

**COUNTRYSIDE PROPERTIES PLC**

**LAND SOUTH OF HENHAM ROAD, ELSENHAM**

**TRANSPORT ASSESSMENT**

**REPORT REF.  
2008170-04**

**July 2022**

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## **Document Control Sheet**

<b>REV</b>	<b>ISSUE PURPOSE</b>	<b>AUTHOR</b>	<b>CHECKED</b>	<b>APPROVED</b>	<b>DATE</b>
-	1 <sup>st</sup> Draft	FM	IW	DRAFT	31/3/22
-	Draft for review	FM	IW	DRAFT	15/7/22
-	Final for Planning Submission	FM	FM	IW	29/7/22



## **Distribution**

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## **1.0 INTRODUCTION**

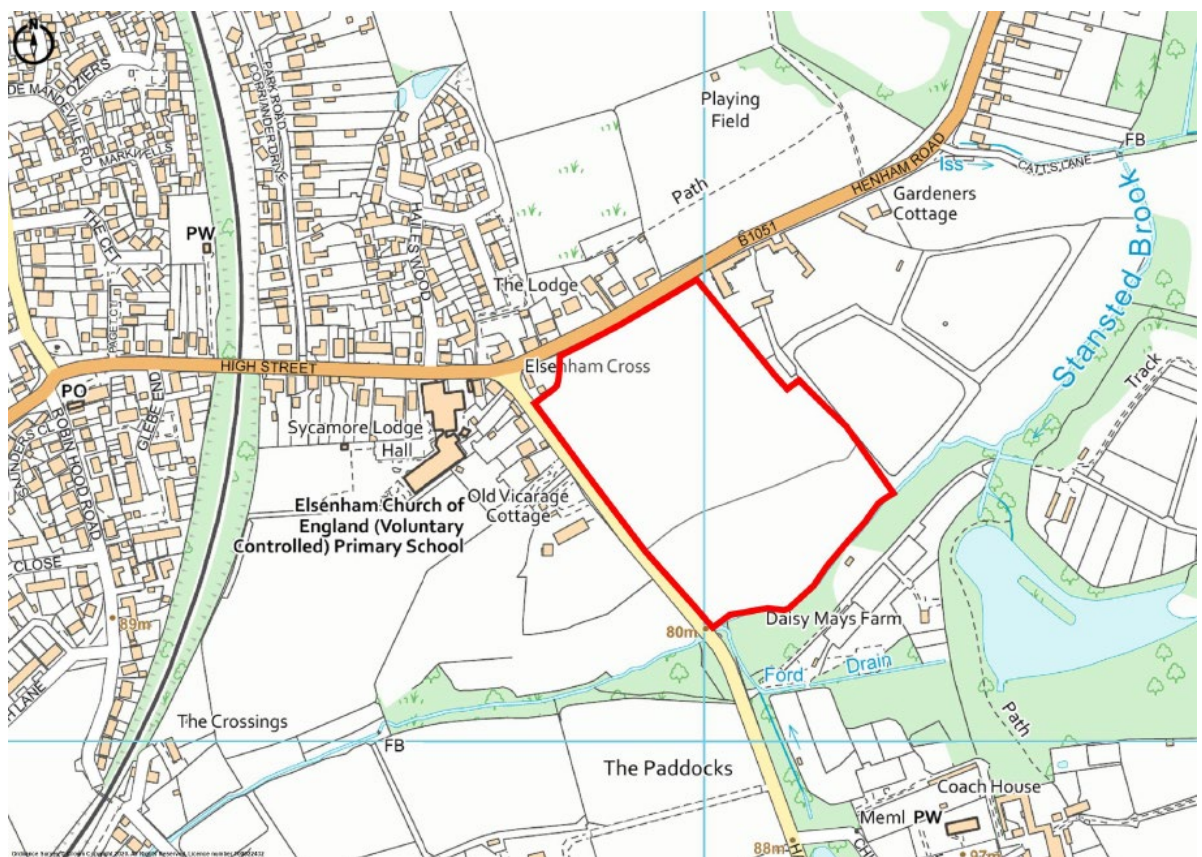
- 1.1 Ardent Consulting Engineers (ACE) has been appointed by Countryside Properties PLC to advise on the transport planning impacts of the proposed development of land south of Henham Road, Elsenham, which is proposed to be redeveloped for residential use.
- 1.2 This Transport Assessment (TA) has been prepared to accompany an outline planning application submission to the Planning Inspectorate for England (PINS). The site lies within the local authority area of Uttlesford District Council (UDC).
- 1.3 The scope of this TA, including the extent of the study area considered and other committed developments taken into account, has been produced following pre-application discussions with the local highway authority, Essex County Council (ECC).
- 1.4 In keeping with current government policy contained within National Planning Policy Framework [NPPF] (DCLG, July 2021), this report demonstrates that the proposals would provide suitable site access arrangements and reviews the opportunity to travel by active modes. In addition, this report looks to determine whether the development proposals would have any severe impact within the surrounding highway network, concluding that it wouldn't. The NPPF is supported by a range of associated National Planning Practice Guidance (NPPG) documentation, and this has also been considered as part of this report.
- 1.5 Following this introduction, the report is structured as follows: -
  - **Section 2.0** considers the existing situation, including proximity of the site to local services, pedestrian and cycle facilities and accessibility by public transport;
  - **Section 3.0** outlines the proposed development and the associated improvements to transport infrastructure to be implemented;
  - **Section 4.0** considers the land use and transport planning policy context for new residential development proposals and highlights how the scheme complies;



- **Section 5.0** sets out the predicted weekday peak hour trip generation by mode for the proposed site use;
- **Section 6.0** considers the impact of the predicted change in vehicle traffic on the operation of the local highway network; and
- **Section 7.0** provides a summary and conclusions.

## **2.0 EXISTING SITUATION**

- 2.1 The site is located on the eastern edge of the settlement of Elsenham in the Uttlesford District Council area of Essex. The neighbouring town of Stansted Mountfitchet is 3.5km away from the site to the west and further afield, Bishop’s Stortford and Saffron Walden are 8km and 15km away, respectively.
- 2.2 The site is bordered by Henham Road to the north and Hall Road to the west, Daisy May’s Farm to the south and open space to the east. The site location is shown in the context of Elsenham below in **Image 2.1** and an indicative site boundary shown in red (please refer to the formal planning drawings for the confirmed boundary extents) is shown at **Image 2.2**.



**Image 2.1: Site Location**



**Image 2.2: Indicative Site Boundary**

### **Local Consented Schemes**

- 2.3 There are a number of key consented schemes in the vicinity of the site, that have been summarised below.
- 2.4 On the western side of Hall Road a scheme (ref: UTT/19/0462/FUL) for 130 units which was submitted on behalf of Bovis Homes in February 2019. The scheme is understood to have been granted conditional approval subject to Section 106 (S106) legal obligations. The scheme accesses Hall Road via a simple priority junction and includes an obligation to provide a contribution to enhance bus services locally.
- 2.5 Other sites in Elsenham have received approval through appeal. These include a development for 350 units and a new One-Form Entry (1FE) primary school (UTT/17/3575/OP) with access onto the B1051 Henham Road (further east of the proposed site) and a 99-unit residential scheme (UTT/19/2470/OP) with access onto B1051 Stansted Road via Isabel Drive (further west of the proposed site).

2.6 Additional consented schemes further afield are considered within the traffic analysis section of this report.

### **Existing Use**

2.7 The site is currently agricultural land with no former built structures or uses on the site.

### **Existing Access**

2.8 There is a gated field access located along the northern frontage of the site onto Henham Road. This gated access allows for the movement of agricultural vehicles onto and off the site, as shown in **Image 2.3** below.

2.9 A pedestrian access point is located on the western frontage of the site from Hall Road as shown in **Image 2.4**. This access point allows pedestrians to enter the site along the route of the Public Right of Way (PROW) which crosses the site (ref.: Footpath 13 (FP13)).

2.10 PROW Footpath 13 cuts diagonally across the northern portion of the site, connecting between Hall Road and Henham Road where it provides connection to the existing footway via a traditional stile.





**Image 2.3: Gated site access point (Source: Google maps)**



**Image 2.4: Pedestrian site access point (Source: Google maps)**

2.11 A further gated field access with a dropped kerb permits occasional vehicles to enter and exit is in the south-western corner of the site, along Hall Road, as shown in **Image 2.5**.



**Image 2.5: Vehicular Field Access from Hall Road (Source: Google maps)**

### **Local Highway Network**

- 2.12 The following section describes the local highway network surrounding the site and junctions that have been agreed as part of the scope of the assessment.
- 2.13 A local highway network plan is included in **Appendix A** showing the areas described and a strategic highway network plan showing the context of the local area with A120 and M11.

#### *Henham Road / High Street*

- 2.14 Henham Road is a single carriageway road adjacent to the northern frontage of the site. It forms part of the B1051 which runs between the villages of Thaxted to the east and Stansted Mountfitchet to the west. At this point of the network, the B1051 is a Priority Route 2 (PR2) in ECC's road classification.
- 2.15 Henham Road measures approximately 6.5m along the site frontage and is retained through to the point at which it becomes known as Stansted Road. Henham Road is subject to a 30mph speed limit along the site frontage, with the speed limit changing to 40mph just to the east of the site boundary.
- 2.16 As described in **Section 3.0**, there is an obligation for the developer associated with planning application ref. UTT/17/3575/OP to extend the 30mph speed limit further eastwards to encompass the proposed site access to that scheme. There are no parking restrictions within the vicinity of the site. This will extend the 30mph speed limit extents much further east beyond the boundary of the application site being considered here.
- 2.17 There is a footway present along the site frontage as well as the opposite side of the carriageway measuring between circa 1.5m and 2m. Street lighting is present along the course of this road as well as some dropped kerbs to facilitate pedestrians crossing over several local junctions. The general road condition and characteristics are shown in **Image 2.6**.



**Image 2.6: Henham Road (Source: Google maps)**

- 2.18 Henham Road to the west of the site becomes High Street. The road continues to have a footway on either side of the carriageway and street lighting placed at regular intervals. Access to commercial, educational and residential units is provided off this road. Around the Elsenham Church of England (CofE) Primary School there are single yellow line parking restrictions to prevent on-street parking between 0830-0930.
- 2.19 A zebra crossing is located on High Street adjacent to the frontage of the Elsenham CofE Primary School allowing safe crossing facilities in this area.

#### *Hall Road*

- 2.20 Hall Road runs adjacent to the western boundary of the site and connects Elsenham with Molehill Green. This road runs in a south-eastern alignment forming a route connecting Elsenham with the A120 and provides access to Stansted Airport. See image of Hall Road within the vicinity of the site as shown in **Image 2.7**.
- 2.21 Hall Road is approximately 5.5m in width and is subject to a 30mph speed limit within the confines of the village, beyond which a derestricted national speed limit is present. A footway on the western side of the road measuring circa 1.3 m is present between the junction of Henham Road and a point just north of Stansted



Brook before the footway crosses to the eastern side of Hall Road as it heads south.



**Image 2.7: Hall Road (Source: Google maps)**

#### *Coopers End Roundabout*

- 2.22 Coopers End Roundabout is situated to the south-west of the site providing access to London Stansted Airport and towards the strategic highway network. The roundabout consists of 5 arms, mostly providing access to the airport and associated airport facilities via Terminal Road North, Terminal Road South and Coopers End Road.
- 2.23 The other two arms comprise of Thremhall Avenue - providing a route towards the strategic highway network (A120 and M11); and a link to Parsonage Road mini roundabout which connects local villages including Takeley via Parsonage Road to the south and an unnamed road connecting to Hall Road (and Elsenham) to the east.





**Image 2.8: Coopers End Roundabout (Source: Google Maps)**

#### *Station Road*

- 2.24 To the west of the site, High Street meets at a junction consisting of a double-mini roundabout arrangement, with the northern arm leading onto Station Road. This road is a single lane carriageway measuring approximately 6m wide and subject to a 30mph speed limit within the village confines as shown in **Image 2.9**.
- 2.25 Direct residential and commercial accesses are provided from both sides of the carriageway, with properties benefiting from both on-street and off-street parking provision. Access to Elsenham Station is provided at the northern end of Station Road, and it also provides a route towards Saffron Walden and various villages to the north via the level crossing at the train station.
- 2.26 Footways are present on both sides of the road measuring circa 1.5m to 2m with street lighting is available along the length of Station Road.



**Image 2.9: Station Road (Source: Google Maps)**

*Robin Hood Road*

2.27 Robin Hood Road forms the southern arm of the double mini roundabout junction. It is a single carriageway road running in a north-south alignment through Elsenham and is subject to a 30mph speed limit. Robin Hood Road is a “no through road” which provides access to Elsenham Post Office and residential units. Footways are present along both sides of the road at the northern end of the street and street lighting is placed at regular intervals along the road length. Pedestrian access is also available between Robin Hood Road and Tye Green Road.

2.28 Robin Hood Road is approximately 5.5m in width, shown in **Image 2.10**.



**Image 2.10: Robin Hood Road (Source; Google Maps)**

*Stansted Road*

- 2.29 To the west of the site, Stansted Road and High Road are both the western and eastern arms of the double mini roundabout. Stansted Road is subject to a 30mph speed limit and leads to Stansted Mountfitchet in the southwest and provides direct access to settlements and commercial development. High Street and Stansted Road form part of the B1051 road classification.





**Image 2.11: Stansted Road (Source: Google maps)**

*Stansted Mountfitchet*

*Lower Street*

- 2.30 Stansted Mountfitchet is the nearest major settlement to Elsenham to the west.
- 2.31 From Elsenham the B1051 leads to Lower Street which provides access into Stansted Mountfitchet. This road is single carriageway and is subject to a 30mph speed limit. It measures approximately 6m in width, however on-street parking reduces the effective road width to 3.4m at some points along the road shown in **Image 2.12**.
- 2.32 Grove Hill is part of the B1051 route and joins Lower Street in the form of a traffic signalised junction. Grove Hill is narrow in width but sufficient to enable two cars/LGVs to pass each other where parking is restricted by double yellow lines, otherwise shuttle working is required where defined parking bays for permit holders are situated. However, a short section of carriageway at the southern end of Lower Street is only sufficient for one-way working despite parking restrictions

in the form of double yellow lines. This section is therefore under traffic signalised control. The signal stopline positions for the traffic signals are set back some way north of the junction on Grove Hill and at the junction of Grove Hill/Lower Street to allow sufficient space for on-coming vehicle manoeuvres – see **Image 2.13** showing Grove Hill. There is a 7.5T weight restriction at the southern end of Grove Hill preventing HGV access due to the unsuitability of the road to cater for this vehicle type in a north-eastbound direction.

- 2.33 Lower Street is one of the principal shopping streets in Stansted Mountfitchet with wide footways and numerous shops and facilities. On-street parking occurs in defined parking bays along parts of Lower Street.



**Image 2.12: Lower Street (Source: Google Maps)**





**Image 2.13: Grove Hill (Source: Google Maps)**

*Church Road*

- 2.34 Lower Street meets Church Road, Chapel Hill (B1051) and Mountfitchet Castle Street as part of a four-arm roundabout junction. This is located within the heart of the settlement with commercial development and facilities such as the train station accessed from it.
- 2.35 This road is a single carriageway subject to a 30mph speed limit and measuring approximately 5.5m in width shown in **Image 2.14**. Church Road provides access to residential settlements and Forest Hall School and forms part of a route connecting Stansted Mountfitchet to Stansted Airport, along with access to A120 and M11. Access to the train station is also available from Station Road which forms the minor arm of a simple priority junction with Church Road.
- 2.36 Mountfitchet Castle Street does not provide a through route but enables access to a public car park.



**Image 2.14: Church Road (Source: Google Maps)**

*Chapel Hill*

- 2.37 Chapel Hill is a single carriageway road measuring circa 5.5m to 6m wide. It forms part of the B1051 route and provides access to local residential, educational and commercial development as well as a route through to B1833 which in turn leads towards Bishop's Stortford and the A120 to the south. Footways are provided on both sides of this road and street lighting is placed at regular intervals.
- 2.38 A mixture of double yellow parking restrictions to limit on-street parking and dedicated parking bays for residents with parking permits are provided along the route. Therefore, informal shuttle working occurs in sections of the route where parking occurs.





**Image 2.15: Chapel Hill Road (Source: Google maps)**

### **Public Transport**

2.39 The nearest bus stop to the site is marked with a flagpole and timetable within the village located circa 90m west of the northern boundary of the site on Henham Road. The other closest stop on the southern side of the carriageway is unmarked. These bus stops are served by routes 7, 7A and 441 all connecting to key destinations in the area. A plan showing the bus stop locations is shown at **Appendix A**.

2.40 As listed within **Table 2.1**, the site is served by bus routes which provide services to the surrounding area. Stansted Airport is identified as a key employer for the local area. Bus route 7A provides a direct route to the airport with a journey time of circa 15 minutes. Stansted Mountfitchet is also an area that provides plentiful



opportunities for employment which can be reached within 25 minutes utilising bus route 7A.

2.41 Services 7 and 7A have no specific consistent pattern of frequency ranging from an hour and a half between services to over 2 hours. The summarised table has indicated a rough frequency of every 2 hours as a result.

**Table 2.1: Bus timetable summary**

Number	Bus route	Frequency		
		Mon – Fri	Sat	Sun
7	Stansted Airport – Takeley – Henham – Elsenham – Bishops Stortford	Every 2 hours	Every 2 hours	-
7A	Stansted Airport – Takeley – Henham – Elsenham – Bishops Stortford	Every 2 hours	Every 2 hours	-
441	Takeley – Stansted Mountfitchet – Ugley – Newport – Saffron Walden	1 service (school)	-	-

2.42 Route 441 is a school service that operates Monday to Friday providing one service per day.

2.43 The nearest station is Elsenham Railway Station, located approximately 1.1km to the north-west of the site. The station is located on the West Anglia Main Line providing services to Liverpool Street and Cambridge North.

2.44 Off peak service frequency to these destinations are as follows:

- 1 train per hour (tph) to London Liverpool Street; and
- 1 tph to Cambridge North.

2.45 Up to 2 tph in each direction are available during the peak hours.

2.46 Elsenham Station provides up to 12 sheltered cycle storage spaces monitored with CCTV. Car parking is also provided at this station.

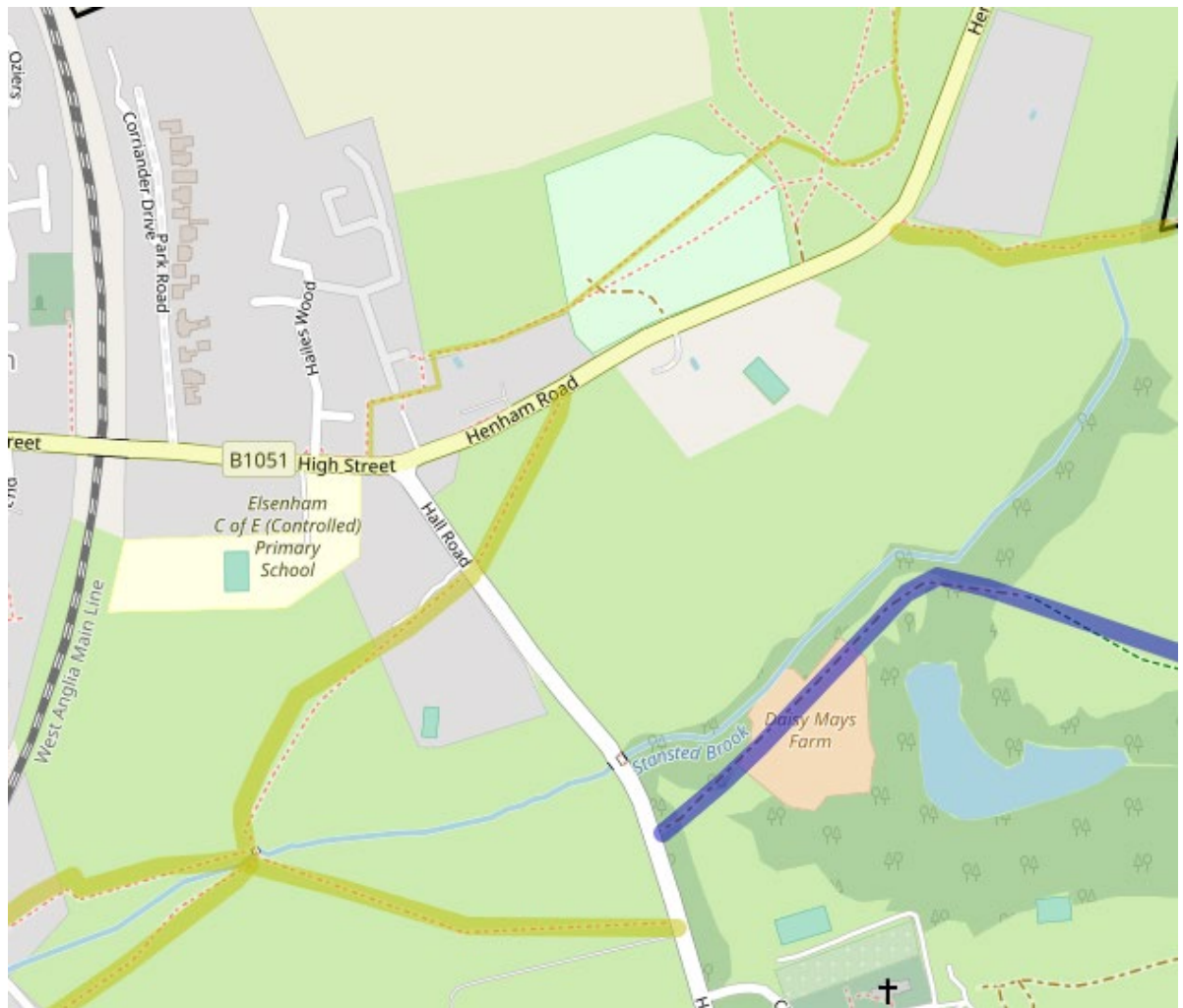
2.47 Additional rail services can be reached in Stansted Mountfitchet and at Stansted Airport.

**Walking / Cycling**

2.48 A review of the Public Rights of Way (PRoW) in the vicinity of the site shows that there is an existing public footpath (FP13) crossing from Henham Road in a northeast to southwest alignment diagonally through the site. It connects Henham Road and Hall Road, with a further onward route via the land to the west of Hall Road development and beyond to Tye Green Road. Further leisure route options and connections are available.

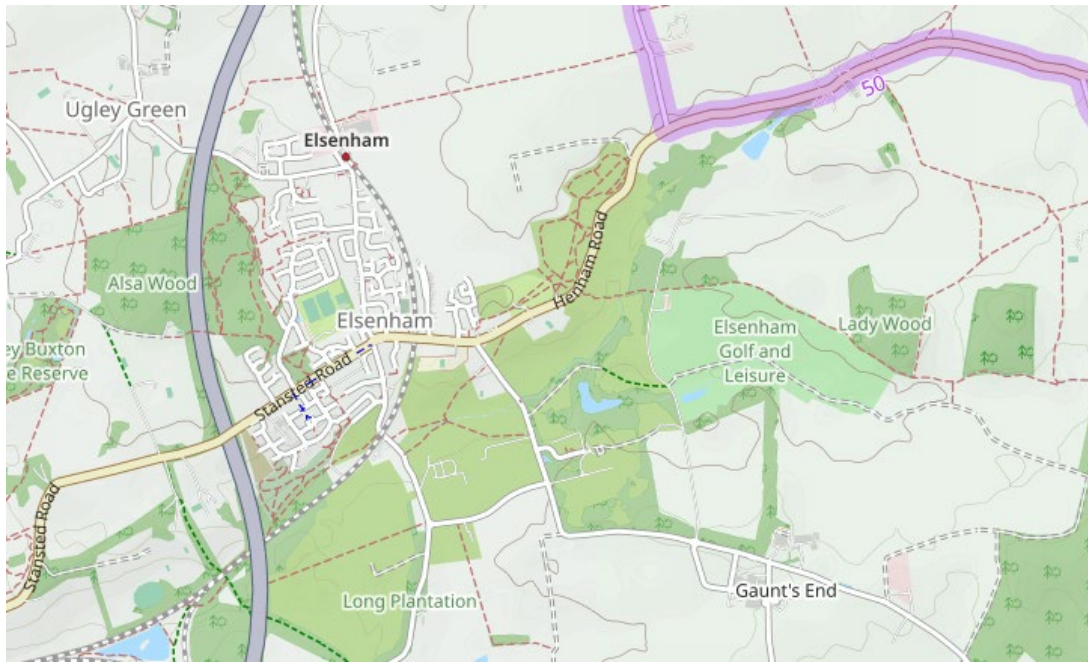
2.49 In addition to this a PRoW is located to the east of the site. This footpath runs in a north west to south east alignment connecting Henham Road with Brick End. The location of these footpaths are shown by the yellow line within **Image 2.16**.

2.50 A PRoW can also be seen to the south of the site cutting through Daisy Mays Farm and a golf course. This route provides a connection between Hall Road and Elsenham Road.



**Image 2.16: Existing PROW's (Source: Open Street Map)**

- 2.51 There are currently footways along Henham Road and Hall Road that provide access to the site.
- 2.52 With regard to cycling, there are no existing routes within the village of Elsenham. However, the site sits approximately 1.1km south-west of regional cycle route 50. This route runs from Ulting to Rickling Green at which it joins National Cycle Route 11 (NCR11). The location of Route 50 is highlighted in purple within **Figure 2.17**.
- 2.53 Local Transport Note 1/20 'Cycle Infrastructure Design' (DfT, July 2020) states that "...Two out of every three personal trips are less than five miles in length." [Paragraph 2.2.2, page 16]. The site is well placed to reach key local destinations within 5 miles (8km) which is considered a realistic cycling distance.
- 2.54 Locations such as Elsenham train station, Stansted Mountfitchet and Stansted Airport are all within an 8km radius cycling distance.



**Image 2.17: Cycleways (Source: Open Cycle Map)**

### **Local Amenities and facilities**

- 2.55 The Chartered Institution of Highways and Transportation (CIHT) document *‘Providing for Journeys on Foot’* recommends suggested acceptable walking distances of between 400m (“Desirable”) for general journeys and 2km (“Preferred Maximum”) for commuting and journeys to school purposes.
- 2.56 *Manual for Streets* (MfS) identifies walkable neighbourhoods as being those typically characterised by having a range of facilities within an 800m (10-minute) walk distance, however not an upper limit, with walking offering the greatest potential to replace short car trips, particularly those under 2km. **Table 2.2** provides a list of the amenities and facilities located within these walking distances from the site and a plan included at **Appendix A** shows the locations of them.

**Table 2.2: Local Amenities and Facilities**

<b>Amenity</b>	<b>Distance (m)</b>
<b>Elsenham C of E Primary School</b>	50
<b>Tesco Express</b>	460
<b>Henham Elsenham &amp; Ugley Church</b>	140
<b>Elsenham Post Office</b>	480
<b>Elsenham Surgery</b>	640
<b>Elsenham Playground</b>	520
<b>Elsenham Memorial Hall</b>	520

2.57 There are footways adjacent to the site which allow access to the amenities and facilities listed. In addition to this the proposals are to enhance the pedestrian connectivity in the area, allowing walking to be a viable option for short-distance journeys to destinations such as those set out above.

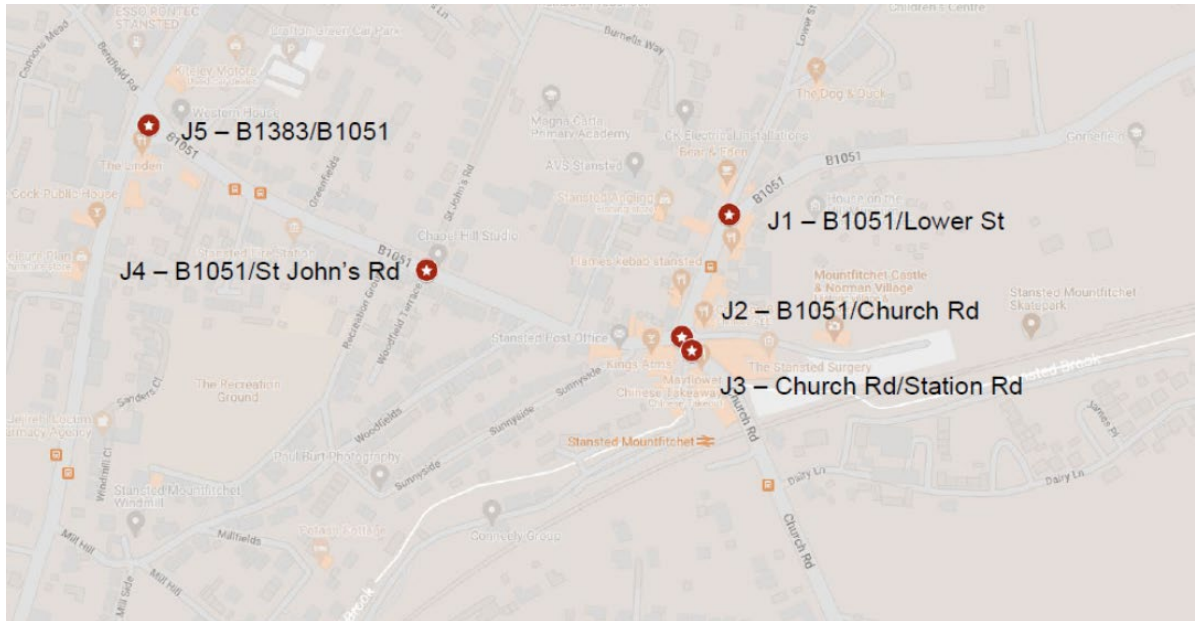
2.58 In addition to the existing facilities, the land east of Elsenham development (ref UTT/17/3575/OP) proposes to provide a 1FE primary school on-site.

### **Traffic Surveys**

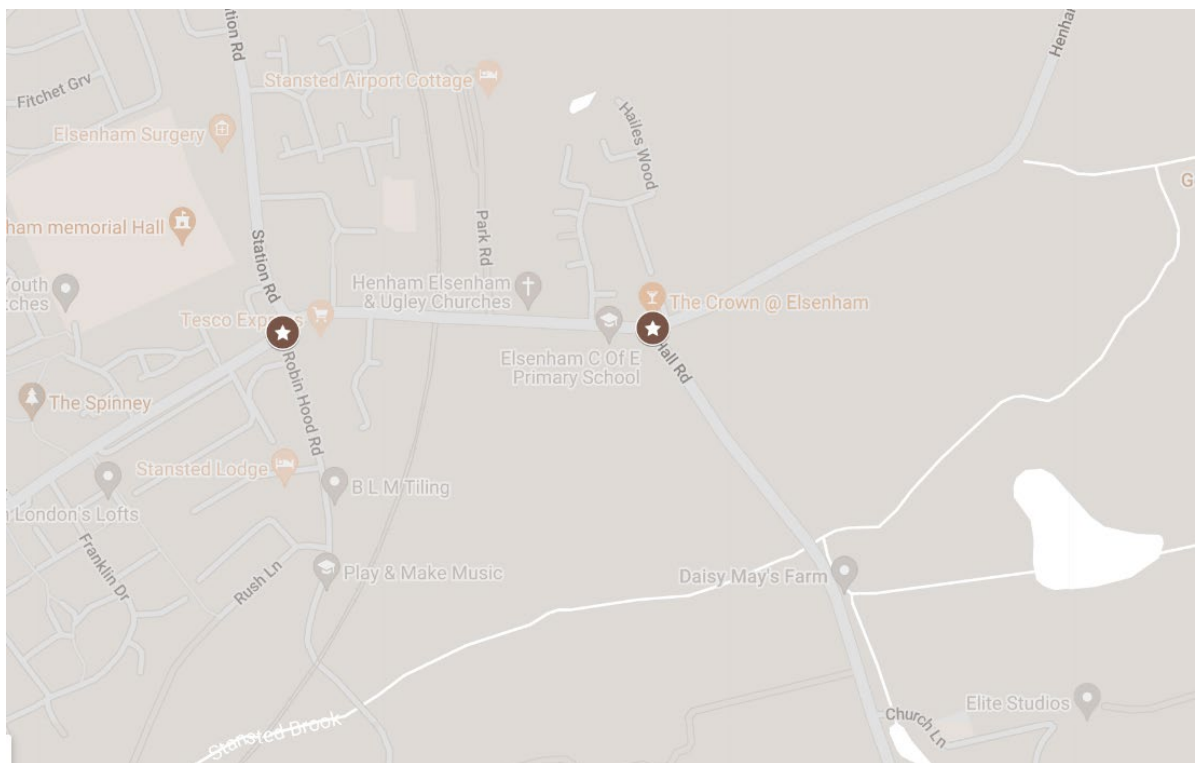
2.59 Traffic surveys were undertaken on the local highway network as agreed with Essex County Council Highways at the pre-application scoping stage. The scope has been defined to consider individual standalone junction modelling within the Elsenham network and microsimulation modelling within the Stansted Mountfitchet network.

2.60 Manual classified counts (MCCs) were undertaken on Tuesday 10<sup>th</sup> May 2022 as requested by Essex County Council in Elsenham, Stansted Mountfitchet and at Coopers End Roundabout as shown on **Images 2.18, 2.19 and 2.20**.

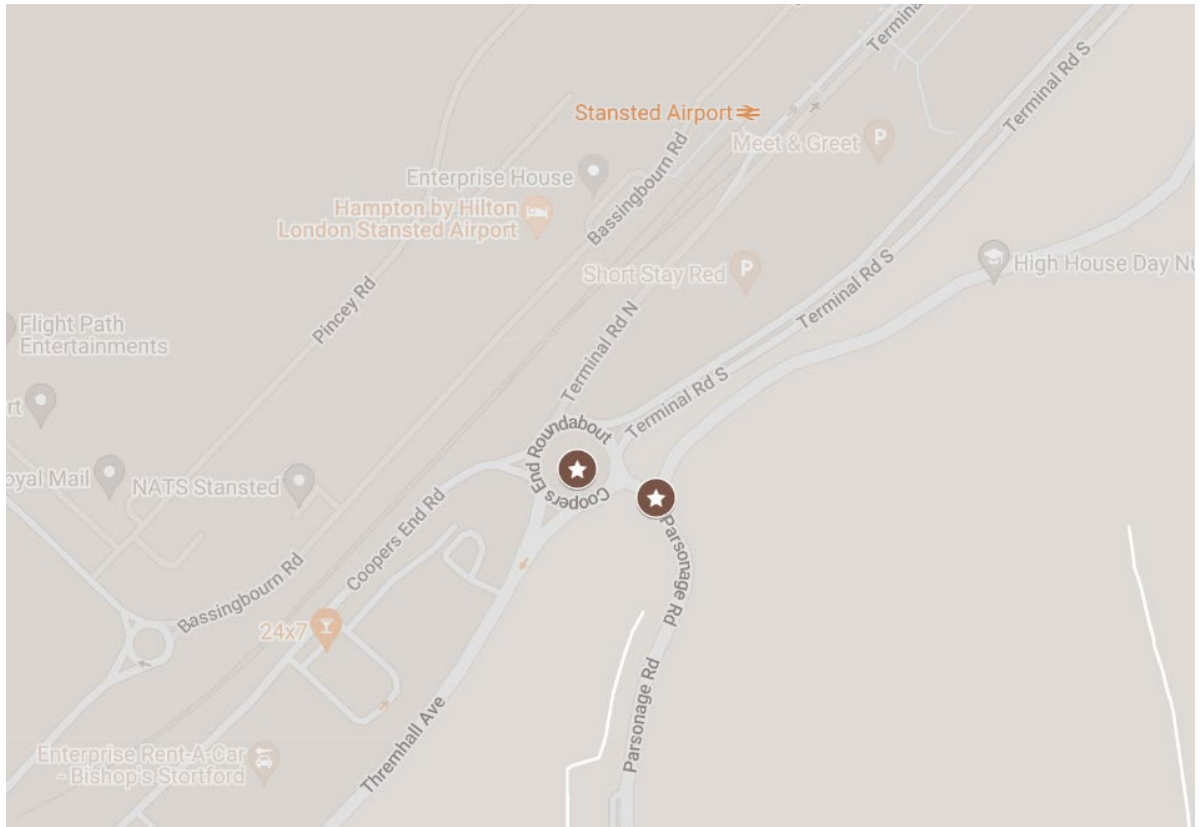




**Image 2.18: Junction Counts – Stansted Mountfitchet**

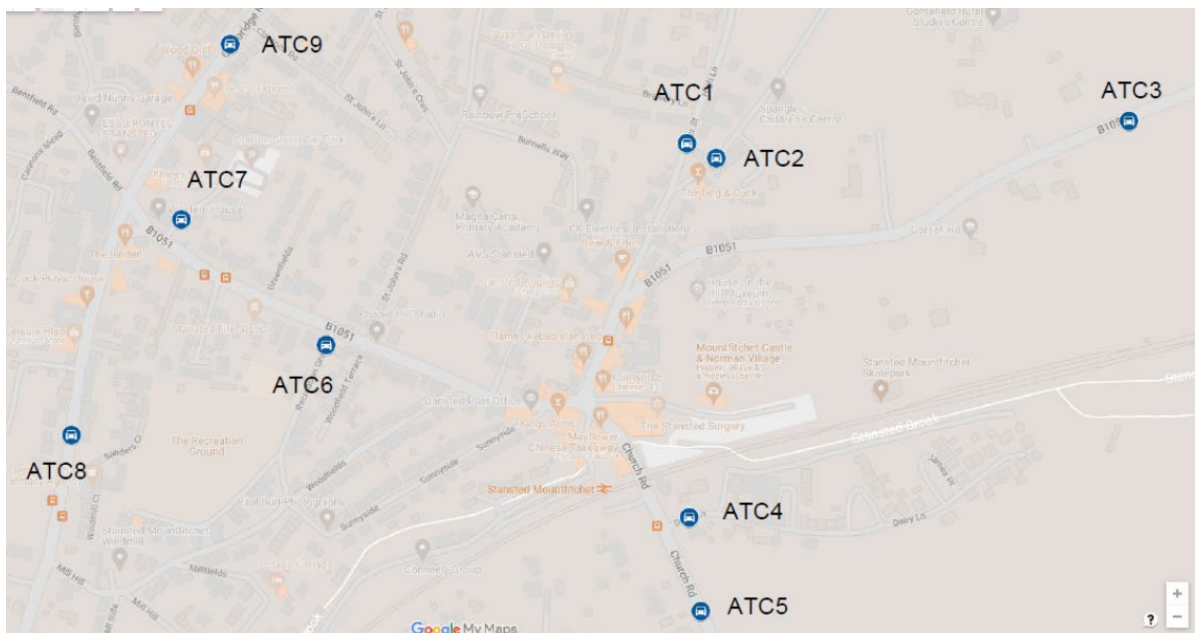


**Image 2.19: Junction Counts – Elsenham**



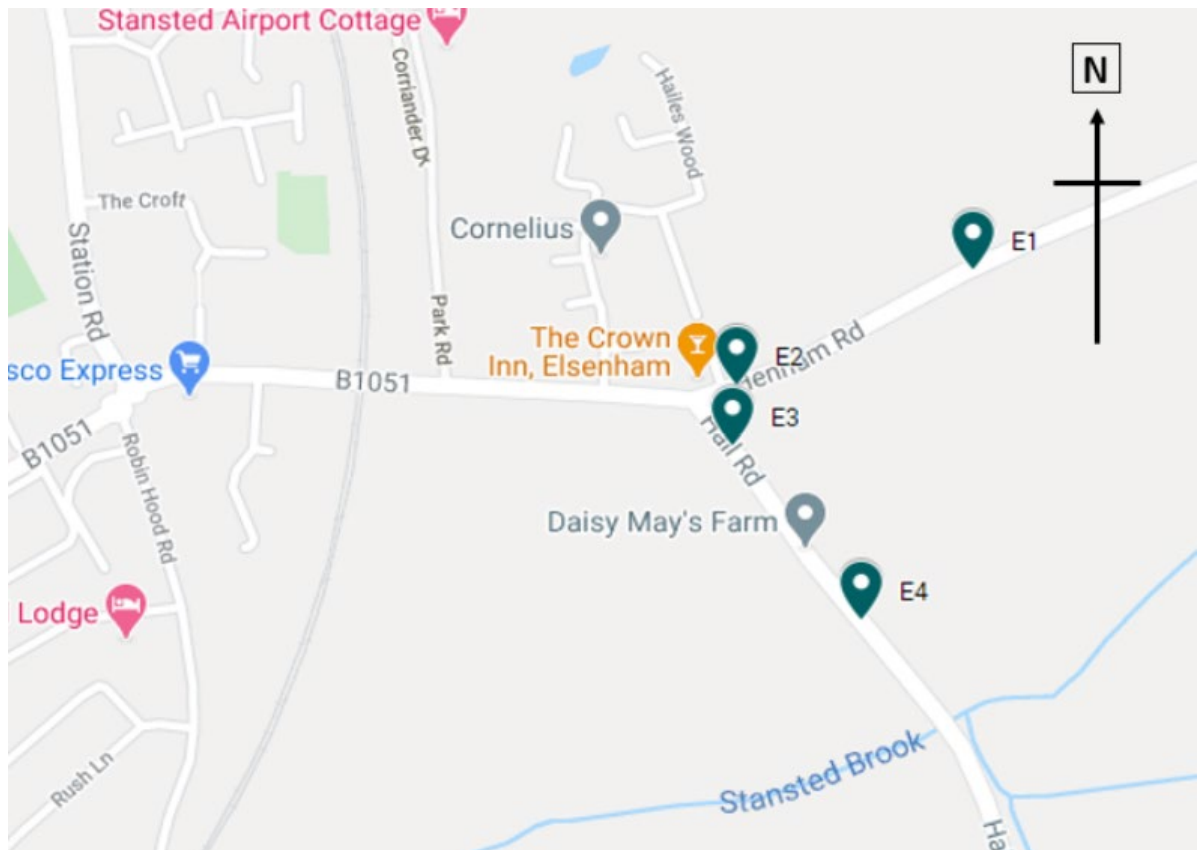
**Image 2.20: Junction Counts – Coopers End Roundabout**

2.61 In addition, automatic traffic counts (ATCs) were undertaken in Stansted Mountfitchet at the same time as the manual traffic counts.



**Image 2.21: ATC Locations – Stansted Mountfitchet**

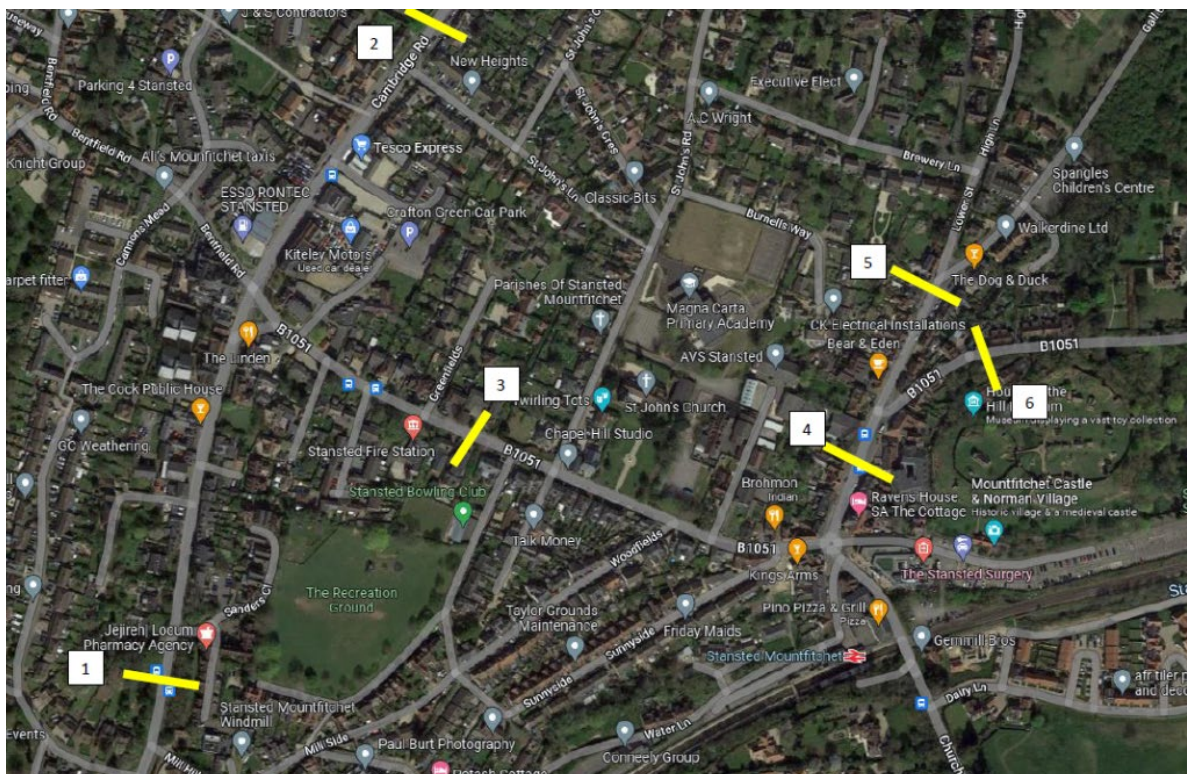
2.62 Previously, ATC information had been obtained within Elsenham in February and March 2021 as shown on **Image 2.22**.



**Image 2.22: ATC Locations – Elsenham**

2.63 Supplementary ATCs were undertaken in June and July 2022 at locations set out in **Image 2.23**. These were undertaken as a result of localised roadworks that occurred in May 2022, and this is explained further in this section.





**Image 2.23: Location of Supplementary ATC data points**

### *Automatic Traffic Counts*

- 2.64 As requested by ECC Highways, traffic data from the surveys has been compared against other survey data available in the public domain from pre-covid times.
- 2.65 Automatic Traffic Count (ATC) data from February 2017 as extracted from the TA for the "Land East of Elsenham (ref UTT/17/3575/OP)" site has been reviewed to provide a summary of traffic trends pre-covid.
- 2.66 **Table 2.3** shows a summary of the volumes in each direction for links within the assessment area:

**Table 2.3: ATC Survey results – sourced from TA “Land East of Elsenham”**

ATC Location	Direction	AM Peak			PM Peak			24 Hours		
		VEH	HGV	% HGV	VEH	HGV	% HGV	VEH	HGV	% HGV
B1051 Henham Road – East of Hall Road	East	137	10	8	175	8	4	1,742	153	9
	West	199	11	6	119	8	7	1,750	162	9
Hall Road – South of the B1051 High Street	North	159	23	15	208	13	6	1,966	224	11
	South	215	12	6	136	8	6	1,963	219	11
B1051 High Street	East	260	14	6	263	10	4	2,928	239	8
	West	277	20	7	253	12	5	2,932	226	8
B1051 Stansted Road	East	152	15	10	246	6	2	2,599	175	7
	West	264	19	7	160	10	6	2,609	212	8
Station Road	North	157	13	8	195	7	3	2,054	128	6
	South	207	11	5	161	10	6	2,030	162	8
Lower Street	North	293	18	6	444	13	3	4,294	207	5
	South	430	23	5	286	15	5	3,956	236	6
B1051 Chapel Hill	East	236	18	8	253	11	4	3,367	219	6
	West	231	16	7	229	10	4	3,154	178	6
Church Road	North	322	19	6	411	16	4	3,546	204	6
	South	405	19	5	320	13	4	3,481	195	6
Parsonage Road	North	225	38	17	218	12	6	2,476	427	17

	South	227	32	14	208	15	7	2,426	406	17
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2.67 In general, the ATC surveys show tidal flows in the AM and PM peaks with around 100-300 vehicles for most links in the local area except Lower Street and Church Road which had higher peak flows of 300-450 vehicles.

**Impact of Roadworks**

2.68 ATC surveys for 2022 were commissioned for links in and around Stansted Mountfitchet as part of the Vissim modelling work (the modelling is discussed later in the report).

2.69 They were undertaken between Tuesday 10<sup>th</sup> May 2022 and Monday 16<sup>th</sup> May 2022 at the same time as manual traffic surveys on 10<sup>th</sup> May 2022. During the survey, Cambridge Road was closed to traffic (north of Chapel Hill/Bentfield Road) with a diversion in place via Gipsy Lane/Hazeland Road/Manuden Road/Brick Kiln Lane. A further long-term road closure on North Hall Road with diversion via B1383 (Quendon)/Lower Street/B1051 Grove Hill/Station Road (Elsenham) was also in place.

2.70 To understand the extent to which the roadworks impacted the surveys, further ATCs were installed on Chapel Hill (B1051), Lower Street (to the north and south of the junction with Grove Hill), Grove Hill (B1051), Cambridge Road and Silver Street on Tuesday 28<sup>th</sup> June 2022 until Monday 4<sup>th</sup> July 2022.

2.71 The average weekday traffic flows for each of the links within the assessment area of Stansted Mountfitchet is set out below for both sets of data using 0800-0900 for AM peak and 1700-1800 for PM peak:

**Table 2.4: ATC Survey results – June/July 2022 surveys (change in traffic level May 2022 vs June / July 2022)**

ATC	Route	AM Peak			PM Peak			12 Hours		
		June 2022	May 2022	Diff.	June 2022	May 2022	Diff.	June 2022	May 2022	Diff.
Silver Street	North	610	513	-97	774	594	-180	7,121	5,746	-1,375
	South	748	601	-147	628	482	-146	7,076	5,549	-1,527
Cambridge Road	East	369	129	-240	469	185	-284	4,479	1,612	-1,375
	West	537	156	-381	466	482	-146	4,941	1,677	-3,264
Chapel Hill	North	261	-	-	341	-	-	2,991	-	-
	South	286	-	-	229	-	-	2,685	-	-
Lower Street (S of Grove Hill)	North	339	-	-	444	-	-	3,747	-	-
	South	439	-	-	284	-	-	3,526	-	-
Lower Street (N of Grove Hill)	North	208	302	+94	146	346	+200	1,553	3,333	+1,780
	South	187	277	+90	202	305	+103	1,749	3,283	+1,534
Grove Hill	North	249	196	-53	294	288	-6	2,587	2,402	-185
	South	301	263	-38	178	186	+8	2,528	2,307	-221

2.72 The comparison of results in **Table 2.4** indicate that the roadworks had an effect by increasing traffic in the eastern portion of Stansted Mountfitchet (see Lower Street in particular) whilst reducing traffic flows in the western portion of the settlement (see Silver Street and Cambridge Road).

2.73 The notable points from the comparison of the 2022 surveys summarised in the table above are:

- the May 2022 surveys have higher two-way flows on Lower Street with around 200-300 extra vehicles compared to the June/July 2022 surveys.
- there are higher flows in the AM peak on the Grove Hill link in the May 2022 surveys (around 100 vehicles) and minor differences in the PM peak



- there are lower flows in the May 2022 surveys of around 250-350 vehicles on Silver Hill and 450-650 vehicles on Cambridge Road compared to the June/July 2022 surveys

2.74 Due to the wider nature of the diversion that was in place (the formal signed route as advised above went via Gipsy Lane/Hazel End Road/Manuden Road/Brick Kiln Lane, some 14 miles and 28 minutes) it is unlikely that many residents and locals used that route and instead would've taken the route through Stansted Mountfitchet via Chapel Hill, Lower Street and High Lane to circumvent the longer distance signed diversion route. This alternative route was around 2 miles and 5 minutes in journey time.

2.75 In general, the June/July 2022 ATC surveys show similar levels of traffic to the 2018 pre-covid surveys that are illustrated in **Table 2.3**.

*Manual Traffic Counts*

2.76 Manual traffic counts were also extracted from the West of Hall Road and Isabel Drive Transport Assessments in Elsenham for the key junctions to be considered in the assessment to compare to manual surveys undertaken on 10<sup>th</sup> May 2022.

2.77 The total traffic flows through the surveyed junctions are shown in the following tables to provide a comparison of pre-covid and post-covid traffic data:

**Table 2.5: MTC Survey results (rolling hour)– West of Hall Road (Ref: UTT/19/0462/FUL)**

	Hall Rd	Robin Hood Mini R.bouts	Coopers R.bout	Parsonage Mini R.bout	Grove Hill Traffic Signals	Chapel Hill R.bout	Bentfield Road
<b>0700-0800</b>	561	655	1,824	729	713	929	1,470
<b>0715-0815</b>	653	761	1,755	808	774	1,005	1,712
<b>0730-0830</b>	706	822	1,798	874	815	1,068	1,711
<b>0745-0845</b>	765	860	1,811	922	867	1,149	1,709

**LAND SOUTH OF HENHAM ROAD, ELSENHAM  
TRANSPORT ASSESSMENT**

**2008170-04  
July 2022**

<b>0800-0900</b>	750	834	1,786	947	877	1,176	1,683
<b>0815-0915</b>	755	847	1,803	942	886	1,196	1,658
<b>0830-0930</b>	710	793	1,711	832	852	1,330	1,600
<b>0845-0945</b>	598	694	1,650	768	774	1,004	1,486
<b>0900-1000</b>	520	643	1,612	654	685	884	1,388
<b>1600-1700</b>	560	560	2,138	798	760	1,016	1,676
<b>1615-1715</b>	594	594	2,281	846	794	1,062	1,681
<b>1630-1730</b>	581	581	2,326	891	800	1,076	1,669
<b>1645-1745</b>	623	623	2,344	909	798	1,089	1,661
<b>1700-1800</b>	630	630	2,264	898	821	1,104	1,656
<b>1715-1815</b>	600	600	2,103	778	815	1,100	1,658
<b>1730-1830</b>	586	586	2,020	699	779	1,064	1,576
<b>1745-1845</b>	507	507	1,826	605	759	1,033	1,485
<b>1800-1900</b>	467	467	1,751	548	721	1,022	1,477

**Table 2.6: MTC Survey results (rolling hour) – Isabel Drive (ref: UTT/19/2470/OP)**

	<b>Hall Rd</b>	<b>Robin Hood Mini R.bouts</b>	<b>Coopers R.bout</b>	<b>Parsonage Mini R.bout</b>	<b>Grove Hill</b>	<b>Chapel Hill</b>	<b>Bentfield Road</b>
<b>0700-0800</b>	640	723	-	-	742	954	-
<b>0715-0815</b>	720	792	-	-	817	1,036	-
<b>0730-0830</b>	789	863	-	-	841	1,082	-
<b>0745-0845</b>	829	894	-	-	860	1,141	-

**LAND SOUTH OF HENHAM ROAD, ELSENHAM  
TRANSPORT ASSESSMENT**

**2008170-04  
July 2022**

<b>0800-0900</b>	830	876	-	-	822	1,110	-
<b>0815-0915</b>	756	813	-	-	777	1,052	-
<b>0830-0930</b>	672	739	-	-	709	964	-
<b>0845-0945</b>	548	613	-	-	630	851	-
<b>0900-1000</b>	473	548	-	-	588	778	-
<b>1600-1700</b>	637	780	-	-	756	1,021	-
<b>1615-1715</b>	629	781	-	-	778	1,058	-
<b>1630-1730</b>	650	822	-	-	804	1,120	-
<b>1645-1745</b>	676	843	-	-	833	1,183	-
<b>1700-1800</b>	671	826	-	-	873	1,253	-
<b>1715-1815</b>	647	808	-	-	859	1,255	-
<b>1730-1830</b>	623	762	-	-	829	1,193	-
<b>1745-1845</b>	600	731	-	-	763	1,105	-
<b>1800-1900</b>	562	683	-	-	725	1,027	-

**Table 2.7: MTC Survey results – May 2022 Surveys**

	<b>Hall Rd</b>	<b>Robin Hood Mini R.bouts</b>	<b>Coopers R.bout</b>	<b>Parsonage Mini R.bout</b>	<b>Grove Hill</b>	<b>Chapel Hill</b>	<b>Bentfield Road</b>
<b>0700-0800</b>	560	708	1,561	764	1,133	1,321	1,215
<b>0715-0815</b>	643	796	1,590	890	1,165	1,385	1,323
<b>0730-0830</b>	702	876	1,633	1017	1,252	1,499	1,360
<b>0745-0845</b>	780	942	1,671	1025	1,251	1,494	1,352
<b>0800-0900</b>	802	919	1,575	1047	1,228	1,489	1,354

**LAND SOUTH OF HENHAM ROAD, ELSENHAM  
TRANSPORT ASSESSMENT**

**2008170-04  
July 2022**

<b>0815-0915</b>	752	875	1,703	969	1,181	1,452	1,294
<b>0830-0930</b>	681	796	1,678	862	1,095	1,353	1,251
<b>0845-0945</b>	557	688	1,652	793	1,002	1,227	1,175
<b>0900-1000</b>	464	609	1,480	665	906	1,105	1,050
<b>1600-1700</b>	655	861	1,641	818	1,044	1,276	1,220
<b>1615-1715</b>	701	902	1,656	864	1,116	1,314	1,260
<b>1630-1730</b>	699	927	1,693	932	1,145	1,382	1,300
<b>1645-1745</b>	701	889	1,673	945	1,162	1,380	1,342
<b>1700-1800</b>	696	897	1,623	918	1,208	1,435	1,353
<b>1715-1815</b>	636	850	1,539	835	1,178	1,415	1,313
<b>1730-1830</b>	590	804	1,493	757	1,140	1,356	1,122
<b>1745-1845</b>	520	731	1,395	669	1,090	1,314	1,211
<b>1800-1900</b>	455	680	1,197	620	1,032	1,263	1,186

- 2.78 Generally, the 2022 flows are higher than the flows used in the land at West Hall Road application for the local Elsenham junctions.
- 2.79 However, the 2022 flows were lower for the Coopers End roundabout junction close to Stansted airport.
- 2.80 The changes in traffic at the Stansted airport are largely anticipated to be due to reduced airport activity compared to pre-Covid times.
- 2.81 The flows in May 2022 at the Bentfield Road/Cambridge Road/Chapel Hill junction in Stansted Mountfitchet are much lower than pre-Covid surveys and much higher on Grove Hill/Lower Street and Chapel Hill/Lower Street/Mountfitchet Castle Street/Church Road roundabout junctions. This, as explained above, relates to the roadworks discussed in the ATC comparison section.



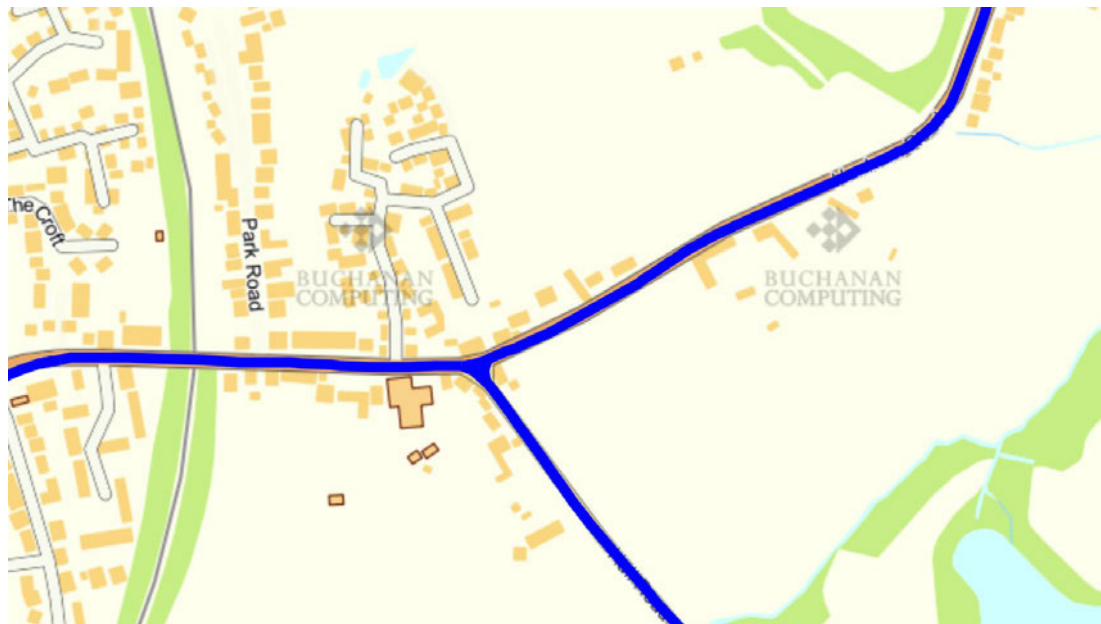
- 2.82 Comparison of traffic between the Isabel Drive surveys and the 2022 surveys show similar patterns locally in Elsenham and much higher traffic flows for 2022 at the Grove Hill/Lower Street and Chapel Hill/Lower Street/Mountfitchet Castle Street/Church Road junctions. Again, attributed to the short and long terms roadworks described above.

*Traffic Flow Conclusions*

- 2.83 The May 2022 traffic flows have been used in the assessment of junctions within Elsenham and within the Vissim modelling for Stansted Mountfitchet. For robustness due to the lower flows recorded in the 2022 surveys, the traffic flows from 2018 have been considered more appropriate for use in the Coopers End roundabout assessment. The difference in flows is expected to have been due to the reduced activity (compared to pre-covid times) at Stansted airport.
- 2.84 A further set of sensitivity modelling has been undertaken within the Stansted Mountfitchet network using a combination of the June / July 2022 surveys and previous turning count proportions. This is set out in the appropriate section.

**Accident Data Review**

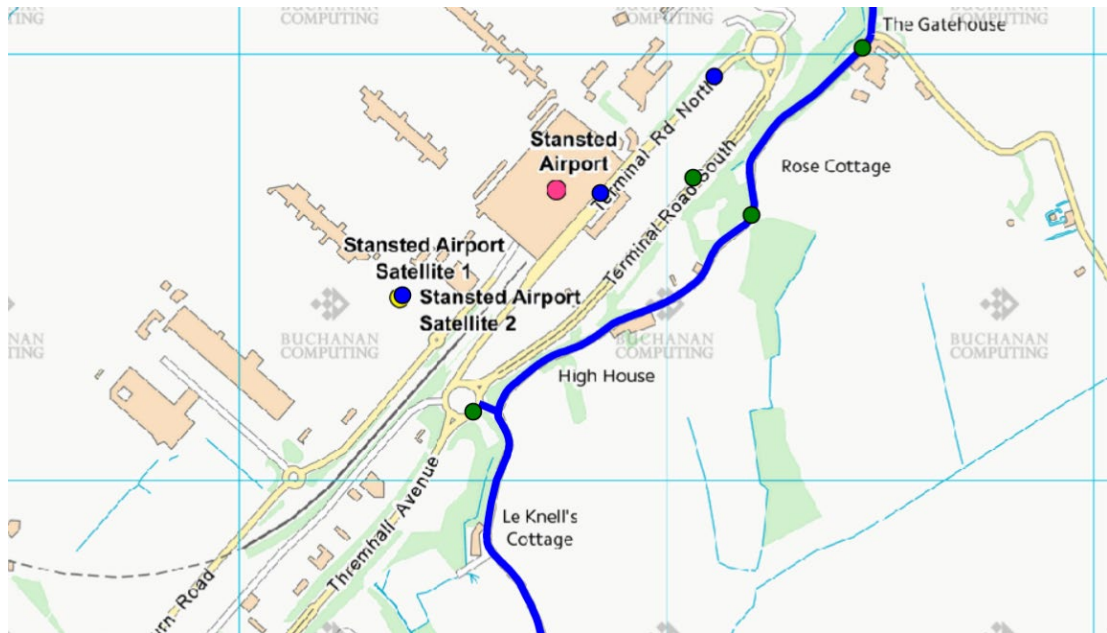
- 2.85 The National Planning Practice Guidance (NPPG) includes the online document 'Travel Plans, Transport Assessments and Statements in decision-taking' (updated March 2014), which provides general advice on the scope of Transport Statements and Assessments. This document states consideration should be given to "an analysis of the injury accident records on the public highway in the vicinity of the site access for the most recent 3-year period, or 5-year period if the proposed site has been identified as within a high accident area".
- 2.86 In light of the above, inspection of accident data provided on the Essex County Council website has been used to determine the level of accidents in the vicinity of the site within a three-year period covering 2019 to 2021 (inclusive), as shown in **Image 2.24**. It demonstrates that there have been no incidents to occur within close proximity of the site or the potential site access location within that timeframe.



**Image 2.24: PIA Record – site frontage and Hall Road/High Street/Henham Road (Source: ECC Highways Map)**

2.87 Further information has been obtained for the junctions to be assessed and summarised as follows:

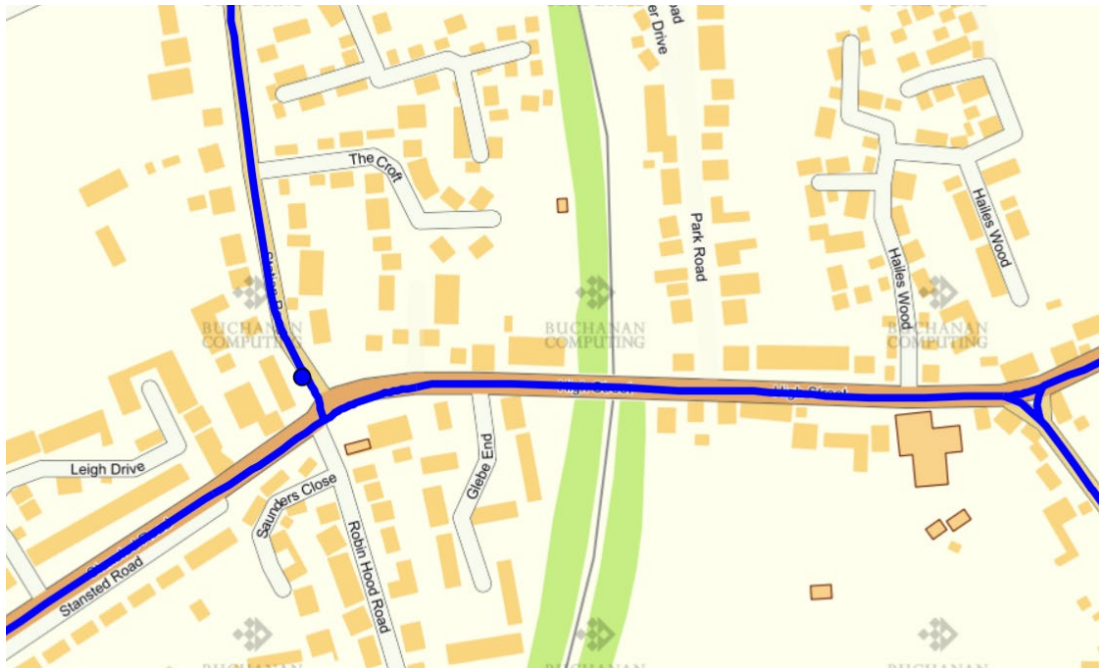
*Stansted Airport Junctions – Thremhall Avenue/Coopers Avenue/Terminal Road North/Terminal Road South/Link Road and Parsonage Road/Hall Road/Link Road*



**Image 2.25: PIA Record – Stansted Airport Junctions (Source: ECC Highways Map)**

2.88 The data shows there was one incident classified as “slight” at the Coopers End Roundabout which involved two vehicles.

*Elsenham Junction – Robin Hood Road/Station Road/High Road*



**Image 2.26: PIA Record – Elsenham Junctions (Source: ECC Highways Map)**

2.89 The data showed one accident classified as “serious” on Station Road in August 2020.

*Stansted Mountfitchet Junctions – Grove Hill/Lower Street and Lower Street/Mountfitchet Castle Street/Church Road/Chapel Hill*



**Image 2.27: PIA Record – Stansted Mountfitchet Junctions (Source: ECC Highways Map)**

2.90 The data shows one incident classified as “serious” on the High Street in July 2019 and another incident classified as “slight” on Church Road in February 2021.

*Summary of PIA Records*

2.91 In summary, the above records show that there are no clusters of accidents at the junctions to be assessed and as such no further detailed analysis is considered necessary.

**Travel Characteristics of Local Area - 2011 Census Data**

2.92 Both car ownership and travel to work data has been derived from the 2011 Census for the existing resident population of the area surrounding the site (E02004595: Uttlesford 005), details of which are contained in **Appendix B**.



*Car Ownership*

- 2.93 The data shows a total average car ownership level of 1.70 cars per household for all housing types in the area surrounding the site and 8% of local households do not own a car.

*Travel To work*

- 2.94 The data shows the following proportions of multi-modal trips based upon the journey to work travel data (excluding work from home):

**Table 2.8: Journey to Work Proportions (2011 Census Data)**

<b>Mode of Travel</b>	<b>Percentage of Residents</b>
Train	16%
Bus	1%
Motorcycle	1%
Car Driver	71%
Car Passenger	4%
Bicycle	1%
Pedestrian	5%
Other	1%
<b>Total</b>	<b>100%</b>

### **3.0 THE PROPOSED DEVELOPMENT**

- 3.1 The proposals are for a 130-unit residential development on land south of Henham Road in Elsenham. The proposal is outline in nature, but an indicative mix of 78 no. private and 52 no. affordable housing has been considered within this assessment document for the purposes of detailed traffic impact analysis.
- 3.2 The exact breakdown of unit types, sizes and ownership type will be provided through the Reserved Matters (RM) application for the site, subject to outline planning being granted.
- 3.3 The application is outline, with all matters reserved except for access. A masterplan for the site is included at **Appendix C**.

#### **Access**

- 3.4 The proposed access is via a simple priority T-junction onto Henham Road. The junction visibility requirements are based on speed survey data collected through automatic traffic count tubes (ATCs). The speed survey results show the following 85<sup>th</sup> percentile speeds:
- 39mph to the east (westbound);
  - 29mph to the west (eastbound).
- 3.5 The achievable visibility splays are 94m to the east with 0.5m offset from kerb edge and 61m to the west.
- 3.6 Design Manual for Roads & Bridges (DMRB) CD 109 standards (for 30mph speeds) for trunk road networks have been considered, albeit not strictly applicable to this type of location for robustness. Given the road is a non-trunk road and an edge of settlement PR2 route then Manual for Streets (MfS) or Manual for Streets2 (MfS2) reaction times could be applied. However, for robustness DMRB standards have been applied. The following junction visibility splays are required on the basis of the standard calculation of visibility used in DMRB CD109:

- to the east: 96m desirable minimum
  - to the west: 61m desirable minimum
- 3.7 Therefore, the visibility splay accords with the full desirable minimum DMRB guidance to the west. To the east, the visibility is only slightly below the desirable minimum by 2m. However, it does achieve distances far in excess of the one step below desirable standard which is 76m.
- 3.8 The ability to achieve in excess of the one step below desirable minimum (i.e. absolute minimum) is considered acceptable given the location and its context.
- 3.9 It is also noted that the consented scheme to the north of Henham Road (east of the site) is to introduce an extension of the 30mph speed limit to reduce speeds and encompass the newly formed access junction. This is likely to reduce speeds leading into Elsenham towards the proposed site access from the current measured speeds of 39mph.
- 3.10 If traffic speeds reduced as intended to match the posted speed limit through the consented scheme works, the visibility splay requirements would be 43m on the basis of Manual for Streets guidance or 70m on the basis of the desirable minimum for 30mph in DMRB standards. Both of these standards are achievable from the site access point.
- 3.11 The junction has been designed in accordance with Essex Design Guide for a Type E Access Road with 6m kerb radii, 5.5m wide carriageway and footways of 2m on both sides of the junction connecting to the existing infrastructure on Henham Road. This road hierarchy is suitable to serve up to 200 units within a cul-de-sac arrangement.
- 3.12 The proposed access arrangement is shown on **ACE Drawing 2008170-008A**.
- 3.13 The site access point has been subject to a Stage 1 Road Safety Audit (RSA) which did not raise any significant issues. A copy of the RSA and the accompanying Designers Response are provided at **Appendix D**. Please note that the drawing references have been updated between the production of the Designers Response and this planning submission, however the design is as per the version the auditors reviewed.

- 3.14 The indicative masterplan shows the Access Road design continuing north/south through the development leading shared surfaces and private drives within the site. The internal design of the scheme is subject to the RM application process but it is expected that the principles of the EDG shall be followed, with shared surfaces being 6m wide.
- 3.15 A proposed concept design has been produced for the nearby Hall Road/Henham Road junction to improve pedestrian facilities. Currently, the layout includes a triangular island with priority junctions either side (a "bennett junction arrangement")– see Google Street Image below of existing layout.



**Image 3.1: Hall Road / Henham Road Junction (Source: Google maps)**

- 3.16 The design shown in **ACE Drawing 2008170-032** could be implemented in order to enhance the environment for pedestrians in the area.
- 3.17 The changes include removing the kerbed island (and relocating or removing the directional signage) and forming a standard priority junction with tactile paving and dropped kerbs. Pedestrian environment is widened on both sides of Hall Road, with pedestrians able to cross in a single manoeuvre.
- 3.18 With the realignment of the Hall Road junction the junction visibility is also improved to the east to achieve 43m as opposed to the existing 23m. As can be seen on **ACE Drawing 2008170-032**, HGV turning can still be accommodated in all directions as is currently the case for the existing layout.

3.19 A separate pedestrian/cycle crossing point (uncontrolled) is proposed on Hall Road on the western edge of the site in the location of the existing stile for the public right of way (see **ACE Drawing 2008170-032**). The alignment of the public right of way through the site is to be retained in-situ.

### **Parking**

3.20 Parking will be provided in accordance with Uttlesford District Council’s local parking standard guidance. The standards are based on the minimum parking requirements in line with Essex County Council’s (Essex Parking Officer’s Association, EPOA) parking guidance but with additional car parking for 4+ bedroom dwellings.

3.21 The parking provision and design of the parking areas will be confirmed through the RM application process.

3.22 **Table 3.1** sets out the guidance as follows:

**Table 3.1: Parking Standards (Uttlesford District Council Local Parking Standards)**

	<b>Car Parking Standards</b>	<b>Cycle Parking Standards</b>
1 bed	1 space per dwelling	1 secure covered space per dwelling
2+ bed	2 spaces per dwelling	1 secure covered space per dwelling
4+ bed	3 spaces per dwelling	As above (assumed)
Visitors	0.25 spaces per dwelling (unallocated)	If no garage or secure area is provided within curtilage of dwelling then 1 covered and secure space per dwelling in a communal area for residents plus 1 space per 8 dwellings for visitors

### **Local Improvements to Transport Infrastructure**

3.23 The proposals include a new informal crossing over Hall Road to provide connections from the site to the local village amenities including the nearby primary school.



- 3.24 A replacement bus stop sign will be provided on the lamp column on the southern side of Henham Road to match the provision on the northern side.
- 3.25 Bus service enhancements in line with levels provided by other consented schemes in the area are to be expected although not currently defined.
- 3.26 Contributions towards provision of cycle parking in the form of Sheffield stands are offered at the local convenience store to encourage cycling for short trips.

## **4.0 POLICY CONTEXT**

4.1 Relevant policy guidance on transport and land use planning relating to new development is set out in the following documents: -

- National Planning Policy Framework (NPPF, 2021);
- Essex County Council Development Management Policies Document;
- Essex County Council's Strategy for Walking, Cycling and Bus Service Improvements;
- The Essex County Council Bus Service Improvement Plan 2021-2026;
- Essex Walking Strategy (2021);
- Essex Cycling Strategy (2016); and
- Uttlesford Council's Local Plan;

### ***National Planning Policy Framework (July 2021)***

4.2 Paragraph 104 states that: *Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:*

- a) the potential impacts of development on transport networks can be addressed;*
- b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;*
- c) opportunities to promote walking, cycling and public transport use are identified and pursued;*
- d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*
- e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places.*

4.3 Paragraph 105 states that: *opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making.*

4.4 Paragraph 110 states that: *In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*

- *appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- *safe and suitable access to the site can be achieved for all users;*
- *the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and*
- *any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.*

4.5 Paragraph 111 confirms that: *Development should only be prevented or refused on highway grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.*

**Essex County Council’s “Development Management Policies” Document  
(February 2011)**

4.6 ECC’s Development Management Policies document sets out the policies applicable within the County. The relevant policies are as follows:

4.7 **Policy DM8** requires that developments adhere to the *Parking Standards: Design and Good Practice document or its subsequent replacement*. The current adopted standards are from September 2009 and are described in chapter 3 in relation to the proposed development.

4.8 **Policy DM9** requires developments to be sited in order to reduce and minimise the number of trips by private vehicle.

4.9 **Policy DM10** requires all new residential dwellings to be provided with a Residential Travel Information Pack.

- 4.10 **Policy DM11** sets out how the Highway Authority will safeguard existing public rights of way when affected by development so that the network remains protected and open for use by the public.
- 4.11 It requires public rights of way through a development site to be retained on its existing alignment and the proposals to be designed and laid out to accommodate it. In the event that the development cannot accommodate the public of right of way (as there is no alternative) then a diversion and/or alternative route should be provided subject to approval.
- 4.12 The policy also includes for creating new and/or enhancing existing public rights of way and/or permissive routes to encourage alternative modes of travel.
- 4.13 **Policy DM13** sets out requirements for transport assessments to accompany planning applications.
- 4.14 **Policy DM14** states that the Highway Authority requires a Stage 1 Road Safety Audit and Designer's Response to accompany planning applications where there is a material change to the existing highway.
- 4.15 **Policy DM15** requires developers to demonstrate that their proposals have no detrimental impact on the existing or proposed highway in congestion terms as measured by assessing existing and proposed link/junction capacity relevant to the site. It also requires developers to provide appropriate mitigation measures to ensure that there is no detrimental impact to the existing highway.
- 4.16 **Policy DM17** sets out how the Highway Authority will consider each proposal for development on its merits and will require appropriate highway and/or transportation mitigation in accordance with guidance contained in the ODPM Circular 05/2005 or its subsequent replacement. The policy identifies how the mitigation can be delivered – through directly undertaking the mitigation or through agreed financial contribution.

**Essex County Council's Strategy for Walking, Cycling and Bus Service Improvements**

4.17 The following strategies produced by Essex County Council provide a high-level understanding of the objectives and vision to encourage all non-car based modes of traffic. All of which will be taken into account through the development proposals (in terms of infrastructure and key routes) and through the Travel Plan in relation to encouraging sustainable modes through marketing and promotion of infrastructure, facilities and services.

***The Essex County Council Bus Service Improvement Plan 2021-2026***

4.18 The improvement plan sets out a clear pathway to “*deliver safer, greener and healthier travel by:*

- *Rebuilding the Essex bus network to recover from the impact of the Covid 19 pandemic*
- *Developing an attractive, sustainable, and affordable bus network, offering an alternative to car use*
- *Reversing the long-term decline in passenger numbers, in absolute terms and as a modal share of all journeys*
- *Improving public health and addressing climate change by reducing pollutants....produced by cars in Essex.”*

4.19 Essex County Council plans close co-operation with operators to increase bus patronage through the following:

- **Transformational change** – ECC plan to bid for central government funding for five major projects – expanding digital demand response bus services – it is to include Uttlesford among other areas in Essex
- **Delivering innovative service solutions** – ECC plan to have a fully commercial digital demand responsive transport system across Essex; changing P&R to Park & Choose by providing other mode options for final leg of journeys, behaviour change campaign pilot to target car drivers to shift towards bus use, bus shelter transformation (improvements, maintenance and future proofing) funded through advertising
- **Transforming Policy** – refocusing highway and transport policies to moving people around the network rather than prioritising moving vehicles around the network – including revising approaches to funding and review; revising transport modelling tools to understand future forecasts on potential modal shift; reconsidering route hierarchy to reflect the vision of “Safer, greener,



Healthier”; reviewing how roadworks are managed to minimise disruption to bus services; establishing school zone guidance for new school builds to establish cycling, walking and bus use with potential car free zone built in; reviewing procurement for passenger transport in relation to climate impact; exploring devolution policy to give local control over services

- **Network reviews** – ECC commits to undertake a comprehensive district-based area network reviews in co-operation with stakeholders
- **Better information** – providing an Essex bus brand that is coherent, consistent and strong such that information is seamlessly navigate and understand; undertake a marketing campaign to promote bus use to non-users
- **Customer Experience** – setting out an Essex wide Passenger Charter with key indicators monitored

### ***Essex Walking Strategy (2021)***

4.20 The strategy includes a number of objectives to encourage more walking trips as follows:

- **Objective 1:** Increase walking for everyday trips – through wayfinding strategies, promoting direct, coherent routes on desire lines and designing routes through pleasant and safe environments for all
- **Objective 2:** Improve road safety for pedestrians – ensuring that all road users’ needs are met through the road user hierarchy with pedestrians as most vulnerable; prioritise road safety engineering schemes involving pedestrian casualties; and proactively policing and targeting driving offences
- **Objective 3:** Better design and enhanced accessibility – through promotion of Essex Design Guide and Garden Communities Principles in new developments; review design for walking infrastructure to encourage safe behaviour and meet pedestrian needs (including elderly and mobility impaired); developing local walking and cycling infrastructure plans for key towns; and adopting Active by Design approach for new neighbourhoods and garden communities

- **Objective 4:** Enabling physical activity and walking for health – provide infrastructure to enable residents to achieve two 10-minute sessions of physical activity per day via active travel; raise awareness of the benefits of walking for health including to mental health; and promotion of Active Essex Strategy
- **Objective 5:** Enabling more walking to schools – promoting behaviour change programmes such as three parking rules (care, consideration and caution), park & stride and encouraging community led street design and initiatives around existing schools, support educational initiatives to increase skill and confidence levels of pedestrians during school years, and support better wayfinding and legibility.
- **Objective 6:** Promoting walking for leisure – encourage social walks in greenspace to link individuals and reduce isolation, promote the use of the public right of way network, coastal paths and country parks including links to rail and bus operators; and support community involvement in maintenance of public rights of way
- **Objective 7:** Support economic development – enhanced infrastructure in town centres and high streets, and to tourism opportunities on leisure routes including wayfinding and legibility; encouraging large employers to promote walking to work;
- **Objective 8:** Improve our neighbourhoods and supporting the development of new communities – promoting walkable neighbourhoods and Active by Design, and the principles of Healthy Streets; creating better links to walking corridors and ensuring new developments provide links to existing destinations
- **Objective 9:** Encourage walking by changing attitudes and behaviour – developing a behaviour change programme using whole systems approach, incentivise partners to deliver walking support, digital support including new products and information on walking, and using innovative communications and marketing techniques in travel planning for workplaces, schools and communities.

***Essex Cycling Strategy (2016)***

4.21 The Essex Cycling Strategy sets out how Essex County Council will increase cycling in Essex through three key elements:

- **Enable** – a focus on leadership that will drive the strategy forward – this includes an Essex Cycling Advocate; transformational funding by increasing ECC funding and increasing utilisation and prioritisation of other funding sources (government grant/allocations and developer contributions); and providing “best practice” design alongside training, site visits and creating a support network of experienced cycle infrastructure experts, and engaging with local stakeholders
- **Promote** – a targeted increase in the promotion of cycling – creating a Cycle Essex Brand which runs high profile campaigns, continue to welcome and attend high profile events in the county and supports local initiatives
- **Provide** – a step change in the extent and quality of cycling infrastructure, and provision of training and access through bikeability training, cycling skills training, bicycle loan schemes, encouraging cycle to work schemes with employers and working with partners and community groups to encourage cycling

**Uttlesford Local Plan (adopted January 2005)**

- 4.22 **Policy GEN1** states that *access will only be permitted if it meets the following:*
- a) *Access to the main road network must be capable of carrying the traffic generated by the development safely*
  - b) *The traffic generated by the development must be capable of being accommodated on the surrounding transport network*
  - c) *The design of the site must not compromise road safety and must take account of the needs of cyclists, pedestrians, public transport users, horse riders and people whose mobility is impaired*
  - d) *It must be designed to meet the needs of people with disabilities if it is development to which the general public expect to have access*
  - e) *The development encourages movement by means other than driving a car*

4.23 An amendment to the parking standards at Appendix 1 has been made to adopt Essex Parking Standards with additional detail on larger properties that are

specific to Uttlesford – see details at chapter 3 where the parking standards are set out against which the development will adhere.

***Summary***

- 4.24 In view of the above, it is considered that the principle of the proposed development on this site is fully compliant with current policy guidance on transport and land use planning at national, regional and local levels. This is on the basis that the site is including walking connections to the existing infrastructure which provides access to existing key destinations including the local primary school, nearby convenience store, GP surgery, local bus stops and Elsenham Train Station. The nearby bus stop on the southern side of Henham Road is to be improved with a new flag and timetable to reflect the current provision on the northern side.
- 4.25 The parking and layout of the site will be in accordance with Essex Design Guide and adopted parking standards through the submission of RM applications.
- 4.26 In terms of Essex’s sustainable transport strategies, the Travel Plan accompanying the development proposals includes promotion of sustainable modes through marketing campaigns and provision of information. Bus service contributions are expected to be provided in line with other consented developments in the area.



## **5.0 TRIP GENERATION AND DISTRIBUTION**

### **VEHICULAR TRIP GENERATION**

- 5.1 The proposed development scheme seeks to provide 130 residential units. The traffic generation associated with this development has been calculated using trip rates per unit extracted from the TRICS database and applied to the quantum of development.
- 5.2 The proposed weekday trip rates associated with the residential units were selected based on sites of a similar scale and region. The following criteria was used:
- All regions excluding Greater London, Ireland, Scotland and Wales;
  - Town Centre, Edge of Town Centre and neighbourhood centres excluded;
  - 'Mixed Private/Rented' selected;
  - Trip rate based upon number of units up to 150 units; and
  - Pre-covid survey dates selected.
- 5.3 **Table 5.1** sets out the vehicular trip rates used and the resultant forecast vehicle weekday peak hour trip generation of the proposed residential site (based on traditional network peak hours). The full output is included at **Appendix E**.

**Table 5.1: Predicted Weekday Vehicle Trip Generation of the Proposed Residential Units**  
(source: TRICS)

Period and Mode	Trip Rates (per dwelling)			Trips (130 dwellings)		
	In	Out	Two-Way	In	Out	Two-Way
<b>Weekday AM Peak Hour (08:00 – 09:00)</b>						
Vehicles	0.110	0.358	0.468	14	47	61
<b>Weekday PM Peak Hour (17:00 – 18:00)</b>						
Vehicles	0.320	0.156	0.476	42	20	62
<b>Daily (07:00 – 19:00)</b>						
Vehicles	2.241	2.307	4.548	291	300	591

Note: any discrepancies are a result of rounding.

- 5.4 As shown in **Table 5.1**, it is estimated that there will be a total of 61 two-way vehicle movements in the weekday AM peak hour and 62 two-way vehicle movements in the weekday PM peak hours resulting from the proposed residential development.
- 5.5 These trip rates were provided to ECC Highways through the pre-application process prior to the production of the TA and were agreed as appropriate.

**MULTI MODAL TRIP GENERATION**

- 5.6 **Table 5.2** sets out the multi modal trip rates used and the resultant forecast multi-modal weekday peak hour trip generation of the proposed residential site (based on traditional network peak hours). The full output of the trip rates is included at **Appendix E**.

**Table 5.2: Predicted Weekday Multi Modal Trip Generation of the Proposed Residential Units**  
 (source: TRICS)

Period and Mode	Trip Rates (per dwelling)			Trips (130 dwellings)		
	In	Out	Two-Way	In	Out	Two-Way
<b>Weekday AM Peak Hour (08:00 – 09:00)</b>						
OGVs/PSVs	0.001	0.001	0.002	0	0	0
Cyclists	0.002	0.014	0.016	0	2	2
Pedestrians	0.049	0.159	0.208	6	21	27
Bus passengers	0.002	0.025	0.027	0	3	3
Rail passengers	0.000	0.010	0.010	0	1	1
Total People	0.185	0.828	1.013	24	108	132
<b>Weekday PM Peak Hour (17:00 – 18:00)</b>						
OGVs/PSVs	0.000	0.000	0.000	0	0	0
Cyclists	0.008	0.004	0.012	1	1	2
Pedestrians	0.050	0.040	0.090	7	5	12
Bus passengers	0.019	0.009	0.028	2	1	3
Rail passengers	0.009	0.000	0.009	1	0	1
Total People	0.546	0.281	0.827	71	37	108
<b>Daily (07:00 – 19:00)</b>						
OGVs/PSVs	0.018	0.020	0.038	2	3	5
Cyclists	0.049	0.058	0.107	6	8	14
Pedestrians	0.624	0.644	1.268	81	84	165
Bus passengers	0.137	0.148	0.285	18	19	37

Rail passengers	0.042	0.042	0.084	5	5	10
Total People	4.249	4.231	8.480	552	550	1102

Note: any discrepancies are a result of rounding.

- 5.7 As shown in **Table 5.2**, it is estimated that there will be a total of 132 two-way “total person” movements in the weekday AM peak hour and 108 two-way total person movements in the weekday PM peak hours resulting from the proposed residential development. The number of public transport trips is 4 for both the AM and PM peak periods; 27 and 12 for pedestrian trips; and 2 for both the peak periods for cycle trips.
- 5.8 There is therefore a significant opportunity to increase travel by active travel and public transport through Travel Planning techniques. However, for the purposes of this assessment, no reductions for enhanced Travel Planning measures have been applied. This is considered a robust approach.

### **TRIP DISTRIBUTION**

- 5.9 The vehicle trip distribution has been derived from 2011 Journey To Work Census Data for car drivers from mid layer output area “Uttlesford 005” (within which the site is located), travelling to work destinations across the UK. The routes that the traffic is likely to use to the various destinations has been defined through consideration of Google traffic journey times for AM peak periods. A sense-check on the routing options to the destinations has been undertaken in the PM peak period also and the proportions of distribution changed little (by less than 2%, which equates to only 1 to 2 vehicles on the busiest route).
- 5.10 The table at **Appendix F** sets out the assumptions on which routes have been used for the various output destinations. The routes defined are as follows:

- Route 1: West via Stansted Mountfitchet
- Route 2: South via Hall Road/Thremhall Avenue
- Route 3: North via Station Road
- Route 4: East via Henham Road

- Route 5: South via Hall Road/Coopers Avenue (assumed to be 100% Stansted Airport staff)

5.11 The distribution across all five routes is shown below in **Table 5.3**:

**Table 5.3: Proposed Distribution**

<b>Routes</b>	<b>Proposed Distribution</b>
<b>West</b>	
West through Stansted Mountfitchet	47% (all via Lower Street, Saffron Walden trips assumed to use Station Road)
<b>South</b>	
<i>South via Hall Road/Thremhall Avenue</i>	28%
<i>South via Hall Road/Parsonage Road</i>	1%
<i>South via Hall Road/Coopers Avenue</i>	12%
TOTAL via Hall Road	41%
<b>North</b>	
North via B1051/Station Road	5%
<b>East</b>	
East via B1051 Henham Road	6%

Note: any discrepancies are a result of rounding.

5.12 The distribution has been based upon Google route mapping of the most appropriate route, along with MSOA origin / destination points. Some additional elements are considered further below:

- All destinations were included in the distribution i.e no destinations from the Census data were excluded – this is considered robust as excluding figures below a certain number of people (e.g. fewer than 5) may result in underestimation of distribution patterns when multiple MSOAs are combined near to each other;



- The distribution considers that traffic to Saffron Walden would more likely use Station Road rather than travel through Stansted Mountfitchet via High Lane. This is on the basis of Google traffic analysis which shows routing via Station Road and east via Henham Road for various locations within Saffron Walden;
- A negligible amount of traffic would use Parsonage Road with most traffic expected to travel south via Thremhall Avenue to head south or access the A120 to head east;
- For robustness, traffic that could travel to destinations in Braintree, Colchester, Tendring has been applied to the main routes leading to Hall Road / A120 rather than along Henham Road to the east;
- No allowance has been made for vehicle drivers stopping part-way within their journey (i.e. driving to Stansted Mountfitchet itself) – this results in a situation where all traffic passes through the defined network which is robust.

5.13 In terms of the distribution assumptions, a 50/50 split of traffic heading to the wider area using the strategic network has been applied to the Stansted Mountfitchet route and the Stansted airport route where both options are equally attractive in terms of time/distance. In some cases, the Stansted Airport route was shown to be more desirable for some areas of north-east London.

5.14 From the journey to work data, it appears that much of the traffic using the Stansted Mountfitchet route from the MSOA surrounding Elsenham is travelling through the town to access employment in East Hertfordshire district (Bishops Stortford and Hertford) and Harlow district (Harlow); as well as further afield via the strategic network (A120 and M11) as discussed above. Traffic associated with employment in East Hertfordshire is assumed to use the Stansted Mountfitchet route whereas traffic heading to the Harlow MSOAs has been split 50/50 between Stansted Mountfitchet and Stansted airport routes.

5.15 The traffic distribution and proposed development traffic flows are shown in Figures at **Appendix G**.

*Impact upon the Trunk Road (National Highways Network)*

- 5.16 The predicted traffic flows have been calculated for routes leading to the strategic road network. Two key routes have been identified.
- 5.17 Routes using the western route via Stansted Mountfitchet are shown to generate 22 two-way vehicle trips in the AM peak and 23 two-way vehicle trips in the PM peak.
- 5.18 Routes using the southern route via Hall Road and Coopers End roundabout are predicted to increase vehicle flows by 17 two-way vehicle trips in the AM peak and 18 two-way vehicles in the PM peak.
- 5.19 On the basis of the consideration of vehicle flows (and being below 30 two-way movements) onto the strategic highway network, no further assessment of the strategic network junctions is deemed necessary as agreed with National Highways during pre-application liaison. The development flows are not considered to materially impact the strategic highway network.

## **6.0 TRAFFIC IMPACT**

6.1 In order to assess the impact of the predicted traffic associated with the proposed development, it is necessary to consider the operation of the local highway network with both the predicted Base and Development Scenario flows.

6.2 This has been undertaken in a future year of 2027 (5 years from planning submission), allowing for traffic associated with other committed developments in the area.

### **Existing flows**

6.3 An assessment of the following junctions is included in this report:

- Henham Road/High Street/Hall Road (splitter island priority T-junction)
- High Street/Station Road/Robin Hood Road/Stansted Road (double-mini roundabout)
- Grove Hill/Lower Street (part-signalised)
- Chapel Hill/Lower Street/Church Road (4-arm mini roundabout)
- Chapel Hill/Bentfield Road/Cambridge Road/Silver Street (splitter island priority T-junction)
- Coopers End roundabout (5-arm)
- Hall Road/Parsonage Road (3-arm mini roundabout)

6.4 As set out in Chapter 2, survey data from 2022 for the above junctions has been reviewed against traffic surveys from Transport Assessments associated with consented sites in Elsenham. This was requested by Essex County Council highways during the scoping exercise and was deemed necessary to understand the differences in current traffic conditions and pre-covid traffic flows.

6.5 The latest survey data takes account of the following general trends that have changed or accelerated since the Covid pandemic began:

- More people working from home and travelling fewer times in the week to work;

- more flexible working hours resulting in peak spreading or out of peak travelling;
- Reduction in business travel as a result of more virtual meetings;
- Reduction in air travel through Stansted Airport (local issue);
- Impact on town centre retail as a result of more online shopping;
- An element of online education in universities.

6.3 The 2022 traffic survey flows for the peak hours during the weekday are shown included in Figures at **Appendix G**. The surveys established that the peak hours for the junctions near to Stansted airport and within Elsenham (defined by the hour in which the total through-flow was greatest) were 0745 - 0845 in the AM period and 1630 - 1730 in the PM period. Those junctions within Stansted Mountfitchet were assessed to have peak hours of 0730 – 0830 in the AM period and 1700 – 1800 in the PM period.

#### **Future year**

6.4 The predicted traffic associated with other consented developments in the area has been used to provide a future year assessment of 2027 (5 years post planning submission).

6.5 The list of consented schemes in the area is comprehensive and is considered to take account of increase in traffic in the local area associated with the household element of the TEMPro growth factors.

6.6 Therefore, alternative planning assumptions have been applied to TEMPro to remove the number of households over the 5-year period as they are explicitly included for through the consented schemes (discussed below). This is considered to be reasonable to avoid the situation of double counting committed development trips.

6.7 However, the element of the TEMPro growth associated with the number of jobs has not been altered from the default position so as to include for background growth associated with Stansted airport and other employment uses in the area.

6.8 The TEMPro growth rates used were for the Uttlesford 005 and Uttlesford 006 MSOA areas, with NTM local factors applied, with the resultant growth rates between 2022 (year of survey) and 2027 (assessment year) as follows:

- AM Peak: 1.00015
- PM Peak: 0.99975

6.9 The TEMPro growth alone underlines reasonably flat growth in the 5-year period when traffic associated with the committed developments are removed from TEMPro.

6.10 However, the committed development flows from a substantial number of developments have been included manually which will provide the growth on the network, as set out in the following section.

***Committed development***

6.11 The following committed development has been considered, as set out in the pre-application scoping exercise with Essex County Council Highways:

**Table 6.1: Consented sites**

<b>Committed Development Scheme</b>	<b>Source</b>
Trisail – 3 office blocks with GFA of 6969sqm (UTT/11/1473)	Flows extracted from E Elsenham site (UTT/17/3575/OP)
Land West of Hall Road, Elsenham – 130 dwellings (UTT/13/0177 at the time of assessment but since approved under UTT/19/0462/FUL)	Flows extracted from E Elsenham site (UTT/17/3575/OP)
Magna Carta School – 7 FE primary school (UTT/17/0052)	Flows extracted from E Elsenham site
Elsenham Primary School Expansion from 1FE to 2FE (UTT/17/2594)	Flows extracted from E Elsenham site (UTT/17/3575/OP)
Land South of Rush Lane, Elsenham – 44 dwellings (UTT/19/0437/OP)	No flows presented in Transport Statement – therefore, calculated using trip generation from TS and trip distribution from proposed Henham Road TA
Land East of Elsenham – 350 units (UTT/17/3575/OP)	Flows extracted from TA for planning application
Land West of Elsenham (Isabel Drive) – 99 units (UTT/19/2470/OP)	Flows extracted from TA for planning application



Land South of Vernons Close – 45 dwellings (UTT/20/0604/OP)	Flows extracted from TA for planning application
Land West of Parsonage Road, Takeley (UTT/19/0393/OP) – 119 dwellings	Flows extracted from TA for planning application
Land East of Parsonage Road, Takeley (UTT/19/0394/OP) – 66 bed care home	Flows extracted from TA for planning application

6.12 The total committed development and the individual committed traffic flows taken from the relevant TAs for the planning applications considered are shown in flow diagrams included at **Appendix G**.

#### ***Main Case flows***

6.13 Adding 2022 survey flows growthed to 2027 and traffic associated with the committed development gives the predicted 2027 Base Case flows, shown in flow diagrams contained in **Appendix G**.

#### ***Development Case flows***

6.14 Adding the predicted traffic associated with the proposed development on the site to the 2027 Base Case flows gives the 2027 Development Case flows, shown in diagrams contained in **Appendix G**.

6.15 As has been identified in Chapter 5, the distribution of vehicles onto the local highway network has been set out using Google maps route choice and the origin / destination points of the Journey to Work Census data.

#### ***Sensitivity Test***

6.16 A number of sites are currently in the planning system but are not yet consented. Therefore, a sensitivity test has been undertaken to consider the operation of the local junctions assessed with traffic associated with these additional sites. The following table sets out the sites relevant to the sensitivity tests.

**Table 6.2: Sites in the planning system – currently not consented**

<b>Committed Development Scheme</b>
South of Bedwell Road – 50 homes (UTT/20/2908/OP)
Land at Warish Hall Farm, Takeley (21/1987/FUL) Mixed use: 3,568sqm light industrial/health care medical/flexible employment and 192 residential dwellings
Land East of Parsonage Road, Takeley (UTT/22/0241/SCO) – 88 dwellings (request for screening scoping opinion)
Land West of Garnetts, Dunmow Road, Takeley (UTT/21/3311/OP) – 155 dwellings
Land to the East of High Lane (UTT/22/0457/OP) - 30 dwellings
Land at Pines Hill (21/2730/OP) - 31 dwellings

- 6.17 The individual traffic flows associated with the sensitivity tests have been extracted from the relevant Transport Assessments for all sites except Warish Farm, Land East of High Lane and Pines Hill.
- 6.18 Flows for Land at Warish Farm and Land East of High Lane have been extracted from their respective transport reports and distributed in accordance with the proposed Henham Road site as no information was available on traffic through the junctions to be assessed. Flows for Pines Hill have been extracted from the relevant transport report and distributed in accordance with the ATC traffic survey data in the aforementioned report.
- 6.19 All the sensitivity flows are shown in flow diagrams included at **Appendix H**.
- 6.20 The flows from the sensitivity sites have been added onto the 2027 base flows to provide 2027 Base Sensitivity Case flows as shown in flow diagrams included at **Appendix H**.
- 6.21 Adding the predicted traffic associated with the proposed development on the site to the 2027 Base Sensitivity Case flows gives the 2027 Development Sensitivity Case flows, shown in flow diagrams included at **Appendix H**.

**Alternative Flow Scenario (Coopers End Roundabouts only)**

- 6.22 As discussed in Chapter 2, the 2022 traffic flows for the Coopers End roundabouts are lower than the 2018 traffic flows. Therefore, an alternative set of assumptions on committed development have been applied to derive traffic flows to assess this junction.
- 6.23 The alternative set of committed developments is necessary as a number of development sites were constructed and became operational between 2018 and 2022. The consented schemes were not added to the 2022 surveys as the traffic associated with them would have been included within the survey data, however this would not be the case for the 2018 surveys.
- 6.24 The following assumptions to derive the traffic flows have been made:
- Background traffic assumptions are based on the same approach as the main case above except that a factor for 2018 to 2027 has been derived from TEMPro
  - An alternative list of committed development has been included and is set out in **Table 6.3** below
  - The sensitivity development remains the same as the main case above (list included at **Table 6.2**)

**Table 6.3: Committed Development sites for 2018 surveys**

<b>Committed Development Scheme</b>	<b>Source</b>
Trisail – 3 office blocks with GFA of 6969sqm (UTT/11/1473)	Flows extracted from E Elsenham site (UTT/17/3575/OP)
Land West of Hall Road, Elsenham – 130 dwellings (UTT/13/0177 at the time of assessment but since approved under UTT/19/0462/FUL)	Flows extracted from E Elsenham site (UTT/17/3575/OP)
Magna Carta School – 7 FE primary school (UTT/17/0052)	Flows extracted from E Elsenham site (UTT/17/3575/OP)
Elsenham Primary School Expansion from 1FE to 2FE (UTT/17/2594)	Flows extracted from E Elsenham site (UTT/17/3575/OP)
Land North of Leigh Drive – 20 units (UTT/15/3090)	Flows extracted from E Elsenham site (UTT/17/3575/OP)
Land North of Stansted Mountfitchet, Walpole Farm (UTT/13/1618)	Flows extracted from E Elsenham site (UTT/17/3575/OP)
Land at Elms Farm – 53 units (UTT/13/1959)	Flows extracted from E Elsenham site (UTT/17/3575/OP)

Land North of Water Lane - 10 dwellings (UTT/16/2865)	Flows extracted from E Elsenham site (UTT/17/3575/OP)
Land North of Stansted Road - 155 units (UTT/0142/12)	Flows extracted from E Elsenham site (UTT/17/3575/OP)
Land South of Stansted Road - 165 dwellings (UTT/15/2632)	Flows extracted from E Elsenham site (UTT/17/3575/OP)
West of High Lane - 35 dwellings (UTT/18/1993/FUL)	Flows extracted from E Elsenham site (UTT/17/3575/OP)
Land North of Water Lane - 10 dwellings (UTT/16/2865)	Flows extracted from E Elsenham site (UTT/17/3575/OP)
Land South of Rush Lane, Elsenham - 44 dwellings (UTT/19/0437/OP)	No flows presented in Transport Statement - therefore, calculated using trip generation from TS and trip distribution from proposed Henham Road TA
Land East of Elsenham - 350 units (UTT/17/3575/OP)	Flows extracted from TA for planning application
Land West of Elsenham (Isabel Drive) - 99 units (UTT/19/2470/OP)	Flows extracted from TA for planning application
Land South of Vernons Close - 45 dwellings (UTT/20/0604/OP)	Flows extracted from TA for planning application
Land West of Parsonage Road, Takeley (UTT/19/0393/OP) - 119 dwellings	Flows extracted from TA for planning application
Land East of Parsonage Road, Takeley (UTT/19/0394/OP) - 66 bed care home	Flows extracted from TA for planning application

6.25 The traffic flows for the alternative (Coopers End) scenario are included at **Appendix I.**

### **Traffic Impact**

6.26 An increase of +10% in peak hour traffic is generally regarded as material in terms of the impact on highway capacity and represents the typical day-to-day variation in flows. Such an increase has historically been taken as the threshold for determining whether or not the impact of development traffic on highway capacity should be assessed, reduced to +5% in areas already subject to congestion, or expected to be within the timescale considered. The +5% and +10% thresholds were set out in the 1994 *Guidelines for Traffic Impact Assessment* published by the Institution of Highways and Transportation (IHT) and were adopted by ECC in their own 2001 TA Guidance.

- 6.27 The 1993 *Guidelines for the Environmental Assessment of Road Traffic*, published by the Institute of Environmental Assessment (IEA), also refer to the +/-10% daily variation and states that: *projected changes in traffic of less than 10% create no discernible environmental impact*. The IEA Guidelines go on to state that an increase of +30% in traffic flows has a “slight” impact on severance, compared to +60% for a “moderate” impact, while a doubling (i.e. +100% increase) in flows, or the proportion of HGVs, is required to have a discernible impact particularly on noise levels.
- 6.28 The 2007 DfT/DCLG TA Guidance does not set out any specific thresholds for determining whether traffic impact should be assessed, but suggests an increase of +30 peak hour vehicle movements as a “useful point of reference from which to commence discussions”. The Guidance also states: “that there is no suggestion that 30 two-way peak hour vehicle trips would, in themselves, cause a detrimental impact”.

### ***Junction Capacity Analysis***

#### *Increase in traffic*

- 6.29 **Table 6.4** set out the predicted total flow through each junction within the study area for the main assessment in each peak hour in 2027. A comparison of the sensitivity flows shows similar changes.

**Table 6.4: Change in total flows through junctions, 2027 (main assessment) weekday peak hours**

<b>Junction</b>	<b>2027 Weekday am peak hour</b>			<b>2027 Weekday pm peak hour</b>		
	<i>Base</i>	<i>Dev't</i>	<i>Change</i>	<i>Base</i>	<i>Dev't</i>	<i>Change</i>
Henham Road/Hall Road/High Street	1,065	57	5%	1,030	58	5%
High Street/Station Road/Robin Hood Road/Stansted Road	1,173	32	3%	1,168	32	3%
Grove Hill/Lower Street	1,450	28	2%	1,416	29	2%
Chapel Hill/Lower Street/Church Road	1,707	28	2%	1,660	29	2%



Cambridge Road/Silver Street/Bentfield Road/Chapel Hill	1,513	28	2%	1,507	29	2%
Coopers End roundabout*	1,949	25	1%	2,602	25	1%
Hall Road/Parsonage Road*	1,132	25	2%	1,223	26	2%

\* Note – Coopers End Roundabout and Hall Road / Parsonage Road Mini Roundabout compared to 2018-derived flows for robustness

6.30 **Table 6.4** shows that the predicted increase in the total flow is between 3% and 5% at the local Elsenham junctions, 2% at the junctions in Stansted Mountfitchet and 1% to 2% at the junctions near Stansted Airport.

6.31 All are well below the typical 10% daily variation and of a level that would not generally be perceptible. The increases in traffic at the Elsenham junctions are above the 30 movements suggested in the DfT/DCLG TA Guidance whereas all other junctions are below this threshold. On this basis only the local junctions should be considered in more detail.

6.32 However, all have been assessed in more detail in line with other sites that have come forward through the planning process, as has been requested by ECC at the pre-application stage.

### *Principles*

6.33 The junctions in Elsenham and near Stansted airport have been assessed using the appropriate industry-standard software: JUNCTIONS10, using the PICADY module for priority T-junctions and the ARCADY module for roundabouts, both developed by the Transport Research Laboratory (TRL).

6.34 A Vissim model has been produced for the Stansted Mountfitchet junctions in line with the approach taken by other consented schemes in Elsenham and as requested by ECC Highways during the pre-application process. The Vissim model is a microsimulation model and considers the interaction along the corridor between Lower Street/Grove Hill through to Bentfield Road/Cambridge Road/Silver Street/Chapel Hill.

6.35 The preparation of the microsimulation modelling has been undertaken by The Modelling Group (a specialist modelling company) employed by the Applicant and through dialogue with ECC modelling team.

*Elsenham & Stansted Airport Junctions*

6.36 The results of the capacity analysis of the Elsenham and Stansted airport junctions with both the Base and Development Case flows for the main assessment and sensitivity assessment in both the weekday AM and PM peak period in the future assessment year of 2027 are summarised in the tables below. The models are based on geometry taken from topographical survey in the case of the proposed site access, and Ordnance Survey mapping in the case of the other junctions.

6.37 The operation of all junctions with the future year flows have been modelled using the *OneHour* (formerly *ODTab*) flow profile option, which considers a 90-minute period (the peak hour itself plus 15 minutes either side) with a synthesised flow profile. *OneHour* assumes a peak within the peak period, with the flow on all approaches into the junction increasing from 0.75 times the average flow per minute across the hour at the start to 1.125 times after 45 minutes (i.e. halfway through) before declining back to the starting level by the end of the period, and so is considered robust.

6.38 Geometries for the existing priority junctions have been taken from OS mapping material, with the parameters measured in line with the best practice guidance provided within the JUNCTIONS10 User Guide. Geometries for the proposed site access have been taken from **ACE Drawing 2008170-008A**.

6.39 All existing junctions have been tested for the surveyed and 2027 future year traffic flow scenarios with and without development. Junctions that are close to capacity have been modelled for the 2027 main case (with and without development) and the 2027 sensitivity case (with and without development). Whereas those operating well within capacity have been modelled for the 2027 sensitivity case only as it follows they will operate within capacity for the 2027 main case. The results of the queues for the surveyed junctions have been compared to the survey data to calibrate the models.

6.40 The proposed access junction has been tested in the 2027 sensitivity (with development) scenario only.

**Junction Capacity Results – Elsenham and Stansted Airport Junctions**  
Junction 1 – Henham Road / Hall Road Priority Junction

6.41 The Henham Road / Hall Road priority junction has been tested as a single junction with two exit lanes, as opposed to the layout on the ground which includes a secondary area for left turners towards Hall Road and right turners towards Henham Road. This approach was taken as the interactions between these two closely spaced “junctions” would not be present within a multi-junction model, and the approach taken maximises the interactions between turning vehicles at this junction at a single point and is therefore a robust assessment.

6.42 The results of the junction capacity modelling for the surveyed flows and 2027 sensitivity case (with and without development) are shown in **Table 6.4** and **Table 6.5** below for the existing layout.

6.43 Results of the modelling for this junction with the concept design for improved pedestrian facilities (i.e. removing the splitter island) for the same flow scenarios are shown in **Table 6.6**.

**Table 6.4: Summary of Henham Road/Hall Road/High Street Priority Junction model – surveyed flows**

Manoeuvre	2022 Weekday peak hour			
	AM Peak		PM Peak	
	RFC	Queue (vehs)	RFC	Queue (vehs)
Stream B-C	0.28	0.4	0.39	0.6
Stream B-A	0.13	0.1	0.13	0.2
Stream C-AB	0.42	0.9	0.33	0.6

Arm A = B1051 Henham Road (East), Arm B = Hall Road, Arm C = B1051 High Street.

**Table 6.5: Summary of Henham Road/Hall Road/High Street Priority Junction modelling (without pedestrian improvements) – future sensitivity flows**

Manoeuvre	2027 Weekday am peak hour	2027 Weekday pm peak hour
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	Base Case		Development Case		Base Case		Development Case	
	RFC	Queue (vehs)	RFC	Queue (vehs)	RFC	Queue (vehs)	RFC	Queue (vehs)
Stream B-C	0.39	0.6	0.40	0.7	0.52	1.1	0.54	1.1
Stream B-A	0.23	0.3	0.26	0.3	0.31	0.4	0.36	0.6
Stream C-AB	0.56	1.6	0.58	1.7	0.48	1.2	0.47	1.2

*Arm A = B1051 Henham Road (East), Arm B = Hall Road, Arm C = B1051 High Street*

**Table 6.6: Summary of Henham Road/Hall Road/High Street Priority Junction model – (with pedestrian improvements) – future sensitivity flows**

Manoeuvre	2027 Weekday am peak hour				2027 Weekday pm peak hour			
	Base Case		Development Case		Base Case		Development Case	
	RFC	Queue (vehs)	RFC	Queue (vehs)	RFC	Queue (vehs)	RFC	Queue (vehs)
Stream B-C	0.39	0.6	0.40	0.7	0.57	1.3	0.57	1.3
Stream B-A	0.27	0.4	0.30	0.4	0.46	0.8	0.46	0.8
Stream C-AB	0.56	1.5	0.57	1.7	0.47	1.2	0.47	1.2

*Arm A = B1051 Henham Road (East), Arm B = Hall Road, Arm C = B1051 High Street*

- 6.44 As can be seen above, the software indicates that the Henham Road / Hall Road / High Street Priority Junction will operate within capacity for the future year sensitivity case with the proposed development in place – both with and without the pedestrian upgrade included. The maximum RFC value is 0.57 in the AM peak for the upgraded junction and 0.58 for the existing layout.
- 6.45 The junction is considered to operate with a good level of reserve capacity with the development in place in the future year, and with or without the junction being amended. This allows the Highway Authority flexibility to introduce a mitigation scheme for the benefit of pedestrians should they wish to remove the central island.
- 6.46 Full PICADY outputs are provided at **Appendix J**.

Junction 2 - B1051 High Street / B1051 Stansted Road / Station Road / Robin Hood Road Double Mini-Roundabouts

- 6.47 The B1051 High Street / B1051 Stansted Road / Station Road / Robin Hood Road Double Mini-Roundabouts have been modelled as two linked mini-roundabouts, using simple vertical queue stacking. Where appropriate, geometric values have been set to the minimum or maximum allowed within the modelling software, as the limitations of the modelling software do not allow for the design of the junction to be reflected in full detail.
- 6.48 The results of the junction capacity modelling for the surveyed flows and 2027 sensitivity case (with and without development) are shown in **Table 6.7** and **Table 6.8** below.

**Table 6.7: ARCADY - B1051 High Street / B1051 Stansted Road / Station Road / Robin Hood Road Double Mini-Roundabouts – surveyed flows**

Approach	2022 Weekday			
	AM Peak		PM Peak	
	RFC	Queue (vehs)	RFC	Queue (vehs)
Junction 1 - Arm 1	0.23	0.3	0.24	0.3
Junction 1 - Arm 2	0.59	1.4	0.53	1.1
Junction 1 - Arm 3	0.32	0.5	0.32	0.5
Junction 2 - Arm 1	0.22	0.3	0.23	0.3
Junction 2 - Arm 2	0.5	1.0	0.46	0.8
Junction 2 - Arm 3	0.36	0.6	0.36	0.6

*Junction 1: Arm 1 = Link; Arm 2 = Robin Hood Road; Arm 3 = B1051 Stansted Road.*

*Junction 2: Arm 1 = Link; Arm 2 = Station Road; Arm 3 = B1051 High Street.*

**Table 6.8: ARCADY - B1051 High Street / B1051 Stansted Road / Station Road / Robin Hood Road Double Mini-Roundabouts – future sensitivity flows**

Approach	2027 Weekday am peak hour				2027 Weekday pm peak hour			
	Base Case		Development Case		Base Case		Development Case	
	RFC	Queue (vehs)	RFC	Queue (vehs)	RFC	Queue (vehs)	RFC	Queue (vehs)
Junction 1 - Arm 1	0.31	0.5	0.33	0.5	0.31	0.5	0.32	0.5



Junction 1 - Arm 2	0.73	2.5	0.75	2.8	0.68	2	0.69	2.2
Junction 1 - Arm 3	0.43	0.8	0.45	0.8	0.42	0.7	0.43	0.8
Junction 2 - Arm 1	0.3	0.4	0.32	0.5	0.31	0.4	0.31	0.5
Junction 2 - Arm 2	0.61	1.5	0.63	1.6	0.57	1.3	0.59	1.4
Junction 2 - Arm 3	0.49	0.9	0.51	1.0	0.48	0.9	0.49	0.9

*Junction 1: Arm 1 = Link; Arm 2 = Robin Hood Road; Arm 3 = B1051 Stansted Road.*

*Junction 2: Arm 1 = Link; Arm 2 = Station Road; Arm 3 = B1051 High Street.*

- 6.49 As can be seen above, the software indicates that both mini-roundabouts are expected to operate within capacity in the future year with the proposed development in place, with a maximum RFC of 0.75 in the AM peak.
- 6.50 Full ARCADY outputs are provided at **Appendix J**.

Junction 3 - Coopers End Roundabout &

Junction 4 – Parsonage Road Mini-Roundabout

- 6.51 The Coopers End Roundabout and Parsonage Road Mini-Roundabout have been modelled as two linked roundabouts, using the simple vertical queue stacking mode. The results of the junction capacity modelling for the alternative flow scenario as set out in the Alternative Flow scenario referenced earlier in this chapter given the higher traffic volumes counted in 2018 in comparison to 2022.
- 6.52 The model run has been undertaken for the 2018 flows to provide a robust assessment. This alternative sensitivity test has been run using 2018 traffic flows taken from consented schemes (discussed in Chapter 2) for this junction. See **Tables 6.9 and 6.10** for results.

**Table 6.9: ARCADY – Coopers End Roundabout & Parsonage Road Mini-Roundabout – alternative main case**

Approach	2027 Weekday am peak hour				2027 Weekday pm peak hour			
	Base Case		Development Case		Base Case		Development Case	
	RFC	Queue (vehs)	RFC	Queue (vehs)	RFC	Queue (vehs)	RFC	Queue (vehs)
Junction 1 - Arm 1	0.24	0.3	0.24	0.3	0.45	0.9	0.45	0.9
Junction 1 - Arm 2	0.81	4.0	0.84	4.8	0.93	9.0	0.95	10.4
Junction 1 - Arm 3	0.45	0.9	0.45	0.9	0.57	1.4	0.58	1.4
Junction 1 - Arm 4	0.20	0.3	0.20	0.3	0.27	0.4	0.28	0.4
Junction 2 - Arm 1	0.61	1.6	0.64	1.8	0.59	1.4	0.60	1.5
Junction 2 - Arm 2	0.40	0.7	0.40	0.7	0.33	0.5	0.33	0.5
Junction 2 - Arm 3	0.66	2.0	0.67	2.1	0.93	9.1	0.96	11.9

*Junction 1: Arm 1 = Terminal Road South; Arm 2 = Link; Arm 3 = Thremhall Avenue; Arm 4 = Coopers End Road; Arm 5 = Terminal Road North (Exit Only).*

*Junction 2: Arm 1 = Parsonage Road (North); Arm 2 = Parsonage Road (South); Arm 3 = Link.*

**Table 6.10: ARCADY – Coopers End Roundabout & Parsonage Road Mini-Roundabout – alternative sensitivity case**

Approach	2027 Weekday am peak hour				2027 Weekday pm peak hour			
	Base Case		Development Case		Base Case		Development Case	
	RFC	Queue (vehs)	RFC	Queue (vehs)	RFC	Queue (vehs)	RFC	Queue (vehs)
Junction 1 - Arm 1	0.25	0.4	0.25	0.4	0.46	0.9	0.46	0.9
Junction 1 - Arm 2	0.92	8.9	0.95	11.6	0.99	15.3	1.01	17.6
Junction 1 - Arm 3	0.46	0.9	0.47	0.9	0.60	1.5	0.61	1.6
Junction 1 - Arm 4	0.20	0.3	0.21	0.3	0.28	0.4	0.29	0.4
Junction 2 - Arm 1	0.63	1.8	0.66	2.0	0.62	1.7	0.63	1.7
Junction 2 - Arm 2	0.49	1.0	0.50	1.1	0.37	0.6	0.37	0.6
Junction 2 - Arm 3	0.71	2.4	0.72	2.5	1.04	25.2	1.07	32.5

*Junction 1: Arm 1 = Terminal Road South; Arm 2 = Link; Arm 3 = Thremhall Avenue; Arm 4 = Coopers End Road; Arm 5 = Terminal Road North (Exit Only).*

*Junction 2: Arm 1 = Parsonage Road (North); Arm 2 = Parsonage Road (South); Arm 3 = Link.*

- 6.53 The results show that both the Coopers End Roundabout and the Parsonage Road Mini-Roundabout operate within theoretical capacity for the alternative traffic flows (main case with committed development) with a maximum RFC value of 0.96 in the PM peak on the link between the two junctions. The associated queue increase for this same time period is 3 vehicles.
- 6.54 With the additional flows from the sensitivity test the results show the RFC value increases above the theoretical capacity in the PM Peak for both the base and “with development” scenario. There is an increase of 3% with the development flows included and an associated queue increase of 7 vehicles. It is unknown whether the sensitivity sites are to provide any changes at this junction and indeed whether they are likely to receive planning consent. Therefore, the results of this test should be treated with caution.
- 6.55 It should again be noted, that as presented in **Tables 6.4** and **6.5**, the impacts of the development at this junction are 1% to 2% and increases in the number of absolute vehicles are less than 30 two-way movements in the peak hours. The junction has been modelled as agreed by ECC, however, the development’s impact at the junction itself is not considered to merit further improvement work given the junction reaches theoretical capacity through the addition of background / committed development flows (with no known planned improvements secured).
- 6.56 It is considered that the impacts of the development traffic (well within daily fluctuation levels) and with minimal increases in queuing do not constitute a severe impact.

Junction 5 – Site Access / Henham Road Priority Junction

- 6.57 The proposed site access junction has been tested based on the proposed geometries in the 2027 Base Sensitivity + Development scenario only.
- 6.58 It should be noted that the geometries of the junction are entirely contained within the area of detailed application for access.
- 6.59 The results of the junction capacity testing are shown in **Table 6.14** below and the full output is included at **Appendix J**.

**Table 6.14: PICADY – Site Access / Henham Road Priority Junction**

Approach	2027 + Dev Scenario			
	AM Peak		PM Peak	
	RFC	Queue (vehs)	RFC	Queue (vehs)
Stream B-AC	0.10	0.1	0.04	0.0
Stream C-AB	0.03	0.0	0.09	0.2

*Arm A = Henham Road (East), Arm B = Site Access, Arm C = Henham Road (West)*

6.60 As can be seen above, the proposed site access junction operates within capacity in the future year with the development in place, with significant spare capacity and minimal queuing occurring.

### **Vissim Model**

6.61 A Vissim Model has been produced by The Modelling Group with input from Ardent Consulting Engineers on the context to the project, scope of assessment and traffic flows. The scope of this has also been informed by pre-application discussions with ECC Highways and modelling departments.

6.62 The microsimulation model was required to primarily understand the impact of development at the Grove Hill/Lower Street junction due to the unusual layout and local sensitivities around the operation of this traffic signalised junction. Using this type of model also allowed consideration of the interaction between the junctions within Stansted Mountfitchet.

6.63 One of the main influences on the operation of the Grove Hill/Lower Street junction is the location of on-street parking on Grove Hill which forms part of a one of the routes to reach the strategic road network from settlements in the east (such as Elsenham). From the journey to work data, it is clear that much of the traffic using this route from the MSOA surrounding Elsenham is travelling through Stansted Mountfitchet to access employment in East Hertfordshire district (Bishops Stortford and Hertford) and Harlow district (Harlow); further afield via the strategic network (A120 and M11) or using the shops and facilities within Stansted Mountfitchet itself.

- 6.64 The on-street parking prevents two-way working along sections of Grove Hill which is within the extent of the traffic signalised junction. Therefore, shuttle running occurs with drivers giving way to oncoming vehicles. This causes secondary queuing associated with the shuttle working prior to the primary queue at the traffic signal stop line. Therefore, it was highlighted through the scope of the assessment that it was important to capture this queuing and shuttle working behaviour in the model.
- 6.65 A base model was developed and audited by Jacobs (acting on behalf of Essex County Council). The validity of the base model was agreed and used as a basis for the future scenario runs.
- 6.66 The details of the base model are contained in the Local Model Validation Report (LMVR) included at **Appendix K**. The extent of the model is shown below (Image sourced from LMVR):



- 6.67 In summary, the key points from the base model are:
- The traffic is based on survey data undertaken in May 2022;
  - As set out in chapter 2, the roadworks that were present during the surveys has increased the number of vehicles passing through the Grove Hill/Lower Street junction compared to a typical day and decreased



vehicles through the Silver Hill/Cambridge Road/Chapel Hill/Bentfield Road junction;

- The model is calibrated and validated based upon the surveys with roadworks affecting the travel patterns;
- The model includes the on-street parking on Grove Hill, Lower Street and Chapel Hill and the associated shuttle running behaviour of vehicles;
- Buses have been coded in the model to account for stopping and dwell times;
- Zebra crossings have been included in the modelled area and pedestrians coded into the model based on survey data;
- The latest as-built drawing and traffic signal timing sheet for the operation of the Grove Hill / Lower Street junction has been used and takes account of changes that Essex County Council highways made to the traffic signal operation;
- The worst case peak hours were modelled – 0730-0830 in the AM peak and 1700-1800 in the PM peak;
- The model has been set up using static routes as there is no route choice for reassignment – this is considered robust. No macro-scale re-routing occurs either;
- The manual flows were compared to the ATCs and calibrated;
- TAG criteria is achieved for the modelled turning counts at the junctions;
- The modelled queue profiles are largely comparable to those measured on site and provided for information only;
- The exit flows and journey times have been validated to meet TAG criteria, although it is noted that the PM model has sections which fall outside of the required 15% of observed values (namely B1051 (100m east of Raven Cottage) to B1051/Lower Street junction (22% difference)) and Silver St/Sanders Close to Chapel Hill/Cambridge Road (23% difference). However, overall the results show the routes to be within the 15% threshold.

6.68 The future year models include a committed scheme that is to be implemented as part of the consent for the land east of Elsenham development. This includes an additional detection loop installed to the east of the existing parking bays as included in the TA for land east of Elsenham.

6.69 The full output of results is included at **Appendix K** and a summary of the travel time difference between the future base and future base with development is summarised below:

**Table 6.14: Vissim Model – Journey Time Comparisons**

Description	Direction	Journey Time Comparisons (seconds)	
		AM Peak	PM Peak
		Diff.	Diff.
B1051 (100m east of Raven Cottage) – B1051/Lower Street	WB/SB	22	94
B1051/Lower Street – Lower Street/Chapel Hill Roundabout	WB/SB	0	-2
Lower Street/Chapel Hill Roundabout – Chapel Hill/Cambridge Road	WB/SB	1	3
Chapel Hill/Cambridge Road – Silver Street/Sanders Close	WB/SB	0	0
Silver Street/Sanders Close – Chapel Hill/Cambridge Road	NB/EB	1	-2
Chapel Hill/Cambridge Road – Lower Hill/Chapel Hill Roundabout	NB/EB	2	-6
Lower Hill/Chapel Hill Roundabout – B1051/Lower Street	NB/EB	1	1
B1051/Lower Street – B1051 (100m east of Raven cottage)	NB/EB	0	0

6.70 The results indicate that there is an increase in journey time of 22 seconds in the AM peak and 94 seconds in the PM peak through the Grove Hill/Lower Street junction for westbound/southbound journeys. However, it is worth reiterating that the number of vehicles associated with the development using this junction is relatively minor with only 29 two-way vehicles over the AM and PM peak hours equating to 1 vehicle every 2 minutes. There is a negligible impact on eastbound journeys through this junction.

6.71 There is also a negligible impact on the Lower Street/Chapel Hill roundabout and Chapel Hill/Cambridge Road in both directions within this model. However,

due to the lower baseline flows at these junctions as a result of the roadworks the model may be under-reporting the impacts here.

- 6.72 It is expected that under normal operating conditions (without roadworks in operation) the change in journey time through the Grove Hill/Lower Street due to the additional development traffic would be less as baseline flows would be lower; and baseline journey times higher through the Chapel Hill/Cambridge Road junction which may affect the impact of the development.
- 6.73 To understand how the junctions might operate under non-roadwork conditions an alternative flow scenario has been produced as a sensitivity test. The sensitivity test has been run to ensure that the impacts of the roadworks were removed from the modelling which clearly shows lower flows on the Cambridge Road/Chapel Hill junction and higher flows through Lower Street (see **Table 2.4**)
- 6.74 This scenario "normalises" the traffic flows used in the main scenario discussed above through the use of additional traffic data collected during non-roadwork traffic conditions in 2022.
- 6.75 Automatic Traffic Counts (ATCs) were installed on the key cordon links within the model on 28<sup>th</sup> June – 4<sup>th</sup> July 2022 (after the roadworks had finished on Cambridge Road). These were compared with data available in the public domain (previously application data) to ensure that the ATCs were representative, and as outlined above and in Table 2.4 the flows were significantly different to those from the May 2022 surveys on which the Vissim model was originally based.
- 6.76 In **Tables 2.1** and **2.2** in chapter 2, it was clear that the ATC data for June/July 2022 was comparable with the data used in the assessment of Land East of Elsenham which included an approved Vissim model of the junctions in Stansted Mountfitchet. However, the AM peak (0800-0900) in that comparison differs from the peak used in the Vissim modelling (0730-0830). Therefore, a factor was derived to produce 0730-0830 flows from the 2022 ATC data to provide a robust assessment.
- 6.77 The links with June/July 2022 data included:

- Cambridge Road
- Chapel Hill
- Lower Street (S)
- Lower Street (N)
- Silver Street

6.78 These were factored using the proportion of 0730-0830 flows in the May 2022 manual counts of the 0700-0900 May ATC flows, as explained below:

- the total flow in the May ATCs between 0700 – 0900 was calculated;
- the total flow in the 0730 – 0830 period from the MCC turning counts was then calculated as a proportion of the total 0700 – 0900 period ATC data;
- the factor was then applied to the 0700 – 0900 period in the July 2022 ATC data to derive 0730 – 0830 period flows.

6.79 The tables showing the flows and factors are included in **Appendix L**.

6.80 For the Bentfield Road arm the total flows into the junction of the May 2022 MCC has been used and considered appropriate as this flow level was similar to the link flow for Land East of Elsenham assessment data.

6.81 The Mountfichet Castle Street and Church Road arms of the roundabout assumed the use of the May 2022 turning movement counts for both peak hours as these were similar to the flows used in the Land East of Elsenham assessment and so considered reasonable.

6.82 The turning proportions in the May 2022 manual counts are expected to be different to non-roadwork affected turning movements due to the impact of the localised diversion routes drivers would be taking (i.e a greater proportion of vehicles would turn right from Silver Street to Chapel Hill during the road closure than would typically be expected).

6.83 As the July ATC data does not include turning movement proportions and the May 2022 turning proportions are influenced by these diversion routes, it was determined that using the turning proportions of those in the Land East of Elsenham assessment (and used in the associated approved Vissim model for that scheme) would be more appropriate.

6.84 Therefore, the July 2022 ATC data was used for volumes of traffic on the links into the junction for the following:

- Cambridge Road
- Chapel Hill
- Lower Street S
- Lower Street N
- Silver Street

6.85 The turning proportions from the Land East of Elsenham assessment were then applied to the volumes to provide turning movements for use in the model. These turning proportions were also applied to the Bentfield Road link (which would too have been affected by the inability of drivers to travel north onto Cambridge Road).

6.86 The same assumptions applied to the main scenario on TEMPro factors and committed development have been used in the sensitivity test flow scenario.

6.87 Flow diagrams for the sensitivity test for the Vissim model are included in **Appendix L**.

6.88 The model scenarios tested include:

- future base and with development with no mitigation included from the Land East of Elsenham development (additional detection loop).
- Future base and with development with mitigation included from the Land East of Elsenham development in both cases and additional changes to the signal timing in both peaks

6.89 The results are included at **Appendix M** and a summary of the travel time difference between the future base (without mitigation provided by others) a against future base + development (again without mitigation provided by others) – this is shown under “no mitigation” column in Table 6.15. A further comparison of the future base with and without development (including mitigation secured by others and modified signal timings for the proposed development scenario) is summarised below under the column “with mitigation”.



**Table 6.15: Vissim Model – Journey Time Comparisons – Sensitivity Test**

Description	Direction	Journey Time Differences (seconds)			
		AM Peak		PM Peak	
		No mitigation	With mitigation	No mitigation	With mitigation
B1051 (100m east of Raven Cottage) – B1051/Lower Street	WB/SB	10	-30	134	23
B1051/Lower Street – Lower Street/Chapel Hill Roundabout	WB/SB	1	0	1	9
Lower Street/Chapel Hill Roundabout – Chapel Hill/Cambridge Road	WB/SB	4	17	-2	-11
Chapel Hill/Cambridge Road – Silver Street/Sanders Close	WB/SB	0	0	0	0
Silver Street/Sanders Close – Chapel Hill/Cambridge Road	NB/EB	-1	1	3	6
Chapel Hill/Cambridge Road – Lower Hill/Chapel Hill Roundabout	NB/EB	7	7	1	5
Lower Hill/Chapel Hill Roundabout – B1051/Lower Street	NB/EB	0	-10	1	2
B1051/Lower Street – B1051 (100m east of Raven cottage)	NB/EB	0	3	0	2

6.90 The results of the scenario comparison indicates that there is predicted to be a small increase in journey times through the network with the mitigation in place (23 seconds on Lower Street) in comparison to the non-mitigated scenario.

6.91 However, this increase in journey time is concentrated on one location and in one peak hour (PM Peak) whilst increases are more modest in other directions and in the AM Peak. There are some minor reductions in journey time experienced on some sections.

**Additional Considerations**

6.92 In presenting the cases above, it is worth noting that travel behaviour has changed considerably since the Covid pandemic and will continue over time as a result of the climate change agenda and technological improvements. In addition, locally there may be changes to traffic patterns as a result of committed development where new behaviours may be adopted as a result of Travel Plan implementation. The following paragraphs discuss the possible

changes to traffic patterns in the area that would impact flows through Stansted Mountfitchet.

- 6.93 It is anticipated that peak hour spreading is more likely to occur to accommodate more flexible working patterns alongside working from home. These behaviour changes have not been taken into account in the committed development flows as they have been extracted from transport reports written prior to Covid where traffic was calculated using historic surveys contained in the TRICS database. The proposed traffic flows continue to be based on these historic surveys to provide a robust assessment and to remain in line with previously agreed consented schemes and therefore likewise do not take into account peak hour spreading.
- 6.94 Another important point to highlight is route choice. Residents in Elsenham seeking to travel towards the strategic network have the option of using the route into Stansted Mountfitchet or heading south towards Stansted Airport. It is likely that traffic will balance between the two routes depending on many factors including personal choice and overall congestion on the complete journey. Also, there are people that use satellite navigation or smart technology to divert to the quickest routes in real time – this includes regular journeys to determine the best route for that day or time period.
- 6.95 As it is expected that some traffic will divert to the Stansted Airport route to access the strategic network then there is potential to improve the capacity on the link road between the Coopers End roundabout/mini roundabout to provide an element of resilience. A sketch of a potential design is shown on **Drawing 2008170-033** which increases the flare length and entry width of the link road in both directions to enable two vehicles to queue side by side.
- 6.96 An Arcady model has been produced using the design and is included at **Appendix N**. It includes additional traffic that could potentially switch to the Stansted airport route from the Stansted Mountfitchet route - the assumptions are summarised below:
- the 50/50 split between the two routes in the main flow scenario for longer distance journeys on the strategic network has now been reassigned for 100% use of the Stansted Airport route

- all traffic heading to the various MSOAs in East Hertfordshire District (Bishops Stortford and surrounding areas) assumes 100% use of Stansted Mountfitchet route in the main flow scenario – it has now been reassigned as a 50/50 split between use of the Stansted Airport route and Stansted Mountfitchet route

6.97 The above route assumptions combine to reassign 68% of the traffic using the Stansted Mountfitchet route onto the Stansted airport route (equating to 29 (7 arrivals and 22 departures) two-way movements in the AM and 28 (19 arrivals and 8 departures) in the PM – see flow diagram including the additional movements at **Appendix N**.

6.98 A summary of the operation is shown below:

**Table 6.16: ARCADY – Coopers End Roundabout & Parsonage Road Mini-Roundabout – alternative sensitivity case with enhancement design**

Approach	Development Case			
	AM Peak		PM Peak	
	RFC	Queue (vehs)	RFC	Queue (vehs)
Junction 1 - Arm 1	0.25	0.4	0.46	0.9
Junction 1 - Arm 2	0.74	2.8	0.75	2.9
Junction 1 - Arm 3	0.47	0.9	0.62	1.7
Junction 1 - Arm 4	0.21	0.3	0.29	0.4
Junction 2 - Arm 1	0.68	2.2	0.65	1.9
Junction 2 - Arm 2	0.5	1.1	0.37	0.6
Junction 2 - Arm 3	0.64	1.7	0.96	12.3

*Junction 1: Arm 1 = Terminal Road South; Arm 2 = Link; Arm 3 = Thremhall Avenue; Arm 4 = Coopers End Road; Arm 5 = Terminal Road North (Exit Only).*

*Junction 2: Arm 1 = Parsonage Road (North); Arm 2 = Parsonage Road (South); Arm 3 = Link.*

6.99 The model of the enhancement of the roundabout with the extra flows reassigning from Stansted Mountfitchet added to the future with development

flows (and sensitivity base flows) shows the RFC value is within the theoretical maximum level of 1.00. The maximum RFC values are 0.74 in the AM peak (with queues of 3 vehicles on the link road heading NB) and 0.96 in the PM peak (with queues of 12 on the link road heading SB). These changes could provide further resilience to the local highway network.

6.100 These measures are not considered necessary given the site's limited impact (less than 2%) at these junctions, but are provided as an indication that route enhancements at junctions can be undertaken to improve the network resilience. It is also noted that it is unclear whether further network enhancements are expected by other developments still in the planning system.

6.101 In addition to the above the proposal includes Travel Plan measures and expected contributions towards local bus service and bus stop infrastructure improvements to reduce traffic on the network by encouraging a shift to sustainable travel. It is also understood that the consented schemes in Elsenham are introducing Travel Plan measures and sustainable infrastructure improvements which will also contribute to the reduction of base traffic flows along with the travel behaviour changes discussed above.

### **Section Conclusion**

6.102 The capacity testing for Elsenham junctions shows that the effect of the development is minimal for all priority and roundabout junctions, with RFCs remaining at or below 1.00 for all arms in all junctions. Similarly, the capacity testing also shows that the proposed access junction is expected to operate well within capacity.

6.103 The capacity testing for the Stansted Airport junctions also shows that the effect of the development is minimal for the roundabouts with increases to the RFC of 0.03. The junctions operate within theoretical capacity (below 1.00 RFC) for the main case but slightly above for the sensitivity case, using 2018 flows (which are higher than 2022 flows).

6.104 Using the traffic data obtained in May 2022, the junctions in Stansted Mountfitchet are shown to have increased overall journey times through the

junctions in the AM peak and a larger increase in the PM peak of around 90 seconds.

6.105 However these increases are limited to around 20 seconds on the Grove Hill / Lower Street junction approach once the effects of the roadworks and route diversions have been accounted for from alternative sensitivity modelling scenarios.

6.106 It should finally be noted that the junction capacity analysis has been undertaken despite the proposed development traffic falling below 30 two-way vehicle movements at the vast majority of junctions (other than the junctions within Elsenham itself) and well below 5% impact at all junctions other than Henham Road / Hall Road.

6.107 The effects of Travel Planning measures or other alternative considerations that drivers have such as route amendments, working from home practices and peak spreading have not been taken into account which would lessen the impacts shown.



## **7.0 SUMMARY & CONCLUSIONS**

- 7.1 Countryside Properties PLC has submitted an outline planning application for development of land south of Henham Road for 130 residential dwellings.
- 7.2 The site is located within easy walking distance of local services such as local convenience store (within the village centre), local primary school, GP surgery and within easy walking distance of bus stops which are served by routes providing links to neighbouring settlements and the train station at Elsenham.
- 7.3 The development will be accessed from Henham Road by means of a new simple priority T-junction which has been designed to the appropriate standards and subject to a Stage 1 RSA which raises no material safety issues.
- 7.4 In conjunction with the development a package of improvements to transport infrastructure are proposed. These include a new bus stop sign installed on an existing lamp column, informal crossing points to existing infrastructure at Hall Road, pedestrian improvements to the nearby Hall Road/Henham Road/High Street junction (concept design), and contributions to new cycle stands located at the local shops and there is expected to be bus service contributions towards higher frequency services locally that will benefit residents of both the site and the vicinity of the routes.
- 7.5 The predicted weekday peak hour trip generation by mode of travel for the proposed residential development on the site has been calculated. This has been agreed in advance with ECC Highways.
- 7.6 The impact of the predicted increase in weekday peak hour vehicle traffic on the operation of the local highway network has been assessed considering a future year of 2027, whilst considering committed development for future growth. This shows a minimal impact on junction capacity for the surrounding junctions in Elsenham and near Stansted Airport. Development impacts are a small percentage (less than 2%) on all junctions other than the Hall Road / Henham Road junction which has suitable capacity levels.

- 7.7 Despite the minimal impact of development traffic, extensive junction modelling has been undertaken along with the production of a Vissim model of the network within Stansted Mountfitchet.
- 7.8 Traffic data from 2022 surveys has been used. There were localised roadworks at the time of the surveys, so although the model has been calibrated and validated as being appropriate (as confirmed by ECC) an alternative scenario has been produced which utilises data from non-roadwork periods to assess the impact of the development.
- 7.9 The alternative scenario is judged to produce a more realistic situation, as ATC information identifies significant changes in traffic flows on key routes within the network when the roadworks are in place.
- 7.10 The impacts shown within the Vissim modelling outputs suggest limited variation in traffic times in the AM peak period and a modest increase of 23 seconds on the Lower Street / Grove Hill junction. However, across the wider network some reductions are felt, which therefore reduce the journey time increases to around 20 seconds across the length of the modelled network.
- 7.11 These increases in vehicle journey time are not considered severe when balanced against the robust modelling approach undertaken. Reductions to vehicle trip generation has not been undertaken to take into account driver behaviour in so far as being able to re-route journeys onto other roads, the influence of satellite navigation and smart technology, working from home culture, peak hour spreading and travel planning measures.
- 7.12 Mitigation from the development traffic (despite the modest impacts being defined) includes Travel Plan measures to reduce traffic on the network by encouraging a shift to sustainable travel and contributions to sustainable travel modes such as cycle parking, bus services and bus stops.
- 7.13 It is considered that the proposed development accords with local and national policy, and the impacts of the development are not considered to be severe with reference to the NPPF. It is respectfully requested that the proposal be approved.

## **Appendix A**

## **Appendix B**

## **Appendix C**

## **Appendix D**



## **Appendix E**

## **Appendix F**

## **Appendix G**

## **Appendix H**

## **Appendix I**

**Appendix J**



**Appendix K**

## **Appendix L**