WYG Transport Planning

Uttlesford District Council

Uttlesford Local Plan
Transport Study

Addendum Report

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1 Introduction

1.1 PURPOSE

1.1.1 Since the Local Plan Transport Study was produced additional spatial distribution options for future Local Plan development within Uttlesford have been assessed to test the transport impacts of changing circumstances including larger growth requirements from the latest household projections.

1.1.2 This Addendum Report summarises the further spatial distribution options that have been tested and presents the findings from the assessments. The study area and assessment methodology that have been applied for the purposes of these assessments is the same as used for the Local Plan Transport Study.

1.2 STRUCTURE OF THE REPORT

1.2.1 The structure and content of the remainder of this report is summarised as follows.

Reference Case

1.2.2 Summarises the updated reference cases that have been applied and the results of the reference case assessments that act as the 'bench marks' against which the development scenario assessments have been compared.

Proposed Local Plan Development

1.2.3 Summarises the Uttlesford Local Plan development scenarios that have been assessed.

Transport Impacts

1.2.4 Presents results of the assessment of the future year operation of the highway network within the study area at the 2033 assessment year (end of Plan period).

Summary

1.2.5 The final section summarises the findings of the study and presents recommendations.

Figures and Appendices

1.2.6 The Figures and Appendices referred to in the text are presented at the end of the report.

2 Reference Case

2.1 INTRODUCTION

2.1.1 This addendum relates to a further 16 Local plan development scenarios that have been assessed since the Local Plan Transport Study report was produced in December 2016. These additional assessments were undertaken in two stages as follows:

- Scenarios 13 to 17 (inclusive) were assessed in November/December 2016. This work was ongoing when the December 2016 Transport Study report was produced and the findings were not available for inclusion in the report.
- Scenarios 18 to 28 (inclusive) were assessed between March and May 2017.

2.2 NEW DEVELOPMENT SCENARIO EXPLANATION

2.2.1 Overall the Transport Study work has tested and analysed a total of 28 growth scenarios to help consider transport impacts to assist with the preparation of Uttlesford District Council's new Local Plan. The results of the first 12 scenarios tested are presented in the Transport Study report and the results of the latter 16 scenarios listed in **Table 1** (see page 6) are summarised in this Addendum to the Transport Study.

2.2.2 The large number of scenarios tested are in response to changing situations during the preparation of the New Local Plan including; planning appeal decisions, new housing growth targets, constraint in Saffron Walden and in response to emerging Local Plan proposals in adjacent authority areas. The various scenarios tested are based on different:

- Levels of housing and employment growth:
  - With scenarios including 12,500 and 14,100 total dwellings
- Growth distributions to deliver the requirements including:
  - two or three new garden communities
  - different growth levels in towns and villages

2.2.3 Of the original Areas of Search (AoS) shown in the Issues and Options Consultation several were ruled out due to no interest being received for development in the 'Call for Sites Consultation'. The following areas were ruled out for this reason and were not assessed further (See Technical Note 3 in Appendix K of the Transport Study Report for further details):

- AoS 2 - M11 Junction 9 West

- AoS 5 - Southeast of M11 Junction 8
- AoS 8 - South of the A120(T), south of Great Dunmow

2.2.4 The Green Belt review found that the land comprising AoS 4 at Birchanger strongly meets the purpose of the Green Belt. In addition, the area is too small to accommodate a self-contained garden community and there is sufficient non-green-belt land available within the district to meet new housing requirements. Therefore, in accordance with the Green Belt review findings and national policy on the protection of green-belt AoS 4 was ruled out and not tested further.

2.2.5 In the Countryside Protection Zone (CPZ) study AoS 6 south of A120(T), north of Hatfield Forest showed a high level of harm to the CPZ if it were to be released from the CPZ for development. AoS 6 was proposed for 750 dwellings which is insufficient for a self-contained garden community so for these reasons this site was ruled out and not tested further.

2.2.6 This left the following six potential garden community locations for consideration;

- M11 Junction 9a East (Great Chesterford)
- Elsenham
- West of Great Dunmow (Easton Park)
- West of Braintree
- Little Dunmow (Chelmer Mead) – Part of AoS 9
- North of Takeley – Part of AoS 13

2.2.7 Scenarios assuming new garden communities at the above locations were then tested at different sizes/combinations to determine the likely traffic 'stress' that would be placed on the road network and in terms of sustainable transport accessibility (See Technical Note 5 in Appendix L of the Transport Study Report for further details).

2.2.8 Elsenham was included in the initial scenario tests based on a live planning appeal at the time. The assessments indicated that the Elsenham scenario created severe stress on the local road network with limited opportunities to deliver meaningful improvements. Furthermore, issues regarding severance due to the presence of the railway line and traffic delays due to the operation of the level crossing make a new garden community at this location less favourable than alternative locations available within the district.

2.2.9 The Elsenham planning appeal was rejected by the Inspector and the Secretary of State on grounds of severe traffic impacts. Since this time the applicant has submitted illustrative plans

depicting an alternative southern access route and a larger new settlement. However, no transport evidence has been provided and it is not clear whether the applicant owns/controls all the land required to deliver the alternative route so its deliverability is uncertain.

2.2.10 The indicated route would utilise existing highway infrastructure serving a major commercial area associated with Stansted Airport. This infrastructure services a key employment area and the Council's view is that its function should remain commercial. There is therefore currently no evidence to suggest that an Elsenham scenario could be made to work with acceptable traffic impacts.

2.2.11 The scenarios presented in this addendum therefore do not include a new garden community at Elsenham and instead two locations; Little Dunmow (Chelmer Mead) and North of Takeley have been assessed to provide testing for growth requirements. These were tested at 12,500 and 14,100 dwellings.

2.3 REFERENCE CASE AMENDMENTS

2.3.1 The reference case assumptions were adjusted at each of the stages described in paragraph 2.1.1. The first adjustment applied to the assessment of Scenarios 13 to 17 and 28 and added a 2,500 dwelling residential development on land west of Braintree within Braintree District to the reference case to reflect emerging Local Plan proposals within Braintree. This site is a proposed allocation and therefore, in WebTAG terms it is currently classed as 'hypothetical' and wouldn't normally be included in the Core Scenario applied for the reference case. However, given its proximity to the Uttlesford boundary the District Council requested its inclusion to test wider impacts.

2.3.2 The second adjustment applied to the assessment of Scenarios 18 to 27 and reduced the number of dwellings assumed for land west of Braintree within Braintree District from 2,500 to 2,100 dwellings to reflect the level of development considered most likely to be delivered at this location within the Plan period (i.e. to the end of 2033). The total combined number of dwellings tested at land west of Braintree (i.e. including land within Uttlesford and Braintree districts was 3,500 dwellings). This is understood to be the same total scale of development tested by Braintree District.

2.3.3 No other amendments were made to the previous reference case assumptions applied for the December 2016 Transport Study report. Further details regarding the reference case

assumptions can be found in Section 4 of the Transport Study report and the accompanying Technical Note 4.

2.3.4 The schedule in **Appendix A** summarises the changes made to the residential committed development assumptions within Uttlesford and the development assumptions for land west of Braintree within Braintree District throughout all the scenarios assessed to date.

3 Proposed Local Plan Development

3.1 NEW DEVELOPMENT SCENARIOS

3.1.1 As mentioned previously this addendum relates to a further 16 Local plan development scenarios that have been assessed since the Transport Study report was produced in December 2016. These are summarised in **Table 1** below. Consecutive scenario numbering has been applied following on from the Transport Study.

3.1.2 A detailed schedule can be found in **Appendix A** of all scenarios assessed to date that provides a breakdown of dwellings and employment floor area by location for each scenario.

Table 1 – New Development Scenarios

Scenario No.	Summary of Residential Spatial Distribution	Total Dwellings	Total Employment (sqm)
13	West of Great Dunmow; West of Braintree	10,416	171,250
14	Little Dunmow; Great Chesterford	10,416	203,104
15	Little Dunmow; West of Great Dunmow	10,416	190,084
16	North of Takeley; Great Chesterford	10,416	177,520
17	West of Great Dunmow; Takeley	10,416	164,500
18	Great Chesterford; West of Great Dunmow; West of Braintree	13,026	222,250
19	Great Chesterford; West of Great Dunmow; West of Braintree	13,026	214,000
20	Great Chesterford; West of Great Dunmow; West of Braintree	12,676	223,000
21	Great Chesterford; West of Braintree; Takeley (NE)	12,426	207,400
22	West of Braintree; Takeley; Little Dunmow	12,576	204,205
23	West of Great Dunmow; West of Braintree; Little Dunmow	13,226	211,255
24	Great Chesterford; Takeley; Little Dunmow	12,476	223,360
25	Great Chesterford; West of Great Dunmow; Little Dunmow	12,776	231,160
26	West of Great Dunmow; Takeley (NE); Little Dunmow	13,176	205,405
27	Great Chesterford; West of Great Dunmow; Takeley	13,276	223,450
28	Great Chesterford; West of Great Dunmow; Takeley	11,526	198,862

4 Transport Impacts

4.1 INTRODUCTION

4.1.1 The same assessment methodology applied in the Transport Study has been used to assess the latest Local Plan development scenarios.

4.2 CONGESTION REFERENCE FLOWS (CRF)

4.2.1 As per the Transport Study, Congestion Reference Flow (CRF) values have been used as a simple indication of the performance of links within the study area. The CRF of a link is a standard measure and is an estimate of the Annual Average Daily Traffic (AADT) flow at which the carriageway is likely to be 'congested' in the peak periods on an average day. Congestion is defined as the situation when the hourly traffic demand exceeds the maximum sustainable hourly throughput of the link. When this condition occurs, the effects on traffic flow are likely to be one or more of the following:

- Flows break down with speeds varying
- Average speeds drop
- Journey times become longer and unreliable
- Sustainable throughput is reduced; and/or
- Queues are likely to form

4.2.2 The implications of these types of peak period traffic conditions can include; increased frequency of accidents due to unpredictable queuing on links, peak spreading as drivers travel earlier or later than the 'traditional' highway peak periods to avoid delays, and trips re-assigning onto alternative routes to avoid congestion (i.e. 'rat-running') where alternative routes are available.

4.2.3 The assessment methodology uses surveyed link flows and forecast flows to determine Congestion Reference Flows (CRF) and based on these calculated reference capacities link 'stress' levels have been identified where stress is defined as the ratio of the annual average daily traffic (AADT) flow to the Congestion Reference Flow expressed as a percentage.

4.2.4 A stress level of 100% (i.e. when the demand flow equals the CRF value) is the critical point at which link flows break down resulting in queuing and reduced throughput. Therefore, for the purposes of this study the following stress thresholds have been applied to identify when links are approaching, or exceeding their theoretical maximum capacity:

- **Less than 90% stress** - the link operates within capacity, although journey times may become less reliable over 75% stress (see below).
- **Between 90% and 100% stress** - The link is approaching capacity and is increasingly susceptible to flow breakdown.
- **Greater than 100% stress** - The link operates over capacity and is likely to experience flow breakdown on a regular basis.

4.2.5 The above thresholds have been applied to easily identify when link capacity is approaching critical conditions (i.e. 100% stress). However, it should be noted that 75% stress is generally accepted as the threshold level for adverse effects on journey time reliability. Therefore, links with between 75% and 99% stress will still be operating within capacity but journey times are likely to be less reliable than on links with less than 75% stress.

4.2.6 It should be noted that CRF is a measure of the performance of the links between junctions however; junctions will typically reach their operational capacity and suffer congestion and delays before a link reaches capacity. It is therefore implicit that where links are forecast to be at, or close to capacity the junctions on the link are also likely to experience problems. Junction operation is discussed in Section 6.8 of the Transport Study report and later in this report.

4.3 REFERENCE CASES

4.3.1 CRF link stress values for the two Reference Cases (i.e. Base + Committed Development) mentioned previously are illustrated on **Figure 30** and **Figure 37**. For ease of reference link stress levels of less than 90% are shown in green, 90%-100% are shown in yellow and greater than 100% are shown in red.

4.3.2 **Figures 30** and **37** indicates that several links within Uttlesford and several links within adjacent districts are forecast to operate close to, or over their theoretical capacity (100% stress) at 2033 with the addition of committed development traffic. The links listed in **Table 2** on the following page have stress levels of more than 90% and could be expected to experience longer, less reliable journey times and potential queuing in peak periods.

Table 2 – Links Close to or Exceeding Capacity in the 2033 Reference Cases

Link Location	November 2016 Reference Case – Maximum Stress	March 2017 Reference Case - Maximum Stress	Local Authority
M11 south of J7	128%	128%	Epping Forest
M11 J7 to J8	101%	100%	Epping Forest/Uttlesford
M11 J8 to J9	101%	101%	Uttlesford
M11/A11 at M11J9	99%	99%	Uttlesford
M11 north of J10	108%	108%	South Cambridgeshire
A414 Southeast of M11 J7	157%	157%	Epping Forest
A120 Bishop's Stortford Bypass	131%	130%	East Herts/Uttlesford
A120(T) M11 J8 to Stansted Airport	153%	153%	Uttlesford
A120(T) north of Takeley	97%	96%	Uttlesford
Pod's Brook Road north of A120(T)	107%	105%	Braintree
A131 north east of Braintree	124%	124%	Braintree
A120 east of Braintree	155%	154%	Braintree
B1018 south east of Braintree	96%	96%	Braintree
A131 between Great Leighs and the B1008	164%	161%	Chelmsford
B1008 at Barnston	103%	103%	Uttlesford
B1008 between Barnston and the B1417	123%	123%	Chelmsford
A131 Essex Regiment Way south of B1008	127%	125%	Chelmsford
B1256 west of Great Dunmow	143%	143%	Uttlesford
B1383 Stansted Mountfitchet	150%	150%	Uttlesford
A505 between the M11 and the A11	142%	142%	South Cambridgeshire
A505 west of M11 at Duxford	155%	154%	South Cambridgeshire
A1307 between the A11 and Linton	148%	148%	South Cambridgeshire

4.3.3 The only difference between the Reference Case assumptions above were the quantum of residential development assumed at Land West of Braintree within Braintree. The November 2016 Reference Case assumed 2,500 dwellings and the March 2017 Reference Case assumed 2,100 dwellings.

4.3.4 The November 2016 reference case that includes 400 more dwellings on land West of Braintree within Braintree results in slightly higher stress values on the M11 between junctions 7 and 8 (1% increase), on the A120 north of Bishops Stortford and east of Braintree and (1% increase), on the A120(T) north of Takeley (1% increase), on the A131 towards Chelmsford (2% to 3% increase) and on the A505 west of the M11.

4.3.5 Based on the results presented in **Table 2** the following roads within Uttlesford are forecast to exceed their theoretical link capacity by 2033 without any Local Plan development, if all the assumed reference case growth is realised and in the absence of any modal shift away from current levels of car use:

- M11 Junction 7 to Junction 9
- A120 from the B1383 west of M11J8 to M11J8
- A120(T) from M11J8 to Stansted Airport
- B1256 west of Great Dunmow
- B1008 south of Great Dunmow through Barnston
- B1383 at Stansted Mountfitchet

4.3.6 These roads could therefore be expected to experience peak period flow breakdown on a regular basis and junctions on these links could also be expected to experience capacity issues.

4.3.7 The Reference Case results in **Table 2** and in **Figure 30** and **Figure 37** have been used as the benchmark against which the impacts of the development scenarios have been measured.

4.4 LOCAL PLAN DEVELOPMENT SCENARIOS

4.4.1 CRF link stress values for the 'with development' scenarios (i.e. Base + Committed + Development) are illustrated on **Figures 31** to **36** and **Figures 38** to **48**. The pattern of traffic impacts across the study area vary depending on where development is focussed and the quantum of development by use-class in each scenario.

4.4.2 To assist with comparing the relative impacts of each development scenario **Table 3** (12,500 dwellings) and **Table 4** (14,100 dwellings) on the following page summarise the total link lengths by road category within the study area that exceed 100% stress. The total link lengths exceeding 100% for all road categories is then expressed as a percentage change in comparison to the relevant reference case.

Table 3 – Scenarios 13 – 17: Total Link Length with Greater than 100% Stress (km)

Road Classification	Reference Case (2,500 Dwellings on Land West of Braintree)	Total Link Length with greater than 100% Stress (km)				
		Scenario 13	Scenario 14	Scenario 15	Scenario 16	Scenario 17
Motorway	50.37	51.35	51.35	51.35	51.35	51.35
A Road	47.37	58.18	60.72	58.18	57.90	58.26
B Road	45.95	47.47	48.47	47.48	47.69	47.59
Minor Road	0.08	0.95	0.95	0.95	0.95	0.95
All Roads	143.76	157.95	161.49	157.96	157.88	158.14
% Change to Ref Case	100%	110%	112%	110%	110%	110%

4.4.3 As mentioned earlier the reference case assumptions applied for the assessments summarised in **Table 3** and **Table 4** were different (400 dwellings difference on Land West of Braintree within Braintree). However, it can be seen from the tables that in the reference cases this makes no difference to the total link lengths with greater than 100% stress.

4.4.4 Scenarios 13 to 17 in **Table 3** above represent development scenarios totalling 12,500 dwellings within the district, whereas scenarios 18 to 28 in **Table 4** below represent development scenarios totalling 14,100 dwellings. Any comparison between the results in the tables therefore needs to take this into account.

4.4.5 A direct comparison between the results presented here and the earlier results presented in the Transport Study report isn't possible due to the more significant changes to the reference case assumptions between these assessments.

Table 4 – Scenarios 18 – 28: Total Link Length with Greater than 100% Stress (km)

Road Classification	Reference Case (2,100 Dwellings on Land west of Braintree)	Total Link Length with greater than 100% Stress (km)										
		Scenario 18	Scenario 19	Scenario 20	Scenario 21	Scenario 22	Scenario 23	Scenario 24	Scenario 25	Scenario 26	Scenario 27	Scenario 28
Motorway	50.37	51.35	51.35	51.35	51.35	51.35	51.35	51.35	51.35	51.35	51.35	51.35
A Road	47.37	60.97	60.97	64.16	60.97	63.38	62.42	60.97	60.97	60.19	58.15	63.03
B Road	45.95	47.88	47.95	49.73	48.08	49.08	48.25	49.10	48.90	47.79	48.83	48.27
Minor Road	0.08	0.95	0.95	0.95	1.18	1.06	1.06	0.95	0.95	1.06	0.95	0.95
All Roads	143.76	161.15	161.22	166.18	161.59	164.86	163.08	162.37	162.17	160.39	159.28	163.59
% Change to Ref Case	100%	112%	112%	116%	112%	115%	113%	113%	113%	112%	111%	114%

4.4.6 The tables demonstrate that for all scenarios (13 to 28 inclusive) the total length of links exceeding 100% are very similar with only a few percentage points difference.

4.4.7 There is a minor change to the total length of motorway with greater than 100% stress compared to the respective reference cases (0.98 km in both cases). This relates to a short section of the M11 immediately south of J9 that exceeds 100% stress with the addition of Local Plan development in all scenarios (99% without Local plan development).

4.4.8 Differences to the total length of 'A' roads exceeding 100% stress relate primarily to the A1301 between M11J9A and the A505 and the A120(T) corridor between M11J8 and Great Dunmow. The stress plans show how the patterns of impact change depending on the locations of development within each scenario. Key differences are apparent between the scenarios that include significant development at Great Chesterford (i.e. scenarios 14, 16, 18, 19, 20, 21, 24, 25, 27 & 28), which result in greater impacts on the A1301 and A505 to the north, and those that focus all development along the A120(T) corridor (i.e. scenarios 13, 15, 17, 22, 23 & 26), which result in greater impacts on the A120(T) and the A131 to the south.

4.4.9 The differences to the total length of 'B' Roads exceeding 100% stress primarily relate to impacts on the B184 to the north of Saffron Walden, on the B184 just south of M11J9A and on the B1383 through Newport village, which are more impacted by the scenarios that include significant development at Great Chesterford (i.e. scenarios 14, 16, 18, 19, 20, 21, 24, 25, 27 & 28), and on the B1256 east of Takeley which is more impacted by the scenarios that focus all development along the A120(T) corridor (i.e. scenarios 13, 15, 17, 22, 23 & 26).

4.4.10 The differences to the total length of minor Roads exceeding 100% stress relate primarily to impacts on Hall Road north of Stansted Airport with the greatest impacts at this location due to the Scenarios with more significant development North of Takeley and at Little Dunmow (i.e. scenarios 21, 22, 23 & 26).

4.5 TRIPS BY MODE

4.5.1 Estimated trips by mode of travel for Scenarios 13 to 28 inclusive are presented in **Table 5** below. These have been estimated using the same methodology as applied in the Transport Study and represent two-way person trips in the AM peak hour.

Table 5 – Total Two-Way Person Trips by Mode – AM Peak

No.	Scenario	Total 2-Way Person Trips by Mode - AM Peak							
		Train	Bus	Car	M/cycle	Bicycle	Walk	Other	Total
13	West of Great Dunmow; West of Braintree	809	126	5,999	51	98	798	51	7,932
14	Little Dunmow; Great Chesterford	882	138	6,535	55	107	870	55	8,641
15	Little Dunmow; West of Great Dunmow	864	135	6,402	54	104	852	54	8,465
16	North of Takeley; Great Chesterford	817	128	6,057	51	99	806	51	8,009
17	West of Great Dunmow; Takeley	806	126	5,973	50	97	795	50	7,898
18	Great Chesterford; West of Great Dunmow; West of Braintree	1,139	178	8,443	71	138	1,123	71	11,163
19	Great Chesterford; West of Great Dunmow; West of Braintree	1,129	176	8,370	71	137	1,114	71	11,067
20	Great Chesterford; West of Great Dunmow; West of Braintree	1,104	172	8,184	69	134	1,089	69	10,822
21	Great Chesterford; West of Braintree; Takeley (NE)	1,060	165	7,854	66	128	1,045	66	10,385
22	West of Braintree; Takeley; Little Dunmow	1,103	172	8,173	69	133	1,088	69	10,807
23	West of Great Dunmow; West of Braintree; Little Dunmow	1,178	184	8,734	74	143	1,162	74	11,548
24	Great Chesterford; Takeley; Little Dunmow	1,103	172	8,177	69	133	1,088	69	10,812
25	Great Chesterford; West of Great Dunmow; Little Dunmow	1,143	178	8,474	72	138	1,128	72	11,205
26	West of Great Dunmow; Takeley (NE); Little Dunmow	1,168	182	8,657	73	141	1,152	73	11,447
27	Great Chesterford; West of Great Dunmow; Takeley	1,167	182	8,651	73	141	1,151	73	11,438
28	Great Chesterford; West of Great Dunmow; Takeley	953	149	7,062	60	115	940	60	9,338

Notes: 1. Train includes train, underground, light rail and tram; 2. Bus includes bus, minibus and coach; 3. Motorcycle includes motorcycle, scooter and moped; 4. Car includes car and van drivers, car passengers and taxi.

4.5.2 Scenarios 13 to 17 inclusive all have the same number of dwellings with differences between employment floor areas/use-classes (a maximum difference of 38,604 sqm between the highest and lowest). The estimated total person trip generation across these scenarios is therefore similar (maximum difference of 742 two-way person trips in the AM peak between the highest and lowest).

4.5.3 The number of dwellings and employment floor areas both vary across scenarios 18 to 28 inclusive with maximum differences of 1,750 dwellings and 32,298 sqm of employment between the highest and lowest. The estimated total person trip generation therefore varies across these scenarios accordingly with a maximum difference of 2,211 two-way person trips in the AM peak.

4.5.4 The dominant mode of travel, with between 5,973 and 8,734 two-way trips in the AM peak (across all scenarios), is the car[1]. In descending order the next highest modes by use are rail, walking, bus, cycle, motorcycle and 'other' modes.

4.6 IMPACTS ON SUSTAINABLE MODES OF TRAVEL

4.6.1 As discussed in the Transport Study report the existing modal splits used to estimate the person trips presented in **Table 5** reflect the predominantly rural nature of the district with a disperse pattern of small settlements, relatively long journey distances that preclude walking and cycling and limited sustainable travel infrastructure and services.

4.6.2 In accordance with the NPPF the new Local Plan will ensure that developments that generate significant movement are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised. Garden communities will be required to deliver a mix of uses and key facilities such as employment, education and retail within walking distance of most residential properties to minimise the need to travel.

4.6.3 New development will also be required to deliver Sustainable Transport measures that provide travel choice to help reduce reliance on the private car, thereby helping to reduce development car trips. Change in travel mode will be delivered through planning conditions and travel monitoring in accordance with Local Plan policies.

4.6.4 No adjustments have been applied to reflect the potential benefits of mixed-use communities designed to minimise the need to travel or the benefits of future sustainable travel initiatives so the estimated trips by car used in the assessments are robust.

4.6.5 Based on Essex County Council guidance a 10% modal shift away from car use towards more sustainable modes of travel is considered a reasonable 'rule of thumb' for the purposes of estimating the effects of modal shift on existing transport infrastructure, although this is probably conservative when the benefits of new mixed-use communities designed to minimise the need to travel are considered.

4.6.6 For example, assuming a 10% modal shift away from car use would see person trips by car reduce by 874 (based on Scenario 23 which is the highest overall person trip generator). Distributing these 874 person trips across rail, bus, walking and cycling in the same proportions

[1] In the tables trips by car include; car and van drivers, car and van passengers and taxis

as per 2011 Census modal splits would see an additional; 385 persons travelling by train (44%), 61 by bus (7%), 43 by bicycle (5%) and 385 walking (44%).

4.6.7 For Scenario 23 this would mean a total increased demand of 1,563 two-way person trips travelling by train in the AM peak. Splitting this in half (as a rough approximation) to reflect inbound and outbound trips and assuming all outbound persons catch the train at Audley End station and are split equally between the four peak hourly services that currently travel between Audley End and London Liverpool Street Stations, this would equate to approximately 16 additional passengers per carriage, assuming 12 car length trains.

4.6.8 This is a very approximate estimation and in practice demand would be spread across more stations and other destinations (e.g. trips to Cambridge) but the estimate suggests that the approximate scale of additional rail demand anticipated should be accommodated by existing/proposed infrastructure and services.

4.6.9 Similarly, the levels of increased walking, cycling and bus trips that are estimated across the district would be accommodated by existing infrastructure/services with local improvements to enhance connectivity to new developments.

4.7 TRAFFIC IMPACTS ON HIGHWAY LINKS

4.7.1 Two-way traffic flow increases in the AM peak on links that are either forecast to exceed 100% stress in the Reference Cases, or have junctions that already experience traffic congestion are summarised in **Table 6** below and **Table 7** on the following page.

Table 6 – Total Two-Way Vehicle Trips – AM Peak

Link Description	District	November 2016 Scenarios				
		13	14	15	16	17
Pod's Brook Road north of A120(T)	Braintree	74	100	**103**	**55**	87
A131 north east of Braintree	Braintree	35	40	**44**	**27**	35
A120(T) east of Braintree	Braintree	135	142	**149**	**115**	125
B1018 south east of Braintree	Braintree	42	51	**55**	**33**	44
A131 Great Leighs to the B1008	Chelmsford	**72**	**0**	**0**	**0**	**0**
B1008 (Barnston to B1417)	Chelmsford	**106**	**86**	98	95	98
A131 Essex Regiment Way S of B1008	Chelmsford	197	244	**258**	**123**	224
A120 Bishop's Stortford Bypass	East Herts/Uttlesford	317	**236**	321	284	**348**
M11 south of J7	Epping Forest	686	590	**703**	**572**	695
A414 Southeast of M11 J7	Epping Forest	**17**	23	**17**	**37**	30
M11 J7 to J8	Epping Forest/Uttlesford	913	**774**	**931**	778	930
M11 north of J9	South Cambs	116	90	**132**	**78**	117
A505 between the M11 and the A11	South Cambs	**168**	363	**168**	**364**	**168**
A505 west of M11 at Duxford	South Cambs	**44**	88	45	**91**	45
A1307 between the A11 and Linton	South Cambs	108	171	**103**	**172**	**103**
M11 J8 to J9	Uttlesford	**233**	**476**	256	459	240
A120(T) M11 J8 to Stansted Airport	Uttlesford	1593	**1137**	1626	1245	**1669**
A120(T) north of Takeley	Uttlesford	1453	**969**	1486	1285	**1736**
B1256 west of Great Dunmow	Uttlesford	485	**393**	440	**487**	485
B1383 Stansted M'fitchet (S of B1051)	Uttlesford	**415**	438	438	447	**471**
B1052 Saffron Walden	Uttlesford	**250**	**193**	228	205	206
B184 Saffron Walden	Uttlesford	325	366	309	**375**	**291**
B1383 Newport village	Uttlesford	**421**	**370**	401	382	374
B1051 Stansted M'fitchet	Uttlesford	**324**	350	350	357	**381**
B1383 Stansted M'fitchet (N of B1051)	Uttlesford	**90**	**90**	**90**	**90**	**90**
B1256 Takeley village	Uttlesford	153	270	**277**	**100**	254
B1008 Great Dunmow	Uttlesford	**107**	159	159	128	**170**

Note: Highest values for each link shown in red, lowest in green

Table 7 – Total Two-Way Vehicle Trips – AM Peak

Link Description	District	March 2017 Scenarios										
		18	19	20	21	22	23	24	25	26	27	28
Pod's Brook Road north of A120(T)	Braintree	88	95	103	83	**170**	159	108	112	145	**77**	90
A131 north east of Braintree	Braintree	36	36	39	**32**	**56**	55	39	41	53	35	35
A120(T) east of Braintree	Braintree	167	168	175	153	200	**201**	162	169	190	162	**152**
B1018 south east of Braintree	Braintree	47	50	54	**43**	**84**	78	54	56	73	**43**	46
A131 Great Leighs to the B1008	Chelmsford	71	118	**172**	71	169	70	**0**	**0**	**0**	**0**	115
B1008 (Barnston to B1417)	Chelmsford	116	109	104	106	**93**	110	100	105	113	**123**	104
A131 Essex Regiment Way S of B1008	Chelmsford	207	245	290	203	**505**	427	252	255	371	**151**	236
A120 Bishop's Stortford Bypass	East Herts/Uttlesford	384	369	336	382	458	508	359	360	**566**	443	**320**
M11 south of J7	Epping Forest	871	861	814	781	995	**1099**	801	847	1095	910	**744**
A414 Southeast of M11 J7	Epping Forest	28	28	29	**45**	25	**17**	36	28	32	36	24
M11 J7 to J8	E Forest/Uttlesford	1148	1127	1058	1042	1287	1430	1056	1110	**1448**	1217	**975**
M11 north of J9	South Cambs	125	117	**104**	105	174	205	117	128	**210**	140	106
A505 between the M11 and the A11	South Cambs	499	**500**	**500**	**500**	159	**158**	499	499	**158**	499	360
A505 west of M11 at Duxford	South Cambs	141	139	136	138	**56**	62	137	139	66	**145**	100
A1307 between the A11 and Linton	South Cambs	229	232	**235**	230	121	114	224	224	**110**	224	185
M11 J8 to J9	Uttlesford	744	731	717	723	**323**	359	739	750	371	**765**	522
A120(T) M11 J8 to Stansted Airport	Uttlesford	1814	1736	1560	1656	2261	2596	1633	1714	**2754**	2049	**1515**
A120(T) north of Takeley	Uttlesford	1623	1543	1367	1738	2256	2455	1576	1520	**2886**	1995	**1342**
B1256 west of Great Dunmow	Uttlesford	570	548	522	578	**492**	537	520	516	592	**621**	527
B1383 Stansted M'fitchet (S of B1051)	Uttlesford	**394**	400	409	446	**485**	444	445	418	484	408	404
B1052 Saffron Walden	Uttlesford	176	166	148	132	**125**	175	126	148	160	**181**	156
B184 Saffron Walden	Uttlesford	396	390	377	363	**229**	265	360	376	252	**400**	327
B1383 Newport village	Uttlesford	440	427	404	385	**351**	416	381	408	397	**450**	398
B1051 Stansted M'fitchet	Uttlesford	**341**	347	356	393	**431**	391	392	366	**431**	355	350
B1383 Stansted M'fitchet (N of B1051)	Uttlesford	**53**	**54**	**53**	**54**	**54**	**54**	**53**	**53**	**54**	**53**	**54**
B1256 Takeley village	Uttlesford	193	220	258	194	**559**	496	310	311	455	**149**	220
B1008 Great Dunmow	Uttlesford	**103**	109	120	140	**240**	207	168	149	234	112	108

Note: Highest values for each link shown in red, lowest in green

4.7.2 The flows in **Table 6** and **Table 7** have been taken from the WYG strategic VISUM model used to assign Local Plan development trips onto the highway network. The model does not contain base traffic flows so it's not possible to provide a comparison against existing flows[2]. The development traffic flows presented assume no reductions for sustainable travel initiatives and can therefore be considered the 'worst case'.

4.7.3 The VISUM model used to provide these flows is a strategic model and is relatively simplistic at the local level. For example, Local Plan development within Saffron Walden is represented by one model zone that loads traffic at a single point onto the highway network. In the district-wide strategic context, this level of detail is appropriate however, at the local level it results in a simplistic representation of development trips on local roads. Flows should therefore be taken in this context and are presented to give an indication of the approximate magnitude of flow

[2] The VISUM model contains no base traffic flows and has only been used to assign development traffic flows onto the highway network. The model does not consider junction operation (i.e. there is no trip reassignment due to delays) and the resultant development trip assignment provides 'Demand Flows' that represent the routes taken in the absence of network constraints.

changes that could be expected at these locations with all Local Plan development complete and fully occupied.

4.7.4 As can be seen from **Table 6** and **Table 7** the anticipated additional traffic flows due to Local Plan development in the AM peak are low in many locations across all of the scenarios and would be difficult to differentiate from typical daily fluctuations in traffic flow. For example, a two-way flow of 360 VPH would be equivalent to one vehicle passing every 20 seconds, on average, in each direction during the peak hour.

4.7.5 Across all the scenarios the highest flow increases are forecast on the M11 and on the A120(T) where two-way flow increases of up to 1,448 VPH are forecast on the M11 between J7 and J8 and up to 2,886 VPH on the A120(T) north of Takeley, both in Scenario 26 (Little Dunmow, Land West of Great Dunmow, Takeley). As could be expected, the scenarios that focus all development along the A120(T) corridor (i.e. no development at Great Chesterford) result in the highest flow increases on the A120(T) with scenarios 22, 23 and 26 resulting in the greatest impacts between Stansted and M11 J8 and north of Takeley.

4.7.6 On 'A' and 'B' roads outside of the district development flows are generally low. On the A120 Bishop's Stortford bypass west of M11 Junction 8 the highest forecast flow increases also result from the scenarios that focus all development along the A120(T) corridor (i.e. 22, 23 and 26 which do not include any development at Great Chesterford) with the highest increase of 566 VPH in the AM peak in scenario 26. Impacts in this location are lower for all other scenarios. On the A120(T) east of Braintree the highest forecast flow increase is 201 VPH in the AM peak in scenario 23.

4.7.7 Within South Cambridgeshire the highest flow increases are forecast on the A505 between the M11 and the A11(T) where increases of up to 500 VPH are forecast in the AM peak. This level of impact is consistent for all the scenarios that include development of 2,500 dwellings at Great Chesterford (i.e. 18, 19, 20, 21, 24, 25 and 27). Scenario 28 which includes a smaller development of 1,460 dwellings at Great Chesterford results in a correspondingly smaller forecast increase of 360 VPH on the A505.

4.7.8 Potential traffic impacts on the A505 corridor within South Cambridgeshire have been examined separately and the findings from this work are summarised in the report titled "South Cambridgeshire Junction Assessments", dated May 2017 (also see paragraph 4.8.14).

4.7.9 Within Chelmsford the highest flow increases are forecast on the A131 Essex Regiment Way where scenario 22 results in the highest increase of 505 VPH in the AM peak. This scenario focusses all development on the A120(T) corridor and includes 2,700 dwellings at Little Dunmow.

4.8 TRAFFIC IMPACTS AT JUNCTIONS

4.8.1 As mentioned previously the CRF methodology used to estimate the likely strategic impacts of Local Plan development on the highway network is a broad measure of the performance of links between junctions. The likely impacts of Local Plan development traffic on key junctions within the study area is discussed in the Transport Study and in this section of the report.

4.8.2 The following text focusses on the key junctions within the study area. The Transport Study also discusses the existing performance of junctions on the local highway network for settlements in the district and this information remains unchanged.

M11 Junction 8

4.8.3 M11 Junction 8 is a critical junction within the district, it is the intersection of the M11 motorway and the A120(T) Trunk Road, both of which form part of the Strategic Road Network (SRN) and carry longer distance through traffic as well as local traffic. M11 Junction 8 also serves Stansted Airport which is a key transport gateway and the largest single-site employer in the east of England.

4.8.4 The operation of the existing signal controlled M11 Junction 8 roundabout and the two priority roundabouts to the west of M11 Junction 8 (A120/A1250 and A120/B1383) were assessed as part of the December 2016 Transport Study to determine how the addition of Local Plan development traffic will affect their operation.

4.8.5 The junction assessments identified that all three junctions would operate satisfactorily in the base year but would be expected to be over capacity in both peaks at 2033 with the addition of Reference Case traffic flows. The addition of Local Plan development traffic flows made this situation worse.

4.8.6 A short to medium term proposal to improve the junctions has been identified by Essex County Council and is being promoted via Highways England's Growth and Housing Fund (see Appendix F of the Transport Study report for preliminary plans).

4.8.7 Tests of the performance of the improved junctions demonstrate that the short to medium term proposals will deliver operational benefits by providing short to medium-term congestion relief, effectively extending the 'working life' of the junctions. However, more comprehensive improvements will be required to provide a longer-term solution.

4.8.8 Essex County Council is currently working in partnership with Hertfordshire County Council and Highways England to prepare a detailed VISSIM model of M11 J8 and the adjacent roundabouts. This will be used to identify an improvement scheme to deliver the longer-term capacity improvements needed, for promotion through future Government Roads Investment Strategy (RIS) for RIS 2 or RIS 3. At the time of writing Essex County Council have validated the base model and are developing improvement options for testing. No further assessment of the short to medium-term improvements at M11 J8 has therefore been undertaken due to this ongoing work.

A120(T) between M11 Junction 8 and Braintree

4.8.9 To the east of M11 Junction 8 the A120(T) is dual carriageway until its junction with the A131 to the east of Braintree and all junctions until the A120(T) Galley's Corner and A120(T) Mark's Farm at-grade roundabout junctions at Braintree are grade-separated.

4.8.10 Highways England and Essex County Council have confirmed that the existing grade-separated junctions on this section of the A120(T) currently operate with spare capacity and are not expected to represent a constraint to Local Plan development. However, the A120(T) Galley's Corner and A120(T) Mark's Farm at-grade roundabout junctions are known to experience peak period congestion with significant queuing. Both junctions are located within Braintree District and are currently being examined by Essex County Council as part of the A120(T) Braintree to A12(T) improvement study.

4.8.11 At the time of writing the study has identified nine potential route options which were subject to public consultation in early 2017. Essex County Council are currently considering consultation responses prior to making a recommendation to the Secretary of State and Highways England for consideration for inclusion in the Roads Investment Strategy 2 (RIS 2).

4.8.12 It is anticipated that as part of the preferred option design the study will identify appropriate improvements to the A120(T) Galley's Corner and A120(T) Mark's Farm at-grade roundabout junctions for inclusion as part of the route improvement.

Other Junctions Outside of the District

4.8.13 Other junctions known to experience congestion are the; M11 Junction 10 at Duxford and the A505/A1301 roundabout to the east of M11 Junction 10, both of which are located within South Cambridgeshire, and the A131/B1008 Essex Regiment Way Roundabout within Chelmsford District. All three of these junctions are at-grade priority roundabouts that are known to experience congestion and queuing in the peak periods.

South Cambridgeshire Junctions

4.8.14 A separate study has been undertaken of three junctions and the A505 corridor within South Cambridgeshire and the findings are summarised in the "South Cambridgeshire Junction Assessments" report dated May 2017.

4.8.15 Following discussion with Cambridgeshire and Essex County Council highway departments, Highways England and South Cambridgeshire District Council a joint methodology was agreed based on Uttlesford District Council assessing the operation of three strategic junctions to determine the likely implications of Local Plan traffic impacts and to help identify potential mitigation. The study examined the operation of the following junctions:

- M11/A505 (M11 J10) Roundabout
- A505/A1301 Roundabout
- A11(T)/A1307 Roundabout

4.8.16 The study identified that the A505 corridor between the M11 Motorway and the A11(T) is already operating very close to its theoretical link capacity. Which means, in the absence of any delays at junctions, motorists can expect to experience less reliable journey times and congestion in the peak periods due to the volume of traffic using the A505.

4.8.17 Committed development traffic was also shown to place significantly more pressure on the operation of the A505 corridor and the junctions along it than Local Plan growth within Uttlesford District.

4.8.18 At the end of Plan period (2033) the M11 J10 and A505/A1301 roundabouts are both forecast to operate over capacity without any Uttlesford Local Plan development traffic. The A11(T)/A1307 roundabout is forecast to operate within acceptable parameters. With the addition of Local Plan traffic flows the M11 J10 and A505/A1301 roundabouts are both forecast to operate

further over capacity in both peaks while the A11(T)/A1307 roundabout continues to operate within acceptable parameters.

4.8.19 Preliminary improvement schemes have been identified for the M11 J10 and the A505/A1301 roundabouts that provide signal control at both junctions with associated carriageway widening. The operation of these improvements has been tested and shown to deliver significant benefits compared to the operation of the existing junction layouts. The improvements would more than mitigate the impact of Uttlesford Local Plan traffic flows (i.e. deliver better than 'nil detriment').

4.8.20 A comparison of the operation of the improved layouts 'with' and 'without' Local Plan traffic flows demonstrates that Local Plan development has minimal impact on the operation of the M11 J10 and the A505/A1301 junctions.

4.8.21 A test was also undertaken to demonstrate that the improved junctions could accommodate up to circa 3,294 dwellings at a new garden community at Great Chesterford within the Plan Period while still delivering 'nil detriment' performance, subject to delivery of successful modal shift measures and more detailed Transport Assessment work.

Chelmsford District Junction

4.8.22 As mentioned earlier two-way traffic flow increases of up to circa 500 VPH are estimated on the A131 within Chelmsford District that would impact on the A131/B1008 Essex Regiment Way Roundabout. This is an at-grade priority roundabout that is known to experience congestion and queuing in the peak periods.

4.8.23 At the time of writing Essex County Council are currently developing improvement proposals for the A131/B1008 Essex Regiment Way Roundabout in Chelmsford as part of a route based strategy for the A131. This scheme is likely to be in place within the next two to three years.

4.9 TRAFFIC IMPACTS IN SAFFRON WALDEN

4.9.1 Essex County Council has prepared a separate study "The UDC Transport study/Saffron Walden Transport Assessment 2013/14 [updated 2017]" that looks at the more detailed traffic impacts of Local Plan development on the transport network including the towns of Saffron Walden and Great Dunmow. A copy of this report is attached in **Appendix B**.

4.9.2 For Saffron Walden, the Essex County Council study assesses potential development options to the east of the town 'with' and 'without' a possible new link road to help alleviate traffic

movements through the town. The recent update to the study identifies that the link road is now challenging to deliver and would, in any event, be unlikely to deliver enough traffic relief to allow significant development to the east of the town to proceed without detrimental traffic impacts.

4.9.3 Deliverable improvements to the Peaslands Road corridor have been identified that will help to provide increased opportunities for traffic to avoid the centre. With these in place a development of circa 150 dwellings can be accommodated (on the Kier site) with acceptable impacts. Subject to an appropriate transport assessment /air quality assessment as part of the normal planning application process.

4.9.4 Beyond this scale of development more sophisticated modelling would be required to justify development in terms of impacts. The scale and cost of such assessment work is beyond the current round of plan making and would be a matter for plan review. Thus, the County Council and UDC are exploring ways of looking at longer-term growth via a separate Saffron Walden Town Transport study that would inform such a review.

5 Summary

5.1 INTRODUCTION

5.1.1 Since the Local Plan Transport Study was produced additional spatial distribution options for future Local Plan development within Uttlesford have been assessed at the request of the District Council.

5.1.2 This addendum report summarises changes to reference case assumptions and the findings from the assessment of 16 further spatial distribution options. The study area and assessment methodology used was the same as applied for the Local Plan Transport Study.

5.2 CONCLUSIONS

5.2.1 The Transport Study identified that all highway links within Uttlesford currently operate within capacity at the 2016 base year and only three links in neighbouring districts (within the study area) were identified as being over capacity (greater than 100% stress). With the addition of Reference Case traffic flows seven links within Uttlesford and 12 links within neighbouring districts are forecast to be over capacity by the end of 2033 (based on the Nov' 2016/March 2017 Reference Cases) without any Local Plan development.

5.2.2 The following roads within Uttlesford are forecast to exceed their theoretical link capacity by 2033 without any Local Plan development, if all the assumed reference case growth is realised and in the absence of any modal shift away from current levels of car use:

- M11 Junction 7 to Junction 8
- M11 Junction 8 to Junction 9
- A120 from the B1383 west of M11J8 to M11J8
- A120(T) from M11J8 to Stansted Airport
- B1256 west of Great Dunmow
- B1008 south of Great Dunmow through Barnston
- B1383 at Stansted Mountfitchet

5.2.3 These roads could therefore be expected to experience peak period flow breakdown on a regular basis and junctions on these links could also be expected to experience capacity issues without any Local Plan development.

5.2.4 The addition of Local Plan development traffic increases the total link lengths that are forecast to be at, or close to capacity by the end of 2033 however, it can be seen from the stress plans that by comparison, the impacts due to Local Plan development traffic are relatively small and committed development traffic will place more pressure on the operation of the highway network within the district than Local Plan growth.

5.2.5 In addition, traffic increases due to Local Plan development have been assessed assuming existing modal splits (based on 2011 Census data) and no allowance has been made for sustainable travel measures that new development will be required to deliver. All Local Plan development has also been assumed to be complete and fully occupied by the end of the Plan period (2033). The assessment methodology is therefore robust.

5.2.6 Section 4 of the Transport Study report identified improvement schemes that are currently being identified/promoted that will help to address future traffic conditions within the district, including:

- **M11 Motorway** - Technology improvements to the M11 motorway between Junction 8 at Stansted Airport to Junction 14 (Girton Interchange in Cambridge) to help deal with congestion and incident management. Currently programmed for completion by the end of 2020.
- **M11 J8** - Short to medium-term improvement scheme to increase traffic capacity at M11 Junction 8 and the two priority roundabouts to the west of M11 Junction 8 (A120/A1250 and A120/B1383). Currently being promoted for delivery in the 2018/19 financial year.
- **M11 J8** - Long-term improvement scheme to increase traffic capacity at M11 Junction 8 and the two priority roundabouts to the west of M11 Junction 8 (A120/A1250 and A120/B1383). Scheme currently being identified for promotion as part of future RIS.
- **Saffron Walden** – a package of improvements to the Peaslands Road corridor have been identified by Essex County Council to provide increased opportunities for traffic to avoid the town centre and permit some limited development to the east of the town, subject to further detailed assessment.

5.2.7 Several other improvement schemes that are located outside of the district but will benefit traffic conditions within Uttlesford are also currently being identified/promoted including:

- **M11 Junction 7** – Highways England are promoting a scheme to deliver extra capacity at M11 J7 to accommodate future growth. Works are expected to start by 2020.

- **M11 Junction 7A** – Essex County Council are leading on proposals to create a new junction on the M11 (7A) to the east of Harlow to enable housing and commercial growth and help relieve pressure on Junction 7 for promotion as part of future RIS.
- **A120(T) Braintree to A12(T)** – Essex County Council is leading on a feasibility study on behalf of Highways England to identify route improvement options including improvements to the A120(T) Galley's Corner and A120(T) Mark's Farm at-grade roundabout junctions at Braintree, for promotion as part of future RIS.
- **A131/B1008 Essex Regiment Way Roundabout** Essex County Council are currently developing improvement proposals for the A131/B1008 Essex Regiment Way Roundabout in Chelmsford as part of a route based strategy for the A131 for delivery within the next two to three years.
- **A505 South Cambridgeshire** – a preliminary study of the A505 corridor between the M11 Motorway and the A11(T) has identified deliverable improvements to the M11 J10 and A505/A1301 roundabout junctions that would more than mitigate the impact of Uttlesford Local Plan traffic flows. Discussions are ongoing regarding delivery.

5.2.8 Based on currently available information, the improvement schemes mentioned above are expected to address forecast traffic conditions at key network locations to enable Local Plan development to proceed. Additional complementary highway improvements and sustainable transport measures will need to be identified through the planning application process for delivery by developers.

5.2.9 The assessment of the Local Plan development scenarios demonstrates that in traffic impact terms there is little to choose between the scenarios summarised in this addendum. Impacts are similar when considering the total additional link lengths that would exceed their theoretical capacity.

5.2.10 The relative accessibility of the locations being considered for new garden communities was considered in Technical Note 5 (see Appendix L of the Transport Study report). This identified that in general terms, apart from Little Dunmow, each AoS assessed scored well against the accessibility scoring criteria.

5.2.11 Little Dunmow scored less favourably as it is remote from settlements with services. In addition, Essex County Council has indicated that a new junction onto the A120(T) would be required to serve significant new development in this area to avoid unacceptable impacts on nearby villages such as Felsted.

5.2.12 The remaining scenarios have similar overall assessment scores but Essex County Council has indicated that significant new development at Takeley would also require a new junction onto the A120(T) to avoid unacceptable traffic impacts on surrounding built-up areas and that this would be challenging to deliver, thereby suggesting Takeley is less favourable on accessibility grounds.

5.2.13 Having regard to link capacity impacts, accessibility and sustainable transport the appraisals have found that the following locations would therefore be preferable for new garden communities:

- Great Chesterford
- Easton Park
- West of Braintree

5.2.14 These locations have good access to the strategic road network and are accessible to jobs and existing settlements with services. Great Chesterford has good access to walking and cycling facilities and is close to a rail station. Great Dunmow is more distant from a rail station but is better served by buses, as is West of Braintree. West of Braintree is more distant from existing settlements but this is balanced by the promotion of West of Braintree for a co-terminus new settlement with associated accessibility improvements.

5.2.15 New garden communities at these locations would comprise an appropriate mix and scale of development to minimise the need to travel whilst also enabling delivery of sustainable travel infrastructure and services to minimise new trips by car.

5.2.16 Based on the assessment of the scenarios that feature significant development at these locations (scenarios 18, 19, 20, 27 & 28) the quantum and distribution of development assessed in scenario 28 is considered most favourable in terms of managing traffic impacts at key locations including; the M11 motorway, M11J8, the A120(T) and local roads within Uttlesford and on the A120, A131 and A505 in neighbouring districts.

Figures

N

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

0 2 4 6 8 Km

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:

Uttlesford District Council

EXECUTIVE PARK
AVALON WAY
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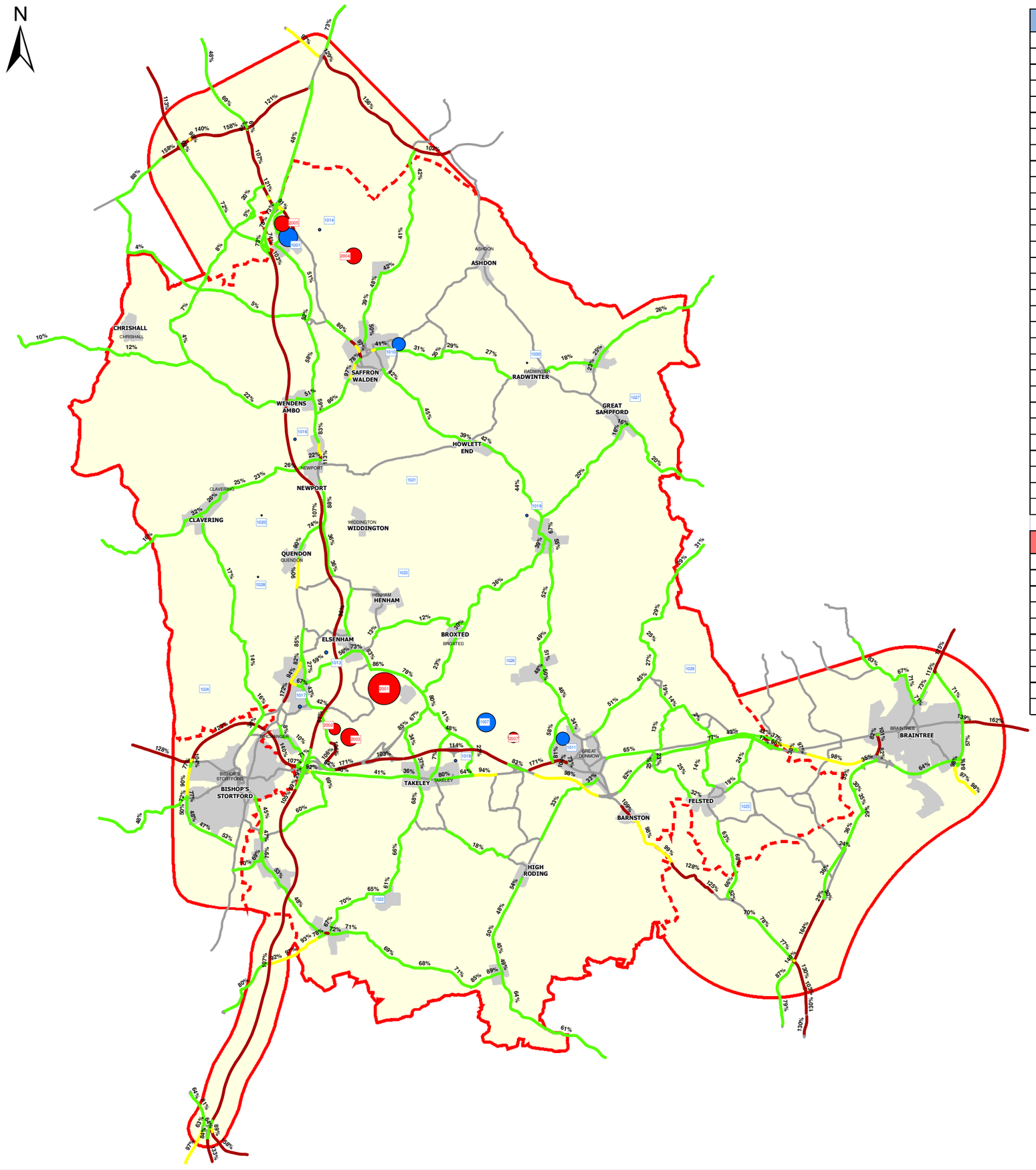
Project:
District-Wide Transport Study

Drawing Title:
Figure 30
2033 Reference Case Network Stress
(No Local Plan Growth)

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	15/09/16	JJC	15/09/16	ASG	15/09/16

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	030	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East	1400
1002	M11 Junction 9 West	0
1003	Elsenham	0
1004	M11 Junction 8 - NW	0
1005	M11 Junction 8 - SE	0
1006	North of Takeley	0
1007	North of A120, West of Gt. Dunmow	1400
1008	Little Dunmow	0
1009	West of Braintree	0
1010	Saffron (7 sites)	700
1011	Gt. Dunmow (6 sites)	700
1012	Edge of Bishops Stortford (2 sites)	0
1013	Elsenham	40
1014	Gt. Chesterford	30
1015	Hatfield Heath (with Green Belt)	0
1016	Newport	30
1017	Stansted Mountfitchet (southern edge in MGB)	40
1018	Takeley	30
1019	Thaxted	30
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	541
2003	Land north east of Bury Lodge	1267
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	956
2006	Elsenham	0
2007	North of A120, West of Gt. Dunmow	427
2008	West of Braintree	0
2009	Little Dunmow	0
2010	North of Takeley	0

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:

Uttlesford District Council

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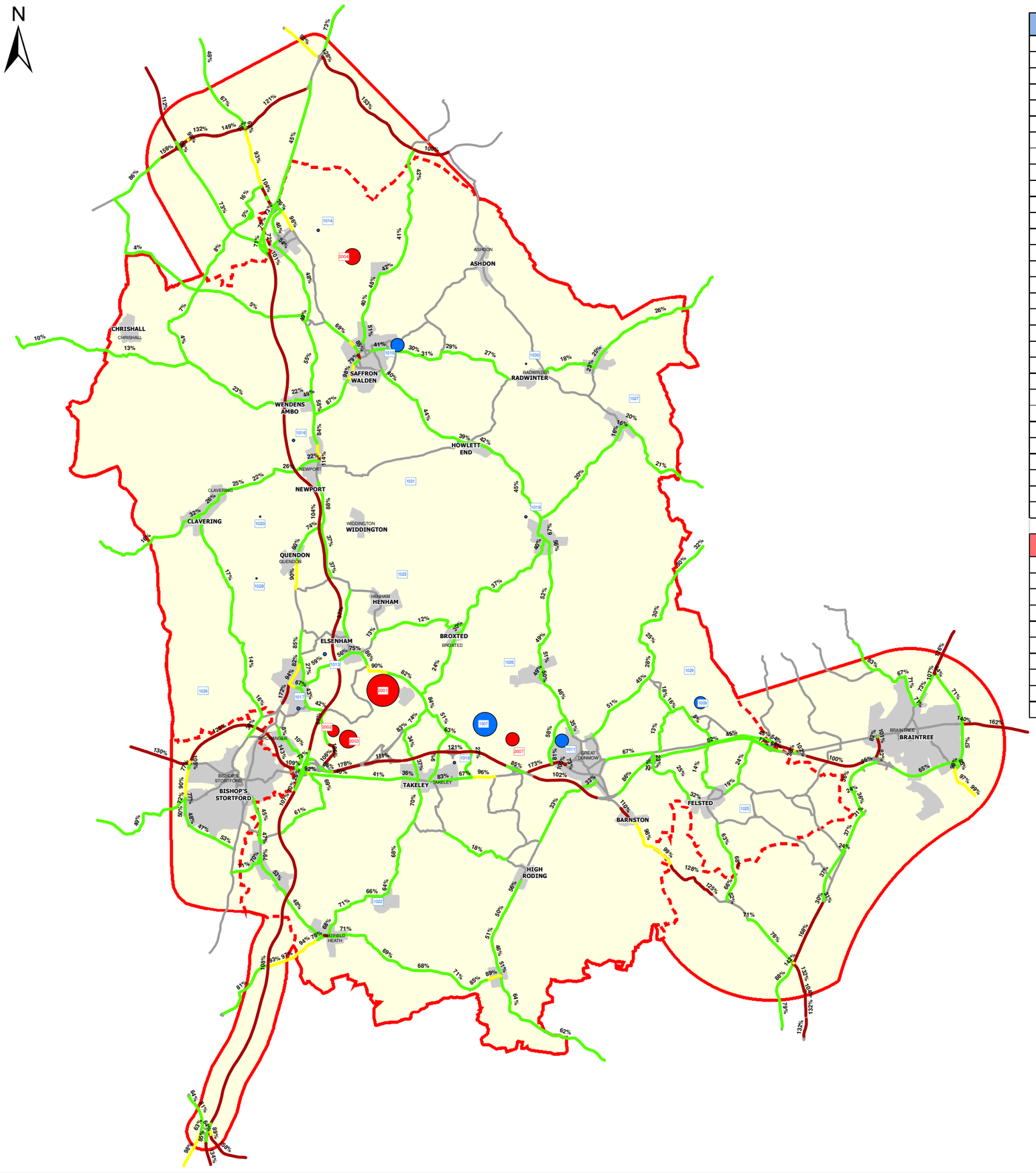
Project:
District-Wide Transport Study

Drawing Title:
Figure 31
Scenario 12 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	15/09/16	JJC	15/09/16	ASG	15/09/16

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	031	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East	0
1002	M11 Junction 9 West	0
1003	Elsenham	0
1004	M11 Junction 8 - NW	0
1005	M11 Junction 8 - SE	0
1006	North of Takeley	0
1007	North of A120, West of Gt. Dunmow	2200
1008	Little Dunmow	0
1009	West of Braintree	600
1010	Saffron (7 sites)	700
1011	Gt. Dunmow (6 sites)	700
1012	Edge of Bishops Stortford (2 sites)	0
1013	Elsenham	40
1014	Gt. Chesterford	30
1015	Hatfield Heath (with Green Belt)	0
1016	Newport	30
1017	Stansted Mountfitchet (southern edge in MGB)	40
1018	Takeley	30
1019	Thaxted	30
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	541
2003	Land north east of Bury Lodge	1267
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	0
2006	Elsenham	0
2007	North of A120, West of Gt. Dunmow	701
2008	West of Braintree	0
2009	Little Dunmow	0
2010	North of Takeley	0

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:

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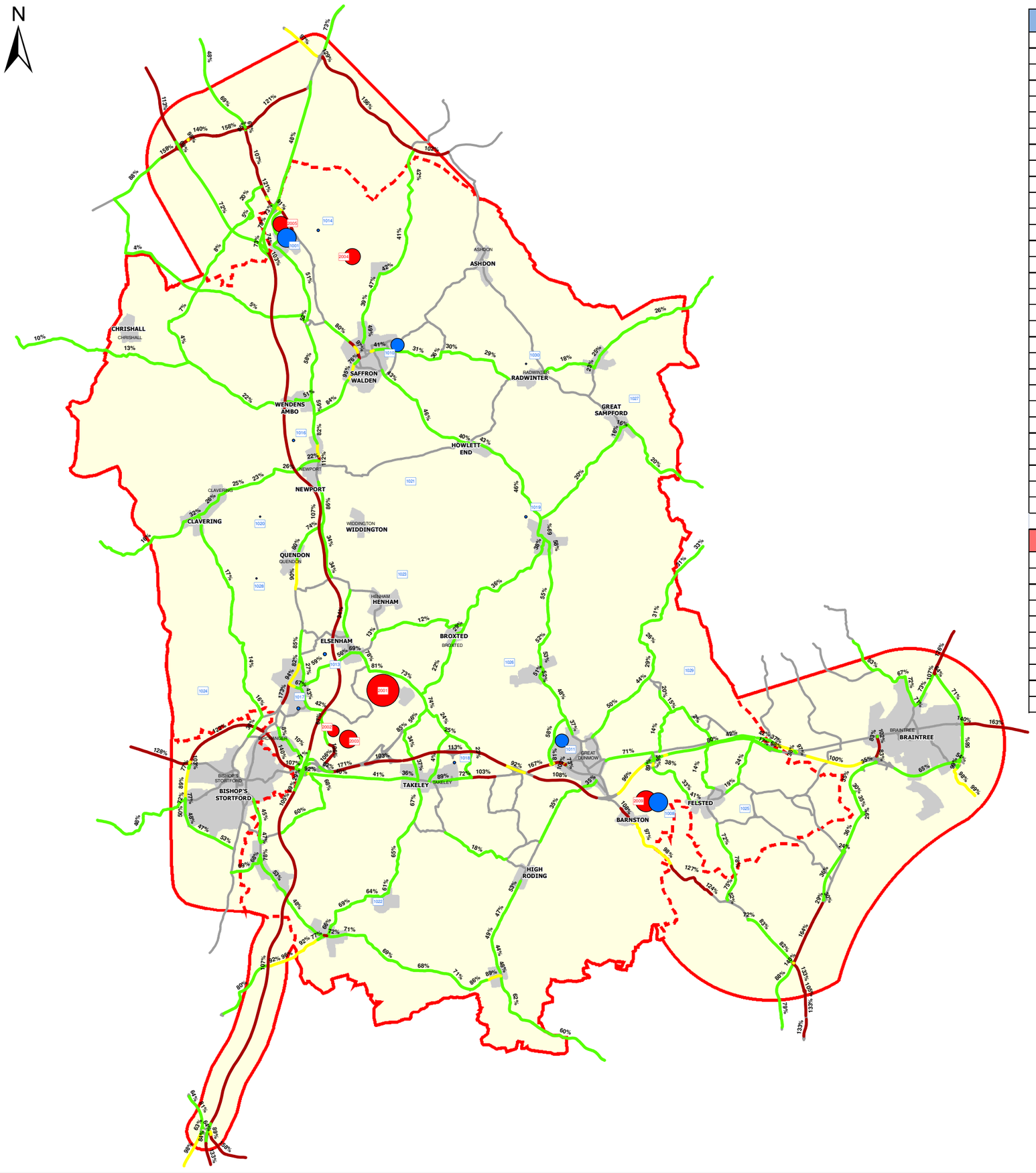
Project:
District-Wide Transport Study

Drawing Title:
Figure 32
Scenario 13 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	15/09/16	JJC	15/09/16	ASG	15/09/16

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	032	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East	1400
1002	M11 Junction 9 West	0
1003	Elsenham	0
1004	M11 Junction 8 - NW	0
1005	M11 Junction 8 - SE	0
1006	North of Takeley	0
1007	North of A120, West of Gt. Dunmow	0
1008	Little Dunmow	1400
1009	West of Braintree	0
1010	Saffron (7 sites)	700
1011	Gt. Dunmow (6 sites)	700
1012	Edge of Bishops Stortford (2 sites)	0
1013	Elsenham	40
1014	Gt. Chesterford	30
1015	Hatfield Heath (with Green Belt)	0
1016	Newport	30
1017	Stansted Mountfitchet (southern edge in MGB)	40
1018	Takeley	30
1019	Thaxted	30
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	541
2003	Land north east of Bury Lodge	1267
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	956
2006	Elsenham	0
2007	North of A120, West of Gt. Dunmow	0
2008	West of Braintree	0
2009	Little Dunmow	1706
2010	North of Takeley	0

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

REV	DESCRIPTION	BY	CHK	APP	DATE

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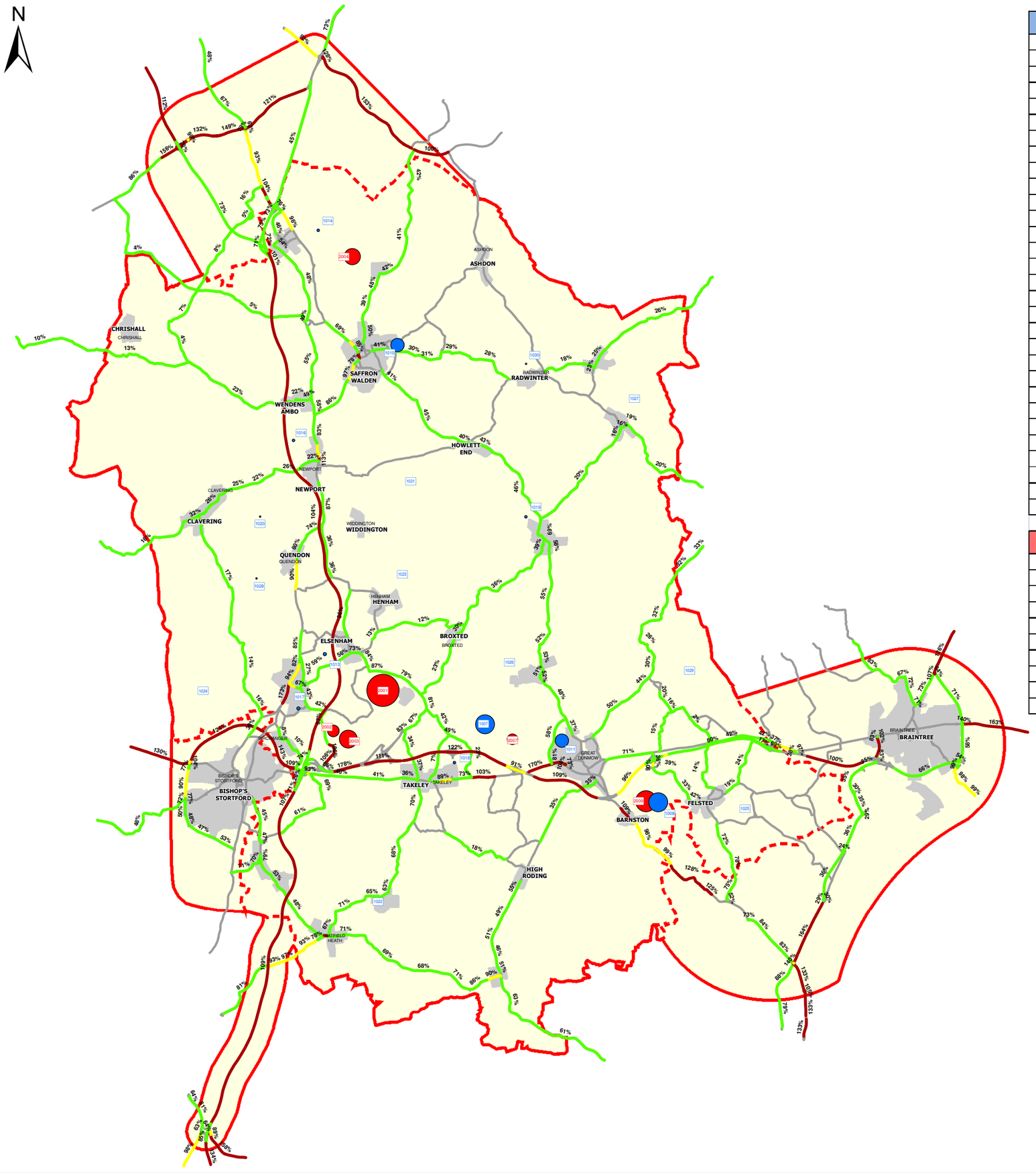
Project:
District-Wide Transport Study

Drawing Title:
Figure 33
Scenario 14 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	15/09/16	JJC	15/09/16	ASG	15/09/16

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	033	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East	0
1002	M11 Junction 9 West	0
1003	Elsenham	0
1004	M11 Junction 8 - NW	0
1005	M11 Junction 8 - SE	0
1006	North of Takeley	0
1007	North of A120, West of Gt. Dunmow	1400
1008	Little Dunmow	1400
1009	West of Braintree	0
1010	Saffron (7 sites)	700
1011	Gt. Dunmow (6 sites)	700
1012	Edge of Bishops Stortford (2 sites)	0
1013	Elsenham	40
1014	Gt. Chesterford	30
1015	Hatfield Heath (with Green Belt)	0
1016	Newport	30
1017	Stansted Mountfitchet (southern edge in MGB)	40
1018	Takeley	30
1019	Thaxted	30
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	541
2003	Land north east of Bury Lodge	1267
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	0
2006	Elsenham	0
2007	North of A120, West of Gt. Dunmow	427
2008	West of Braintree	0
2009	Little Dunmow	1706
2010	North of Takeley	0

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

REV	DESCRIPTION	BY	CHK	APP	DATE

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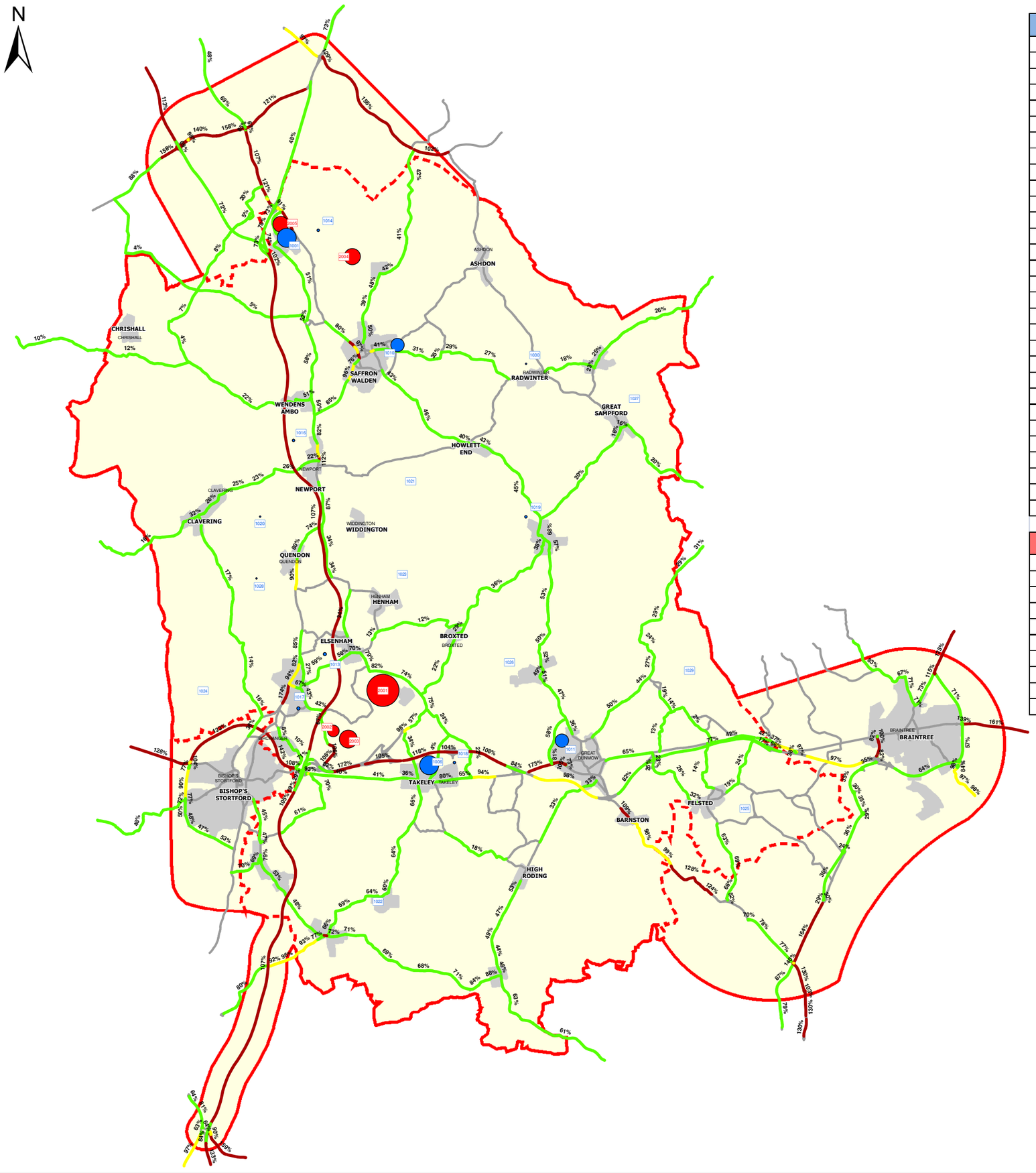
Project:
District-Wide Transport Study

Drawing Title:
Figure 34
Scenario 15 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	15/09/16	JJC	15/09/16	ASG	15/09/16

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	034	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East	1400
1002	M11 Junction 9 West	0
1003	Elsenham	0
1004	M11 Junction 8 - NW	0
1005	M11 Junction 8 - SE	0
1006	North of Takeley	1400
1007	North of A120, West of Gt. Dunmow	0
1008	Little Dunmow	0
1009	West of Braintree	0
1010	Saffron (7 sites)	700
1011	Gt. Dunmow (6 sites)	700
1012	Edge of Bishops Stortford (2 sites)	0
1013	Elsenham	40
1014	Gt. Chesterford	30
1015	Hatfield Heath (with Green Belt)	0
1016	Newport	30
1017	Stansted Mountfitchet (southern edge in MGB)	40
1018	Takeley	30
1019	Thaxted	30
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	541
2003	Land north east of Bury Lodge	1267
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	956
2006	Elsenham	0
2007	North of A120, West of Gt. Dunmow	0
2008	West of Braintree	0
2009	Little Dunmow	0
2010	North of Takeley	0

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

REV	DESCRIPTION	BY	CHK	APP	DATE

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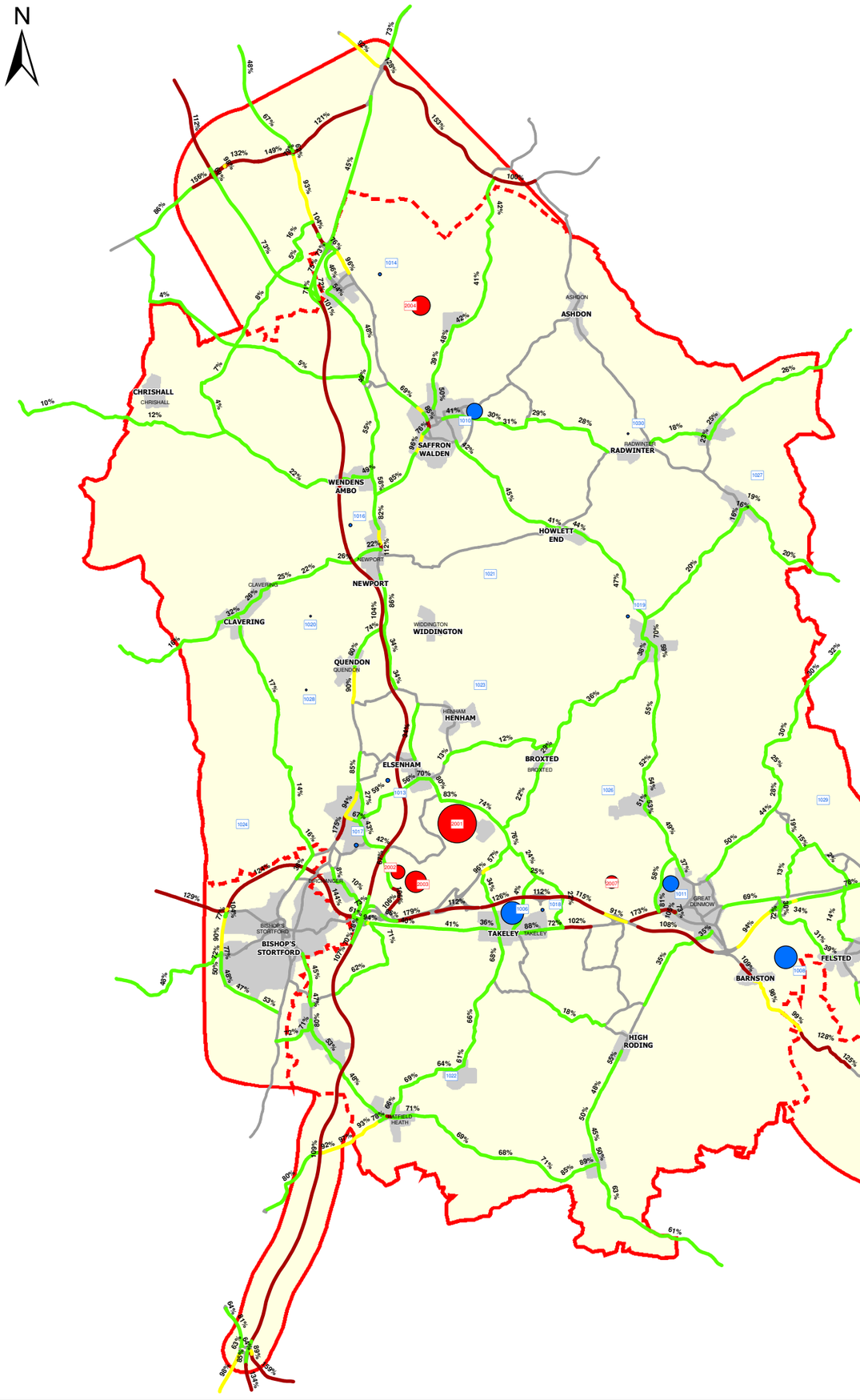
Project:
District-Wide Transport Study

Drawing Title:
Figure 35
Scenario 16 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	15/09/16	JJC	15/09/16	ASG	15/09/16

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	035	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East	0
1002	M11 Junction 9 West	0
1003	Elsenham	0
1004	M11 Junction 8 - NW	0
1005	M11 Junction 8 - SE	0
1006	North of Takeley	1400
1007	North of A120, West of Gt. Dunmow	0
1008	Little Dunmow	1400
1009	West of Braintree	0
1010	Saffron (7 sites)	700
1011	Gt. Dunmow (6 sites)	700
1012	Edge of Bishops Stortford (2 sites)	0
1013	Elsenham	40
1014	Gt. Chesterford	30
1015	Hatfield Heath (with Green Belt)	0
1016	Newport	30
1017	Stansted Mountfitchet (southern edge in MGB)	40
1018	Takeley	30
1019	Thaxted	30
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	541
2003	Land north east of Bury Lodge	1267
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	0
2006	Elsenham	0
2007	North of A120, West of Gt. Dunmow	427
2008	West of Braintree	0
2009	Little Dunmow	0
2010	North of Takeley	0

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

REV	DESCRIPTION	BY	CHK	APP	DATE

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Project:
District-Wide Transport Study

Drawing Title:
Figure 36
Scenario 17 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	15/09/16	JJC	15/09/16	ASG	15/09/16

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	036	-

N

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

0 2.5 5 7.5 10 Km

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:

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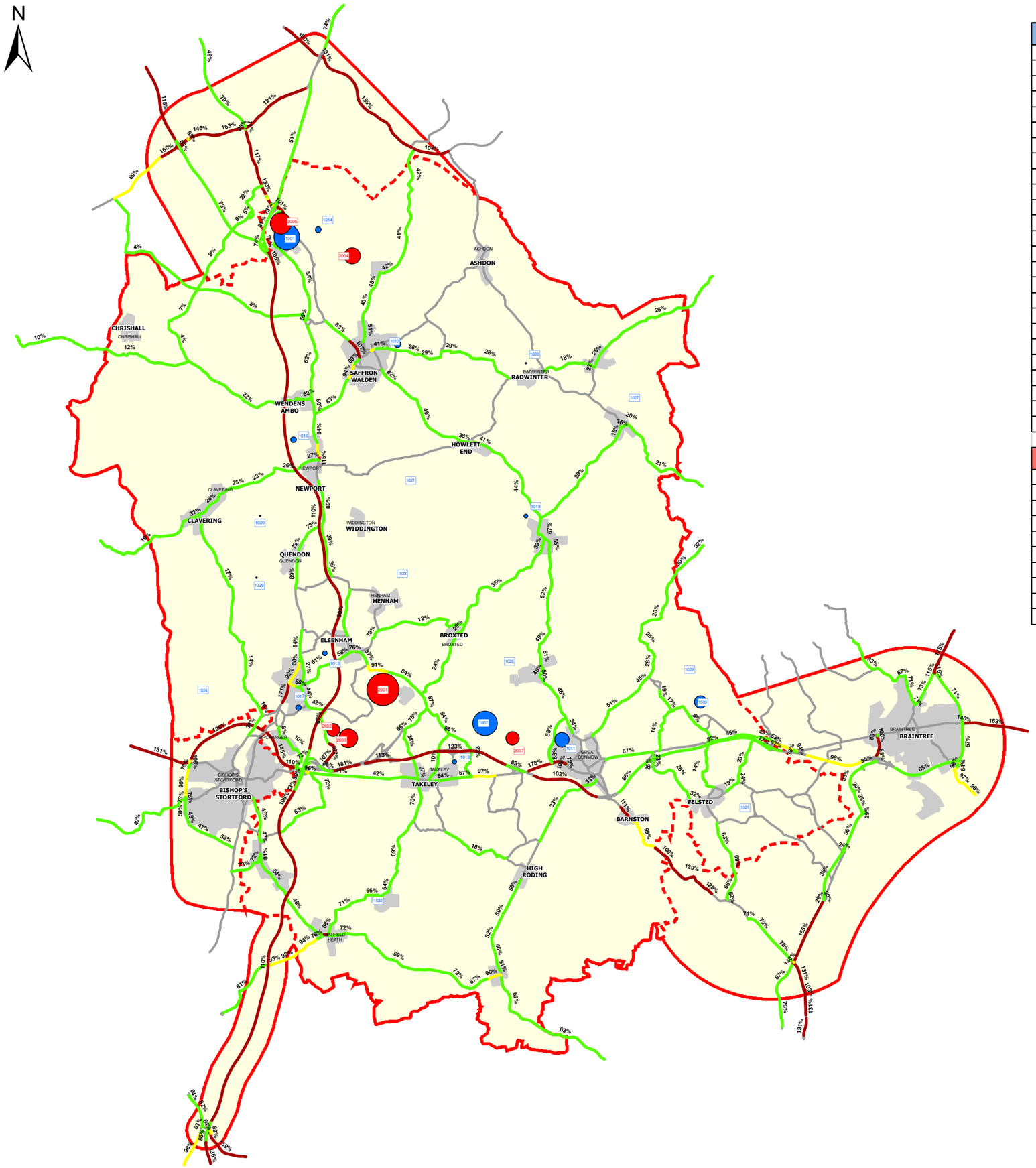
Project:
District-Wide Transport Study

Drawing Title:
Figure 37
2033 Reference Case Network Stress
(No Local Plan Growth)

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	07/04/17	JJC	07/04/17	ASG	07/04/17

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	037	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East (Gt Chesterford)	2500
1003	Elsenham	0
1006	North of Takeley	0
1007	West of Gt. Dunmow (Easton Park)	2300
1008	Little Dunmow (Chelmer Mead)	0
1009	West of Braintree	600
1010	Saffron (4 sites)	190
1011	Gt. Dunmow (8 sites)	820
1013	Elsenham	90
1014	Gt. Chesterford	130
1016	Newport	130
1017	Stansted Mountfitchet (southern edge in MGB)	110
1018	Takeley	80
1019	Thaxted	60
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	1707
2006	Elsenham	0
2007	West of Gt. Dunmow	701
2008	West of Braintree	0
2009	Little Dunmow	0
2010	North of Takeley	0

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

0 2.5 5 7.5 10 Km

REV	DESCRIPTION	BY	CHK	APP	DATE

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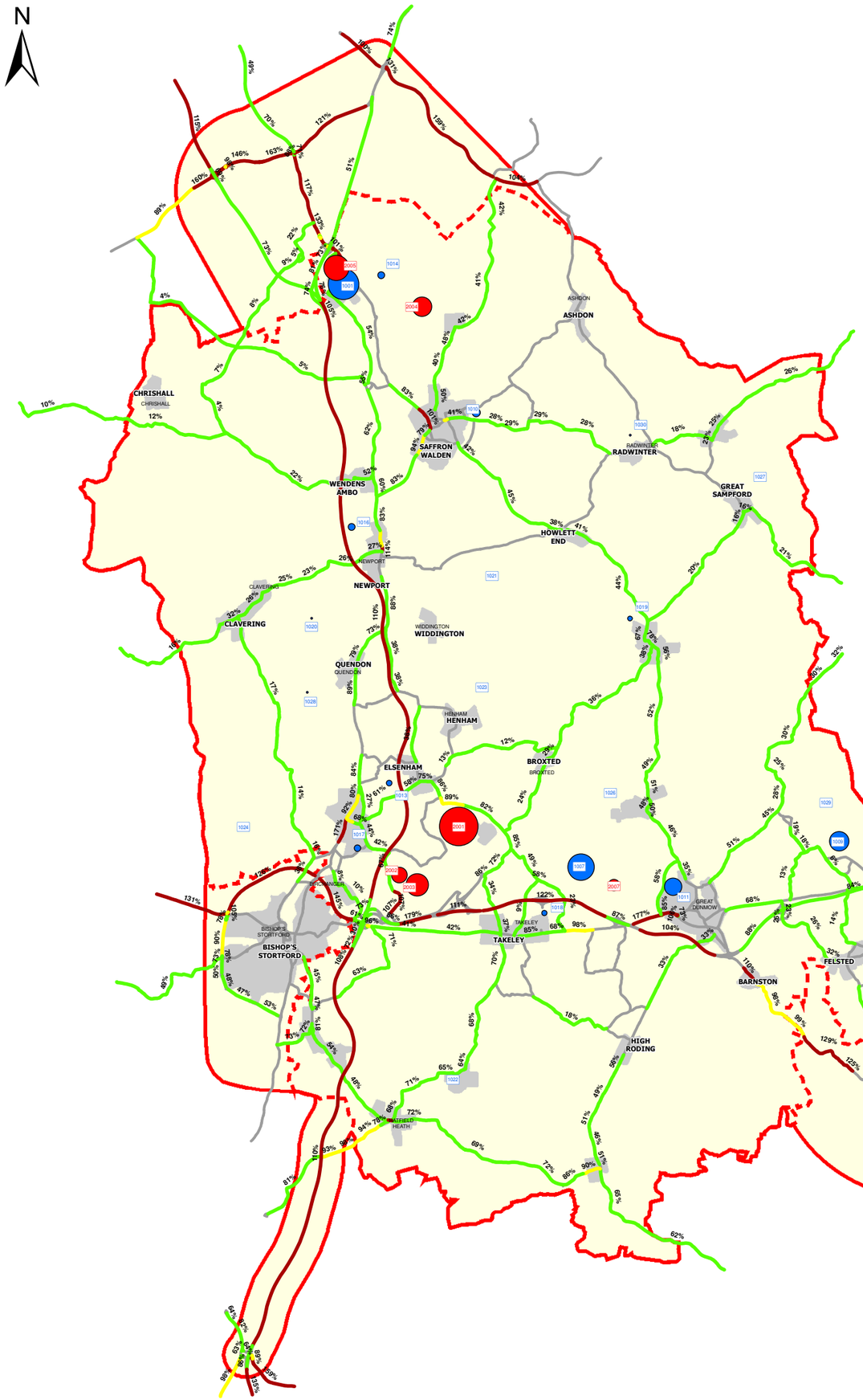
Project:
District-Wide Transport Study

Drawing Title:
Figure 38
Scenario 18 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	10/04/17	JJC	10/04/17	ASG	10/04/17

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	038	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East (Gt Chesterford)	2500
1003	Elsenham	0
1006	North of Takeley	0
1007	West of Gt. Dunmow (Easton Park)	1900
1008	Little Dunmow (Chelmer Mead)	0
1009	West of Braintree	1000
1010	Saffron (4 sites)	190
1011	Gt. Dunmow (8 sites)	820
1013	Elsenham	90
1014	Gt. Chesterford	130
1016	Newport	130
1017	Stansted Mountfitchet (southern edge in MGB)	110
1018	Takeley	80
1019	Thaxted	60
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	1707
2006	Elsenham	0
2007	West of Gt. Dunmow	366
2008	West of Braintree	0
2009	Little Dunmow	0
2010	North of Takeley	0

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

0 2.5 5 7.5 10 Km

REV	DESCRIPTION	BY	CHK	APP	DATE

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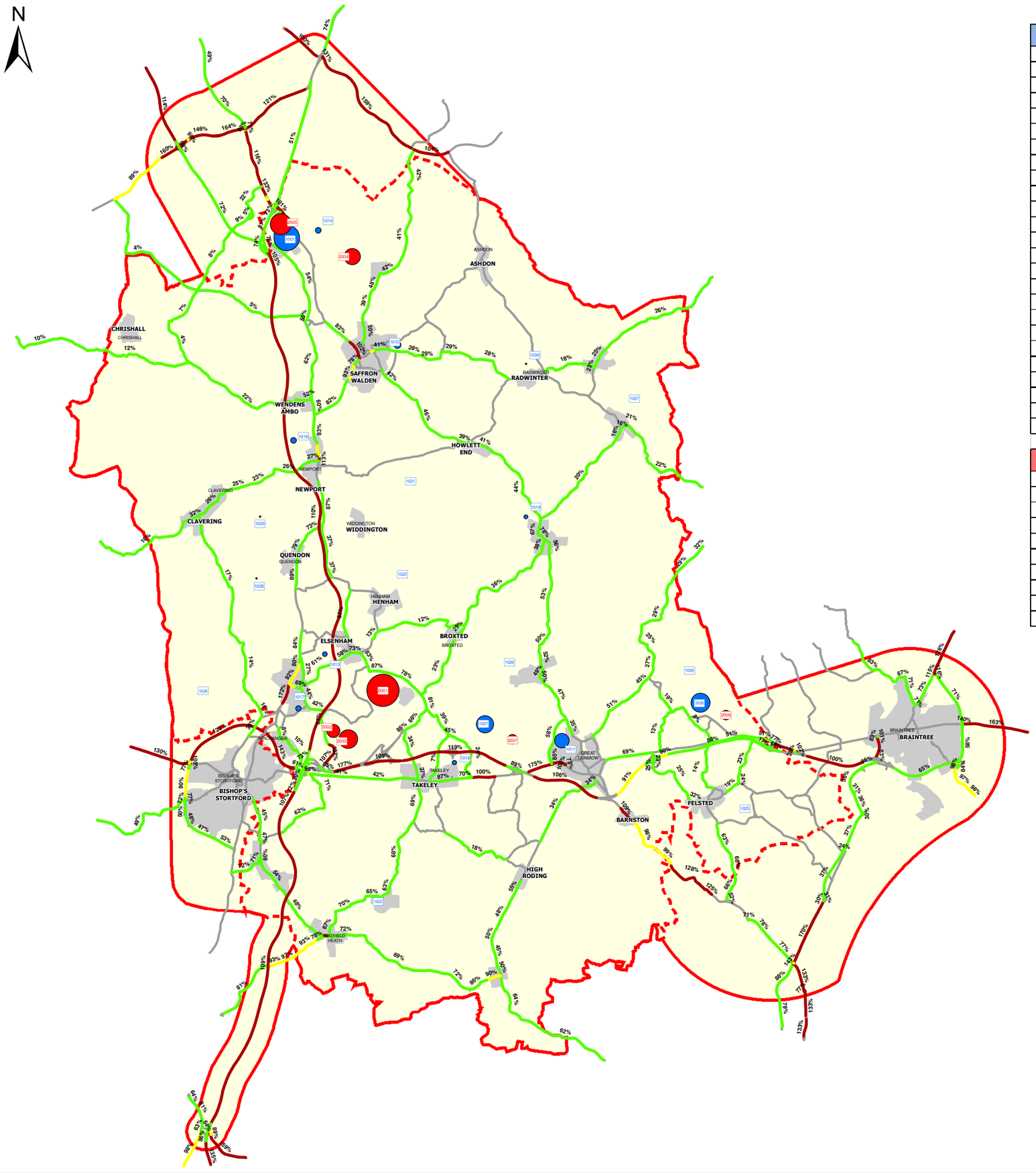
Project:
District-Wide Transport Study

Drawing Title:
Figure 39
Scenario 19 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	10/04/17	JJC	10/04/17	ASG	10/04/17

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	039	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East (Gt Chesterford)	2500
1003	Elsenham	0
1006	North of Takeley	0
1007	West of Gt. Dunmow (Easton Park)	1150
1008	Little Dunmow (Chelmer Mead)	0
1009	West of Braintree	1400
1010	Saffron (4 sites)	190
1011	Gt. Dunmow (8 sites)	820
1013	Elsenham	90
1014	Gt. Chesterford	130
1016	Newport	130
1017	Stansted Mountfitchet (southern edge in MGB)	110
1018	Takeley	80
1019	Thaxted	60
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	1707
2006	Elsenham	0
2007	West of Gt. Dunmow	366
2008	West of Braintree	366
2009	Little Dunmow	0
2010	North of Takeley	0

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:

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Project:

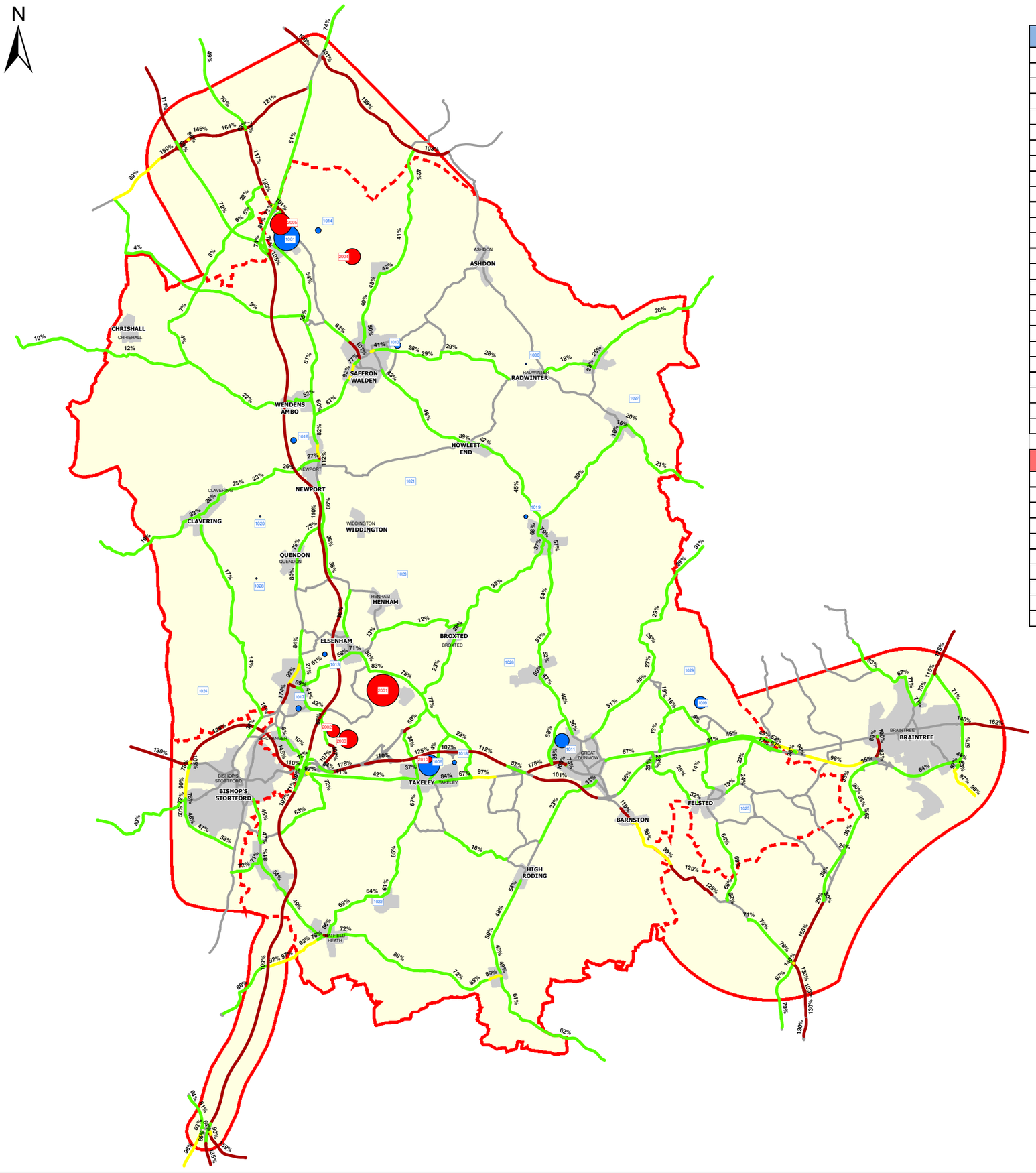
District-Wide Transport Study

Drawing Title:

Figure 40
Scenario 20 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	10/04/17	JJC	10/04/17	ASG	10/04/17

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	040	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East (Gt Chesterford)	2500
1003	Elsenham	0
1006	North of Takeley	1700
1007	West of Gt. Dunmow (Easton Park)	0
1008	Little Dunmow (Chelmer Mead)	0
1009	West of Braintree	600
1010	Saffron (4 sites)	190
1011	Gt. Dunmow (8 sites)	820
1013	Elsenham	90
1014	Gt. Chesterford	130
1016	Newport	130
1017	Stansted Mountfitchet (southern edge in MGB)	110
1018	Takeley	80
1019	Thaxted	60
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	1707
2006	Elsenham	0
2007	West of Gt. Dunmow	0
2008	West of Braintree	0
2009	Little Dunmow	0
2010	North of Takeley	160

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:

Uttlesford District Council

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Project:

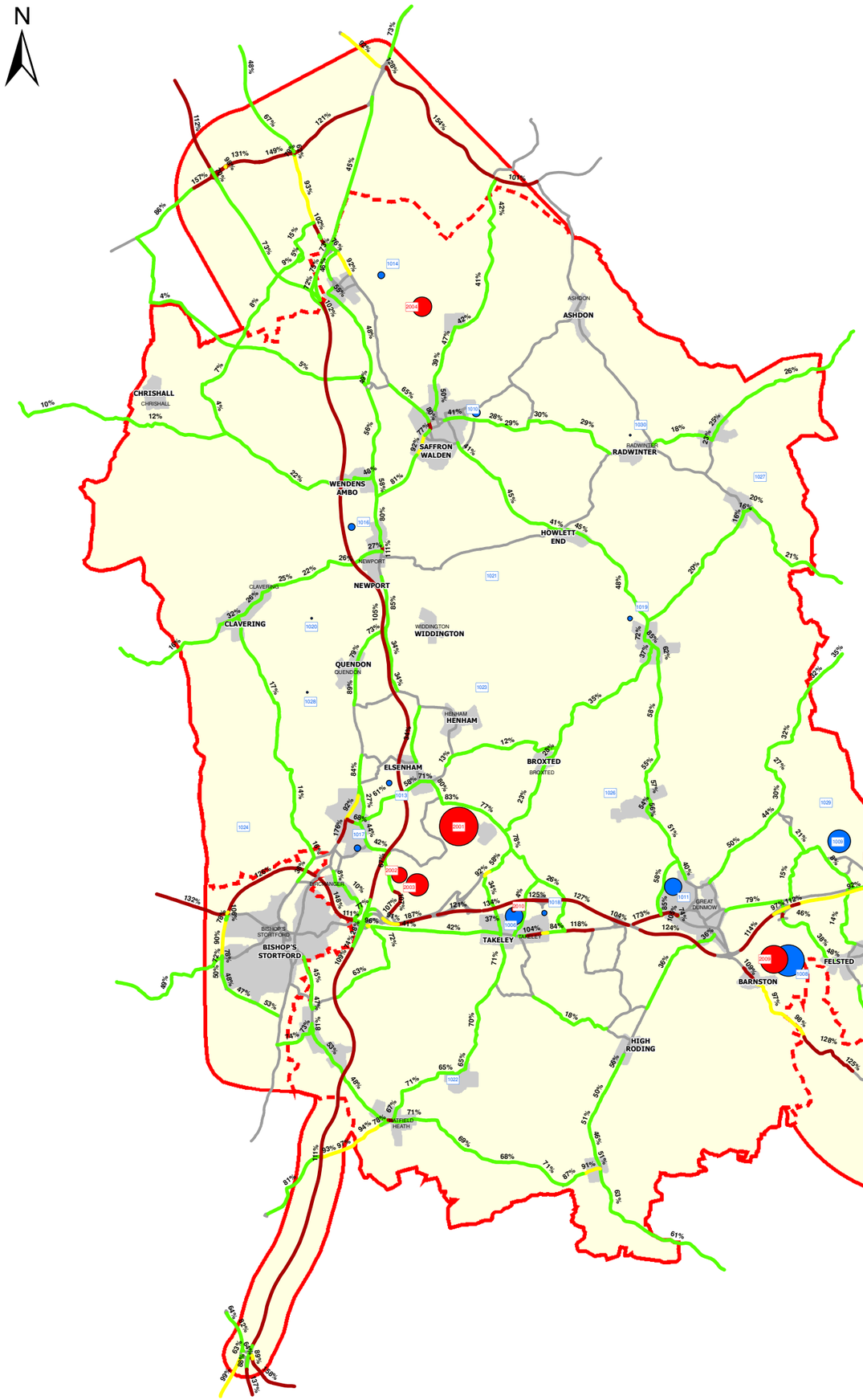
District-Wide Transport Study

Drawing Title:

Figure 41
Scenario 21 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	10/04/17	JJC	10/04/17	ASG	10/04/17

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	041	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East (Gt Chesterford)	0
1003	Elsenham	0
1006	North of Takeley	850
1007	West of Gt. Dunmow (Easton Park)	0
1008	Little Dunmow (Chelmer Mead)	2700
1009	West of Braintree	1400
1010	Saffron (4 sites)	190
1011	Gt. Dunmow (8 sites)	820
1013	Elsenham	90
1014	Gt. Chesterford	130
1016	Newport	130
1017	Stansted Mountfitchet (southern edge in MGB)	110
1018	Takeley	80
1019	Thaxted	60
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	0
2006	Elsenham	0
2007	West of Gt. Dunmow	0
2008	West of Braintree	366
2009	Little Dunmow	2067
2010	North of Takeley	80

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

0 2.5 5 7.5 10 Km

REV	DESCRIPTION	BY	CHK	APP	DATE

Client: Uttlesford District Council

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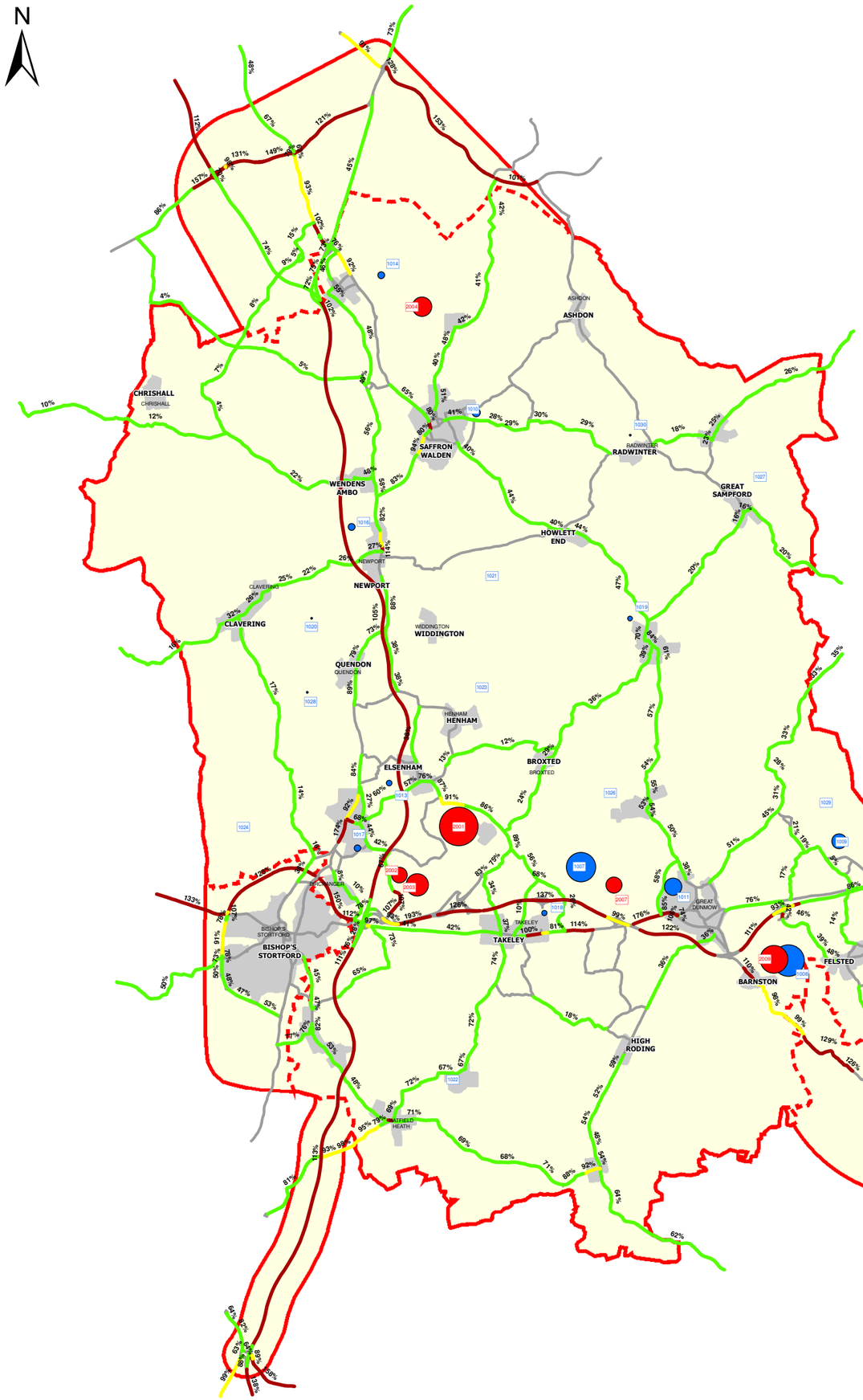
Project: District-Wide Transport Study

Drawing Title:

Figure 42
Scenario 22 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	10/04/17	JJC	10/04/17	ASG	10/04/17

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	042	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East (Gt Chesterford)	0
1003	Elsenham	0
1006	North of Takeley	0
1007	West of Gt. Dunmow (Easton Park)	2300
1008	Little Dunmow (Chelmer Mead)	2700
1009	West of Braintree	600
1010	Saffron (4 sites)	190
1011	Gt. Dunmow (8 sites)	820
1013	Elsenham	90
1014	Gt. Chesterford	130
1016	Newport	130
1017	Stansted Mountfitchet (southern edge in MGB)	110
1018	Takeley	80
1019	Thaxted	60
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	0
2006	Elsenham	0
2007	West of Gt. Dunmow	701
2008	West of Braintree	0
2009	Little Dunmow	2067
2010	North of Takeley	0

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

0 2.5 5 7.5 10 Km

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:

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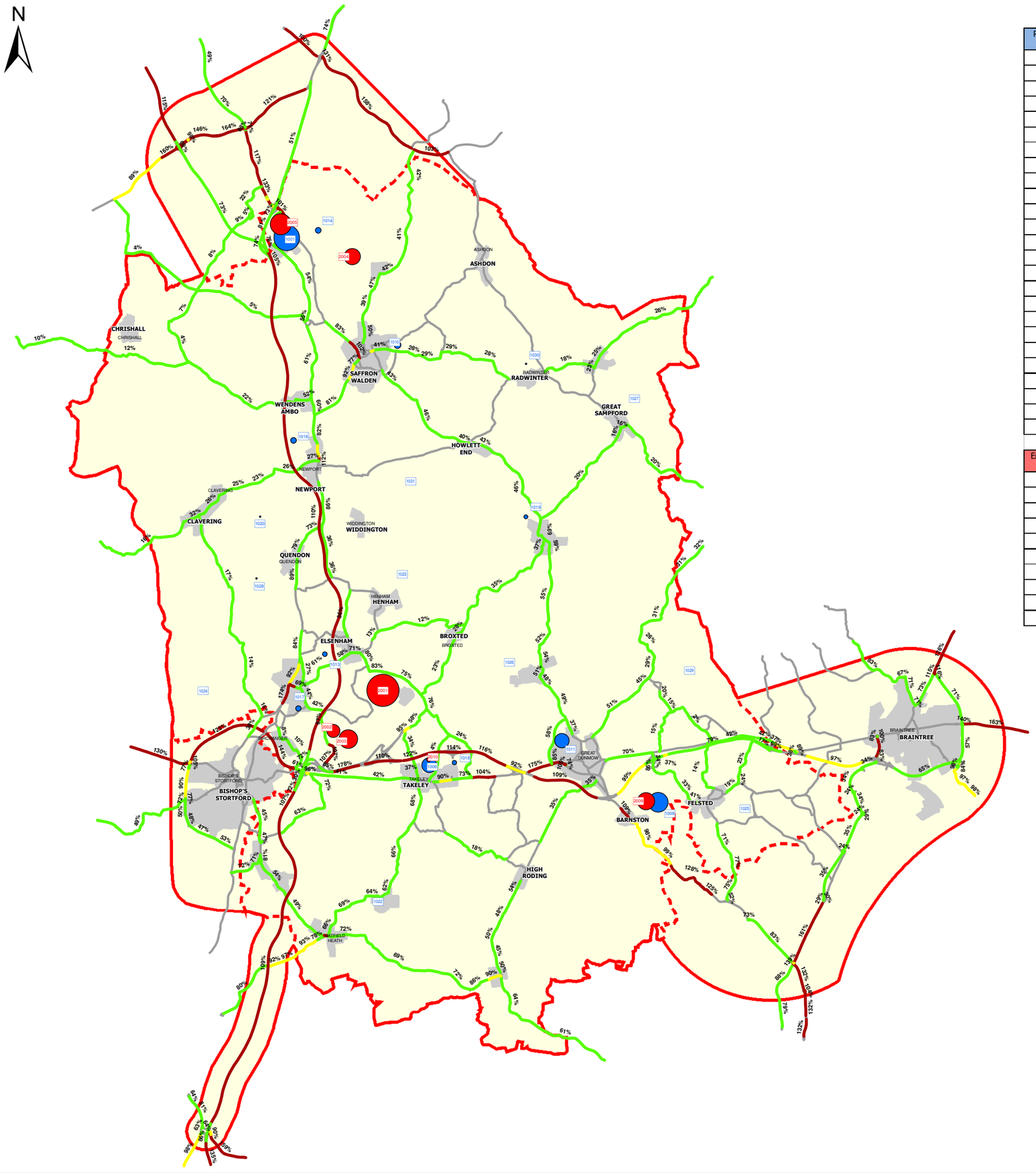
Project:
District-Wide Transport Study

Drawing Title:
Figure 43
Scenario 23 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	10/04/17	JJC	10/04/17	ASG	10/04/17

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	043	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East (Gt Chesterford)	2500
1003	Elsenham	0
1006	North of Takeley	850
1007	West of Gt. Dunmow (Easton Park)	0
1008	Little Dunmow (Chelmer Mead)	1500
1009	West of Braintree	0
1010	Saffron (4 sites)	190
1011	Gt. Dunmow (8 sites)	820
1013	Elsenham	90
1014	Gt. Chesterford	130
1016	Newport	130
1017	Stansted Mountfitchet (southern edge in MGB)	110
1018	Takeley	80
1019	Thaxted	60
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	1707
2006	Elsenham	0
2007	West of Gt. Dunmow	0
2008	West of Braintree	0
2009	Little Dunmow	1144
2010	North of Takeley	80

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

REV	DESCRIPTION	BY	CHK	APP	DATE

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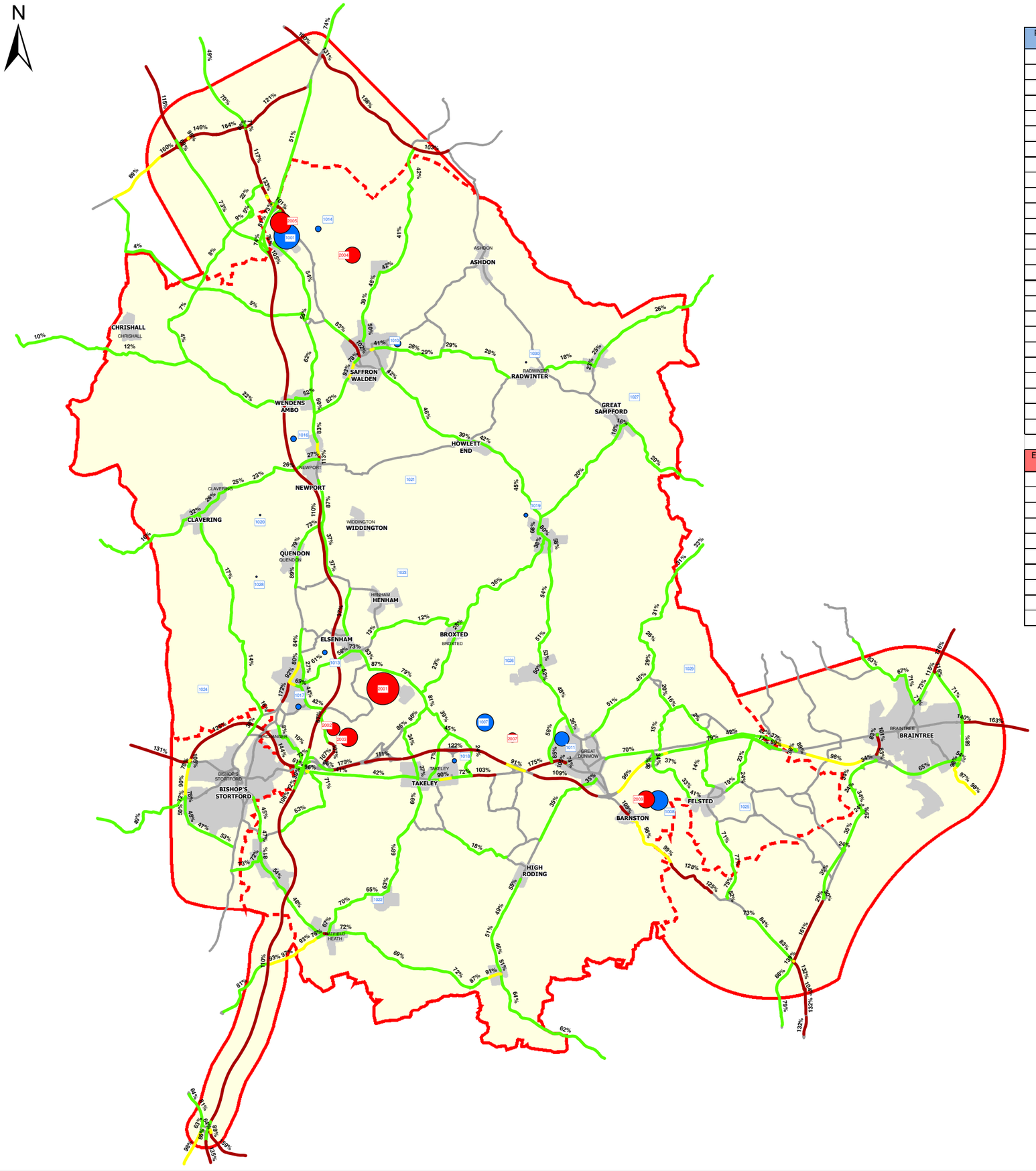
Project:
District-Wide Transport Study

Drawing Title:
Figure 44
Scenario 24 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	10/04/17	JJC	10/04/17	ASG	10/04/17

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	044	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East (Gt Chesterford)	2500
1003	Elsenham	0
1006	North of Takeley	0
1007	West of Gt. Dunmow (Easton Park)	1150
1008	Little Dunmow (Chelmer Mead)	1500
1009	West of Braintree	0
1010	Saffron (4 sites)	190
1011	Gt. Dunmow (8 sites)	820
1013	Elsenham	90
1014	Gt. Chesterford	130
1016	Newport	130
1017	Stansted Mountfitchet (southern edge in MGB)	110
1018	Takeley	80
1019	Thaxted	60
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	1707
2006	Elsenham	0
2007	West of Gt. Dunmow	366
2008	West of Braintree	0
2009	Little Dunmow	1144
2010	North of Takeley	0

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

0 2.5 5 7.5 10 Km

REV	DESCRIPTION	BY	CHK	APP	DATE

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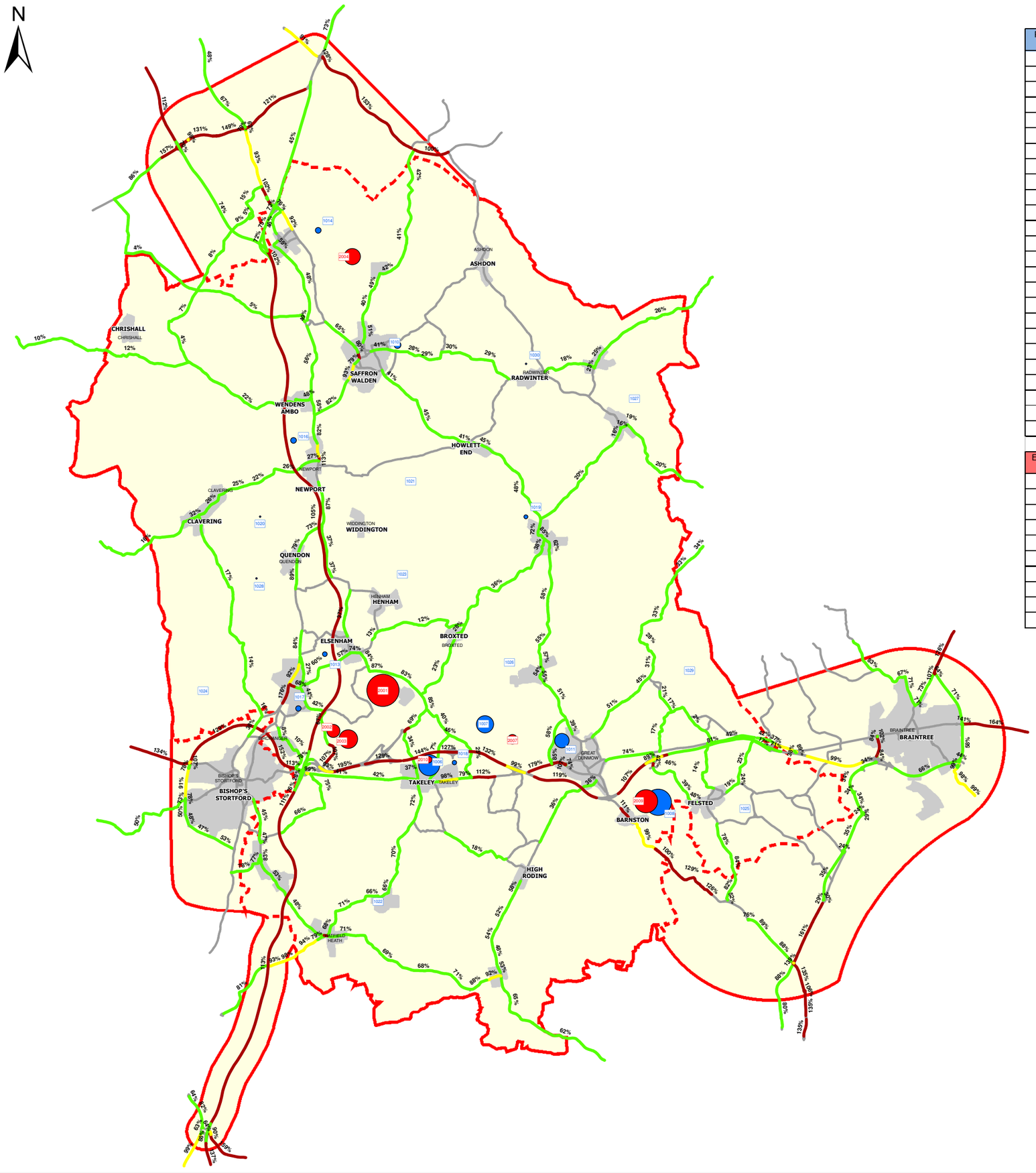
Project: District-Wide Transport Study

Drawing Title:

Figure 45
Scenario 25 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	10/04/17	JJC	10/04/17	ASG	10/04/17

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	045	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East (Gt Chesterford)	0
1003	Elsenham	0
1006	North of Takeley	1700
1007	West of Gt. Dunmow (Easton Park)	1150
1008	Little Dunmow (Chelmer Mead)	2700
1009	West of Braintree	0
1010	Saffron (4 sites)	190
1011	Gt. Dunmow (8 sites)	820
1013	Elsenham	90
1014	Gt. Chesterford	130
1016	Newport	130
1017	Stansted Mountfitchet (southern edge in MGB)	110
1018	Takeley	80
1019	Thaxted	60
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	0
2006	Elsenham	0
2007	West of Gt. Dunmow	366
2008	West of Braintree	0
2009	Little Dunmow	2067
2010	North of Takeley	160

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:

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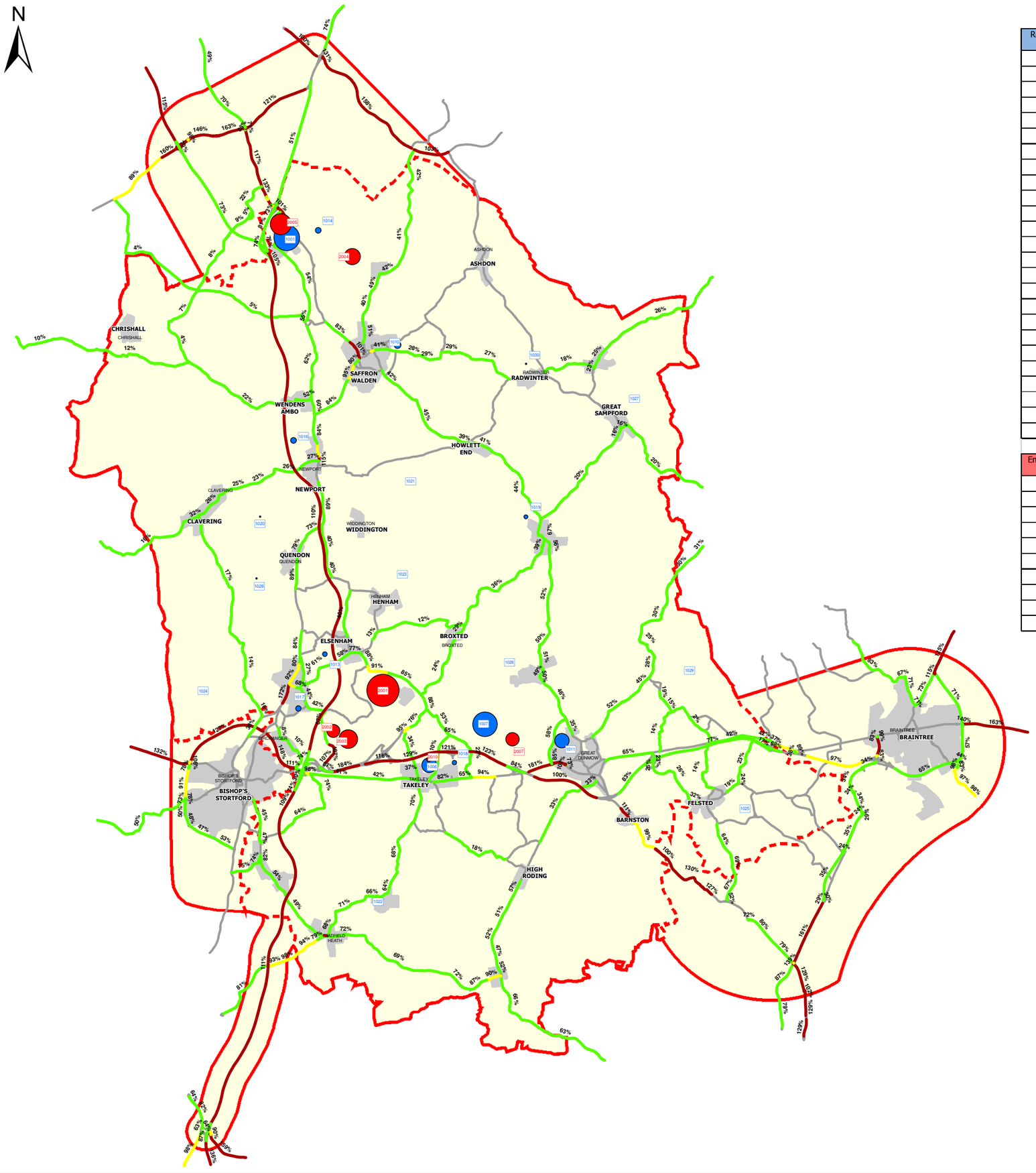
Project:
District-Wide Transport Study

Drawing Title:
Figure 46
Scenario 26 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	10/04/17	JJC	10/04/17	ASG	10/04/17

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	046	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East (Gt Chesterford)	2500
1003	Elsenham	0
1006	North of Takeley	850
1007	West of Gt. Dunmow (Easton Park)	2300
1008	Little Dunmow (Chelmer Mead)	0
1009	West of Braintree	0
1010	Saffron (4 sites)	190
1011	Gt. Dunmow (8 sites)	820
1013	Elsenham	90
1014	Gt. Chesterford	130
1016	Newport	130
1017	Stansted Mountfitchet (southern edge in MGB)	110
1018	Takeley	80
1019	Thaxted	60
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	1707
2006	Elsenham	0
2007	West of Gt. Dunmow	701
2008	West of Braintree	0
2009	Little Dunmow	0
2010	North of Takeley	80

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

0 2.5 5 7.5 10 Km

REV	DESCRIPTION	BY	CHK	APP	DATE

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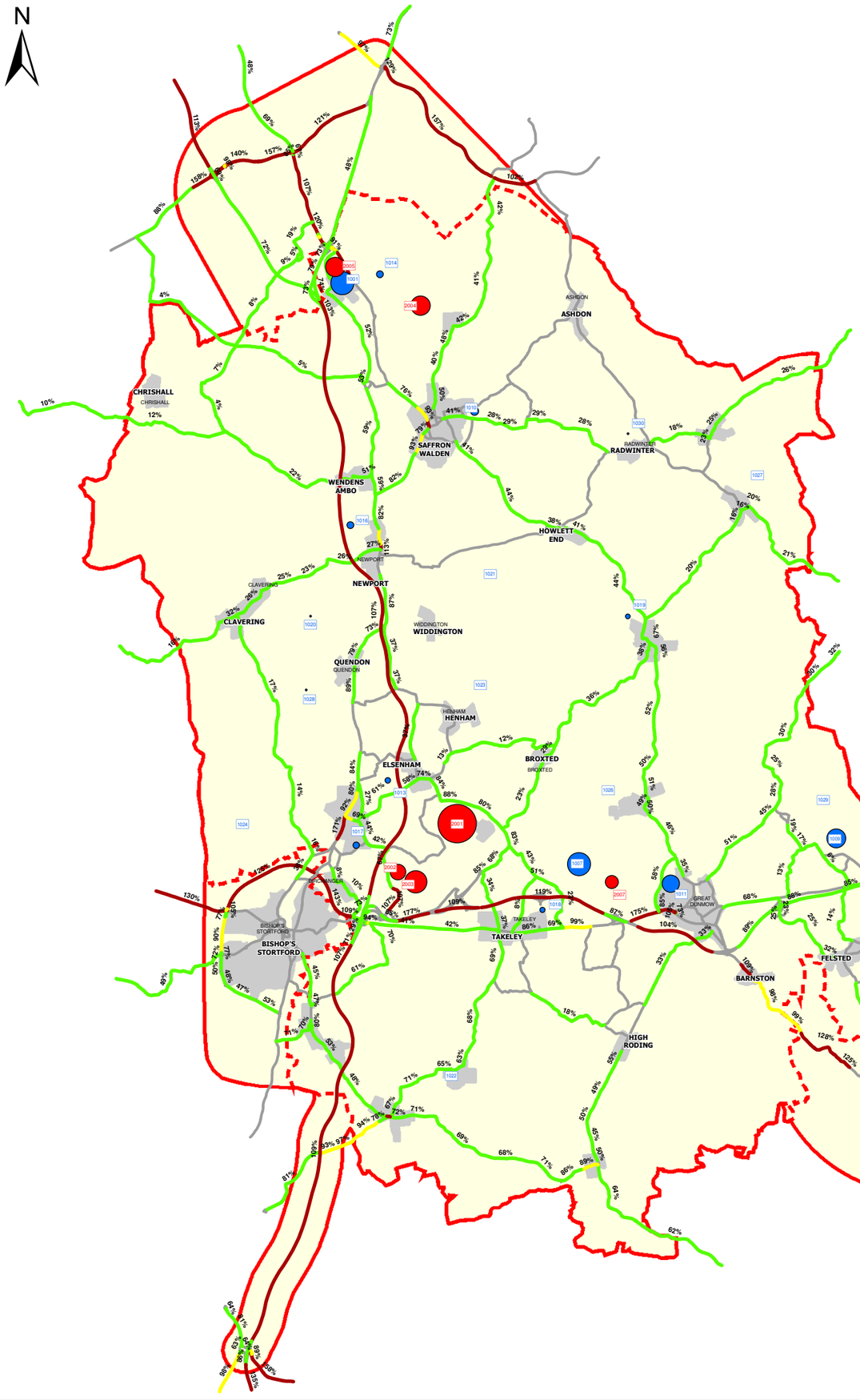
Project:
District-Wide Transport Study

Drawing Title:
Figure 47
Scenario 27 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	10/04/17	JJC	10/04/17	ASG	10/04/17

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	047	-



Residential zones	Location Description	Dwellings
1001	M11 Junction 9a East (Gt Chesterford)	1460
1003	Elsenham	0
1006	North of Takeley	0
1007	West of Gt. Dunmow (Easton Park)	0
1008	Little Dunmow (Chelmer Mead)	1460
1009	West of Braintree	980
1010	Saffron (4 sites)	190
1011	Gt. Dunmow (8 sites)	820
1013	Elsenham	90
1014	Gt. Chesterford	130
1016	Newport	130
1017	Stansted Mountfitchet (southern edge in MGB)	110
1018	Takeley	80
1019	Thaxted	60
1020	Clavering	10
1021	Debden	10
1022	Hatfield Broad Oak	10
1023	Henham	10
1024	Farnham	10
1025	Felsted	10
1026	Great Easton	10
1027	Great Sampford	5
1028	Quendon & Rickling	10
1029	Stebbing	5
1030	Radwinter	10

Employment zones	Location Description	Jobs
2001	Elsenham Meadows (TriSail)	4000
2002	Land north east of Bury Lodge	658
2003	Land north east of Bury Lodge	1333
2004	Chesterford Research Park	1013
2005	M11 Junction 9a East (Stump Cross)	1000
2006	Elsenham	0
2007	West of Gt. Dunmow	457
2008	West of Braintree	0
2009	Little Dunmow	0
2010	North of Takeley	0

Legend

- Study Area
- Uttlesford District
- Main Urban Areas

New Development

- Residential
- Employment

Network Stress

- No flow data
- Under 90%
- 90% - 100%
- 100% and Greater

0 2.5 5 7.5 10 Km

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:

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Project:
District-Wide Transport Study

Drawing Title:
Figure 48
Scenario 28 - Network Stress

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
NTS	PT	24/05/17	JJC	24/05/17	ASG	24/05/17

Project No.	Office	Type	Drawing No.	Revision
A081175-47	35	18	048	-

Appendix A – Development Scenarios

Uttlesford Local Plan Transport Study - Growth Scenarios Tested

Location/AoS	Use-Class	Aug-16										
		Original LP Growth Scenarios										
		1	2	3	4	5	6	7	8	9	10	11
		Great Chesterford	Elsenham; West of Great Dunmow	Elsenham; West of Braintree	West of Great Dunmow; West of Braintree	Great Chesterford; Elsenham; West of Great Dunmow; West of Braintree	Elsenham; West of Great Dunmow; West of Braintree	Elsenham; West of Braintree	West of Great Dunmow; West of Braintree	Smaller Settlement Spread	West of Great Dunmow; West of Braintree; Smaller Settlement Spread	Great Chesterford; West of Braintree; Smaller Settlement Spread
Committed Developments (Dwelling Numbers)												
Committed Developments (Uncertainty Log)	C3	6,706	6,706	6,706	6,706	6,706	6,706	6,706	6,706	6,706	6,706	6,706
New Settlements (Dwelling Numbers)												
M11 Junction 9a East (Gt Chesterford)	C3	2,250	0	0	0	5,000	0	0	0	0	0	1,400
Elsenham	C3	750	2,250	2,250	0	3,000	4,000	4,000	0	0	0	0
North of Takeley	C3	0	0	0	0	0	0	0	0	0	0	0
Little Dunmow (Chelmer Mead)	C3	0	0	0	0	0	0	0	0	0	0	0
W of Gt. Dunmow (Easton Park)	C3	750	2,250	0	2,250	3,000	10,000	0	10,000	0	1,400	0
West of Braintree	C3	750	0	2,250	2,250	3,000	12,000	12,000	12,000	0	1,400	1,400
Market Towns (Dwelling Numbers)												
Saffron (7 sites in Aug & Nov 2016, 4 sites in March 2017)	C3	0	0	0	0	840	840	840	840	1,000	700	700
Gt. Dunmow (6 sites in Aug & Nov 2016, 8 sites in March 2017)	C3	0	0	0	0	720	720	720	720	900	700	700
Villages (Dwelling Numbers)												
Elsenham	C3	0	0	0	0	40	40	40	40	70	40	40
Gt. Chesterford	C3	0	0	0	0	200	200	200	200	200	30	30
Newport	C3	0	0	0	0	120	120	120	120	120	30	30
Stansted Mountfitchet	C3	0	0	0	0	140	140	140	140	180	40	40
Takeley	C3	0	0	0	0	1,000	1,000	1,000	1,000	1,500	30	30
Thaxted	C3	0	0	0	0	30	30	30	30	65	30	30
Clavering	C3	0	0	0	0	14	14	14	14	31	10	10
Debden	C3	0	0	0	0	25	25	25	25	25	10	10
Hatfield Broad Oak	C3	0	0	0	0	8	8	8	8	38	10	10
Henham	C3	0	0	0	0	36	36	36	36	36	10	10
Farnham	C3	0	0	0	0	15	15	15	15	25	10	10
Felsted	C3	0	0	0	0	230	230	230	230	230	10	10
Great Easton	C3	0	0	0	0	40	40	40	40	40	10	10
Great Sampford	C3	0	0	0	0	5	5	5	5	5	5	5
Quendon&Rickling	C3	0	0	0	0	31	31	31	31	30	10	10
Stebbing	C3	0	0	0	0	6	6	6	6	6	5	5
Radwinter	C3	0	0	0	0	0	0	0	0	0	10	10
Total Dwellings		11,206	11,206	11,206	11,206	24,206	36,206	26,206	32,206	11,207	11,206	11,206

Name	Use-Class	Aug-16										
		Employment Growth Scenarios (Sqm)										
		1	2	3	4	5	6	7	8	9	10	11
Elsenham Meadows (TriSail)	B1	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Land north east of Bury Lodge	B8	37,000	37,000	37,000	37,000	37,000	37,000	37,000	37,000	37,000	37,000	37,000
Land north east of Bury Lodge	B1	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000
Chesterford Research Park	B1	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000
M11 Junction 9a East (Stump Cross)	B1 / B8	37,800	0	0	0	84,000	0	0	0	0	0	0
Elsenham	B1 / B8	8,666	47,000	47,000	0	26,000	84,000	84,000	0	0	0	0
West of Gt. Dunmow	B1 / B8	8,667	17,250	0	17,250	26,000	75,000	0	75,000	0	17,250	17,250
West of Braintree	B1 / B8	8,667	0	14,250	14,250	26,000	0	75,000	75,000	0	14,250	14,250
Little Dunmow	B1	0	0	0	0	0	0	0	0	0	0	0
North of Takeley	-	0	0	0	0	0	0	0	0	0	0	0
Totals		217,800	218,250	215,250	185,500	316,000	313,000	313,000	304,000	154,000	185,500	185,500

Location/AoS	Use-Class	Sep-16			Nov-16					Mar-17										May-17
		Revised/New LP Growth Scenarios			New LP Growth Scenarios - Nov 2016					New LP Growth Scenarios - March 2017										
		10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
		Revised Scenario 10	Revised Scenario 11	Great Chesterford; West of Great Dunmow	West of Great Dunmow (major); West of Braintree	Little Dunmow; Great Chesterford	Little Dunmow; West of Great Dunmow	North of Takeley; Great Chesterford	West of Great Dunmow; Takeley	Great Chesterford; West of Great Dunmow (major); West of Braintree	Great Chesterford; West of Great Dunmow; West of Braintree	Great Chesterford; West of Great Dunmow; West of Braintree	Great Chesterford; West of Braintree; Takeley (NE)	West of Braintree; Takeley; Lt Dunmow	West of Great Dunmow; West of Braintree; Little Dunmow	Great Chesterford; Takeley; Little Dunmow	Great Chesterford; West of Great Dunmow; Little Dunmow	West of Great Dunmow; Takeley (NE); Little Dunmow	Great Chesterford; West of Great Dunmow; Takeley	Great Chesterford; West of Great Dunmow; West of Braintree
Committed Developments (Dwelling Numbers)																				
Committed Developments (Dwelling No's)	C3	5,916	5,916	5,916	5,916	5,916	5,916	5,916	5,916	5,916	5,916	5,916	5,916	5,916	5,916	5,916	5,916	5,916	5,916	5,916
New Settlements (Dwelling Numbers)																				
M11 Junction 9a East (Gt Chesterford)	C3	0	1,400	1,400	0	1,400	0	1,400	0	2500	2,500	2500	2,500			2,500	2500			2500	1,460
Elsenham	C3	0	0	0	0	0	0	0	0												
North of Takeley	C3	0	0	0	0	0	0	1,400	1,400				1,700	850		850		1,700	850		
Little Dunmow (Chelmer Mead)	C3	0	0	0	0	1,400	1,400	0	0					2700	2700	1,500	1,500	2700			
W of Gt. Dunmow (Easton Park)	C3	1,400	0	1,400	2,200	0	1,400	0	1,400	2,300	1900	1,150			2,300		1,150	1150	2,300	1460	
West of Braintree	C3	1,400	1,400	0	600	0	0	0	0	600	1000	1400	600	1400	600					980	
Market Towns (Dwelling Numbers)																				
Saffron (7 sites in Aug & Nov 2016, 4 sites in March 2017)	C3	700	700	700	700	700	700	700	700	190	190	190	190	190	190	190	190	190	190	190	
Gt. Dunmow (6 sites in Aug & Nov 2016, 8 sites in March 2017)	C3	700	700	700	700	700	700	700	700	820	820	820	820	820	820	820	820	820	820	820	
Villages (Dwelling Numbers)																				
Elsenham	C3	40	40	40	40	40	40	40	40	90	90	90	90	90	90	90	90	90	90	90	
Gt. Chesterford	C3	30	30	30	30	30	30	30	30	130	130	130	130	130	130	130	130	130	130	130	
Newport	C3	30	30	30	30	30	30	30	30	130	130	130	130	130	130	130	130	130	130	130	
Stansted Mountfitchet	C3	40	40	40	40	40	40	40	40	110	110	110	110	110	110	110	110	110	110	110	
Takeley	C3	30	30	30	30	30	30	30	30	80	80	80	80	80	80	80	80	80	80	80	
Thaxted	C3	30	30	30	30	30	30	30	30	60	60	60	60	60	60	60	60	60	60	60	
Clavering	C3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Debden	C3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Hatfield Broad Oak	C3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Henham	C3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Farnham	C3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Felsted	C3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Great Easton	C3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Great Sampford	C3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
Quendon&Rickling	C3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Stebbing	C3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
Radwinter	C3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Total Dwellings		10,416	10,416	10,416	10,416	10,416	10,416	10,416	10,416	13,026	13,026	12,676	12,426	12,576	13,226	12,476	12,776	13,176	13,276	11,526

Name	Use-Class	Sep-16			Nov-16					Mar-17										May-17
		Employment Growth Scenarios (Sqm)			Employment Growth Scenarios (Sqm)					Employment Growth Scenarios (Sqm)										
		10 Rev	11 Rev	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Elsenham Meadows (TriSail)	B1	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Land north east of Bury Lodge	B8	37,000	37,000	37,000	37,000	37,000	37,000	37,000	37,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Land north east of Bury Lodge	B1	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Chesterford Research Park	B1	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000
M11 Junction 9a East (Stump Cross)	B1 / B8	0	23,520	23,520	0	23,520	0	23,520	0	42,000	42,000	42,000	42,000			42,000	42,000		42,000	24,612
Elsenham	B1 / B8	0	0	0	0	0	0	0	0											0
West of Gt. Dunmow	B1 / B8	10,500	0	10,500	17,250	0	10,500	0	10,500	17,250	9,000	9,000			17,250		9,000	9,000	17,250	11,250
West of Braintree	B1 / B8	9,000	9,000	0	0	0	0	0	0	0	0	9,000	0	9,000	0					0
Little Dunmow	B1	0	0	0	0	25,584	25,584	0	0				31,005	31,005	17,160	17,160	31,005			0
North of Takeley	-	0	0	0	0	0	0	0	0				2,400	1,200		1,200		2,400	1,200	0
Totals		173,500	186,520	188,020	171,250	203,104	190,084	177,520	164,500	222,250	214,000	223,000	207,400	204,205	211,255	223,360	231,160	205,405	223,450	198,862

		Sep-16			Nov-16					Mar-17										May-17
		Land West of Braintree (Dwelling Numbers)			Land West of Braintree (Dwelling Numbers)					Land West of Braintree (Dwelling Numbers)										
		10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
		Revised Scenario 10	Revised Scenario 11	Great Chesterford; West of Great Dunmow	West of Great Dunmow (major); West of Braintree	Little Dunmow; Great Chesterford	Little Dunmow; West of Great Dunmow	North of Takeley; Great Chesterford	West of Great Dunmow; Takeley	Great Chesterford; West of Great Dunmow (major); West of Braintree	Great Chesterford; West of Great Dunmow; West of Braintree	Great Chesterford; West of Great Dunmow; West of Braintree	Great Chesterford; West of Braintree; Takeley (NE)	West of Braintree; Takeley; Lt Dunmow	West of Great Dunmow; West of Braintree; Little Dunmow	Great Chesterford; Takeley; Little Dunmow	Great Chesterford; West of Great Dunmow; Little Dunmow	West of Great Dunmow; Takeley (NE); Little Dunmow	Great Chesterford; West of Great Dunmow; Takeley	Great Chesterford; West of Great Dunmow; West of Braintree
		2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,500

Notes:
1. Development at Great Dunmow removed from committed developments following appeal decision
2. Reference case updated to reflect likely development at land west of Braintree (within Braintree)

Notes:
1. Reference case updated to amend likely development at land west of Braintree (within Braintree)

Notes:

1. Reference case development at land west of Braintree (within Braintree) amended

Appendix B – ECC Study on Saffron Walden

Update of Saffron Walden Traffic Study

This technical note provides a high level update using the latest traffic survey data of the situation that is considered likely to occur at the Radwinter Road/Thaxted Road junction and along the Peaslands Road corridor without and with an eastern link road. The new data comprised junction turning movements, link flows and Automatic Number Plate Recognition (ANPR) surveys at various locations within Saffron Walden. The surveys enabled assumptions previously made in support of the withdrawn UDC Local Plan to be updated. As background, information contained in previous reports submitted as part of the earlier UDC Local Plan proposals is summarised in Appendix A.

2016 Impact Analysis Update

Radwinter Road/Thaxted Road Junction Analysis – Existing Network

Note: For simplicity this analysis broadly uses the same committed and Local Plan development assumptions for Saffron Walden as were used for the 2013/4 work (see Appendix B). However, the base traffic flows have been updated to 2016, making use of the new traffic surveys at the junction which were undertaken in March 2016. Growth factors have been adjusted accordingly, including rebasing the forecast year to 2033.

AM	2016 Base		2018+CD+ULP		2033 +CD+ULP	
Approach	Deg Sat%	MMQ	Deg Sat%	MMQ	Deg Sat%	MMQ
Radwinter Rd	66.90%	15	71.4%	17	74.4%	18
Thaxted Rd	81.60%	17	94.8%	23	105.3%	38
East St	81.40%	15	94.3%	21	101.4%	29

PM	2016 Base		2018+CD+ULP		2033 +CD+ULP	
Approach	Deg Sat%	MMQ	Deg Sat%	MMQ	Deg Sat%	MMQ
Radwinter Rd	58.40%	12	105.2%	37	119.1%	71
Thaxted Rd	87.80%	18	107.1%	42	122.2%	82
East St	85.40%	19	104.3%	38	119.7%	80

The updated traffic flows have resulted in a worsening of forecast capacity in 2018 with committed and LP development in place in the AM peak hour, and a slight improvement in the PM peak hour. However, the junction would still be considered to be at capacity in the AM and over-capacity in the PM peak hours.

The forecast for 2033 indicates that the junction would be over capacity in both peak hours with committed and LP development in place. The situation is not quite as congested as previously forecast for the AM peak, but worse in the PM peak, where all arms would be expected to be over capacity.

Link Road: Estimated Daily Flows using 2016 data

As well as junction surveys additional traffic counts were also undertaken in March 2016 to record daily traffic on key links, which are known as Automatic Traffic Count (ATC) surveys. These were done on both Thaxted Road and Radwinter Road, and from this it was estimated that the level of reassigned daily traffic that would be likely to use the Link Road would be of the order of 3,300 vehicles a day. Currently, for information, on Thaxted Road approximately 7% of vehicles are LGV/MGV/HGVs, and on Radwinter Road these types of vehicle comprise 6% of daily flows.

ATC surveys only record overall vehicle numbers within a given time period. It is necessary to understand more clearly where these vehicles are coming from and going to in order to have greater confidence in predicting the number of vehicles that would be likely to switch to use the link road. Accordingly a series of observations were made in March 2016 using Automatic Number Plate Recognition (ANPR) cameras, the data from which was analysed to derive traffic movements through the town.

Using the 2016 ANPR data it has been calculated that around 5,200 vehicles per day could use the link. This could remove between 380-410 vehicles from the Radwinter Road/Thaxted Road junction in the peak hours, which may facilitate proposals outlined in the Saffron Walden Traffic Study to remove the traffic signals completely. This would need to be subject to further analysis.

Radwinter Road/Thaxted Road Junction Analysis – With Link Road in place

The tables below show the estimated capacity at the Radwinter Road/Thaxted Road junction with the link road in place, with the assumption that around 3,300 vehicles per day would use the link (the analysis has not been updated following the revised ANPR data).This analysis assumes that 240 vehicles would be removed from the junction in the AM peak hour, and 300 vehicles in the PM peak hour, if all of the affected vehicles transferred to the new link road.

The first columns show the situation without the link road, the next columns with only 25% of estimated traffic reassigned to the alternative route, the next with only 50% of this traffic, and the last columns with all of the estimated traffic reassigned.

AM	2033 +CD+ULP		2033+CD+ULP+Link25%		2033+CD+ULP+Link50%		2033+CD+ULP+Link	
Approach	Deg Sat%	MMQ	Deg Sat%	MMQ	Deg Sat%	MMQ	Deg Sat%	MMQ
Radwinter Rd	74.4%	18	72.4%	17	69.1%	16	63.5%	14
Thaxted Rd	105.3%	38	97.4%	25	92.7%	21	80.7%	15
East St	101.4%	29	96.9%	23	89.1%	18	78.7%	15

PM	2033 +CD+ULP		2033+CD+ULP+Link25%		2033+CD+ULP+Link50%		2033+CD+ULP+Link	
Approach	Deg Sat%	MMQ	Deg Sat%	MMQ	Deg Sat%	MMQ	Deg Sat%	MMQ
Radwinter Rd	119.1%	71	116.4%	62	109.7%	45	54.5%	11
Thaxted Rd	122.2%	82	115.8%	64	112.7%	55	90.9%	19
East St	119.7%	80	114.7%	67	110.1%	55	89.6%	22

It can be seen that the junction would not be expected to operate within capacity without a significant proportion of the traffic reassigning to the link road. For the AM peak somewhere between 50% and 100% of the traffic would be needed to reassign to fully relieve the junction, and for the PM peak even if all the traffic were to reassign the junction would still be at capacity.

Without re-running the junction analysis, it can be assumed from the 2016 ANPR data that there is a much greater potential for vehicles to reassign to use the link road to make their journeys across the town. This means that it would be possible to remove a greater level of traffic from the Radwinter Road/Thaxted Road junction with a suitable link road in place. Instead of around 3,300 vehicles per day transferring, we would expect in excess of 5,000 vehicles on the link road, this equates to a reduction in flows of 385 vehicles in the AM peak hour, and 410 vehicles in the PM peak hour, with a correspondingly greater improvement in the operation of the junction.

The increased flows associated with the provision of an eastern link road has also been modelled onto the wider network (as illustrated in Figure 1). Using the more detailed traffic movement information from the ANPR surveys it is now concluded that the impact of an eastern link road on the Peaslands Road corridor would be such that it would have insufficient capacity to deal with this increased flow, even with the mitigation measures previously proposed. So, while the link road would deal with the impacts of the now committed Manor Oak site on Radwinter Road at the Radwinter/Thaxted Road junction, it would be likely to lead to unacceptable consequences on the wider network, particularly the Peaslands Road corridor.

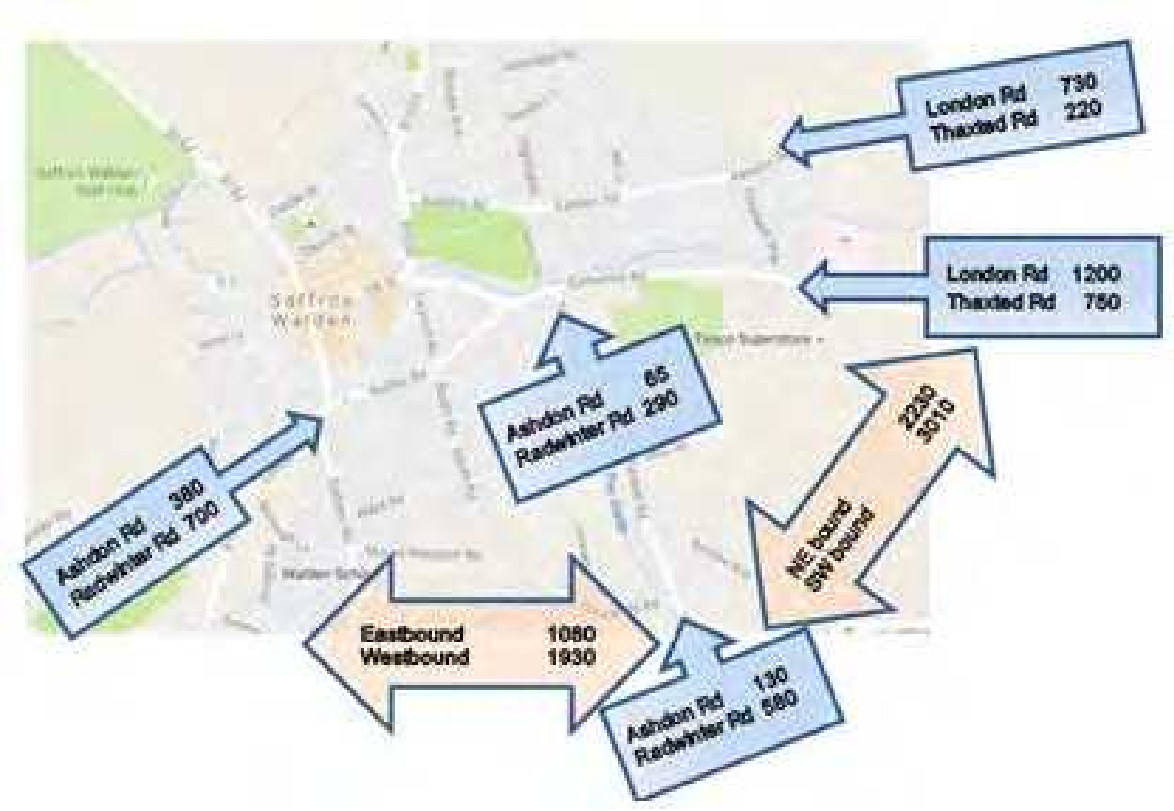

Figure 1 Potential Traffic Re-routeing with Eastern Link Road (AADT)

A range of high-level evaluations were carried out to explore options and key findings are summarised below and in Appendix C.

Impacts of Additional Development in Eastern Saffron Walden

Notwithstanding the issue of the impact of additional traffic on the Peaslands Road corridor as a consequence of the eastern link road, a series of high level evaluations were undertaken to identify likely effects of additional development in this eastern sector. This high level evaluation is included at Appendix C.

Major Additional Infrastructure evaluation

UDC requested a high level evaluation of the likely impact of further major infrastructure, ie an extension of the eastern link road across the south of the town to connect through to B1052 Newport Road. This was to be considered as part of a possible future scenario in the next Plan period, to include further major housing development as a delivery mechanism.

ECC undertook a very simplistic analysis, using very basic network assumptions, and included 5,000 additional homes located across the south and east of the town. Using the 2001 Journey to Work distribution information, trips associated with the 5,000 homes were manually assigned to parts of the simple town network (primarily the new link road and the B1052 Newport Road / B184 High Street corridor). This

did not consider any current or future traffic or network congestion issues in this area, nor any possible wider reassignment of development trips as a consequence.

The simplistic analysis found that while development of this scale would be able to make use of the new link road to avoid much of the town centre, there would still be significant impact on the AQMA, particularly at the High Street / George Street junction. The manual assignment of the AM peak hour is illustrated in Figure 2.

The main conclusion drawn from this evaluation was that the repercussions of major development and infrastructure of this nature on the highway network needed further more detailed analysis, using a highway assignment model. However the initial view was that it did not appear to provide a solution to the town's highway capacity and air quality issues.

A number of intermediate options were evaluated with a link road but indicated unacceptable impacts for the reasons explained above and in appendix C.

Impacts of Growth Without a Link Road

150 Dwellings East of Thaxted Road (Kier site)

A high-level evaluation was made of 150 dwellings on land East of Thaxted Road (Kier site) based on existing committed measures in place/new junction on Thaxted Road provided by the development. The evaluation indicates modest impacts on Thaxted/Peaslands Road (extra 56 vehicles in PM period). There would be no/limited opportunities to improve wider issues although the scheme would complement existing committed measures.

Conclusion

As set out in the earlier Traffic Study, there are a number of junctions within Saffron Walden which would require mitigation measures in order to deliver the LP growth. The eastern link road was considered to be a key element for delivering these measures, particularly in encouraging traffic to circumnavigate the town centre. The town centre, including the Radwinter Road/Thaxted Road junction is an AQMA, and there is a need to address congestion issues which could exacerbate the air quality.

The revised high level modelling has concluded that we would not recommend further development in the east of Saffron Walden, with the exception of a smaller scale development to the east of Thaxted Road (Kier site), as it would not be possible to improve the existing road network within the town to accommodate the additional traffic. Subject to the findings of a detailed Transport Assessment, the distribution of traffic from 150 dwellings at the Kier site would be only marginally different without a link road to that with it. However, the developer will be required to demonstrate that traffic impacts can be appropriately mitigated for the scale of development proposed.

It is therefore proposed that the previous strategy is modified to remove the Eastern link road and therefore also the junction changes proposed at the Radwinter/Thaxted junction as these were complimentary measures. However, the other measures referred to in the UDC Air Quality Action Plan 2017-2022 as proposed should remain and these include:

- Newport Road/Borough Lane priority junction improvements
- Debden Road, London Road to Borough Lane junction improvements
- Thaxted Road/Peaslands Road junction improvements
- Waiting restrictions on Peaslands Road

The impact of the development of the Kier site at 150 homes would be marginal based on the delivery of the measures proposed above, and less on the Peaslands Road corridor than with the full Eastern development. The Kier site would be expected to fund the provision of the improved junction at Thaxted Road / Peaslands Road and an appropriate TA that explores these measures in more detail would be required in due course. The remaining measures are already identified through existing committed developments.

Following a very simplistic assessment of further major infrastructure and development it is also concluded that, should any further development sites be promoted to the south and east of the town more sophisticated traffic modelling would be required in order to identify the traffic impacts and infrastructure required to mitigate those impacts. This could form part of a Local Plan review of the town, at which time modal shift opportunities would be explored. It is emphasised that all of the work reported herein is based on high level simplistic study, with the recommendation that a highway assignment model would be required to provide any definitive conclusions on the benefits or otherwise of an eastern and southern link road.

Note: The approach going forward on the emerging local plan is explained in more detail in UDCs PPWG report (22.617).

Essex County Council
Transportation Strategy & Engagement
31st May 2017

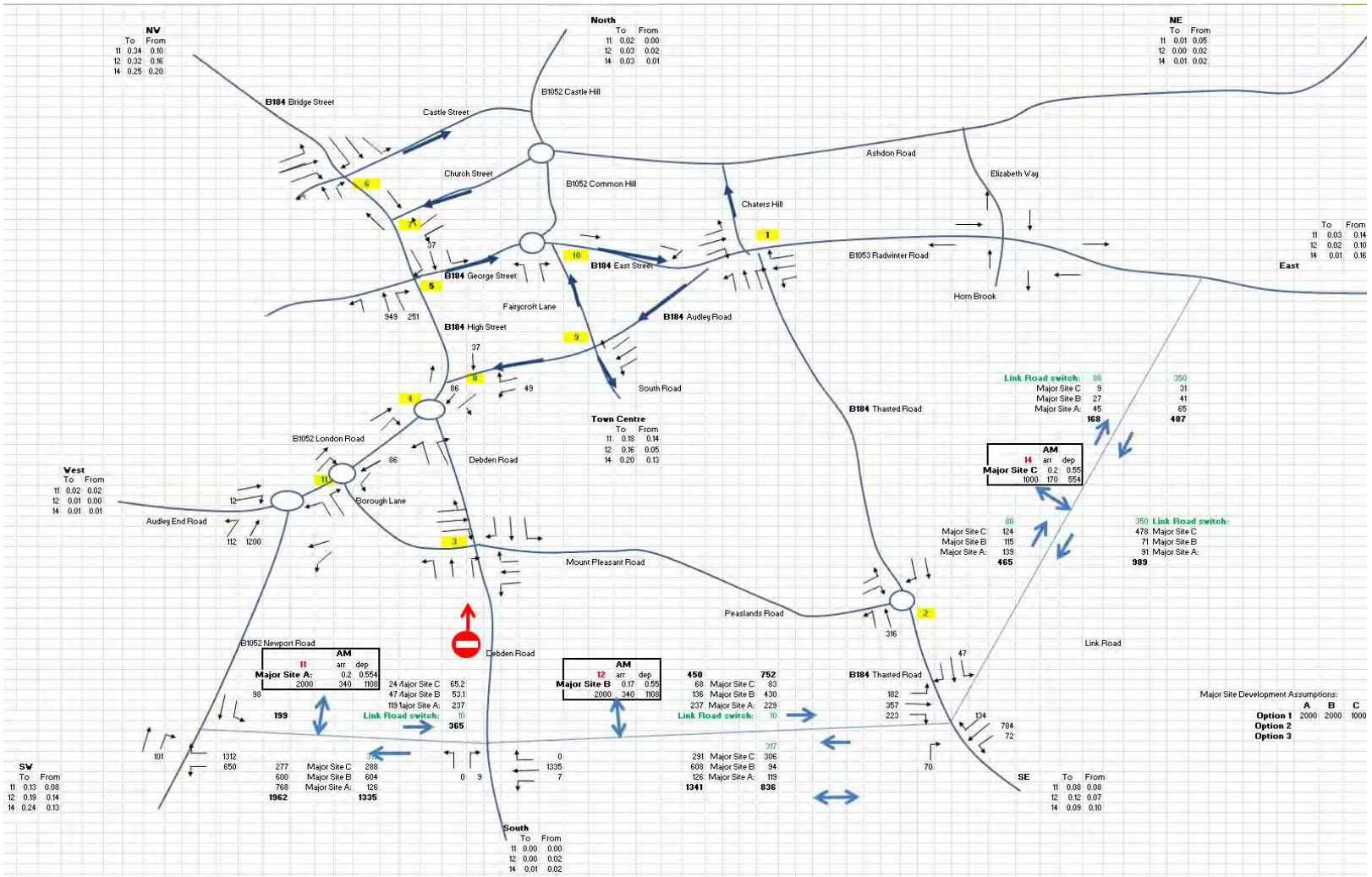

Figure 2 Potential Traffic Implications of Southern Link Road and Major Housing Development (AM Peak hour)

Appendix A

Overview of town impacts (March 2014 TA Update App C)

The previous work established that mitigation measures would be required to minimise Local Plan development impacts on highway network in Saffron Walden, as summarised in Table 5-1, copied below.

For simplicity the analysis results have been categorised to give a broad indication of the situation in each scenario. These categories are:

- ✓ No capacity issues in either peak hour
- ⊘ One or more arms approaching capacity in either of the peak hours
- × One or more arms at or exceeding capacity in either of the peak hours

Table 5-1: Summary of Saffron Walden Junction Capacity Status

		2012	2018		2031	
	Junction	Base	Committed	Committed + ULP	Committed	Committed + ULP
1	B185 Thaxted Rd / B1053 Radwinter Rd	⊘	⊘	×	×	×
2	B184 Thaxted Rd / Peaslands Rd	✓	⊘	⊘	⊘	×
3	Mount Pleasant Rd / Debden Rd (existing layout)	✓	✓	✓	✓	⊘
4	B1052 London Rd / Debden Rd	⊘	⊘	⊘	×	×
5	B184 High St / B184 George St	✓	⊘	×	×	×
6	B184 High St / Castle St	✓	✓	✓	✓	✓
7	B184 High St / Church St	×	×	×	×	×

		2012	2018		2031	
	Junction	Base	Committed	Committed + ULP	Committed	Committed + ULP
8	B184 Audley Rd / B184 High St	⊘	⊘	⊘	✗	✗
9	B184 East St / Fairycroft Rd / Cates Cnr	✓	✓	✓	✓	✓
10	B1052 London Rd / Borough Ln	✓	✓	⊘	⊘	⊘
10b	B1052 Newport Rd / Audley End Rd	⊘	✗	✗	✗	✗

With the Link Road in place the operation of some junctions improved, but further measures would be required, as shown in Table 5-2 copied below. In particular, it should be noted that the Link Road results in additional congestion at the Thaxted Road / Peaslands Road junction as more traffic routes through it to and from the new road.

Table 5-2: Summary of Saffron Walden Junction Capacity Status: 2031 with Link Road

		2031		
	Junction	Committed	Committed + ULP	With Link Rd
1	B185 Thaxted Rd / B1053 Radwinter Rd	✗	✗	⊘
2	B184 Thaxted Rd / Peaslands Rd	⊘	✗	✗
3	Mount Pleasant Rd / Debden Rd (signals)	✓	✓	✓
4	B1052 London Rd / Debden Rd	✗	✗	✗
5	B184 High St / B184 George St	✗	✗	✗
6	B184 High St / Castle St	✓	✓	✓
7	B184 High St / Church St	✗	✗	✗
8	B184 Audley Rd / B184 High St	✗	✗	✗
9	B184 East St / Fairycroft Rd / Cates Cnr	✓	✓	✓
10	B1052 London Rd / Borough Ln	⊘	⊘	⊘
10b	B1052 Newport Rd / Audley End Rd	✗	✗	✗

With the full range of highway Mitigation Measures and with LP development in place it was concluded that (with the exception of the Mountpleasant/Debden Road junction) there would be either no overall change or an improvement over the forecast year with committed development in the town.

Table 5-3: Saffron Walden Junction Capacity Analysis Summary: 2031 with Mitigation Measures

		2031			
	Junction	Committed	Committed + ULP	With Link Rd	With Link Rd & Mitigation Measures
1	B185 Thaxted Rd / B1053 Radwinter Rd	✗	✗	⊘	✓
2	B184 Thaxted Rd / Peaslands Rd	⊘	✗	✗	✓
3	Mount Pleasant Rd / Debden Rd (signals)	✓	✓	✓	✗
4	B1052 London Rd / Debden Rd	✗	✗	✗	⊘
5	B184 High St / B184 George St	✗	✗	✗	✗
6	B184 High St / Castle St	✓	✓	✓	✓
7	B184 High St / Church St	✗	✗	✗	✗
8	B184 Audley Rd / B184 High St	✗	✗	✗	✗
9	B184 East St / Fairycroft Rd / Cates Cnr	✓	✓	✓	✓
10	B1052 London Rd / Borough Ln	⊘	⊘	⊘	✓
10b	B1052 Newport Rd / Audley End Rd	✗	✗	✗	✗

It is reiterated that the 2014 traffic study identified a suite of junction and routeing/mitigation improvements which sought to reduce traffic impact through the town. As such, the eastern link road is a key element of this suite, without which it is unlikely that the other elements would deliver the desired effects.

Overview of Radwinter Road / Thaxted Road Junction (March 2014 TA Update App C)

Existing network: Optimised signals junction operates ~85% with queuing on all arms in 2012.

With committed development in place in 2018 the junction would be at capacity, and with ULP would be over capacity, a situation which worsens by 2031.

Table 1c: B184 Thaxted Road / B1053 Radwinter Road AM Peak (Cycle Time=120sec, Optimised)

Approach & Lane		2012 AM Base		2018 AM with committed development		2018 AM with committed & ULP development		2031 AM with committed development		2031 AM with committed & ULP development	
		DoS	Q	DoS	Q	DoS	Q	DoS	Q	DoS	Q
B1053 Radwinter Rd	1	61.0%	13	68.3%	15	73.5%	17	69.0%	15	73.9%	17
B184 Thaxted Rd	1	86.6%	19	92.2%	23	98.5%	29	97.4%	28	110.0%	54
B184 East St	1	79.6%	14	91.8%	18	112.3%	46	95.0%	20	110.6%	44

Table 1d: B184 Thaxted Road / B1053 Radwinter Road PM Peak (Cycle Time=120sec, Optimised)

Approach & Lane		2012 PM Base		2018 PM with committed development		2018 PM with committed & ULP development		2031 PM with committed development		2031 PM with committed & ULP development	
		DoS	Q	DoS	Q	DoS	Q	DoS	Q	DoS	Q
B1053 Radwinter Rd	1	54.8%	11	59.8%	13	63.3%	14	62.9%	14	66.0%	15
B184 Thaxted Rd	1	84.4%	17	92.4%	22	97.0%	26	102.1%	34	117.5%	73
B184 East St	1	80.7%	17	94.0%	23	103.3%	36	103.9%	38	112.7%	62

Mitigation Measures – Link Road

A range of assumptions made for the Study with regard to possible re-routeing of traffic around the town as a consequence of the link road being constructed were:

The eastern link road, which would connect Thaxted Road with Radwinter Road, would be expected to relieve the Thaxted Road/Radwinter Road junction, which is a recognised bottleneck on the network. The link road would be enabled through ULP development on the Saffron Walden Policy 1 site and be built in conjunction with that development. Such a route would help to not only relieve the traffic flows at the junction of Thaxted Road and Radwinter Road, but also help to channel traffic away from the centre of the town. It would, however, lead to additional traffic on the alternative route of Peaslands Road/Mount Pleasant Road and Borough Lane and Debden Road, to the south of the town centre.

The key movements which were considered likely to transfer to the link road are:

- Northbound and southbound along Thaxted Road which is destined towards or originating from Radwinter Road.
- Westbound from Radwinter Road to Newport Road through the town, which would have used East Street, Audley End Road and London Road.
- Eastbound from Newport Road to Radwinter Road through town, which would have used London Road, George Street and East Street.

Assumptions have been made with regard to the proportions of traffic movements which would transfer to the link road and Peaslands Road-Mount Pleasant Road-Borough Lane/ Debden Road route and how the flows would reassign on the local road network. This methodology has been developed using a combination of observed junction turning movements and professional judgement. In broad terms it was assumed that:

10% of Radwinter Road westbound traffic going straight ahead at the Thaxted Road junction would use the link road and Peaslands Road route instead;

50% of Radwinter Road westbound traffic going left at the Thaxted Road junction would use the link road instead and just over 50% of this diverted traffic would then turn towards Peaslands Road, the remainder travelling south away from the town;

50% of Thaxted Road northbound traffic right-turning at the Radwinter Road junction is assumed to use the link road;

10% of eastbound London Road traffic approaching from the west of the town is assumed to divert to Borough Lane and Mount Pleasant Road and thence to the link road.

Analysis indicated that implementation of the Link Road in isolation would improve the junction operation in the AM but PM it would still be at capacity in 2031 with committed, ULP and the link road in place.

Table 1c-LR: B184 Thaxted Road / B1053 Radwinter Road AM Peak (Cycle Time=120sec, Optimised)

Approach & Lane		2031 AM with committed & ULP development		2031 AM with committed & ULP development & Link Road	
		DoS	Q	DoS	Q
B1053 Radwinter Rd	1	73.9%	17	55.4%	17
B184 Thaxted Rd	1	110.0%	54	84.0%	26
B184 East St	1	110.6%	44	69.9%	19

Table 1d-LR: B184 Thaxted Road / B1053 Radwinter Road PM Peak (Cycle Time=120sec, Optimised)

Approach & Lane		2031 PM with committed & ULP development		2031 PM with committed & ULP development & Link Road	
		DoS	Q	DoS	Q
B1053 Radwinter Rd	1	66.0%	15	52.2%	10
B184 Thaxted Rd	1	117.5%	73	95.8%	23
B184 East St	1	112.7%	62	84.8%	20

With both the Link Road and with Thaxted Road with a northbound closure in place:

Table 1c-LR-MM1: B184 Thaxted Rd/B1053 Radwinter Rd AM Peak (Cycle Time=120sec, Optimised)

Approach & Lane		2031 AM with committed & ULP development		2031 AM with committed & ULP development & Link Rd		2031 AM with committed & ULP development, Link Rd & MM1	
		DoS	Q	DoS	Q	DoS	Q
B1053 Radwinter Rd	1	73.9%	17	55.4%	17	60.3%	14
B184 Thaxted Rd	1	110.0%	54	84.0%	26	78.1%	8
B184 East St	1	110.6%	44	69.9%	19	67.5%	12

Table 1d-LR-MM1: B184 Thaxted Rd/B1053 Radwinter Rd PM Peak (Cycle Time=120sec, Optimised)

Approach & Lane		2031 PM with committed & ULP development		2031 PM with committed & ULP development & Link Rd		2031 PM with committed & ULP development, Link Rd & MM1	
		DoS	Q	DoS	Q	DoS	Q
B1053 Radwinter Rd	1	66.0%	15	52.2%	10	51.4%	11
B184 Thaxted Rd	1	117.5%	73	95.8%	23	84.0%	10
B184 East St	1	112.7%	62	84.8%	20	65.8%	15

Appendix B

Development Assumptions – Junction Analysis:

Current/latest UDC LP proposals testing assumes 800 new homes in Saffron Walden east, 219 homes elsewhere in the town, as well as 498 already committed homes, which sum to 1,517 homes (see WYG report and "A081175-47 - Uttlesford Transport Study - Apps E-G", TN4 App A Uncertainty Log).

The previous ECC assessment work in 2013/14 assumed 433 committed homes, and 1,027 proposed homes (including 800 to the east of the town), totalling 1,460. For this assessment, as new survey data was used, 25% of the committed homes were removed as their traffic would already be on the network during the 2016 survey. The revised total was therefore 1,354 homes. Background growth was also applied to rebase the analysis to 2033.

The variation between the WYG assessment and this high level study is therefore in the order of 1517-1354=163 fewer homes, which can be attributed to the different timeframes of the two studies: WYG uses 2011-2033, and ECC have used 2016-2033.

Appendix C

Review of Eastern Sites Impacts on Saffron Walden, May 2017

Saffron Walden Development Assumptions

The base traffic flows used in the high level assessment have been updated to 2016, when the most recent traffic surveys were undertaken. This has resulted in the number of committed developments that need to be incorporated into forecast modelling being amended to take account of those developments that have already been built and the additional planning permissions that have been granted.

The resulting committed development assumptions are set out in Table 1.

Site	Dwellings	Commercial Y/N
Ashdon Road	130	
Thaxted Road (Kiln Ct)	52	
Lt Walden Road	90	
Paxtons	14	
Ashdon Road Commercial	167	Y
Willis & Gambier	52	
Manor Oaks	200	Y
Total	**705**	

Table 1 Saffron Walden Committed Development

The potential future residential developments within Saffron Walden that may be within the emerging Local Plan are those in the eastern sector of the town:

- Land to the east of Thaxted Road ('Kier site');
- Land between Radwinter Road and Thaxted Road ('middle site').

These sites form the basis of the impacts assessment within this technical note, and have been evaluated under several scenarios, all with an assumed forecast year of 2031, as set out in Table 2. It should be noted that Scenario C represents an equivalent to that assumed in the EH 2012 evaluation, i.e. this has a total of 750 homes on the eastern sector, including the now committed Manor Oaks development.

Scenario	Kier Site	Middle Site	With Link Road?	Eastern Sector Total
A	150	0	No	**350**
B	300	0	No	**500**
C	150	400	Yes	**750**
D	150	650	Yes	**1,000**
E	150	1000	Yes	**1,350**

Table 2 Saffron Walden Eastern Sector Development Scenarios

In the absence of a more detailed highway assignment model, the estimated committed and Local Plan development traffic was assigned to the network using a spreadsheet model. The distribution of this traffic was based on Census Journey to Work (JtW) data and informed by the 2016 traffic surveys reported in the 'ECC Saffron Walden Traffic Study Update, May 2017'.

Review of Trip Distribution

The Essex Highways Local Plan 2012 evaluation used 2001 Census JtW data. Since then the 2011 Census data has been published. To check the likely effects that using the more recent data would have, a comparison of the two sets of data in relation to Saffron Walden is set out in Table 3.

Journey to Work:	2011 (WYG)	2001 (EH)
Access Route:	**% of Trips**	**% of Trips**
B184 (NW)	37.8%	54.5%
Little Walden Road (N)	4.5%	0.0%
Ashdon Road (NE)	0.4%	0.0%
Radwinter Road (E)	1.6%	3.4%
Thaxted Road (SE)	8.8%	3.4%
Debden Road (S)	0.0%	0.0%
B1052 (SW)	24.9%	17.0%
Audley End Road (W)	0.3%	3.4%
External % =	*78.3%*	*81.7%*
Internal % =	21.7%	18.3%
South-West (S,SW,W) =	*25.3%*	*20.4%*

Table 3 Census Journey to Work Evaluation

It can be seen that the more recent interpretation of the JtW data indicates a lower proportion of journeys heading to the north-west of the town and a higher proportion heading to the south-west. The use of the 2001 JtW data, therefore, may have under-estimated the number of trips using the Peaslands / Mountpleasant Road corridor.

Impact Evaluation – 2012 and 2017 Differences

The impacts of each of the scenarios has been based on the change in flows at key junctions within the town. This has also been referenced back to the EH 2012 evaluations to provide a high level comparison. The key junctions for which total flows are reported are:

- Radwinter Road / Thaxted Road
- High Street / George Street
- Thaxted Road / Peaslands Road
- Newport Road / Borough Lane

The comparison of the latest committed development 2031 junction flows with those estimated for the 2012 evaluation are set out in Table 4. The 2012 analysis found that all four junctions would be likely to be either at capacity or over capacity with the then committed development in place. The 2017 evaluation indicates that committed development flows would be likely to be greater through the Radwinter / Thaxted Road junction in the PM peak hour, and significantly greater through the Thaxted / Peaslands Road junction in both peak hours than previously estimated.

2016-2031	Total Junction Flows							
Junction	Radwinter/Thaxted		High St/George St		Thaxted/Peaslands		Newport Rd/Boro Ln	
Time Period	AM	PM	AM	PM	AM	PM	AM	PM
Scenario								
2012: 2031 base+CD no link	*1521*	*1632*	*1345*	*1401*	*1177*	*1346*	*1446*	*1398*
2012: Junction capacity analysis summary:	*Over capacity*		*Over capacity*		*Over capacity*		*At capacity*	
2017: 2031 Base+CD no link	1527	1750	1321	1436	1381	1540	1503	1450
Committed Dev change 2012-2017 analysis:	**6**	**118**	**-24**	**35**	**204**	**194**	**57**	**52**

Table 4 Saffron Walden Committed Development Evaluation Comparisons

For the 2012 assessment a series of network interventions were devised to provide a 'with Local Plan nil detriment or better' position at key junctions, in order to accommodate the anticipated level of potential growth on the network. This included an eastern link road and associated traffic management measures and junction improvements across the southern part of the town.

Comparison of the 2012 and 2017 evaluation of the 'with link road' plus Local Plan growth (Scenario C) is set out in Table 5. This indicates that while the Radwinter / Thaxted Road junction would be likely to have lower flows, flows through the Thaxted / Peaslands Road junction would be likely to be significantly higher.

2016-2031	Total Junction Flows							
Junction	Radwinter/Thaxted		High St/George St		Thaxted/Peaslands		Newport Rd/Boro Ln	
Time Period	AM	PM	AM	PM	AM	PM	AM	PM
Scenario C								
2012: 2031 Base +CD+LP+Link (750)	*1256*	*1386*	*1271*	*1362*	*1160*	*1466*	*1427*	*1570*
2017: 2031 Base+CD+ULP+Link (750)	1122	1220	1308	1362	1745	1835	1560	1535

Table 5 Saffron Walden Local Plan plus Link Road Evaluation Comparisons

This would be likely to have a much greater impact on the Peaslands Road corridor than previously assumed. While it is considered that some additional traffic could be accommodated along it, with the implementation of parking restrictions etc, it is likely that the level of traffic reassignment now estimated to result from an eastern link road would be unacceptable in traffic management terms.

Nevertheless, the additional sensitivity testing as set out in Table 2, has been undertaken and reported in the next section.

Impact Evaluation – Sensitivity Scenarios

Scenario A: comparison of development on the Kier site of 150 homes, with already committed development in place is set out in Table 6. As would be expected, the

Thaxted / Peaslands Road junction would be likely to be most affected by this development although the evaluation indicates modest impacts on Thaxted/Peaslands Road (extra 56 vehicles in PM period). There would be little or no opportunities to improve the wider highway network/address air quality issues in the town centre although the scheme would complement existing committed measures with regards these issues.

2016-2031	Total Junction Flows							
Junction	Radwinter/Thaxted		High St/George St		Thaxted/Peaslands		Newport Rd/Boro Ln	
Time Period	AM	PM	AM	PM	AM	PM	AM	PM
Scenario A								
2012: 2031 base+CD no link	*1521*	*1632*	*1345*	*1401*	*1177*	*1346*	*1446*	*1398*
2017: 2031 Base+CD no link	1527	1750	1321	1436	1381	1540	1503	1450
2017: 2031 Base+CD+ULP No Link (Kier 150)	1540	1765	1336	1452	1433	1596	1519	1466

Table 6 Scenario A (Kier site 150) 2031 Impact Comparisons

Scenario B: comparison of development on the Kier site of 300 homes, with already committed development in place is set out in Table 7. As would be expected, this just shows general increases at all four junctions, with the Thaxted / Peaslands Road showing the greatest increases. The increases are less modest for the Thaxted Road/Peaslands Road with an extra 113 vehicles in the PM period.

2016-2031	Total Junction Flows							
Junction	Radwinter/Thaxted		High St/George St		Thaxted/Peaslands		Newport Rd/Boro Ln	
Time Period	AM	PM	AM	PM	AM	PM	AM	PM
Scenario B								
2012: 2031 base+CD no link	*1521*	*1632*	*1345*	*1401*	*1177*	*1346*	*1446*	*1398*
2017: 2031 Base+CD no link	1527	1750	1321	1436	1381	1540	1503	1450
2017: 2031 Base+CD+ULP No Link (Kier 300)	1552	1779	1352	1469	1484	1653	1534	1482

Table 7 Scenario B (Kier site 300) 2031 Impact Comparisons

Scenario D: assumes 1,000 homes on the eastern sector, including the Manor Oaks site. It also assumes that an eastern link road would be in place. As shown in Table 8 the combination of growth and major infrastructure would be likely to provide significant relief to the Radwinter / Thaxted Road junction, and a nil detriment position at the High Street / George Street junction. However, like Scenario C but with greater effect, there would be likely to be significant increases in flows at the Thaxted / Peaslands Road junction, leading to higher flows on the Peaslands Road and Borough Lane corridor.

2016-2031	Total Junction Flows							
Junction	Radwinter/Thaxted		High St/George St		Thaxted/Peaslands		Newport Rd/Boro Ln	
Time Period	AM	PM	AM	PM	AM	PM	AM	PM
Scenario D								
2012: 2031 base+CD no link	*1521*	*1632*	*1345*	*1401*	*1177*	*1346*	*1446*	*1398*
2017: 2031 Base+CD no link	1527	1750	1321	1436	1381	1540	1503	1450
2017: 2031 Base+CD+ULP+Link (1000)	1150	1246	1326	1378	1807	1895	1586	1560

Table 8 Scenario D (Eastern Sector=1000) 2031 Impact Comparisons

Scenario E: assumes a total of 1,350 homes on the three eastern sector sites, together with an eastern link road. While still providing relief to the Radwinter /

Thaxted Road and High Street / George Street junctions, as shown in Table 9, as would be expected the impact on the Thaxted / Peaslands Road and as a consequence on the Peaslands Road / Borough Lane corridor is likely to be significant.

2016-2031	Total Junction Flows							
Junction	Radwinter/Thaxted		High St/George St		Thaxted/Peaslands		Newport Rd/Boro Ln	
Time Period	AM	PM	AM	PM	AM	PM	AM	PM
Scenario E								
2012: 2031 base+CD no link	*1521*	*1632*	*1345*	*1401*	*1177*	*1346*	*1446*	*1398*
2017: 2031 Base+CD no link	1527	1750	1321	1436	1381	1540	1503	1450
2017: 2031 Base+CD+ULP+Link (1350)	1189	1282	1351	1400	1895	1979	1622	1596

Table 9 Scenario E (Eastern Sector=1350) 2031 Impact Comparisons

Conclusion

The re-evaluation of the likely impact of introducing an eastern link road together with significant housing growth to the east of Saffron Walden has indicated that the level of reassignment across the southern part of the town is likely to be unacceptable in terms of congestion. However, in practice traffic is likely to distribute more evenly across the network.

It is emphasised that this evaluation is high level and simplistic. It is recommended that a highway assignment model is constructed to provide more confidence in an assessment of the likely traffic impacts of growth on Saffron Walden and to identify appropriate infrastructure. Such modelling should also provide the opportunity to evaluate what improvements in sustainable travel would be needed to help mitigate traffic impacts. Such work would be outside the current round of plan making but should inform a plan review.

Essex County Council
Transportation Strategy & Engagement
8th May 2017