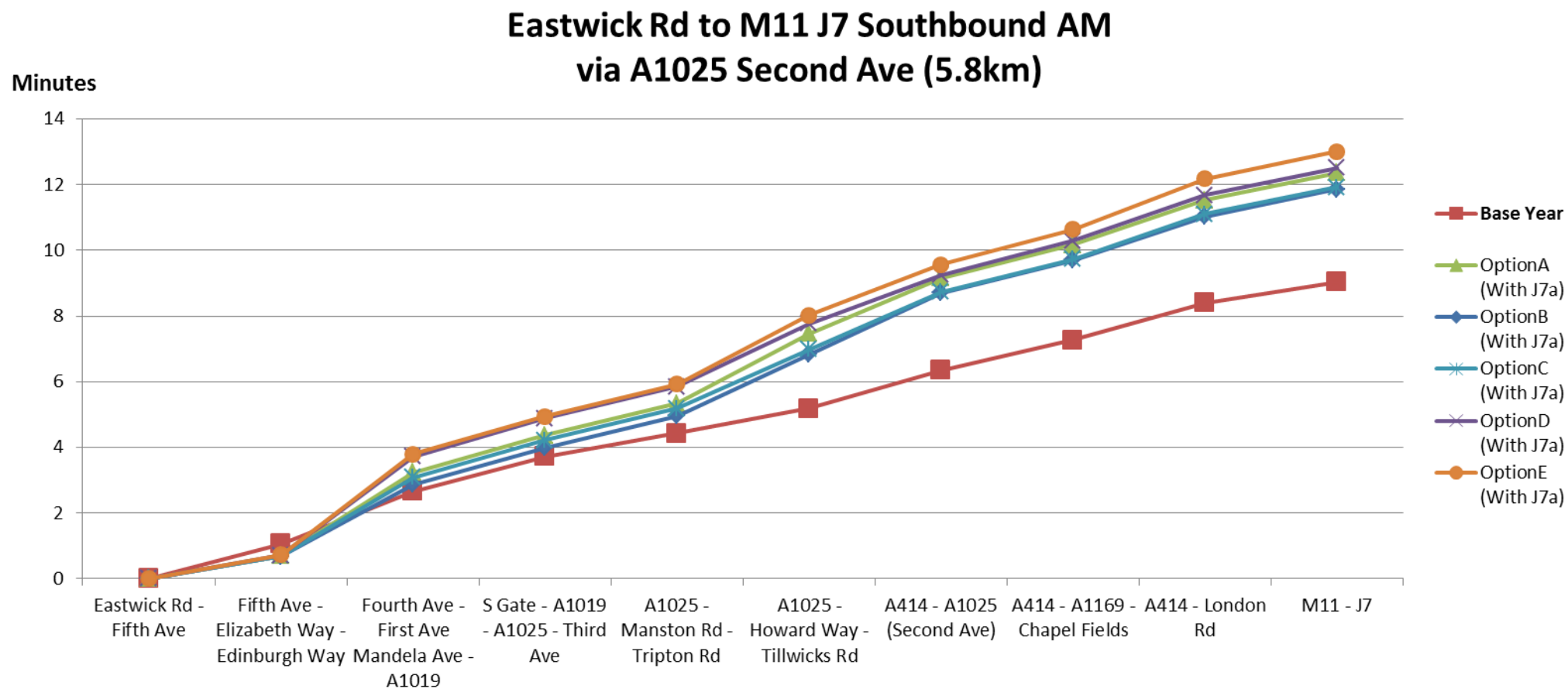
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Table 5.3 Total journey times (minutes) for Eastwick Rd to M11 J7 Southbound AM via A1025 Second Ave (5.8km)

	Base Year	OptionA (With J7a)	OptionB (With J7a)	OptionC (With J7a)	OptionD (With J7a)	OptionE (With J7a)
Eastwick Rd - Fifth Ave	0.00	0.00	0.00	0.00	0.00	0.00
Fifth Ave - Elizabeth Way - Edinburgh Way	1.05	0.70	0.69	0.69	0.72	0.72
Fourth Ave - First Ave Mandela Ave - A1019	2.66	3.24	2.87	3.09	3.73	3.80
S Gate - A1019 - A1025 - Third Ave	3.73	4.36	3.99	4.22	4.88	4.95
A1025 - Manston Rd - Tripton Rd	4.43	5.33	4.95	5.19	5.85	5.92
A1025 - Howard Way - Tillwicks Rd	5.19	7.46	6.83	6.98	7.77	8.03
A414 - A1025 (Second Ave)	6.35	9.16	8.71	8.73	9.25	9.57
A414 - A1169 Southern Way	7.27	10.17	9.70	9.72	10.30	10.64
A414 - London Rd	8.41	11.52	11.03	11.10	11.68	12.17
M11 - J7	9.03	12.35	11.86	11.93	12.51	13.00
Increase over base year (minutes)		3.32	2.83	2.9	3.48	3.97
% increase over base year		37%	31%	32%	39%	44%

Table 5.3 shows that for the AM peak hour, journey times in the southbound direction are all expected to increase over the base year by between 31-44%. All journeys take approximately 3-4 minutes longer than the base year with the greatest increase for Options D and E.

Figure 5.5: Comparison of journey times for Options A – E Eastwick Road to Junction 7 M11 via A1025 Second Avenue Southbound AM



All five options are broadly similar to each other and the base year until the junction of the A1025 Second Avenue with Manston Road and Tripton Road. After this point, all of the Options have an increased journey time compared to the base year..

There are likely to be southbound delays for all the spatial options along A1025 Second Avenue, particularly at Manston Road and Tripton Road with all of the options showing longer journey times than the 2014 base year.

Journey time data northbound is shown in Table 5.4 and graphically in Figure 5.6.

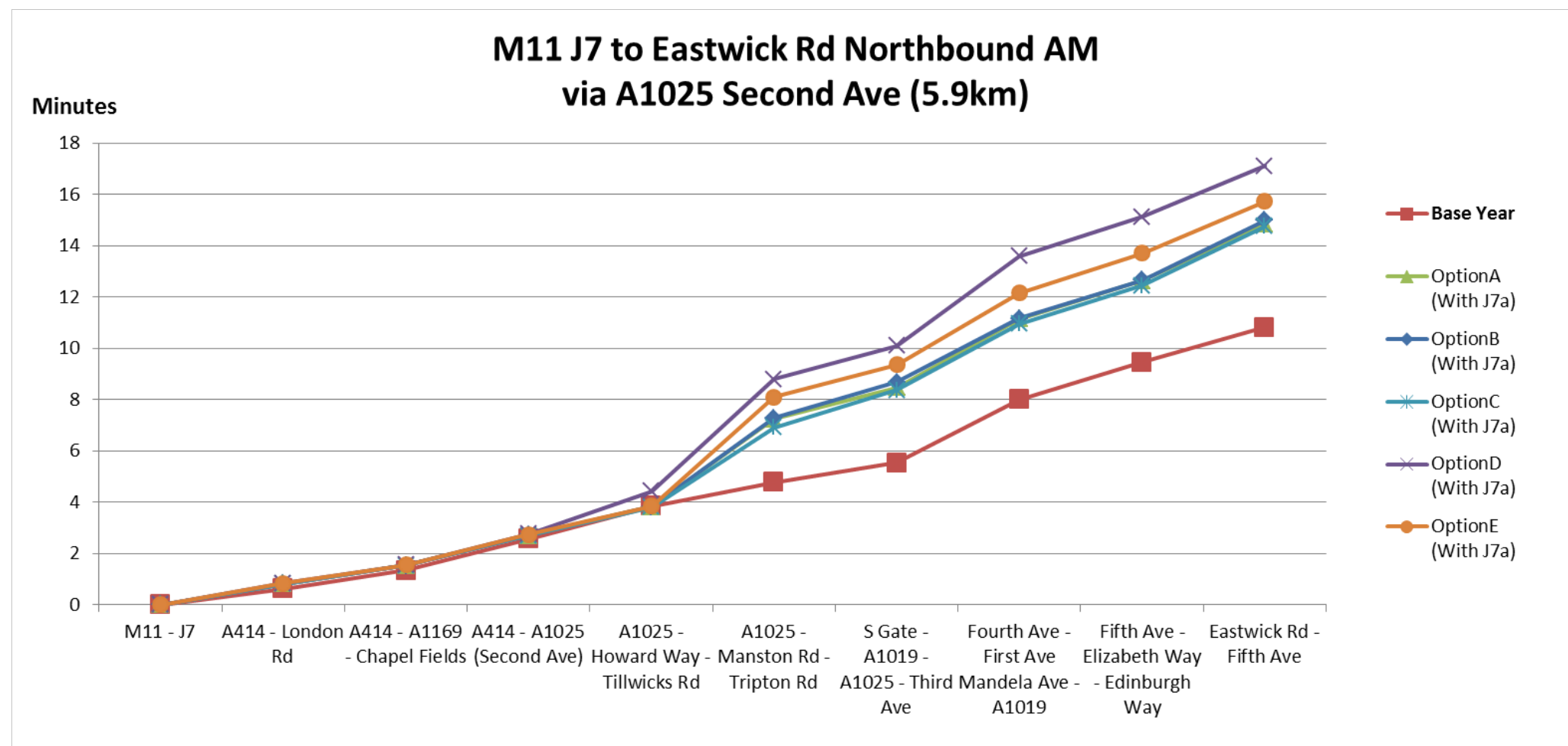
Table 5.4 Total journey times (minutes) M11 J7 to Eastwick Rd Northbound AM via A1025 Second Ave (5.9km)

	Base Year	OptionA (With J7a)	OptionB (With J7a)	OptionC (With J7a)	OptionD (With J7a)	OptionE (With J7a)
M11 - J7	0.00	0.00	0.00	0.00	0.00	0.00
A414 - London Rd	0.62	0.83	0.83	0.83	0.83	0.83
A414 - A1169 Southern Way	1.34	1.55	1.55	1.55	1.55	1.55
A414 - A1025 (Second Ave)	2.57	2.71	2.72	2.70	2.76	2.74
A1025 - Howard Way - Tillwicks Rd	3.86	3.82	3.83	3.81	4.43	3.85
A1025 - Manston Rd - Tripton Rd	4.78	7.24	7.29	6.92	8.80	8.11
S Gate - A1019 - A1025 - Third Ave	5.54	8.47	8.68	8.38	10.11	9.37
Fourth Ave - First Ave Mandela Ave - A1019	8.01	11.16	11.17	10.95	13.60	12.16
Fifth Ave - Elizabeth Way - Edinburgh Way	9.45	12.66	12.67	12.45	15.13	13.72
Eastwick Rd - Fifth Ave	10.81	14.84	15.01	14.76	17.12	15.74
Increase over base year (minutes)		4.03	4.2	3.95	6.31	4.93
% increase over base year		37%	39%	37%	58%	46%

Table 5.4 indicates that the journey times for all five options are longer than for the base year by between 37-58%. Options A, B, C and E are broadly similar with additional journey times of around 3 minutes with Option D having the longest journey time with an additional 6 minutes.

Figure 5.6 indicates that the increase in journey time for all of the five options arises along the A1025 Second Avenue, particularly between the Howard Way and Tillwicks Road junction and the Manston Road and Tripton road junction. The journey times for the remainder of the route mirror that of the 2014 base year.

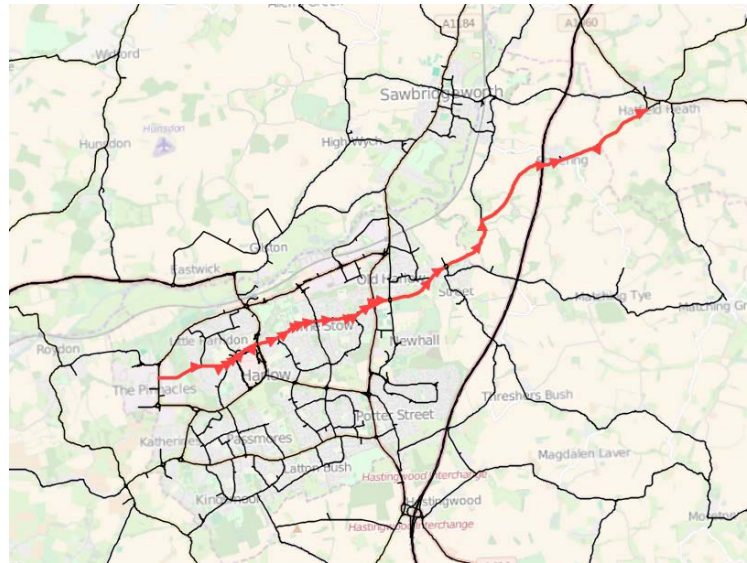
Figure 5.6 : Comparison of journey times for Options A – E Eastwick Road to Junction 7 M11 via A1025 Second Avenue Northbound AM



### 5.3 The Pinnacles to Hatfield Heath via First Avenue and B183

The east-west route between The Pinnacles and Hatfield Heath via Fourth Avenue, First Avenue and the B183 is illustrated in Figure 5.7. The journey time data eastbound is shown in Table 5.5 and graphically in Figure 5.8. In the AM peak hour, this would be expected to be the least busy direction as generally traffic would be heading in the other direction, towards the town centre and the Pinnacles business district.

Figure 5.7 Route: The Pinnacles to Hatfield Heath via B183 / Fourth Avenue



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Table 5.5 Total journey times (minutes) Fourth Ave to Hatfield Heath Eastbound AM via First Ave and B183 (10.8km)

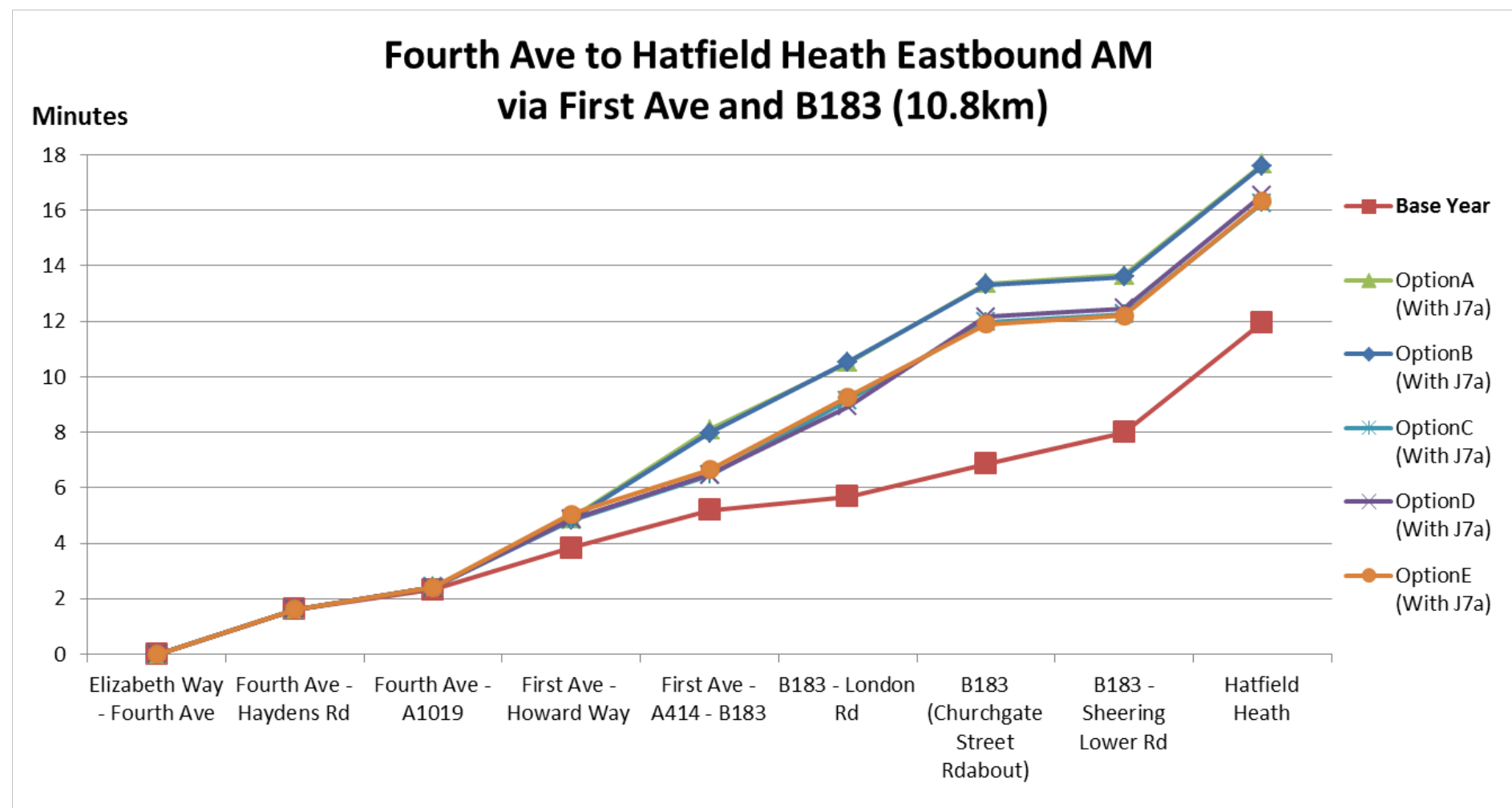
	Base Year	OptionA (With J7a)	OptionB (With J7a)	OptionC (With J7a)	OptionD (With J7a)	OptionE (With J7a)
Elizabeth Way - Fourth Ave	0.00	0.00	0.00	0.00	0.00	0.00
Fourth Ave - Haydens Rd	1.63	1.63	1.63	1.63	1.63	1.63
Fourth Ave - A1019	2.33	2.43	2.42	2.43	2.41	2.42
First Ave - Howard Way	3.84	4.89	4.86	4.82	4.88	5.06
First Ave - A414 - B183	5.20	8.11	7.98	6.45	6.48	6.65
B183 - London Rd	5.68	10.53	10.54	9.16	8.92	9.27
B183 (Churchgate Street	6.87	13.37	13.32	11.97	12.17	11.90
B183 - Sheering Lower Rd	8.00	13.66	13.61	12.27	12.47	12.19
Hatfield Heath	11.96	17.66	17.61	16.27	16.54	16.32
Increase over base year (minutes)		5.7	5.65	4.31	4.58	4.36
% increase over base year		47%	47%	36%	38%	36%

Table 5.5 indicates that all Options have longer journey times than the base year with an increase of at least 36%, corresponding to increases of 4-5 minutes. Unlike the routes reported previously, Options A and B show the greatest increases in journey times, at 47%. The delays start to increase along First Avenue, with the A414/B183 junction showing further increases, as would be expected due to the elements previously referred to: additional committed and proposed development in the east of Harlow, and the presence of the new J7a,

which would both be likely to lead to increases in traffic on this route. The location of the strategic sites for Options A and B do not provide any particular clues as to why these are the slowest options on this route; Option A has higher development at Gilston and Option B has more development to the south-west, neither of which would have evident impacts on this corridor.

It should be noted that since this modelling was undertaken (in March 2016), further junction improvements have been identified, particularly on Gilden Way at London Road and at Churchgate Street, which would be expected to help to improve journey times along the eastern end of this route.

Figure 5.8 Comparison of journey times for Options A - E Hatfield Heath to Fourth Avenue Eastbound AM



The journey time data westbound is shown in in Table 5.6 and graphically in Figure 5.9. In the AM peak hour, this would be expected to be the busiest direction as traffic would be heading towards the town centre and the Pinnacles business district. This would be exacerbated in all of the spatial options by the new J7a, which will result in significant increases in traffic on this route.

Table 5.6 Total journey times (minutes) for Hatfield Heath to Fourth Ave Westbound AM via B183 and First Ave (10.8km)

	Base Year	OptionA (With J7a)	OptionB (With J7a)	OptionC (With J7a)	OptionD (With J7a)	OptionE (With J7a)
Hatfield Heath	0.00	0.00	0.00	0.00	0.00	0.00
B183 - Sheering Lower Rd	4.59	4.59	4.64	4.88	4.53	4.65
B183 (Churchgate Street Rdabout)	5.77	6.15	6.21	6.46	7.40	6.17
B183 - London Rd	6.99	7.62	8.30	7.97	9.33	8.93
First Ave - A414 - B183	7.28	9.16	9.61	9.46	10.40	10.13
First Ave - Howard Way	8.78	12.72	12.95	11.66	13.47	13.90
Fourth Ave - A1019	10.72	17.27	18.05	16.32	17.97	17.16
Fourth Ave - Haydens Rd	12.36	19.41	20.18	18.45	20.29	19.64
Elizabeth Way - Fourth Ave	14.06	25.73	25.23	24.06	25.21	25.68
Increase over base year (minutes)		11.67	11.17	10.00	11.15	11.62
% increase over base year		83%	79%	71%	79%	83%

The journey times westbound for all Options are greater than the base year by between 71-83%, and would be likely to increase by in excess of 10 minutes. Option C shows the least increase in journey times, while the other four options have broadly similar increases. The delay increases show a similar pattern for all of the spatial options, commencing from the Churchgate Street roundabout, and increasing steadily from the A414 onwards. The westbound route is slowest, reflecting it being the peak direction of travel and therefore subject to the highest flows during the AM peak hour.

Figure 5.9: Comparison of journey times for Options A - E Hatfield Heath to Fourth Avenue Westbound AM

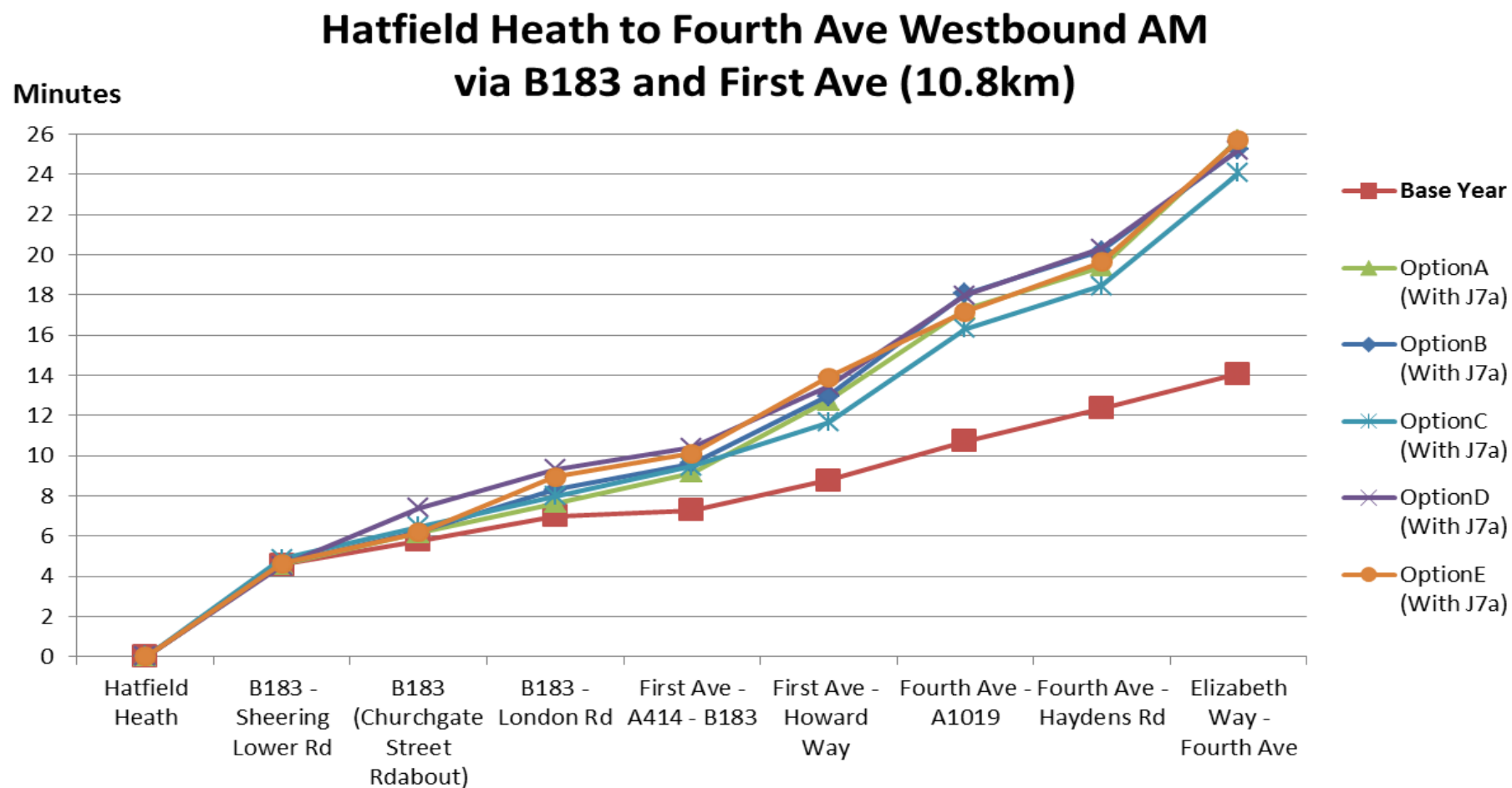




Table 5.7 Total journey times (minutes) BS Ring Road SW End to M11 J7 Southbound AM via A1184 and A414 (11.5km)

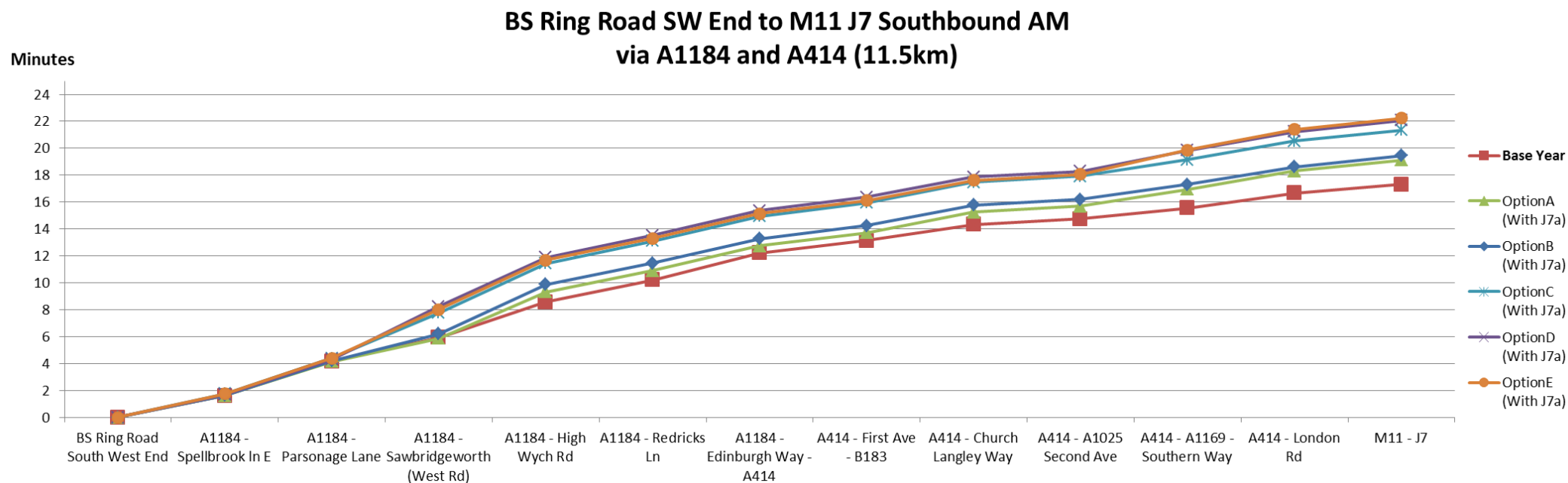
	Base Year	OptionA (With J7a)	OptionB (With J7a)	OptionC (With J7a)	OptionD (With J7a)	OptionE (With J7a)
BS Ring Road South West End	0.00	0.00	0.00	0.00	0.00	0.00
A1184 - Spellbrook In E	1.60	1.60	1.62	1.74	1.70	1.74
A1184 - Parsonage Lane	4.17	4.14	4.19	4.40	4.31	4.40
A1184 - Sawbridgeworth (West Rd)	5.93	5.88	6.20	7.77	8.24	8.02
A1184 - Hygh Wych Rd	8.57	9.32	9.88	11.44	11.89	11.68
A1184 - Redricks Ln	10.20	10.90	11.45	13.10	13.53	13.29
A1184 - Edinburgh Way - A414	12.22	12.73	13.26	14.95	15.37	15.13
A414 - First Ave - B183	13.13	13.71	14.24	15.94	16.35	16.11
A414 - Church Langley Way	14.34	15.26	15.77	17.47	17.86	17.63
A414 - A1025 Second Ave	14.73	15.69	16.19	17.91	18.30	18.07
A414 - A1169 Southern Way	15.54	16.95	17.29	19.15	19.85	19.88
A414 - London Rd	16.68	18.30	18.63	20.53	21.24	21.41
M11 - J7	17.30	19.13	19.45	21.36	22.07	22.23
Increase over base year (minutes)		1.83	2.15	4.06	4.77	4.93
% increase over base year		11%	12%	23%	28%	28%

As would be expected, all five spatial options have longer journey times than the base year, ranging from 11% for Option A to 28% for Options D and E. However, these increases are generally lower than the other routes being considered.

It should be noted that this route experiences considerable congestion and delay in the peak periods in the 2014 base year. The new M11 J7a will enable some traffic to reassign to the motorway, which will help to relieve this route and offset some of the delays which would otherwise result from the spatial options growth.

All of the options show increased delay through Sawbridgeworth, but particularly Options C, D and E. It is recognised that the A1184 junction with Station Road/West Road requires improvement, which is likely to be delivered by Local Plan development.

Figure 5.11 : Comparison of journey times for Options A – E for BS Ring Road to M11 J7 Southbound AM



The journey time data northbound is shown in Table 5.8 and graphically at Figure 5.12. While northbound is not the peak direction, journey times are only slightly quicker than those in the southbound direction in all scenarios.

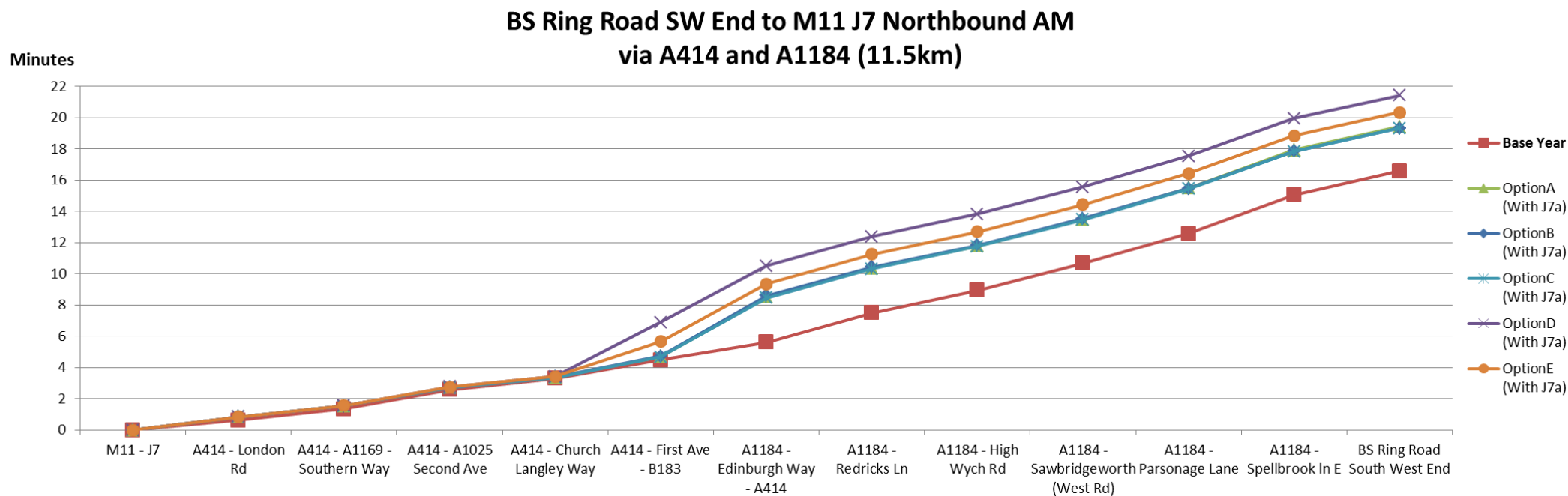
**Table 5.8 Total journey times (minutes) M11 J7 to BS Ring Road SW End Northbound AM via A414 and A1184 (11.5km)**

	Base Year	OptionA (With J7a)	OptionB (With J7a)	OptionC (With J7a)	OptionD (With J7a)	OptionE (With J7a)
M11 - J7	0.00	0.00	0.00	0.00	0.00	0.00
A414 - London Rd	0.62	0.83	0.83	0.83	0.83	0.83
A414 - A1169 - Southern Way	1.34	1.55	1.55	1.55	1.55	1.55
A414 - A1025 Second Ave	2.57	2.71	2.72	2.70	2.76	2.74
A414 - Church Langley Way	3.30	3.37	3.40	3.35	3.42	3.41
A414 - First Ave - B183	4.48	4.70	4.72	4.67	6.88	5.66
A1184 - Edinburgh Way - A414	5.62	8.51	8.59	8.46	10.49	9.34
A1184 - Redricks Ln	7.49	10.35	10.42	10.32	12.38	11.25
A1184 - Hygh Wych Rd	8.94	11.77	11.83	11.75	13.83	12.70
A1184 - Sawbridgeworth (West Rd)	10.67	13.49	13.53	13.47	15.55	14.42
A1184 - Parsonage Lane	12.58	15.48	15.47	15.44	17.54	16.42
A1184 - Thorley Wash	15.05	17.91	17.85	17.83	19.95	18.84
BS Ring Road South West End	16.57	19.41	19.32	19.31	21.42	20.33
Increase over base year (minutes)		2.84	2.75	2.74	4.85	3.76
% increase over base year		17%	17%	17%	29%	23%

Journey times would be likely to increase for all five spatial options, by between 17-29%, with corresponding increases of between 2-5 minutes, with Options D and E having the greatest increase.

Delays are shown to increase from the A414/B183 junction, worsen at the A1184/A414 junction and then show broadly similar profiles for the remainder of the route.

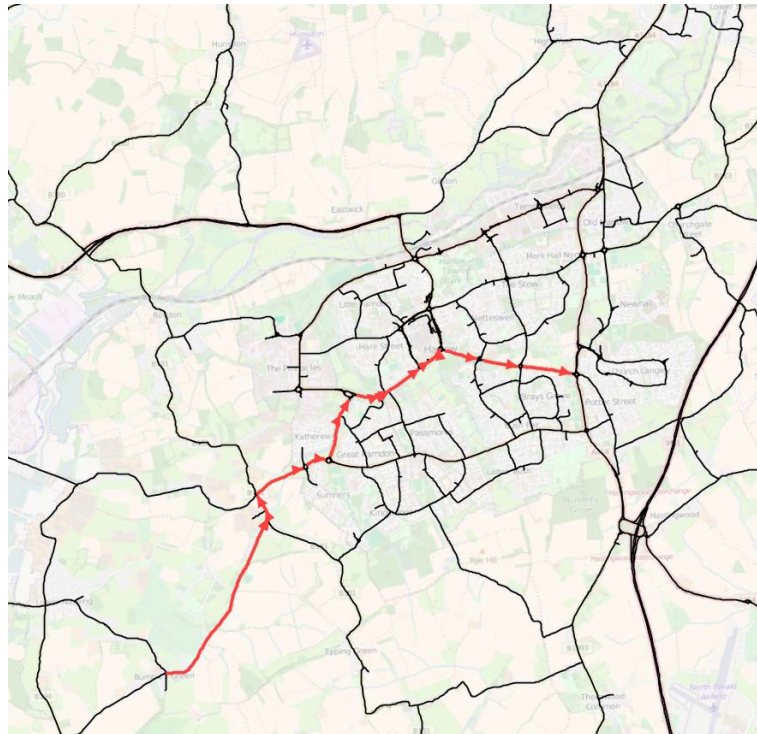
Figure 5.12 : Comparison of journey times for Options A – E BS Ring Road SW End to M11 J7 Northbound AM



## 5.5 Nazeing Common to A414 via A1025

The route between Nazeing Common and the A414 at Southern Way is shown in Figure 5.13. The journey time data eastbound is shown in Table 5.9 and graphically in Figure 5.14.

Figure 5.13: Route: Nazeing Common to A414 via A1025



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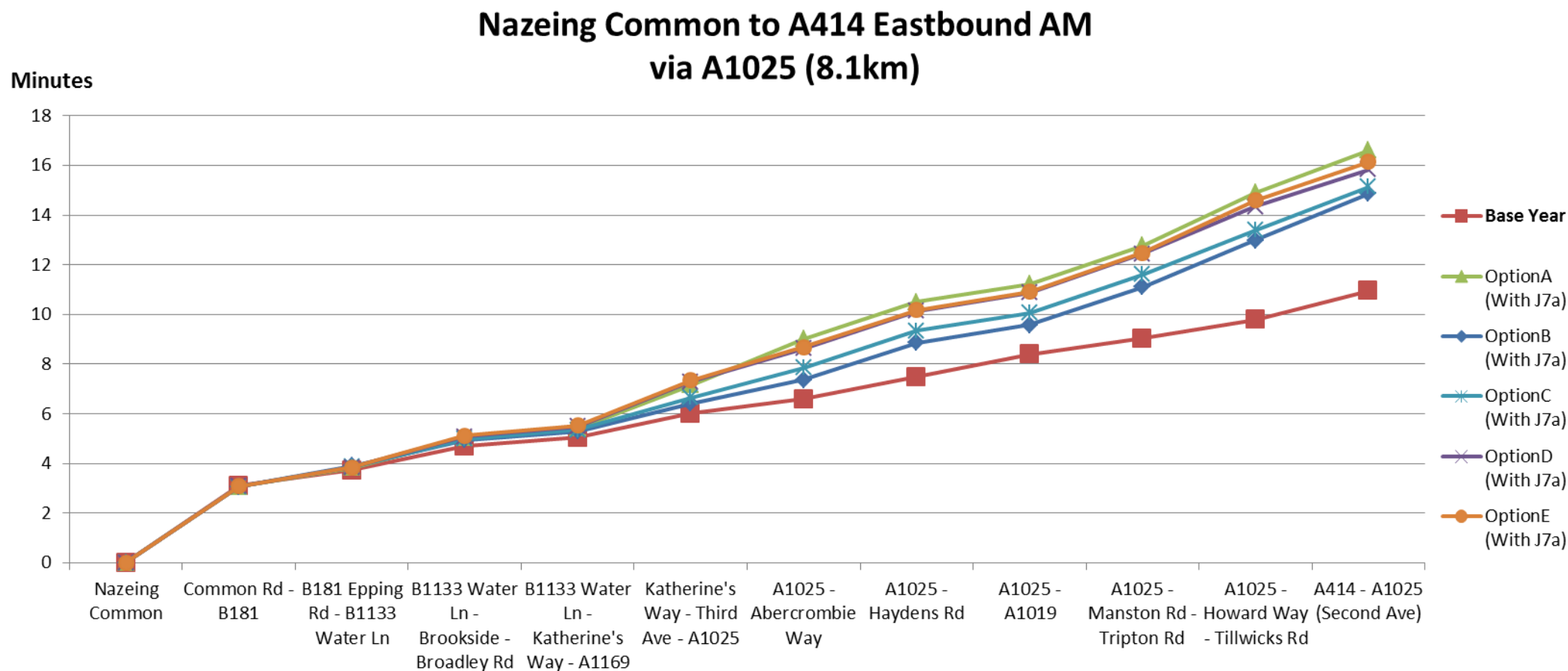
Table 5.9 Total journey times (minutes) Nazeing Common to A414 Eastbound AM via A1025 (8.1km)

	Base Year	OptionA (With J7a)	OptionB (With J7a)	OptionC (With J7a)	OptionD (With J7a)	OptionE (With J7a)
Nazeing Common	0.00	0.00	0.00	0.00	0.00	0.00
Common Rd - B181	3.10	3.08	3.07	3.07	3.08	3.08
B181 Epping Rd - B1133 Water Ln	3.73	3.82	3.90	3.86	3.84	3.85
B1133 Water Ln - Brookside - Broadley Rd	4.69	5.02	4.95	4.98	5.08	5.12
B1133 Water Ln - Katherine's Way - A1169	5.03	5.41	5.30	5.34	5.48	5.52
Katherine's Way - Third Ave - A1025	6.00	7.15	6.41	6.64	7.29	7.35
A1025 - Abercrombie Way	6.59	9.01	7.36	7.85	8.64	8.69
A1025 - Haydens Rd	7.48	10.50	8.85	9.34	10.13	10.18
A1025 - A1019	8.39	11.23	9.58	10.07	10.87	10.92
A1025 - Manston Rd - Tripton Rd	9.04	12.77	11.11	11.60	12.43	12.49
A1025 - Howard Way - Tillwicks Rd	9.79	14.90	12.99	13.39	14.35	14.60
A414 - A1025 Second Ave	10.95	16.60	14.87	15.14	15.83	16.14
Increase over base year (minutes)		5.65	3.92	4.19	4.88	5.19
% increase over base year		52%	36%	38%	45%	47%

Journey times are likely to increase in all of the spatial options by between 36-52%. Option A has the greatest increase, followed by D and E, and then B and C. Overall times increase by between 4-6 minutes.

Slight delays are shown to begin on this route on the approach to Harlow from the Katherine's Way/Third Avenue junction onwards, with small incremental increases at each junction, which increases from the Velizy Avenue junction onwards along Second Avenue. These delays show generally the same profile for all of the spatial options.

Figure 5.14 : Comparison of journey times for Options A – E Nazeing Common to A414 Eastbound AM



The journey time data westbound is shown in Table 5.10 and graphically in Figure 5.15. This direction is considered to be the busiest direction in the AM peak hour, with correspondingly longer journey times likely in this direction.

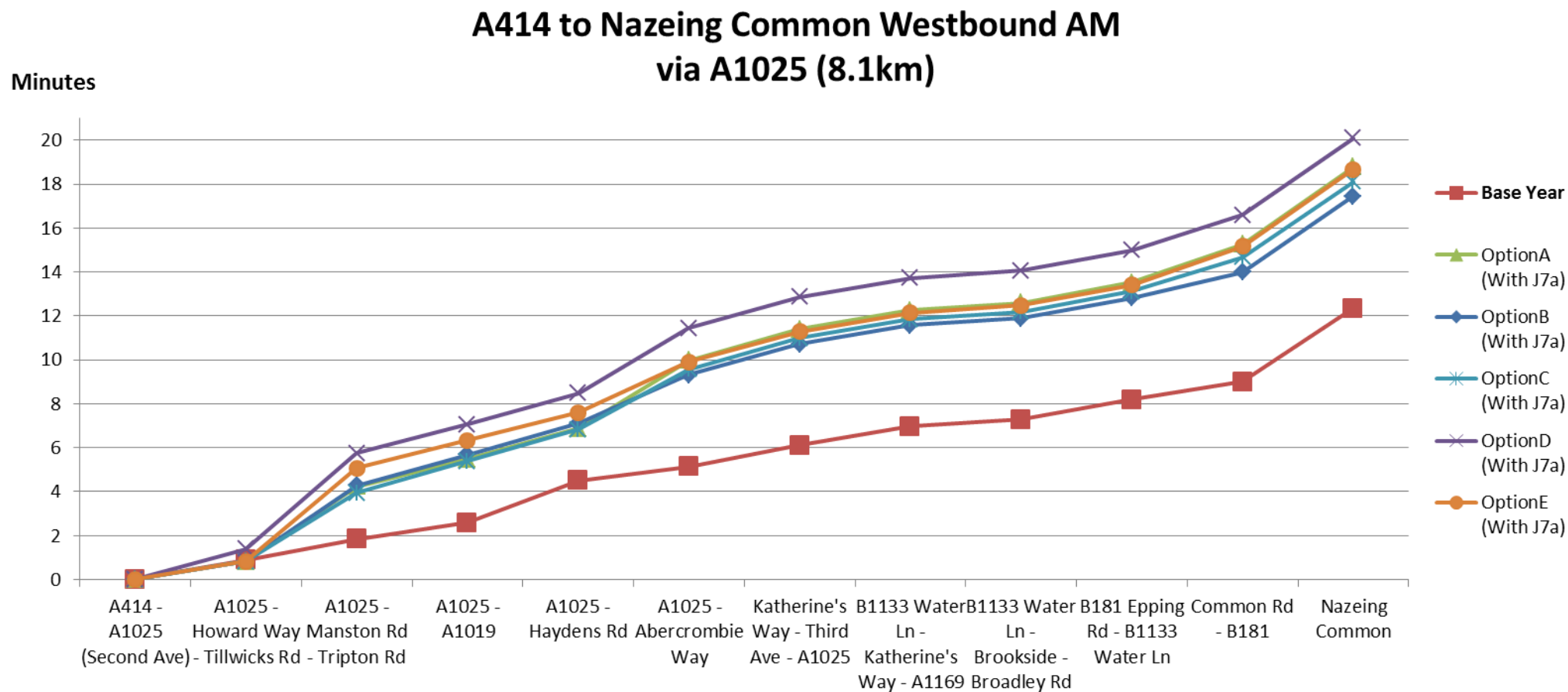
Table 5.10 A414 to Nazeing Common Westbound AM via A1025 (8.1km)

	Base Year	OptionA (With J7a)	OptionB (With J7a)	OptionC (With J7a)	OptionD (With J7a)	OptionE (With J7a)
A414 - A1025 Second Ave	0.00	0.00	0.00	0.00	0.00	0.00
A1025 - Howard Way - Tillwicks Rd	0.90	0.82	0.82	0.82	1.39	0.82
A1025 - Manston Rd - Tripton Rd	1.83	4.25	4.28	3.94	5.75	5.08
A1025 - A1019	2.59	5.47	5.67	5.40	7.06	6.34
A1025 - Haydens Rd	4.50	6.88	7.10	6.82	8.47	7.60
A1025 - Abercrombie Way	5.13	9.98	9.31	9.57	11.44	9.90
Katherine's Way - Third Ave - A1025	6.11	11.41	10.71	10.99	12.87	11.29
B1133 Water Ln - Katherine's Way - A1169	6.97	12.27	11.57	11.86	13.73	12.15
B1133 Water Ln - Brookside - Broadley Rd	7.28	12.59	11.89	12.18	14.06	12.48
B181 Epping Rd - B1133 Water Ln	8.19	13.53	12.82	13.11	14.99	13.41
Common Rd - B181	9.01	15.26	14.01	14.68	16.60	15.16
Nazeing Common	12.34	18.78	17.46	18.11	20.10	18.68
Increase over base year (minutes)		6.44	5.12	5.77	7.76	6.34
% Increase over base year		52%	41%	47%	63%	51%

All of the Options would be likely to have increased in journey times when compared to the base year of between 41-63%, which is between 5-8 minutes. Option D has the greatest increase in journey time, at 63% and almost 8 minutes.

Delays are shown to begin almost immediately with a sharp increase in delays at the A1025 Manston Road roundabout (as discussed earlier in Section 5.2). There are further increases at the A1025 Abercrombie Way junction, but thereafter the time profile broadly mirrors the base year.

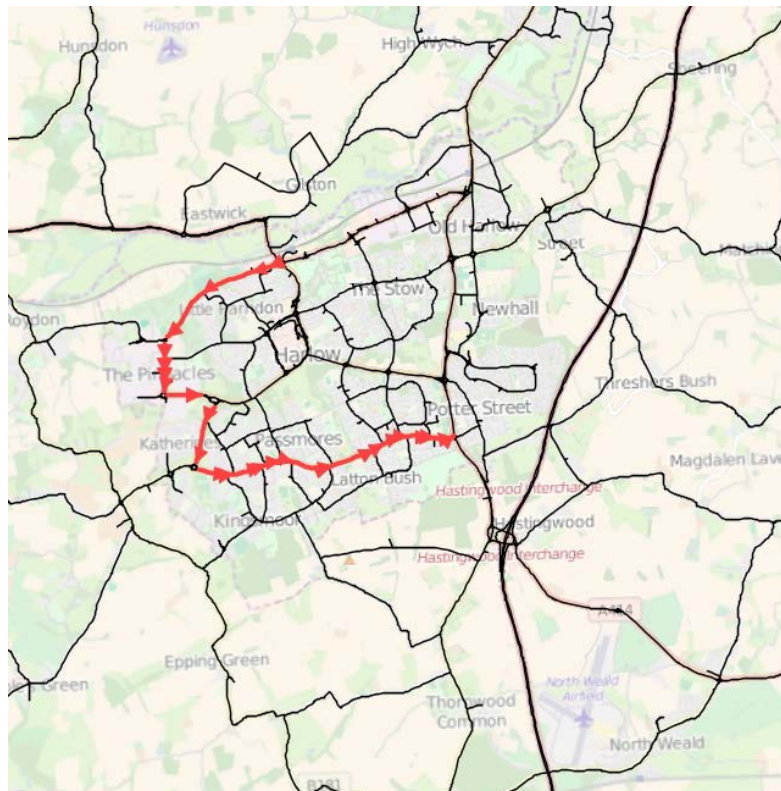
Figure 5.15: Comparison of journey times for Options A-E A414 to Nazeing Common Westbound AM



## 5.6 Fifth Avenue to A414 via Elizabeth Way and A1169

The route around the western and southern sides of Harlow between the A414 at Burnt Mill and the A414 at Southern Way via the A1169 Elizabeth Way and Southern Way is shown in Figure 5.16. The journey time data southbound (or anti-clockwise) is shown in Table 5.11 with the journey time graphs presented in Figure 5.17. Generally the peak direction for this route is northbound (or clockwise) in the AM peak hour.

Figure 5.16: Route: Fifth Ave to A414 via Elizabeth Way and A1169



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Table 5.11 Total journey times (minutes) to Fifth Ave to A414 Southbound AM via Elizabeth Way and A1169 (7.8km)

	Base Year	OptionA (With J7a)	OptionB (With J7a)	OptionC (With J7a)	OptionD (With J7a)	OptionE (With J7a)
Fifth Ave - Elizabeth Way - Edinburgh Way	0.00	0.00	0.00	0.00	0.00	0.00
Elizabeth Way - Roydon Rd	1.89	2.89	2.69	2.54	2.19	2.08
Elizabeth Way - Third Ave	5.35	6.02	5.82	5.70	5.71	5.57
Third Ave - Katherine's Way	5.92	6.59	6.40	6.27	6.29	6.14
Katherine's Way - Water Ln - A1169	6.76	7.45	7.25	7.13	7.14	7.00
A1169 - Paringdon Rd (West)	7.90	7.90	7.71	7.58	7.60	7.46
A1169 - Abercrombie Way	8.16	8.93	8.65	8.55	8.71	8.55
A1169 - Paringdon Rd (East)	9.03	9.90	9.56	9.49	9.70	9.54
A1169 - Tilwicks Rd	11.41	13.55	12.58	12.89	13.07	12.91
A1169 - A414	13.58	16.93	15.52	15.82	16.30	16.21
Increase over base year (minutes)		3.35	1.94	2.24	2.72	2.63
% Increase over base year		25%	14%	16%	20%	19%

All of the options would be likely to have an increase in journey time compared to the base year of between 14-25% or approximately 2-5 minutes, with the greatest being Option A.

The route profiles for all the spatial options are broadly the same until towards the eastern end of Southern Way, at which point all of the spatial option profiles indicate similar levels of congestion in the region of Tillwicks Road.

Figure 5.17: Comparison of journey times for Options A – E Fifth Avenue to A414 Southbound AM

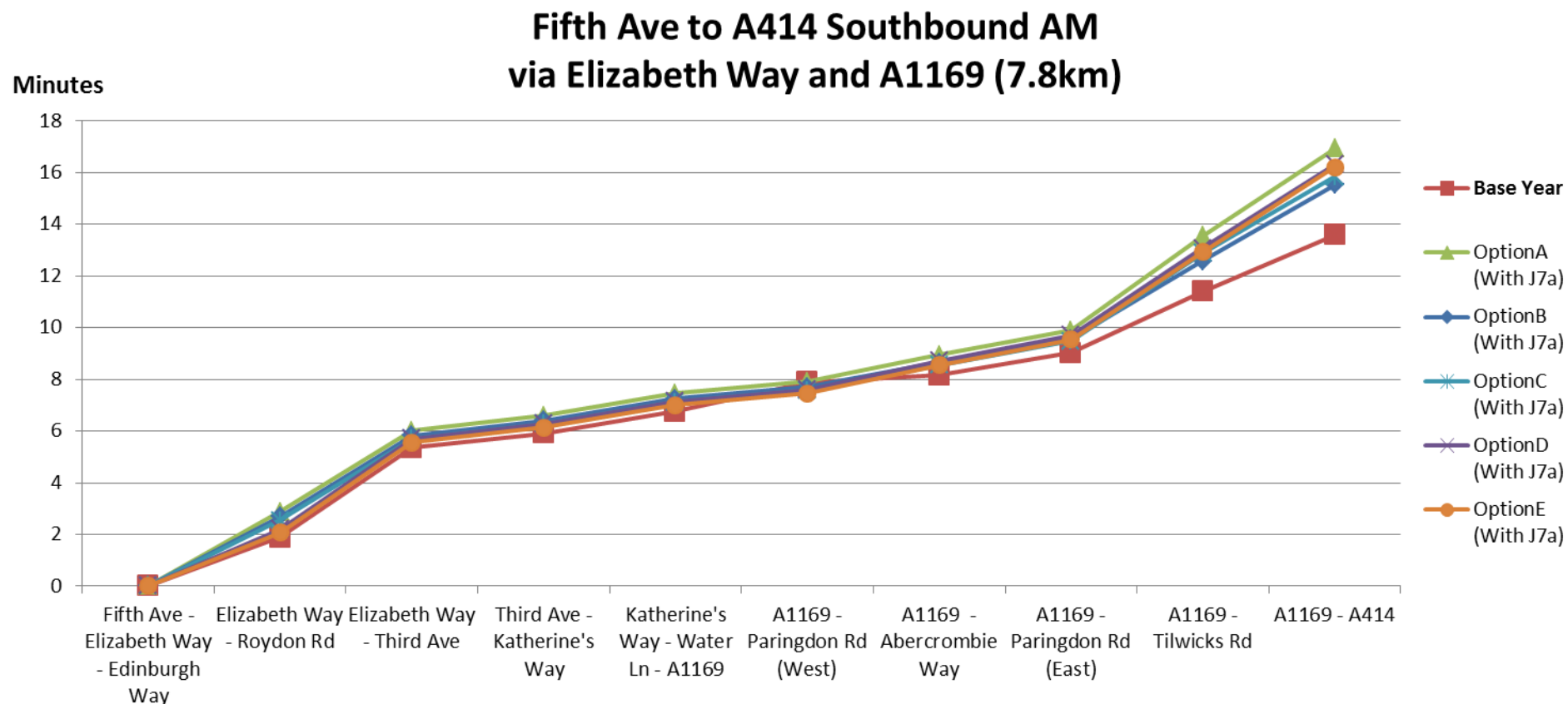


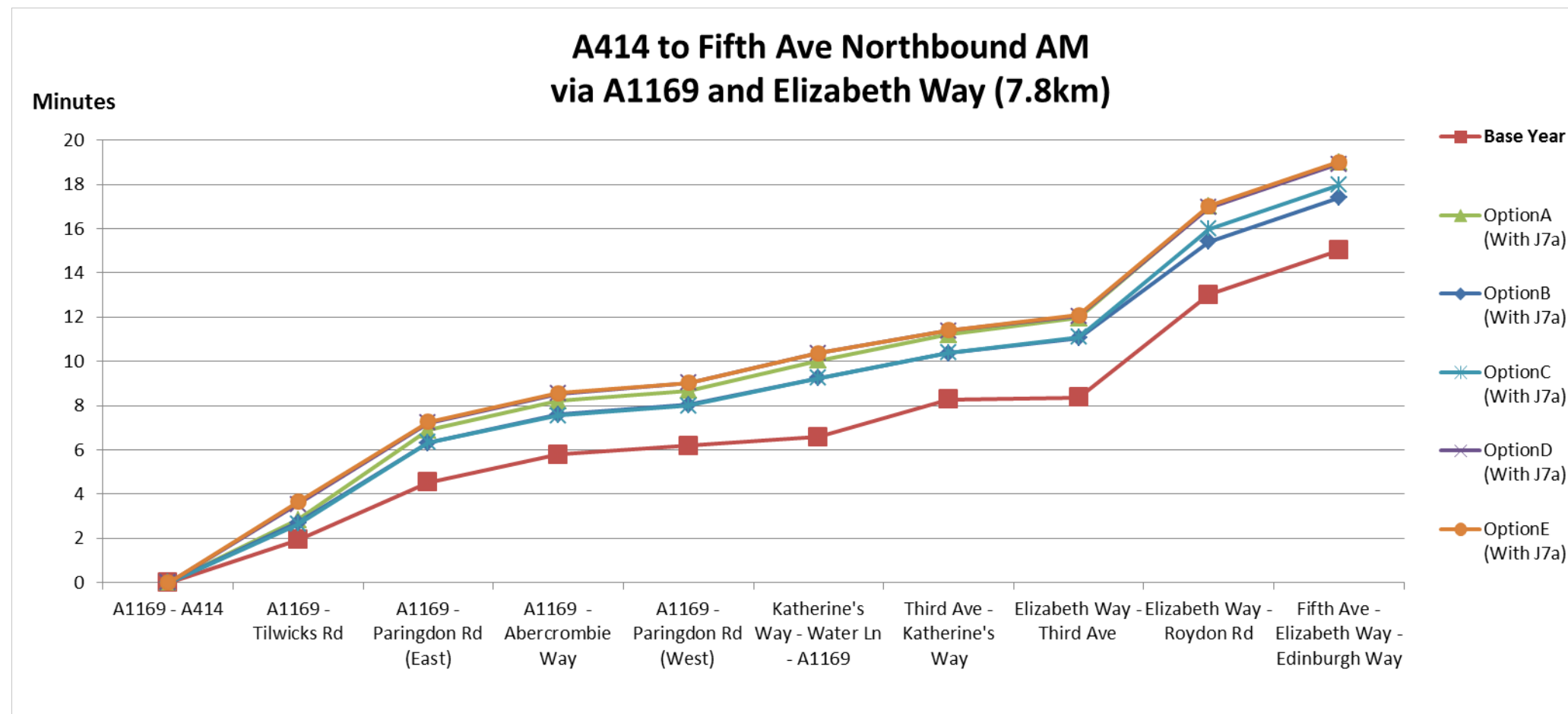
Figure 5.18 Total journey times (minutes) for A414 to Fifth Ave Northbound AM via A1169 and Elizabeth Way (7.8km)

	Base Year	OptionA (With J7a)	OptionB (With J7a)	OptionC (With J7a)	OptionD (With J7a)	OptionE (With J7a)
A1169 - A414	0.00	0.00	0.00	0.00	0.00	0.00
A1169 - Tilwicks Rd	1.93	2.84	2.71	2.65	3.54	3.65
A1169 - Paringdon Rd (East)	4.55	6.89	6.32	6.34	7.23	7.26
A1169 - Abercrombie Way	5.80	8.21	7.60	7.56	8.55	8.58
A1169 - Paringdon Rd (West)	6.18	8.68	8.04	8.00	9.02	9.04
Katherine's Way - Water Ln - A1169	6.59	10.05	9.26	9.25	10.38	10.37
Third Ave - Katherine's Way	8.28	11.22	10.37	10.39	11.39	11.41
Elizabeth Way - Third Ave	8.37	11.95	11.07	11.10	12.05	12.08
Elizabeth Way - Roydon Rd	13.02	17.00	15.42	16.00	16.95	17.03
Fifth Ave - Elizabeth Way - Edinburgh Way	15.02	18.98	17.41	17.98	18.93	19.02
Increase over base year		3.96	2.39	2.96	3.91	4.00
% Increase over base year		26%	16%	20%	26%	27%

All of the spatial Options show an increase in journey times when compared to the base year of between 16-27% or between 2-4 minutes.

Delays on this route commence almost immediately, but level off from Paringdon Road east onwards, from which point all of the spatial options mirror the base year profile.

Figure 5.19 : Comparison of journey times for Options A – E A414 to Fifth Avenue Northbound AM



## 6. Summary and Conclusions

The highway modelling that was undertaken by Jacobs using the best available planning information available at March 2016 which was provided by each of the four districts within the SHMA for the period 2011-2033. This was converted to a 2014-2033 timeframe to accord with the highway model base year and used to assess the relative impacts of varying levels of housing and jobs growth for five spatial options. All of the modelling assumed that M11 J7a was in place as it was recognised that additional or improved access to the strategic road network was required.

The spatial options modelled included growth of between 39-44,000 homes and between 30-34,000 jobs across the SHMA. Within the wider Harlow area itself there were between 10-17,000 homes and between 12-16,000 jobs. This level of development represented growth in trips across the network of around 37% in both the morning and evening peak hours. This would be likely to result in reductions in average peak hour vehicle speeds across the whole modelled area from around 57kph (35mph) to between 46-50kph (29-31mph).

As would be expected, the addition of the level of growth identified for the SHMA area results in significant increases in flows on most links across the modelled area. Given the scale of the model area, it is not possible to draw particular conclusions about the relative impacts of each of the five spatial options at this level.

Assessment of more localised impacts on average network speeds indicates that Option A has the least impact on the wider Harlow area network, despite it not being the lowest growth option. Average network speed of just over 20mph in the base year AM peak reduces by 8% in Option A and by approximately 15% in the Options B-E. This is likely to be the result of Option A having its strategic development sites spread fairly evenly around the town.

Differences between the spatial options on the network further afield than Harlow are less defined. For instance, average speeds in the Bishop's Stortford area show negligible variations between the options as there are only small differences in development scenarios in the vicinity.

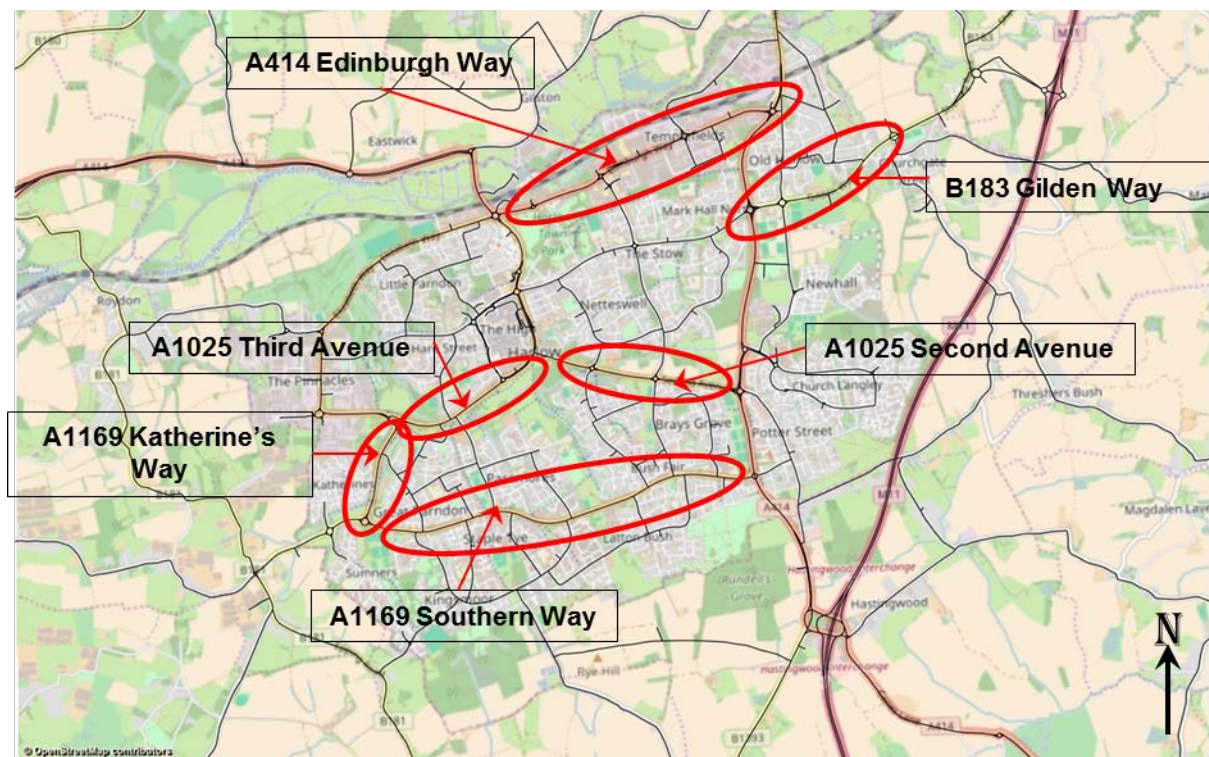
In terms of journey times, the main finding of the spatial options analysis has been the identification of key hotspots on the wider Harlow network, which indicate that mitigation measures would be required to minimise impacts of development growth. These are summarised in Table 2.1 and the locations are shown in Figure 6-1.

Table 6.1 : Key issues arising from Spatial Options A-E

Corridor	Location	Issue	Next Steps
A414	Edinburgh Way/Howard Way and Edinburgh Way/Harlow Retail Park	Junction capacity issue	Identify improvement/mitigation schemes, using more detailed junction modelling;
A1025 Southern Way	Howard Way/Tillwicks Rd & Manston Rd/Tripton Rd	Junction capacity issue	Identify improvement/mitigation schemes, using more detailed junction modelling
First Avenue / B183 Gilden Way	Gilden Way/London Rd & Gilden Way/Churchgate St	Junction capacity issue	VISSIM model has enabled additional mitigation measures to be identified
	Whole corridor	East Harlow site impact	Highway access strategy
A1184 corridor	Station Rd/West Rd, Sawbridgeworth	Junction Capacity issues	Within Herts; identify improvement/mitigation schemes, using more detailed junction modelling

Corridor	Location	Issue	Next Steps
A1169/A1025 Third Ave corridor	Abercrombie Way	Junction Capacity issues	Identify improvement/mitigation schemes, using more detailed junction modelling
A1169 Southern Way corridor	Tillwick Rd	Junction Capacity and network routing issues	Traffic management measures including additional crossings and reduced speed limit
	Katherine's Way/Southern Way	Network routing issues	Reconfiguration of junction to discourage through traffic from using Southern Way, with analysis, using more detailed junction modelling

Figure 6-1 Locations Identified for additional improvements and/or study



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A further key element is the delivery of sustainable transport measures, in order to reduce strain on the network from existing development as well as that of committed and forecast development. This forms a key part of the Harlow and Gilston Garden Town proposals, including delivery of sustainable transport corridors across the town.

## References

Jacobs, March 2017, "WEEH Technical Note 1: Forecast Methodology"

## **Appendix A. Aecom WEEH HMA Spatial Distribution Options**

## AECOM: Spatial distribution options for the West Essex and East Hertfordshire Housing Market Area, 2011 - 2033<sup>1</sup>

The table below sets out spatial options for distributing ~46,100 or ~49,638 homes throughout the West Essex and East Hertfordshire Housing Market Area (HMA). The 46,100 figure represents objectively assessed housing need (OAHN) for the HMA while the ~49,638 figure is based on the CLG 2012-based household projections. Both figures are from the Strategic Housing Market Assessment (SHMA) for the HMA. In preparing their Local Plans, the four constituent authorities' may consider more detailed distribution options for accommodating new housing.

Base date = 1 April 2011

Date of Issue: 20<sup>th</sup> March 2016

Spatial area		Spatial options to deliver ~46,100 new homes across the SHMA area				Spatial option to deliver ~49,638 new homes
		Option A – Each authority meets its OAHN within its own boundaries (NB ~14,150 at Harlow)	Option B – Less development at Harlow and accelerated development on the A120 (NB ~10,500 at Harlow)	Option C – Less development at Harlow and two new settlements in East Herts <sup>2</sup> (NB ~10,500 at Harlow)	Option D – Maximum growth at Harlow (NB ~17,650 at Harlow; reduced allocations in constrained areas of the HMA <sup>3</sup> )	Option E – Higher growth across the HMA (NB ~17,650 at Harlow; allocations in constrained areas)
<b>East Hertfordshire</b>						
'Givens'	Completions	1951	1951	1951	1951	1951
	Permissions	1839	1839	1839	1839	1839
	Windfall assumption	1120	1120	1120	1120	1120
	<b>Sub-total</b>	<b>4910</b>	<b>4910</b>	<b>4910</b>	<b>4910</b>	<b>4910</b>

<sup>1</sup> Note East Herts plan period runs until 2032 rather than 2033; an additional '250' homes have been added in for Harlow Fringe to facilitate comparability

<sup>2</sup> The possibility of one of the two new settlements being located in Epping was discussed. However, Epping argue that 1600 is already allocated at North Weald Only and this position would only be reviewed if/when aviation is found to be unviable in the longer term; no sites of sufficient size for a new settlement have been put forward and much of the east of the District is relatively rural with limited public transport connections

<sup>3</sup> Figures reduced across settlements in East Herts (Bishop's Stortford, Hertford, Sawbridgeworth and Ware) and Epping Forest to minimise Green Belt incursion; Duty to Cooperate developments at East of Stevenage and East of Welwyn unchanged

Potential allocations / broad locations ('choices')	Bishop's Stortford	4321	4321	4321	3421	4321
	Buntingford	496	496	496	496	496
	East of Stevenage	600	600	600	600	600
	East of Welwyn	1350	1350	1350	1350	1350
	Harlow fringe (Gilston)	2750	1250	1250	4350	4350
	Hertford	950	950	950	300	950
	Sawbridgeworth	375	375	375	0	375
	Ware	200	200	200	0	200
	Larger villages / NP <sup>4</sup>	500	500	500	500	500
	Other	337 (SHLAA sites more than 10 dwellings)	337	337	337	337
	New settlement (option 1) <sup>5</sup>	N/A	N/A	3000 <sup>6</sup>	N/A	N/A
	New settlement (option 2) <sup>7</sup>	N/A	N/A		N/A	N/A
	New settlement (option 3) <sup>8</sup>	N/A	N/A		N/A	N/A
	New settlement (option 4) <sup>9</sup>	N/A	N/A		N/A	N/A
	New settlement (option 5) <sup>10</sup>	N/A	N/A		N/A	N/A
	New settlement (option 6) <sup>11</sup>	N/A	N/A		N/A	N/A
	<b>Sub-total</b>	<b>11879</b>	<b>10379</b>	<b>13379</b>	<b>11354</b>	<b>13479</b>
<b>Total</b>		<b>16789</b> (OAHN = 16400)	<b>15289</b> (OAHN = 16400)	<b>18289</b> (OAHN = 16400)	<b>16264</b> (OAHN = 16400)	<b>18389</b> (OAHN = 16400)

<sup>4</sup> Allocation to facilitate neighbourhood planning

<sup>5</sup> Location on the A10 corridor - north

<sup>6</sup> Assume 1500 at each of two new settlements; option 2 (Little Hadham) and option 4 (Watton at Stone) are being tested under Option C for the purposes of the transport modelling

<sup>7</sup> Location on the A120 corridor (Little Hadham)

<sup>8</sup> Location in the Hunsdon area

<sup>9</sup> Location on the A602 corridor (Watton at Stone)

<sup>10</sup> Location on the A10 corridor - central

<sup>11</sup> Location on the A507 corridor

Epping Forest						
'Givens'	Completions	1007	1007	1007	1007	1007
	Permissions	747	747	747	747	747
	Windfall assumption	1394	1394	1394	1394	1394
	<b>Sub-total</b>	<b>3148</b>	<b>3148</b>	<b>3148</b>	<b>3148</b>	<b>3148</b>
Potential allocations / broad locations ('choices')	Chigwell	410	410	410	0	410
	Chipping Ongar	314	314	314	55	314
	Epping	513	513	513	413	513
	Loughton/Buckhurst Hill	892	892	892	1101	892
	Theydon Bois	148	148	148	0	148
	Waltham Abbey	406	406	406	196	406
	North Weald <sup>12</sup>	1616	1616	1616	0	1616
	Harlow fringe (see below)	~3500 <sup>13</sup>	1350 <sup>14</sup>	1350 <sup>15</sup>	5400 <sup>16</sup>	5400 <sup>17</sup>
	Larger villages / NP <sup>18</sup>	146	146	146	0	146
	<b>Sub-total</b>	<b>7945</b>	<b>5795</b>	<b>5795</b>	<b>7165</b>	<b>9845</b>
<b>Total</b>		<b>11093</b> (OAHN = 11300)	<b>8943</b> (OAHN = 11300)	<b>8943</b> (OAHN = 11300)	<b>10313</b> (OAHN = 11300)	<b>12993</b> (OAHN = 11300)

<sup>12</sup> North Weald (including the Airfield) is subject to an existing Masterplan developed by Epping Forest

<sup>13</sup> Broken down as follows: Latton Priory – 1250; West Sumners – 1000; West Katherines – 750; and East of Harlow – 500

<sup>14</sup> There are various ways growth of 1350 could be accommodated: (1) split between Sumners (500) and Latton Priory (850) (NB this might be enough to reinforce Sumners and be sufficient for at least a primary school/local centre at Latton Priory; (2) all development to the West, possibly mainly Sumners (1,000) and some development at Katherines (350); (3) all development to the south at Latton Priory (1350); and (4) most of the development at Latton Priory (1,000) with the balance either west or east of Harlow. For the purposes of the transport modelling, Option B includes 1350 at Latton Priory and Option C includes 350 at Latton Priory and 1000 at West Sumners

<sup>15</sup> See footnote above

<sup>16</sup> Broken down as follows: West Katherines – 800; West Sumners – 1,100; Latton Priory – 2,000; and East of Harlow – 1,500 (NB West Katherines not particularly favoured by Epping as there are land ownership issues that could be insurmountable)

<sup>17</sup> See footnote above

<sup>18</sup> Allocation to facilitate neighbourhood planning

Harlow						
'Givens'	Completions	1023	1023	1023	1023	1023
	Permissions	3488	3488	3488	3488	3488
	Windfall assumption	N/A	N/A	N/A	N/A	N/A
	<b>Sub-total</b>	<b>4511</b>	<b>4511</b>	<b>4511</b>	<b>4511</b>	<b>4511</b>
'Choices'	Urban brownfield	1389	1389	1389	1389	1389
	Greenfield (east of Harlow)	2000	2000	2000	2000	2000
	<b>Sub-total</b>	<b>3389</b>	<b>3389</b>	<b>3389</b>	<b>3389</b>	<b>3389</b>
<b>Total</b>		<b>7900</b> (OAHN = 5900)	<b>7900</b> (OAHN = 5900)	<b>7900</b> (OAHN = 5900)	<b>7900</b> (OAHN = 5900)	<b>7900</b> (OAHN = 5900)

Uttlesford						
'Givens'	Completions	1914	1914	1914	1914	1914
	Permissions	5202	5202	5202	5202	5202
	Windfall assumption <sup>19</sup>	900	900	900	900	900
	<b>Sub-total</b>	<b>8016</b>	<b>8016</b>	<b>8016</b>	<b>8016</b>	<b>8016</b>
Potential allocations / broad locations ('choices')	Great Dunmow	~500	~500	~500	~500	~500
	Saffron Walden	500	500	500	500	500
	New settlement A120 (1) <sup>20</sup>	2000	~4000	2000	2000	2000
	New settlement A120 (2) <sup>21</sup>	1000	~2500	1000	1000	1000
	Larger villages / NP <sup>22</sup>	500	500	500	250	500
	Other	N/A	N/A	N/A	N/A	N/A
	<b>Sub-total</b>	<b>4500</b>	<b>8000</b>	<b>4500</b>	<b>4250</b>	<b>4500</b>
<b>Total</b>		<b>12516</b> (OAHN = 12500)	<b>16016</b> (OAHN = 12500)	<b>12516</b> (OAHN = 12500)	<b>12266</b> (OAHN = 12500)	<b>12516</b> (OAHN = 12500)
<b>Total Greater Harlow</b>		<b>14150</b> (medium growth)	<b>10500</b> (lower growth)	<b>10500</b> (lower growth)	<b>17650</b> (higher growth)	<b>17650</b> (higher growth)
<b>Total</b>		<b>48298</b> (OAHN = 46100)	<b>48148</b> (OAHN = 46100)	<b>47648</b> (OAHN = 46100)	<b>46743</b> (OAHN = 46100)	<b>51798</b> (CLG 2012-based household projections = 49638 <sup>23</sup> )

<sup>19</sup> Windfall assumption based on 50 dpa – figure found sound by PINS

<sup>20</sup> Land at Easton Park

<sup>21</sup> Land at Bosted Wood/Andrewsfield developed jointly with Braintree (NB access through Uttlesford which might facilitate quicker delivery on the Uttlesford side)

<sup>22</sup> Allocation to facilitate neighbourhood planning

<sup>23</sup> The SHMA states "PPG identifies that the starting point for estimating housing need is the CLG 2012-based household projections. For the 22-year period 2011-33, these projections suggest an increase of 49,638 households across the West Essex and East Hertfordshire HMA: an average growth of 2,256 households each year, comprised of 779 in East Hertfordshire, 653 in Epping Forest, 326 in Harlow and 498 in Uttlesford."

### Epping Forest District part of the Harlow Fringe - breakdown

Spatial area		Spatial options to deliver ~46,100 new homes across the SHMA area				Spatial option to deliver ~49,638 new homes
		Option A – Each authority meets its OAHN within its own boundaries (NB ~14,150 at Harlow)	Option B – Less development at Harlow and accelerated development on the A120 (NB ~10,500 at Harlow)	Option C – Less development at Harlow and two new settlements in East Herts <sup>24</sup> (NB ~10,500 at Harlow)	Option D – Maximum growth at Harlow (NB ~17,650 at Harlow; reduced allocations in constrained areas of the HMA <sup>25</sup> )	Option E – Higher growth across the HMA (NB ~17,650 at Harlow; allocations in constrained areas)
<b>Epping Forest</b>						
‘Choices’	Latton Priory	1250	1350	350	2000	2000
	West Sumners	1000	0	1000	1100	1100
	West Katherines	750	0	0	800	800
	East of Harlow	500	0	0	1500	1500
	West Pinnacles	0	0	0	0	0
	<b>Sub-total</b>	<b>3500</b>	<b>1350</b>	<b>1350</b>	<b>5400</b>	<b>5400</b>

<sup>24</sup> The possibility of one of the two new settlements being located in Epping was discussed. However, Epping argue that 1600 is already allocated at North Weald Only and this position would only be reviewed if/when aviation is found to be unviable in the longer term; no sites of sufficient size for a new settlement have been put forward and much of the east of the District is relatively rural with limited public transport connections

<sup>25</sup> Figures reduced across settlements in East Herts (Bishop's Stortford, Hertford, Sawbridgeworth and Ware) and Epping Forest to minimise Green Belt incursion; Duty to Cooperate developments at East of Stevenage and East of Welwyn unchanged

**Unreasonable alternatives** (i.e. those screened out from further consideration)

**Option X: Focus growth in areas beyond the Green Belt**

Explanation to be developed including reference to:

- the rural nature of much of East Herts and Uttlesford (poor jobs/homes link, limited/sparse/sporadic infrastructure/limited public transport, trips associated with new development utilising rural roads)
- constraints at Buntingford (e.g. A10);
- Inspector's conclusions re capacity at Saffron Walden and Great Dunmow (e.g. Saffron AQMA/impact on historic towns); and
- the fact that land at Great Chesterford is linked to a different HMA plus long distance commuting from the rest of the HMA/beyond; and
- other excluded options e.g. Elsenham S78 appeal Secretary of State call in?/other Areas of Search?

**Option Y: Less than ~10,500 at Harlow**

Explanation to be developed including reference to Harlow being the most obvious location to develop sustainably and the town's economic / regeneration aspirations and the fact that Harlow acts as a sub-regional service centre.

**Appendix B. Uncertainty Log**

DISTRICT	Log Ref	SCHEME DESCRIPTION	HMA Special Categorisation (complete/ Permission/ Windfall/ potential/ Greater Harlow/ New Settlement)	PRIMARY DEVELOPMENT TYPE	DEVELOPMENT LOCATION	LOCATION	Values- for Housing Developments (dwellings)					FINAL Use Class ID (use for model)	2033 Final No of Jobs Created				
							Option A	Option B	Option C	Option D	Option E		Option A	Option B	Option C	Option D	Option E
East Herts	22	The Goods Yard Site (Policy BISH3)	Potential	Residential	Bishop's Stortford		450	450	450	450	450	Housing					
East Herts	22	The Goods Yard Site (Policy BISH3)	Potential	Hotel	Bishop's Stortford							Hotel/bed	27	27	27	27	27
East Herts	22	The Goods Yard Site (Policy BISH3)	Potential	Retail	Bishop's Stortford							Retail/ Park	32	32	32	32	32
East Herts	24	Reserve Secondary School Site, Hadham Road (Policy BISH5) Planning permission granted for school on ASR (BISH5 site) so dwellings can be assumed	Potential	Residential	Bishop's Stortford		247	247	247	247	247	Housing					
East Herts	25	Site East of Manor Links (Policy BISH6)	Potential	Residential	Bishop's Stortford		75	75	75		75	Housing					
East Herts	26	Land South of Bishop's Stortford (Policy BISH7)	Potential	Residential	Bishop's Stortford		750	750	750		750	Housing					
East Herts	26	Land South of Bishop's Stortford (Policy BISH7)	Potential	Business Park	Bishop's Stortford							Business Park_B1	1564	1564	1564	0	1564
East Herts	26	Land South of Bishop's Stortford (Policy BISH7)	Potential	Education	Bishop's Stortford								0	0	0		0
East Herts	27	Land West of Hoggate's Wood (Policy BISH8). Access off new rbt on Hadham Rd	Potential	Residential	Bishop's Stortford		857	857	857	857	857	Housing					
East Herts	27	Land West of Hoggate's Wood (Policy BISH8). Access off new rbt on Hadham Rd	Potential	Education	Bishop's Stortford								0	0	0	0	0
East Herts	28	Land Between Hoggate's Wood and Farnham Road (Policy BISH8)	Potential	Residential	Bishop's Stortford		1343	1343	1343	1343	1343	Housing					
East Herts	28	Land Between Hoggate's Wood and Farnham Road (Policy BISH8)	Potential	Employment	Bishop's Stortford							Office_B1	543	543	543	543	543
East Herts	28	Land Between Hoggate's Wood and Farnham Road (Policy BISH8)	Potential	Education	Bishop's Stortford								0	0	0	0	0
East Herts	29	Land East of Farnham Road (Policy BISH8)	Potential	Residential	Bishop's Stortford		329	329	329	329	329	Housing					
East Herts	30	Bishop's Stortford High School Site, London Road	Potential	Residential	Bishop's Stortford		220	220	220	220	220	Housing					
East Herts	33	Land North of West Road (Policy SAWB2)	Potential	Residential	Sawbridgeworth		125	125	125		125	Housing					
East Herts	34a	Land to North of Sawbridgeworth	Potential	Residential	Sawbridgeworth		250	250	250		250	Housing					
East Herts	35	Land in Mead Lane Area (Policy HERT2)	Potential	Residential	Hertford		193	193	193	193	193	Housing					
East Herts	36	Land North of Welwyn Road (Policy HERT3)	Potential	Residential	Hertford		300	300	300		300	Housing					
East Herts	37	Land South of Welwyn Road / Thieves Road (Policy HERT3)	Potential	Residential	Hertford		250	250	250		250	Housing					
East Herts	38	Land North of Hertford (Policy HERT4)	Potential	Residential	Hertford		50	50	50		50	Housing					
East Herts	39	Land South of Hertford (Policy HERT3)	Potential	Residential	Hertford		50	50	50		50	Housing					
East Herts	40b	Land North and East of Ware (Policy WARE3)	Potential	Residential	Ware		200	200	200		200	Housing					
East Herts	42	Infill Development in Group 1 Villages (Policy VILL1)	Potential	Residential	Puckeridge		83	83	83	83	83	Housing					
East Herts	43	Infill Development in Group 1 Villages (Policy VILL1)	Potential	Residential	Watton-at-Stone		85	85	85	85	85	Housing					
East Herts	43a	Infill Development in Group 1 Villages (Policy VILL1)	Potential	Residential	High Cross		15	15	15	15	15	Housing					
East Herts	43b	Infill Development in Group 1 Villages (Policy VILL1)	Potential	Residential	Braughing		35	35	35	35	35	Housing					
East Herts	43c	Infill Development in Group 1 Villages (Policy VILL1)	Potential	Residential	Hunsdon		37	37	37	37	37	Housing					
East Herts	43d	Infill Development in Group 1 Villages (Policy VILL1)	Potential	Residential	Little Hadham and Hadham Ford		25	25	25	25	25	Housing					
East Herts	43e	Infill Development in Group 1 Villages (Policy VILL1)	Potential	Residential	Widford		19	19	19	19	19	Housing					
East Herts	44	Infill Development in Group 1 Villages (Policy VILL1)	Potential	Residential	Standon		63	63	63	63	63	Housing					
East Herts	45	Infill Development in Group 1 Villages (Policy VILL1)	Potential	Residential	Much Hadham		49	49	49	49	49	Housing					
East Herts	46	Infill Development in Group 1 Villages (Policy VILL1)	Potential	Residential	Walkern		47	47	47	47	47	Housing					
East Herts	47	Land East of London Road (Policy BUNT2)	Potential	Residential	Buntingford		316	316	316	316	316	Housing					
East Herts	48	Land West of Ermine Street (Policy BUNT3)	Potential	Residential	Buntingford		180	180	180	180	180	Housing					
East Herts	49	Henderson Development, The Causeway	Potential	Residential	Bishop's Stortford		50	50	50	50	50	Housing					
East Herts	49	Henderson Development, The Causeway	Potential	Retail - foodstore extension	Bishop's Stortford							Food_Superstore	29	29	29	29	29
East Herts	49	Henderson Development, The Causeway	Potential	Retail - town centre extension	Bishop's Stortford							Shopping_Centre	816	816	816	816	816
East Herts	49	Henderson Development, The Causeway	Potential	Hotel	Bishop's Stortford							Hotel/bed	37	37	37	37	37
East Herts	50	Land to South of Hare Street Road (Area 1)	Permission	Residential	Buntingford		100	100	100	100	100	Housing					
East Herts	51	Land to South of Hare Street Road (Area 2 & 3)	Permission	Residential	Buntingford		180	180	180	180	180	Housing					
East Herts	52	Western Section (Gilston Park Estate) developed by CPP	Greater Harlow	Residential	Harlow	Greater Harlow	1250			1500	1500	Housing					
East Herts	52	Western Section (Gilston Park Estate) developed by CPP	Greater Harlow	Education	Harlow	Greater Harlow						Education	0			0	0

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East Herts	53	Land North of Harlow: The Gilston Park Estate (Northern Section) developed by Places for People	Greater Harlow	Residential	Harlow	Greater Harlow	1500	1250	1250	2850	2850	Housing					
East Herts	53	Land North of Harlow: The Gilston Park Estate (Northern Section) developed by Places for People	Greater Harlow	Education	Harlow	Greater Harlow						Education	0	0	0	0	0
East Herts	54	East of Stevenage	Potential	Residential	Stevenage		600	600	600	600	600	Housing					
East Herts	54a	Greater Little Hadham	New Settlement	Residential	Little Hadham				1500			Housing					
East Herts	54a	Greater Little Hadham	New Settlement	Education	Little Hadham							Education			0		
East Herts	58	Hertford Regional College, Scott's Road, Ware	Permission	Residential	Ware		49	49	49	49	49	Housing					
East Herts	59	Wallace Land, Buntingford Road (3/10/1522)	Permission	Residential	Puckeridge		14	14	14	14	14	Housing					
East Herts	60	Former Trinity Centre (3/11/0384)	Permission	Residential	Ware		14	14	14	14	14	Housing					
East Herts	65	Terlings Park, Eastwick Road, Gilston (3/11/0554)	Permission	Residential	Harlow	Greater Harlow	192	192	192	192	192	Housing					
East Herts	67	Former Fyle Wilson Site, Station Road	Potential	Residential	Bishop's Stortford		42	42	42	42	42	Housing					
East Herts	68	Works, Southmill Road	Potential	Residential	Bishop's Stortford		35	35	35	35	35	Housing					
East Herts	69	Delivery Office & Post Office Site	Potential	Residential	Bishop's Stortford		25	25	25	25	25	Housing					
East Herts	70	Pearce House Site, Parsonage Lane	Permission	Residential	Bishop's Stortford		17	17	17	17	17	Housing					
East Herts	71	Sports Field, Birchwood High School	Potential	Residential	Bishop's Stortford		40	40	40	40	40	Housing					
East Herts	72	Land at Brazier's Field	Potential	Residential	Hertford		18	18	18	18	18	Housing					
East Herts	74	Sovereign House, Hertford	Permission	Residential	Hertford		84	84	84	84	84	Housing					
East Herts	75	South of Mead Lane (next to Hertford East Station)	Permission	Residential	Hertford		107	107	107	107	107	Housing					
East Herts	365	Land east of Welwyn Garden City	Potential	Residential	Welwyn Garden City		1350	1350	1350	1350	1350	Housing					
East Herts	392	High Cross Committed Dev	Permission	Residential	High Cross		57	57	57	57	57	Housing					
East Herts	393	Tewin Committed Dev	Permission	Residential	Tewin		8	8	8	8	8	Housing					
East Herts	394	Bps Stortford Committed Dev (remainder)	Permission	Residential	Bishop's Stortford		149	149	149	149	149	Housing					
East Herts	395	Buntingford Committed Dev	Permission	Residential	Buntingford		29	29	29	29	29	Housing					
East Herts	397	Hertford Police Station, SG13 7HD	Permission	Residential	Hertford		85	85	85	85	85	Housing					
East Herts	398	Hertford Committed Dev (remainder)	Permission	Residential	Hertford		351	351	351	351	351	Housing					
East Herts	399	Ware Committed Dev	Permission	Residential	Ware		167	167	167	167	167	Housing					
East Herts	400	Land north of Hare St Rd, Buntingford	Permission	Residential	Buntingford		160	160	160	160	160	Housing					
East Herts	401	Rural Committed in vicinity of Aston/Benington	Permission	Residential	Aston		31	31	31	31	31	Housing					
East Herts	403	Rural Committed in vicinity of Broxbourne	Permission	Residential	Brickendon		14	14	14	14	14	Housing					
East Herts	406	Rural Committed in vicinity of Eastwick/Gilston	Permission	Residential	Eastwick		37	37	37	37	37	Housing					
East Herts	408	Rural Committed in vicinity of Hertford	Permission	Residential	Hertford		64	64	64	64	64	Housing					
East Herts	409	Rural Committed in vicinity of Puckeridge/Standon	Permission	Residential	Puckeridge		30	30	30	30	30	Housing					
East Herts	410	Rural Committed in vicinity of Sawbridgeworth	Permission	Residential	Sawbridgeworth		29	29	29	29	29	Housing					
East Herts	411	Rural Committed in vicinity of Ware	Permission	Residential	Ware		30	30	30	30	30	Housing					
East Herts	412	Rural Committed in vicinity of Welwyn	Permission	Residential	Welwyn Garden City		21	21	21	21	21	Housing					
East Herts	524	District Wide Completions	Completion	Residential	District Wide		503	503	503	503	503	Housing					
East Herts	525	District Wide Windfall Allowance	Windfall	Residential	District Wide		1120	1120	1120	1120	1120	Housing					
East Herts	465	A602 Corridor site	New Settlement	Residential	Watton-at-Stone				1500			Housing					
Epping Forest	225	SR-0176 St Just, 1 Powell Road, Buckhurst Hill	Potential	Residential	Buckhurst Hill		60	60	60	60	60	Housing					
Epping Forest	226	SR-0230 Electricity sub-station, Station Way, Roding Valley, Buckhurst Hill	Potential	Residential	Buckhurst Hill		30	30	30	30	30	Housing					
Epping Forest	227	SR-0014 Land adjoining 40A Hainault Road (Small)	Potential	Residential	Chigwell		10	10	10		10	Housing					
Epping Forest	229a	SR-0022 101-103 High Street, Chipping Ongar	Potential	Residential	Chipping Ongar		5	5	5	5	5	Housing					
Epping Forest	230	SR-0184 Land adjacent to High Ongar Road, High Ongar	Potential	Residential	Chipping Ongar		26	26	26		26	Housing					
Epping Forest	233	SR-0053 Land East of Brentwood Road, Marden Ash.	Potential	Residential	Chipping Ongar		7	7	7	7	7	Housing					
Epping Forest	234	SR-0268 Land to the South of Kettlebury Way, Ongar	Potential	Residential	Chipping Ongar		43	43	43	43	43	Housing					

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Epping Forest	237	SR-0281 St Johns Road Area, Epping Town Centre	Potential	Residential	Epping		50	50	50		50	Housing					
Epping Forest	237	SR-0281 St Johns Road Area, Epping Town Centre	Potential	Retail/Leisure	Epping							Shopping_Centre	105	105	105	0	105
Epping Forest	237	SR-0281 St Johns Road Area, Epping Town Centre	Potential	Retail/Leisure	Epping							Leisure_Centre	17	17	17	0	17
Epping Forest	237a	SR-0347 Epping Sports Centre	Potential	Residential	Epping		35	35	35		35	Housing					
Epping Forest	237a	SR-0347 Epping Sports Centre	Potential	Retail/Leisure	Epping							Shopping_Centre	53	53	53	0	53
Epping Forest	237a	SR-0347 Epping Sports Centre	Potential	Retail/Leisure	Epping							Leisure_Centre	8	8	8	0	8
Epping Forest	247	SR-0058 Land to North of Clay's Lane, Loughton, Essex, IG10 2RZ	Potential	Residential	Loughton / Debden		671	671	671	1011	671	Housing					
Epping Forest	252	SR-0289 Vere Road, Loughton Broadway	Potential	Residential	Loughton / Debden		41	41	41		41	Housing					
Epping Forest	253	SR-0286 Burton Road, Loughton Broadway	Potential	Residential	Loughton / Debden		80	80	80		80	Housing					
Epping Forest	253	SR-0286 Burton Road, Loughton Broadway	Potential	Retail	Loughton / Debden							Shopping_Centre	53	53	53	0	53
Epping Forest	254a	SR-0059 Land at 20 Albion Hill, Loughton	Potential	Residential	Loughton / Debden		10	10	10		10	Housing					
Epping Forest	264	SR-0036A Land at Blumans, North Weald	Potential	Residential	North Weald Bassett		220	220	220		220	Housing					
Epping Forest	269	SR-0080 Coppice Farm, Coppice Row, Theydon Bois, Essex, CM16 7QS	Potential	Residential	Theydon Bois		68	68	68		68	Housing					
Epping Forest	278	SR-0104 Land adjoining Parklands, Waltham Abbey	Potential	Residential	Waltham Abbey		11	11	11	196	11	Housing					
Epping Forest	279c	SR-0021 Land lying to the North of Honey Lane and west of Mason Way, Ninefields, Waltham Abbey, Essex	Potential	Residential	Waltham Abbey		10	10	10		10	Housing					
Epping Forest	325	East Harlow	Greater Harlow	Residential	Harlow	Greater Harlow	500			1500	1500	Housing					
Epping Forest	325	East Harlow	Greater Harlow	Employment	Harlow	Greater Harlow						Business Park_B1	1364	0	0	1364	1364
Epping Forest	325	East Harlow	Greater Harlow	Education	Harlow	Greater Harlow						Education				0	0
Epping Forest	333	West Katherines	Greater Harlow	Residential	Harlow	Greater Harlow	750			800	800	Housing					
Epping Forest	372	SR-0046 Latton Priory Farm, London Road, Harlow; Residential led urban extension to Harlow	Greater Harlow	Residential	Thornwood	Greater Harlow	1250	1350	350	2000	2000	Housing					
Epping Forest	372	SR-0046 Latton Priory Farm, London Road, Harlow; Residential led urban extension to Harlow	Greater Harlow	Employment	Thornwood	Greater Harlow						Business Park_B1	2045	2209	573	3273	3273
Epping Forest	372	SR-0046 Latton Priory Farm, London Road, Harlow; Residential led urban extension to Harlow	Greater Harlow	Education	Thornwood	Greater Harlow						Education	0	0		0	0
Epping Forest	374	SR-0066 Harlow Park Nursery, London Road, North Weald Bassett	Greater Harlow	Commercial	North Weald Bassett	Greater Harlow						Business Park_B1	784	784	784	784	784
Epping Forest	375	SR-0068 Land to the west of Summers (bounded in part by Water Lane and Epping Road, Tylers Cross (also partly within Epping Upland and Harlow DC)); Residential led urban extension to Harlow	Greater Harlow	Residential	Roydon	Greater Harlow	1000		1000	1100	1100	Housing					
Epping Forest	375	SR-0068 Land to the west of Summers (bounded in part by Water Lane and Epping Road, Tylers Cross (also partly within Epping Upland and Harlow DC)); Residential led urban extension to Harlow	Greater Harlow	Education	Roydon	Greater Harlow						Education	0		0	0	0
Epping Forest	378	SR-0092 Latton Park, London Road, Harlow	Greater Harlow	Commercial	North Weald Bassett	Greater Harlow						Office_B1	1842	921	1842	1842	1842
Epping Forest	385	SR-0210 The Moores Estate, Church Lane, Roydon, Essex, CM19 5HS	Potential	Residential	Roydon		84	84	84		84	Housing					
Epping Forest	386	SR-0483 Southfield Nursery, Old House Lane, Roydon, CM19 5DH	Greater Harlow	Commercial	Roydon	Greater Harlow						Office_B1	72	72	72	72	72
Epping Forest	413	SR-0088 Land in School Lane, Chigwell	Potential	Residential	Chigwell		150	150	150		150	Housing					
Epping Forest	414	SR-0433 Former Beis Shammal School, High Road, Chigwell, IG7 5DN	Potential	Residential	Chigwell		75	75	75		75	Housing					
Epping Forest	415	SR-0478 Chigwell Nurseries, 245 High Road, Chigwell, Essex, IG75 8BL	Potential	Residential	Chigwell		175	175	175		175	Housing					
Epping Forest	416	SR-0120 Bowes Field, Chipping Ongar	Potential	Residential	Chipping Ongar		100	100	100		100	Housing					
Epping Forest	417	SR-0102 Land to the south and west (rear) of Nos 57a and 57b Fyfield Road, Ongar	Potential	Residential	Chipping Ongar		8	8	8		8	Housing					

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Epping Forest	424	SR-0071 Land at Stonards Hill, Epping	Potential	Residential	Epping		300	300	300	300	300	Housing					
Epping Forest	426	SR-0113 Land South of Brook Road, Epping	Potential	Residential	Epping		128	128	128	113	128	Housing					
Epping Forest	427	SR-0219 Fire Station, Sewardstone Road, Waltham Abbey, Essex, EN9 1PA	Potential	Residential	Waltham Abbey		16	16	16		16	Housing					
Epping Forest	428	SR-0482 Land adjoining Mason Way, Waltham Abbey	Potential	Residential	Waltham Abbey		21	21	21		21	Housing					
Epping Forest	429	SR-0481 Land to the South of Hillhouse Primary School, Waltham Abbey	Potential	Residential	Waltham Abbey		88	88	88		88	Housing					
Epping Forest	430	SR-0020 Land at Paternoster Hill, Waltham Abbey	Potential	Residential	Waltham Abbey		260	260	260		260	Housing					
Epping Forest	431	SR-0035 Land at Epping Road, Roydon	Potential	Residential	Roydon		7	7	7		7	Housing					
Epping Forest	432	SR-0169 The Old Coal Yard, off 32 High Street, Roydon	Potential	Residential	Roydon		16	16	16		16	Housing					
Epping Forest	433	SR-0117 The paddock to the rear of Barn House, Farm Close, Roydon, Essex, CM19 5LW	Potential	Residential	Roydon		39	39	39		39	Housing					
Epping Forest	434	SR-0228A Theydon Bois LU Car Park	Potential	Residential	Theydon Bois		22	22	22		22	Housing					
Epping Forest	435	SR-0228B Land and commercial yard adjacent to station off Coppice Row, CM16 7	Potential	Residential	Theydon Bois		30	30	30		30	Housing					
Epping Forest	436	SR-0070 Land at Forest Drive, Theydon Bois	Potential	Residential	Theydon Bois		28	28	28		28	Housing					
Epping Forest	438	SR-0186 Land adjacent to Chelmsford Road (A414) near the Four Wantz roundabout, High Ongar	Potential	Residential	Chipping Ongar		10	10	10		10	Housing					
Epping Forest	439	SR-0090 Land to east of Longfields, Ongar	Potential	Residential	Chipping Ongar		114	114	114		114	Housing					
Epping Forest	440	SR-0036B Land at Blumans, North Weald	Potential	Residential	North Weald Bassett		102	102	102		102	Housing					
Epping Forest	441	SR-0501 Playing field at New House Lane, North Weald	Potential	Residential	North Weald Bassett		70	70	70		70	Housing					
Epping Forest	442	SR-0003 Two fields East and West of Church Lane (North of Lancaster Road), North Weald Bassett, Essex	Potential	Residential	North Weald Bassett		200	200	200		200	Housing					
Epping Forest	443	SR-0417 Land east of Church Lane/West of Harrison Drive, North Weald Bassett	Potential	Residential	North Weald Bassett		55	55	55		55	Housing					
Epping Forest	444	SR-0119(PART OF) North Weald Airfield, Merlin Way, North Weald Essex, CM16 6AA	Potential	Residential	North Weald Bassett		219	219	219		219	Housing					
Epping Forest	444	SR-0119(PART OF) North Weald Airfield, Merlin Way, North Weald Essex, CM16 6AA	Potential	Commercial	North Weald Bassett							Office_B1	324	324	324	0	324
Epping Forest	445	SR-0158C Land at North Weald Bassett, East of Church Lane	Potential	Residential	North Weald Bassett		99	99	99		99	Housing					
Epping Forest	446	SR-0158B West of Church Lane	Potential	Residential	North Weald Bassett		38	38	38		38	Housing					
Epping Forest	447	SR-0076 Land south of Vicarage Lane, North Weald	Potential	Residential	North Weald Bassett		91	91	91		91	Housing					
Epping Forest	447	SR-0076 Land south of Vicarage Lane, North Weald	Potential	Commercial	North Weald Bassett							Office_B1	312	312	312	0	312
Epping Forest	448	SR-0158A Land at North Weald Bassett, South of Vicarage Lane	Potential	Residential	North Weald Bassett		200	200	200		200	Housing					
Epping Forest	449	SR-0455 Chase Farm Business Centre, Vicarage Lane West, North Weald, Essex, CM16 6AL	Potential	Residential	North Weald Bassett		12	12	12		12	Housing					
Epping Forest	450	SR-0195A Land to the North of Vicarage Lane, East, North Weald Bassett, Epping, Essex, CM16 6AP	Potential	Residential	North Weald Bassett		40	40	40		40	Housing					
Epping Forest	451	SR-0309(PART OF) North Weald Bassett, North East Area	Potential	Residential	North Weald Bassett		200	200	200		200	Housing					
Epping Forest	452	SR-0418 (PART OF) Chase Farm & Redricks Nursery and North Weald Nursery	Potential	Residential	North Weald Bassett		70	70	70		70	Housing					
Epping Forest	452	SR-0418 (PART OF) Chase Farm & Redricks Nursery and North Weald Nursery	Potential	Commercial	North Weald Bassett							Office_B1	292	292	292	0	292
Epping Forest	509	'Givens' (Completion/Permission/Windfall) to be distributed across district based on EFDC GIS info	Permission	Residential	Epping Forest		787	787	787	787	787	Housing					
Harlow	298	Land North of Gilden Way	Permission	Residential	Harlow	Greater Harlow	900	900	900	900	900	Housing					
Harlow	299	Kitson Way Multi Story Car Park Site	Potential	Residential	Harlow	Greater Harlow	170	170	170	170	170	Housing					
Harlow	300	New Pond Street	Potential	Residential	Harlow	Greater Harlow	31	31	31	31	31	Housing					
Harlow	304	Parcel 1 of New Hall Phase 1	Permission	Residential	Harlow	Greater Harlow	328	328	328	328	328	Housing					
Harlow	305	New Hall Phase 2 & 3	Permission	Residential	Harlow	Greater Harlow	1780	1780	1780	1780	1780	Housing					
Harlow	305	New Hall Phase 2 & 3	Permission	Education	Harlow	Greater Harlow						Education	0	0	0	0	0
Harlow	305a	Parcel 2 New Hall Phase 2	Permission	Residential	Harlow	Greater Harlow	239	239	239	239	239	Housing					

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Harlow	389	Peartree Business Centre South Rd. CM20 2BD (PD PrNotice)	Permission	Residential	Harlow	Greater Harlow	24	24	24	24	24	Housing					
Harlow	390	Redstone House, Crown gate (PD PrNotice) (superceeds 437/13)	Permission	Residential	Harlow	Greater Harlow	24	24	24	24	24	Housing					
Harlow	391	Site at Greenway House, The Parkway, Harlow CM19 5QD	Permission	Residential	Harlow	Greater Harlow	55	55	55	55	55	Housing					
Harlow	307	Motorsales Site, Fifth Avenue	Permission	Residential	Harlow	Greater Harlow	102	102	102	102	102	Housing					
Harlow	310	Various Small Sites <20 dwellings	Permission	Residential	Harlow	Greater Harlow	113	113	113	113	113	Housing					
Harlow	311	Land to South of Berecroft	Potential	Residential	Harlow	Greater Harlow	294	294	294	294	294	Housing					
Harlow	312	Ram Gorse Site	Permission	Residential	Harlow	Greater Harlow	125	125	125	125	125	Housing					
Harlow	313	Rectory Field Playing Field	Potential	Residential	Harlow	Greater Harlow	70	70	70	70	70	Housing					
Harlow	314	Playing Field to West of Deer Park	Potential	Residential	Harlow	Greater Harlow	69	69	69	69	69	Housing					
Harlow	315	Playing Field to East of Radburn Close & South of Clifton Hatch	Potential	Residential	Harlow	Greater Harlow	69	69	69	69	69	Housing					
Harlow	316	Playing Field to South of Gilden Way	Potential	Residential	Harlow	Greater Harlow	67	67	67	67	67	Housing					
Harlow	317	The Angle Site	Potential	Residential	Harlow	Greater Harlow	69	69	69	69	69	Housing					
Harlow	318	Lister House, Staple Tye Mews - West of Riddings Lane	Potential	Residential	Harlow	Greater Harlow	42	42	42	42	42	Housing					
Harlow	319	Land North West of Kingsland	Potential	Residential	Harlow	Greater Harlow	42	42	42	42	42	Housing					
Harlow	320	Land South of Hawthorns & West of Riddings Lane	Potential	Residential	Harlow	Greater Harlow	35	35	35	35	35	Housing					
Harlow	321	Purford Green School	Potential	Residential	Harlow	Greater Harlow	30	30	30	30	30	Housing					
Harlow	322	Land Adjacent to Katherines School	Potential	Residential	Harlow	Greater Harlow	27	27	27	27	27	Housing					
Harlow	323	Land East of Downs School	Potential	Residential	Harlow	Greater Harlow	25	25	25	25	25	Housing					
Harlow	324	Various Small Sites <20 dwellings	Potential	Residential	Harlow	Greater Harlow	153	153	153	153	153	Housing					
Harlow	326	Land at Wych Elm	Potential	Residential	Harlow	Greater Harlow	500	500	500	500	500	Housing					
Harlow	327	Barley Croft, Lower Meadow, The Briars, Copshall Close, Ayletts Field Area	Permission	Residential	Harlow	Greater Harlow	125	125	125	125	125	Housing					
Harlow	328	Terminus House and Car Park	Potential	Residential	Harlow	Greater Harlow	100	100	100	100	100	Housing					
Harlow	330	Northbrook Playing Fields	Potential	Residential	Harlow	Greater Harlow	60	60	60	60	60	Housing					
Harlow	331	Kingsmoor Recreation Centre	Potential	Residential	Harlow	Greater Harlow	25	25	25	25	25	Housing					
Harlow	332	Land East of 144-154 Fennells	Potential	Residential	Harlow	Greater Harlow	23	23	23	23	23	Housing					
Harlow	336	Harlow Enterprise Zone - London Road North	Permission	Employment	Harlow	Greater Harlow						Business Park_B1	3000	3000	3000	3000	3000
Harlow	337	Harlow Enterprise Zone - London Road South	Permission	Employment	Harlow	Greater Harlow						Office_B1	1052	1052	1052	1052	1052
Harlow	338	Harlow Enterprise Zone - Templefields North East	Permission	Employment	Harlow	Greater Harlow						Industrial Estate_B1	1479	1479	1479	1479	1479
Harlow	383	SR-0146 Land East of Harlow, North of Church Langley and South of Sheering Road; Large strategic site on edge of Harlow, with only part of site within Epping Forest DC.	Potential	Residential	Harlow	Greater Harlow	1500	1500	1500	1500	1500	Housing					
Harlow	383	SR-0146 Land East of Harlow, North of Church Langley and South of Sheering Road; Large strategic site on edge of Harlow, with only part of site within Epping Forest DC.	Potential	Education	Harlow	Greater Harlow						Education	0	0	0	0	0
Harlow	456	Public Health England transfer to old GSK site at The Pinnacles	Potential	Commercial	Harlow	Greater Harlow						Business Park_B1	3000	3000	3000	3000	3000
Uttlesford	206	Land South of Stanley Road	Permission	Residential	Great Chesterford		50	50	50	50	50	Housing					
Uttlesford	212	Land at Priors Green	Permission	Residential	Takeley		65	65	65	65	65	Housing					
Uttlesford	361	MANUDEN land off The Street, committed	Permission	Residential	Manuden		5	5	5	5	5	Housing					
Uttlesford	388	Easton Park potential land allocation	new settlement	Residential	Great Dunmow		2000	4000	2000	2000	2000	Housing					
Uttlesford	388	Easton Park potential land allocation	new settlement	Education	Great Dunmow							Education	0	0	0	0	0
Uttlesford	466	Boxted Wood/Andrewsfield potential land allocation	new settlement	Residential	Great Dunmow		1000	2500	1000	1000	1000	Housing					
Uttlesford	466	Boxted Wood/Andrewsfield potential land allocation	new settlement	Education	Great Dunmow							Education	0	0	0	0	0
Uttlesford	192	Former Willis and Gambier Site, Radwinter Road	Permission	Residential	Saffron Waldon		52	52	52	52	52	Housing					
Uttlesford	193	The Ashdon Road Commercial Centre	Permission	Residential	Saffron Waldon		167	167	167	167	167	Housing					
Uttlesford	193	The Ashdon Road Commercial Centre	Permission	Employment	Saffron Waldon							Office_B1	1034	1034	1034	1034	1034
Uttlesford	194	Land West of Great Dunmow, north of Stortford Road	Permission	Residential	Great Dunmow		790	790	790	790	790	Housing					
Uttlesford	194	Land West of Great Dunmow, north of Stortford Road	Permission	Education	Great Dunmow							Education	0	0	0	0	0

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							Option A	Option B	Option C	Option D	Option E		Option A	Option B	Option C	Option D	Option E
Uttlesford	197	Land West of Chelmsford Road	Permission	Residential	Great Dunmow		300	300	300	300	300	Housing					
Uttlesford	197	Land West of Chelmsford Road	Permission	Employment	Great Dunmow							Office_B1	517	517	517	517	517
Uttlesford	198	Land at Woodlands Park	Permission	Residential	Great Dunmow		966	966	966	966	966	Housing					
Uttlesford	198	Land at Woodlands Park	Permission	Education	Great Dunmow							Education	0	0	0	0	0
Uttlesford	199	Land South of Ongar Road	Permission	Residential	Great Dunmow		100	100	100	100	100	Housing					
Uttlesford	200	Land North of Ongar Road	Permission	Residential	Great Dunmow		73	73	73	73	73	Housing					
Uttlesford	201	Land at Brick Kiln Farm	Permission	Residential	Great Dunmow		65	65	65	65	65	Housing					
Uttlesford	203	Land West of Station Road	Permission	Residential	Elsenham		155	155	155	155	155	Housing					
Uttlesford	204	Land West of Hall Road	Permission	Residential	Elsenham		130	130	130	130	130	Housing					
Uttlesford	205	Land South of Stansted Road	Permission	Residential	Elsenham		165	165	165	165	165	Housing					
Uttlesford	207	Land at Bury Water Lane / Whiteditch Lane	Permission	Residential	Newport		84	84	84	84	84	Housing					
Uttlesford	209	Land at Forest Hall Park	Permission	Residential	Stansted Mountfitchet		35	35	35	35	35	Housing					
Uttlesford	210	Land at Walpole Farm (north of Stansted Mountfitchet)	Permission	Residential	Stansted Mountfitchet		160	160	160	160	160	Housing					
Uttlesford	211	Land at Elms Farm	Permission	Residential	Stansted Mountfitchet		51	51	51	51	51	Housing					
Uttlesford	213	Land South of Dunmow Road, Brewers End	Permission	Residential	Takeley		100	100	100	100	100	Housing					
Uttlesford	214	Land South of Sampford Road	Permission	Residential	Thaxted		60	60	60	60	60	Housing					
Uttlesford	215	Land at Fitch Green	Permission	Residential	Fitch Green		132	132	132	132	132	Housing					
Uttlesford	220	Stansted Airport	Permission	Employment	Stansted Airport							Industrial Estate_B1	2170	2170	2170	2170	2170
Uttlesford	220	Stansted Airport	Permission	Employment	Stansted Airport							Warehousing_B8	3974	3974	3974	3974	3974
Uttlesford	339	Miscellaneous committed housing not previously highlighted	Permission	Residential	Saffron Waldon		460	460	460	460	460	Housing					
Uttlesford	346	Takeley/Little Canfield Policy 2: Land south of Dunmow Road and west of The Pastures/Orchard Fields	Permission	Residential	Takeley		41	41	41	41	41	Housing					
Uttlesford	347	Takeley/Little Canfield Policy 3: North View and 3 The Warren	Permission	Residential	Takeley		44	44	44	44	44	Housing					
Uttlesford	348	Takeley/Little Canfield Policy 4: Land at Former Takeley Service Station and between Ridge House and Remarc	Permission	Residential	Takeley		15	15	15	15	15	Housing					
Uttlesford	352	Great Chesterford Policy 1: New World Timber and Great Chesterford Nursery, London Road	Permission	Residential	Great Chesterford		42	42	42	42	42	Housing					
Uttlesford	353	CLAVERING Policy 1: Land rear of the shop and Ouleys Close	Permission	Residential	Clavering		14	14	14	14	14	Housing					
Uttlesford	354	HENHAM Policy 1: Land at Blossom Hill Farm, Chickney Road	Permission	Residential	Henham		21	21	21	21	21	Housing					
Uttlesford	355	HENHAM Policy 2: Land north of Chickney Road and west of Lodge Cottages	Permission	Residential	Henham		16	16	16	16	16	Housing					
Uttlesford	356	RADWINTER Policy 1: Land north of Walden Road	Permission	Residential	Radwinter		35	35	35	35	35	Housing					
Uttlesford	357	STEBBING Policy 1: Land east of Parkside and Garden Fields	Permission	Residential	Stebbing		30	30	30	30	30	Housing					
Uttlesford	359	FELSTED land at Watch House Green, committed	Permission	Residential	Felsted		25	25	25	25	25	Housing					
Uttlesford	360	HIGH RODING Land at Meadow House, committed	Permission	Residential	High Roding		31	31	31	31	31	Housing					
Uttlesford	362	QUENDON Land rear of Foxley House, committed	Permission	Residential	Quendon		19	19	19	19	19	Housing					
Uttlesford	363	CLAVERING Jubilee Works, committed	Permission	Residential	Clavering		24	24	24	24	24	Housing					
Uttlesford	195	Land West of Great Dunmow, south of Stortford Road	Potential	Residential	Great Dunmow		400	400	400	400	400	Housing					
Uttlesford	196	Land at Helena Romanes School	Potential	Residential	Great Dunmow		100	100	100	100	100	Housing					
Uttlesford	202	Land North of Elsenham	Potential	Residential	Elsenham		80	80	80		80	Housing					
Uttlesford	208	Land West of London Road; plus potential for site to accord with HMA larger village options	Potential	Residential	Newport		170	170	170	90	170	Housing					
Uttlesford	216	Alsa Street	Potential	Employment	Stansted Mountfitchet							Office_B1	512	512	512	512	512
Uttlesford	217	Bury Lodge Lane	Potential	Employment	Stansted Mountfitchet							Industrial Estate_B1	574	574	574	574	574
Uttlesford	217	Bury Lodge Lane	Potential	Employment	Stansted Mountfitchet							Warehousing_B8	351	351	351	351	351
Uttlesford	218	Chesterford Park	Potential	Employment	Little Chesterford							Business Park_B1	2182	2182	2182	2182	2182
Uttlesford	219	Gaunts End	Potential	Employment	Elsenham							Office_B1	1552	1552	1552	1552	1552
Uttlesford	221	Start Hill	Potential	Employment	Great Hallingbury							Industrial Estate_B1	42	42	42	42	42
Uttlesford	221	Start Hill	Potential	Employment	Great Hallingbury							Office_B1	171	171	171	171	171
Uttlesford	221	Start Hill	Potential	Employment	Great Hallingbury							Warehousing_B8	26	26	26	26	26
Uttlesford	349	Takeley Policy 5, Olivias, Dunmow Rd	Permission	Residential	Takeley		6	6	6	6	6	Housing					
Uttlesford	341	Committed sites previously omitted	Permission	Residential	Newport		33	33	33	33	33	Housing					

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Uttlesford	343	Miscellaneous committed housing not previously highlighted	Permission	Residential	Stansted Mountfitchet		16	16	16	16	16	Housing					
Uttlesford	344	Committed sites previously omitted	Permission	Residential	Takeley		12	12	12	12	12	Housing					
Uttlesford	350	Committed sites previously omitted	Permission	Residential	Thaxted		8	8	8	8	8	Housing					
Uttlesford	351	Committed sites previously omitted	Permission	Residential	Elsenham		47	47	47	47	47	Housing					
Uttlesford	364	Small Sites: to be spread across district	Permission	Residential	Uttlesford		172	172	172	172	172	Housing					
Uttlesford	178	Pre/Primary School		Educational	Saffron Waldon							Education	0	0	0	0	0
Uttlesford	183	Pre/Primary School		Educational	Great Dunmow							Education	0	0	0	0	0
Uttlesford	188	New Health Centre		Health Care	Elsenham							GP Surgeries GPs	3	3	3	3	3
Uttlesford	189	Pre School		Educational	Great Chesterford							Education	0	0	0	0	0
Uttlesford	191	Land East of Saffron Walden	Potential	Residential	Saffron Waldon		500	500	500	500	500	Housing					
Uttlesford	191	Land East of Saffron Walden	Potential	Employment	Saffron Waldon							Office_B1	1034	1034	1034	1034	1034
Uttlesford	222	Stansted Airport		Airport	Stansted Airport							Stansted to be treated	NR - Stansted	NR - Stansted	NR - Stansted	NR - Stansted	NR - Stansted
Uttlesford	223	Stansted Airport		Airport	Stansted Airport							Stansted to be treated	NR - Stansted	NR - Stansted	NR - Stansted	NR - Stansted	NR - Stansted
Uttlesford	223a	Stansted Airport		Airport	Stansted Airport							Stansted to be treated	NR - Stansted	NR - Stansted	NR - Stansted	NR - Stansted	NR - Stansted
Uttlesford	224	Stansted Airport		Employment	Stansted Airport							Stansted to be treated	NR - Stansted	NR - Stansted	NR - Stansted	NR - Stansted	NR - Stansted
Uttlesford	387	Great Chesterford: land north of Bartholomew Close	Permission	Residential	Great Chesterford		14	14	14	14	14	Housing					
Uttlesford	510	CLAVINGING: Land south of Oxleys Cl	Permission	Residential	Clavering		14	14	14	14	14	Housing					
Uttlesford	511	Various Permissions in Gt Dunmow	Permission	Residential	Great Dunmow		36	36	36	36	36	Housing					
Uttlesford	512	Thaxted: Wedow Rd various sites with permission	Permission	Residential	Thaxted		106	106	106	106	106	Housing					
Uttlesford	513	Elsenham Nurseries Stansted Road Elsenham	Permission	Residential	Elsenham		40	40	40	40	40	Housing					
Uttlesford	514	Land east of St Edmunds lane, Great dunmow	Permission	Residential	Great Dunmow		22	22	22	22	22	Housing					
Uttlesford	515	Former Ridleys Brewery Mill Lane Hartford End	Permission	Residential	Felsted		22	22	22	22	22	Housing					
Uttlesford	516	Land At Dell Lane Little Hallingbury	Permission	Residential	Little Hallingbury		16	16	16	16	16	Housing					
Uttlesford	517	Land s of Wyndhams Croft & land opp Branksome	Permission	Residential	Newport		30	30	30	30	30	Housing					
Uttlesford	518	25 Barnards Field, Thaxted	Permission	Residential	Thaxted		7	7	7	7	7	Housing					
Uttlesford	519	9-10 Everitt Rd, Saffron Walden	Permission	Residential	Saffron Waldon		7	7	7	7	7	Housing					
Uttlesford	520	Canfield Nursery Bullocks Lane Takeley	Permission	Residential	Takeley		7	7	7	7	7	Housing					
Uttlesford	521	Kings Head North St Great Dunmow	Permission	Residential	Great Dunmow		6	6	6	6	6	Housing					
Uttlesford	522	Elsenham Goods Yard (North) Old Mead Lane Elsenham	Permission	Residential	Elsenham		6	6	6	6	6	Housing					
Uttlesford	523	Land West of Cambridge Road, Newport	Permission	Residential	Newport		34	34	34	34	34	Housing					
Uttlesford	526	Potential for site to accord with HMA larger villages projection	Potential	Residential	Great Chesterford		170	170	170	80	170	Housing					
Uttlesford	527	Potential for site to accord with HMA larger villages options	Potential	Residential	Newport		160	160	160	80	160	Housing					
							40905	40755	40255	39346	44405		32793	30672	29957	31493	34020