

COUNTRYSIDE PROPERTIES PLC

LAND SOUTH OF HENHAM ROAD, ELSENHAM

TRANSPORT ADDENDUM REPORT

**REPORT REF.
2008170-011**

February 2023

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Document Control Sheet

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Distribution

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1. Introduction

- 1.1 This Transport Addendum Report (TAR) has been produced by Ardent Consulting Engineers (ACE) on behalf of Countryside Properties PLC to provide a response to highways and transportation comments received from the Planning Inspectorate (PINS) and statutory consultees in relation to the Section 62 planning submission lodged under planning reference S62A/22/0007. The planning submission is in outline form for 130 residential dwellings with all matters reserved other than access to the site which is provided in detail on Land to the South of Henham Road, Elsenham.
- 1.2 Comments have been received from the following sources and specific queries were highlighted by PINS on 6th October 2022:
- Essex County Council as Local Highway Authority
 - MAG Airports as owner of highway network around Stansted Airport
 - Elsenham Parish Council on behalf of the local community
- 1.3 A response to the specific queries raised by PINS was provided by ACE via letters submitted in October, November and December 2022 by the applicant's planning consultants, Savills. For completeness, these comments have been summarised again in this report to include all the information in one document for ease of reference, expanding on responses where necessary or in light of additional information contained herein.

2. PINS Comments

2.1 This section sets out the Highway and Transport Matters raised specifically by PINS with the associated response by ACE which is set out in bold.

2.2 The PINS comments are as follows:

- i. "The Transport Assessment (TA) uses VISSIM, a microsimulation traffic model, to assess the effect of the development at the Grove Hill/Lower Street junction and the interaction between junctions in Stansted Mountfitchet. Essex County Council, (ECC) as highway authority (HA) has requested further information, including a copy of the model. The information required is, details of the application of the committed development traffic flows; raw traffic survey data, including the queue lengths collected; and further details of how traffic demand has been treated in the junction models.

Please can the applicant confirm the date when this further information will be submitted to the HA."

2.3 **This information was provided to Essex County Council as Local Highway Authority on 29th September 2022, however, this was based upon the traffic surveys and baseline data recorded in May 2022. Additional traffic surveys have been undertaken and a revised VISSIM model produced as set out further in this TAR.**

- ii. "The TA identifies the potential for traffic to travel south via Hall Road, Coopers End Roundabout, and routes adjacent to Stansted Airport. Consultees and interested person (sic) have highlighted that Stansted Airport has, in the past, closed this route and could do so again.

Can the applicant address this matter, providing further information on (a) the potential for road closures adjacent to the airport and if necessary (b) assess the effect of a road closure on junction capacity and queuing from traffic routing onto alternative routes."

- 2.4 **MAG (London Stansted Airport) manages the road network around Stansted Airport including Coopers End Roundabout and the link road up to the junction of the Hall Road/Parsonage Road mini roundabout where it forms part of the adopted highway managed by ECC.**
- 2.5 **It is considered that there is no requirement to assess the effect of a road closure as MAG has confirmed that they have not and do not have plans to close the road except for cases of maintenance.**
- 2.6 **In addition, all other developments in the area that have recently received consent have assumed a level of use of the Stansted Airport network for modelling purposes. Therefore, the proposed development remains in line with these same assumptions.**
- 2.7 **Indeed, the recent Stansted Airport expansion scheme consented at Planning Inquiry assumes that a proportion of vehicle trips would travel to and from the Hall Road / Parsonage Road junction into / out of the Airport road network as part of the scheme expansion, indicating that the Airport authority themselves did not intend to close this link between the public highway and the airport.**

- iii. "The Planning Statement and Framework Residential Travel Plan refer to opportunities to promote the use of non-car modes of transport. The measures include the promotion of public transport services including financial contributions towards the existing bus service.

The applicant is requested to indicate whether the relevant transport providers have identified what provision can be made and what the mechanisms are to implement that provision."

- 2.8 **There has been no approach direct to public transport operators as such approaches are usually made by ECC and not the applicant. This allows the Local Highway Authority to have any financial contributions paid to them directly rather than to a particular bus operator allowing them to decide how best to spend any contribution, either as a singular sum or**

cumulatively with other contributions gained from other schemes locally.

2.9 This approach is identified in Essex County Council's Bus Service Improvement Plan 2021 – 2026 at paragraphs 265 – 270.

2.10 ECC Highways has set out the below requirements for enhancing the public transport services and infrastructure which are accepted by the Applicant:

- New pair of bus stops on Hall Road
- Enhancement of bus stops on Henham Road
- Contribution to an enhanced bus service to Stansted Mountfitchet, Bishops Stortford and Stansted Airport of £2,671 per dwelling.

2.11 Further discussions with ECC have confirmed that:

- the bus stop on the eastern side of Hall Road should be defined as a bus shelter using land from within the site;
- the bus stop on the western side of Hall Road should be a flag and pole due to highway boundary constraints;
- The bus stop on the southern side of Henham Road should be relocated further east so as to be defined as a bus shelter using land within the frontage of the site; and
- The bus stop on the northern side of Henham Road should be updated with a new flag located on a separate pole adjacent to the existing lamp column, and the existing flag on the lamp column should be removed.

2.12 Details of the designs are set out on ACE Drawing 2008170-032. These proposals have been subject to an independent Stage 1 Road Safety

Audit (RSA) as requested by ECC, and details are covered in Section 6 of this TN.

- iv. "Elsenham Parish Council (EPC) express concern that the traffic modelling takes no account of proposed, but not permitted, developments in the Elsenham and Stansted Mountfitchet areas. As such, the predicted traffic impacts are unrealistic."

2.13 It was agreed with ECC that further modelling should be undertaken to include a further sensitivity test that was not included within the TA at the application stage as the other main development site in Elsenham, the Station Road development (PINS reference S62A/2022/0012), was submitted after the Land South of Henham Road application.

2.14 The further sensitivity test therefore includes analysis for the Stansted Mountfitchet junctions incorporating developments not yet permitted but subject to a live application (those schemes identified in the TA at Table 6.2) along with the additional Station Road development identified above.

2.15 Details are contained in section 3 of this TAR.

2.16 It was agreed with ECC post-submission that no further sensitivity testing was required for the road junctions within Elsenham which have been accepted as having sufficient reserve capacity by ECC Highways, noting the work submitted within the original TA does not identify any capacity concerns.

- v. "EPC disputes the applicant's walking distances to various (sic). These errors result in an overstatement of the ability of prospective residents to access various facilities other than use of the private car."

2.17 The conclusion that the site is sustainable for all modes of travel and that residents would have access to local facilities within walking/cycling distance are still considered to remain valid. The

updated details of walking distances are provided in section 5 of this report.

- vi. "EPC submits that the submitted Travel Plan is unlikely to bring about material changes in travel patterns and would have no material impact on reducing traffic impacts."

2.18 A response to this point is provided in section 5 of this report, but the Travel Plan is intended to be secured by ECC Highways as a planning condition enabling the local highway authority to determine the appropriateness of the measures put in place within the Travel Plan prior to implementation. The Travel Plan is to include requested measures such as car-sharing schemes, car club (operation and membership) and free travel on the local bus network. The bus network itself is to be significantly enhanced through a contribution per household which totals nearly £350,000 which is to be spent by ECC Highways (Passenger Transport Unit) either singularly or in conjunction with other contributions from local developments or other funds to secure bus service improvements to settlements including Stansted Mountfitchet, Bishops Stortford and Stansted Airport. Monitoring of the Travel Plan is also to be secured as requested by ECC Highways.

3. Traffic Modelling (VISSIM) – Stansted Mountfitchet Junctions

- 3.1 This section of the TAR deals with the comments received on the VISSIM modelling – namely, updating the model using survey data from September 2022, dealing with comments received from Jacobs through their audit process and including proposed development at Land at Station Road (PINS reference S62A/2022/0012) in the sensitivity test.

Background History

- 3.2 The original submission TA included traffic flows undertaken in May 2022 when a temporary diversion route was in place due to utility works on Cambridge Road (B1383). A base model using the flows affected by the diversion route was built and a Local Model Validation Report (LMVR) was produced. The base model was audited by Jacobs on behalf of ECC and following some agreed minor changes was confirmed as acceptable for use for modelling future year scenarios.
- 3.3 The future years scenarios included 2027 traffic flows with and without development. The 2027 flows included traffic derived from a list of consented schemes that were agreed in principle with ECC. A further model was created using data from previous traffic surveys to redistribute May 2022 traffic so as to replicate the operation of the network without the temporary diversion in place which would be considered more typical operational conditions. The Future Year scenarios too were reviewed and audited by Jacobs on behalf of ECC and referenced within the TA.
- 3.4 Given the acknowledged impact locally of the roadworks and diversion at the time of the May 2022 surveys, it was agreed between ACE and ECC that a further set of traffic surveys should be undertaken following the completion of the utilities works and outside of school holiday periods.

Revised Surveys

- 3.5 Following submission of the application to PINS, further modelling has therefore been undertaken using traffic flows collected in September 2022 (see **Appendix A** for raw data). The September 2022 surveys were undertaken during school term time and without localised traffic diversions in place and therefore the

traffic surveys are considered more typical of conditions than the May 2022 survey dataset.

- 3.6 A further base model and LMVR was produced and issued to Jacobs on 19th December 2022 for audit. The use of the base model was confirmed as being acceptable on 13th January 2023 by ECC via their formal comments on the planning submission. A follow up email on 30th January 2023 by Jacobs provided further detail of the model's operation, noting that the "model was technically sound" and that it "validated well against the September journey time data".

Main Scenario Test – Levels of Robustness

- 3.7 The main scenario test was re-run with the assumptions retained from the TA on growth factors, consented development and traffic distribution as agreed with ECC at the pre-application stage and previously presented.
- 3.8 Prior to the presentation of the VISSIM results, it is important to note the key levels of robustness that have been included within the Main Scenario Test within the VISSIM model. These are set out as follows:

a. Divergence of Development Traffic Peak Hour and Network Peak Hour (AM Period only)

- 3.9 The future traffic flows used in the main scenario AM peak hour test are considered to be particularly robust on the basis that the peak hour flows derived for the development traffic and consented schemes are from the worst-case development traffic hour in TRICS (0800-0900) which have been added to the surveyed network peak hour period (0745-0845), rather than providing corresponding hours for assessment. It is noteworthy that residential sites within TRICS do not provide timeframes below hourly periods.
- 3.10 This same methodology was used within the original TA submission whereby the network peak hour from the May 2022 surveys was identified as being 0730 – 0830, with the development peak traffic from 0800 – 0900 being applied. For robustness, the development peak and the network peaks were combined and presented.

- 3.11 This approach has been retained within the revised modelling using September 2022 traffic surveys but it should be noted that the peak hours again do not align in the AM Peak period.
- 3.12 As TRICS data for residential sites is not broken down into half hour periods, an abridged development peak hour could've been created by using 25% of the 0700 – 0800 development peak hour and 75% of the 0800 – 0900 development peak hour to create a theoretical 0745 – 0845 development peak. A similar approach, taking 50% from each period could've been taken in the original TA submission.
- 3.13 This would've had the effect of reducing the AM peak hour development flows by 7 vehicles in total in the original TA work (54 two-way movements compared with 61 two-way movements assessed) and by 3 vehicles in the revised modelling presented in this TA (58 two-way movements compared with 61 two-way movements assessed). These reductions would have been applied to development traffic on all routes.
- 3.14 For robustness however, the development peak hour trip generation has been used combined with the network peak hour.
- 3.15 There is no similar situation in the PM peak as the development peak hour and network peak hour are the same.

b. Static Routing Assumptions (within Stansted Mountfitchet)

- 3.16 The VISSIM model produced at the request of ECC Highways was based upon a defined road network of 3 principal junctions:
- Grove Hill / Lower Street part-signalised 3-arm junction;
 - Chapel Hill / Lower Street / Church Road 4-arm roundabout junction;
 - Chapel Hill / Bentfield Road / Cambridge Road / Silver Street splitter island priority T-junction.

- 3.17 However, the creation of this network does not allow for traffic to use alternative routes i.e. it is not a dynamically modelled VISSIM network with route choice available.
- 3.18 The result of this is that traffic generation and distribution is fixed along the routes identified and does not react to changes in traffic conditions as would occur in a dynamic model.
- 3.19 For example, it is likely that traffic would use alternative east-west routes into Stansted Mountfitchet avoiding Chapel Hill at points of the day when congestion builds.
- 3.20 The modelling therefore has represented a static network with defined assignment through the network which is considered particularly onerous and unrealistic.

c. Traffic Assignment Throughout the Modelled Network

- 3.21 In addition to the above point, the distribution of the proposed development traffic has taken a worst-case review of assignment. That being the fact that all traffic identified within Stansted Mountfitchet entering the network on Grove Hill (eastern edge of the model), continuing through the roundabout junction near to the railway station, travelling along Chapel Hill and then turning south into Silver Street. The same is true for journeys in reverse (west to east).
- 3.22 No allowance has been made for vehicles using alternative routes (noting the static nature of the model above) or specifically using the Church Road arm of the network to find an alternative route to Silver Street.
- 3.23 Again, such an approach is considered to be overly-robust.

d. Stansted Mountfitchet as a Destination

- 3.24 Linked to the robust nature of routing traffic from point a to point b through a static route network, an additional layer of robustness has been added through not assigning any vehicle movements to destinations within Stansted

Mountfitchet itself. Such journeys would be expected for certain journey purposes but no discounting of trips has been applied to the development traffic (i.e. all development trips pass through the Stansted Mountfitchet network rather than stopping at the train station, public parking areas or other local facilities).

- 3.25 Again, this should be considered an over-estimation of traffic patterns on the Stansted Mountfitchet network.

e. Wider network (macro-) routing

- 3.26 As with the immediate VISSIM model presented having a static distribution due to its limited road network, drivers on the road network do have wider macro-routing options that could see them use alternative routes further afield.

- 3.27 Whilst the traffic distributions presented within the TA are based upon distributions of current expected travel patterns, wider network performance, junction improvements elsewhere or traffic flow levels on routes may result in vehicles using wider-area routing options rather than travelling through Stansted Mountfitchet particularly if journey times were seen as being more consistent or if destinations / facilities within Stansted Mountfitchet were not part of the overall trip purpose.

- 3.28 An every-day example of such routing choices is through the regular use of satellite navigation systems and mapping linked to real-world timings. Such intuitive systems direct drivers onto the most time-effective route and can feedback in real-time to changing traffic conditions. Drivers often will use such navigation systems even if their route and destination are known, in order to use the most appropriate route for their journey and to avoid or minimise delays.

- 3.29 As such, static journey application is a coarse approach to assessing impacts, but one which has been requested by the local highway authority in this situation.

f. Parking Areas within Stansted Mountfitchet

- 3.30 The modelled network has areas where extensive on-street car parking occurs. There are two specific areas where such parking affects the free-flow of traffic. Firstly, the approach to the Grove Hill / Lower Street signals has on-street parking sections on Grove Hill.
- 3.31 Secondly, there are two different stretches of parking that are present on Chapel Hill (either side of the recreation ground access point).
- 3.32 In both situations, the parking surveys (see **Appendix A**) indicate that the parking sections are not at full capacity throughout the modelled time periods. For example, the results show that for Section 1 (approximate capacity of 18 vehicles) the AM Peak has only 6 vehicles in spaces for the full modelled period (0745 – 0845), a further 6 spaces that are parked in or vacated (or arrivals within the period that then subsequently leave) during the modelled period.
- 3.33 A similar pattern is presented in the PM peak whereby a total of 10 vehicles are present either fully or partly within the period. These figures have been extracted and presented within **Figure 3.1**.
- 3.34 Naturally, given the nature of an historic settlement such as Stansted Mountfitchet, roadspace is limited, and when vehicles are not parked in the defined parking spaces then the roadspace can be utilised by vehicles to cede their road position to oncoming traffic. This would effectively allow the road network along Chapel Hill to operate more effectively than if all parking spaces are occupied for the full period.

1 - B1051 Chapel Hill - Section 1				
Arrival Time	Arrival Time (15 minutes)	Departure Time	Duration of stay	Vehicle Class
In at start time	07:00	07:13:05		Car
In at start time	07:00	08:05:56		Car
In at start time	07:00	08:17:28		Car
In at start time	07:00	08:31:01		Car
In at start time	07:00	09:12:28		Car
In at start time	07:00	11:06:31		Car
In at start time	07:00	11:13:39		Car
In at start time	07:00	11:54:50		Car
In at start time	07:00	End of the survey time		Car
In at start time	07:00	End of the survey time		Car
07:17:45	07:15	08:32:39	01:14:54	Car
08:09:40	08:00	08:12:14	00:02:34	Car
08:39:14	08:30	14:54:36	06:15:22	Car
08:52:40	08:45	08:54:42	00:02:02	Lgv
09:24:35	09:15	09:50:15	00:25:40	Lgv
In at start time	16:00	End of the survey time		Car
In at start time	16:00	End of the survey time		Car
In at start time	16:00	End of the survey time		Car
In at start time	16:00	16:24:39		Car
In at start time	16:00	17:36:31		Car
In at start time	16:00	16:17:46		Car
16:23:53	16:15	16:25:27	00:01:34	Lgv
16:35:54	16:30	16:42:54	00:07:00	Car
16:56:57	16:45	17:30:21	00:33:24	Lgv
17:08:28	17:00	17:16:38	00:08:10	Car
17:27:04	17:15	End of the survey time		Car
17:42:45	17:30	End of the survey time		Car
17:52:11	17:45	18:00:01	00:07:50	Car
17:57:50	17:45	End of the survey time		Car
18:29:27	18:15	19:14:42	00:45:15	Car
18:39:17	18:30	End of the survey time		Car

Figure 3.1: Parking Usage Levels – Chapel Hill Section 1 (September 2022 surveys)

- 3.35 Similar parking results are identified in both peak hours for Chapel Hill section 2 (potential occupancy level of c. 6 spaces but not fully occupied during the modelled period) and Grove Hill (c. 8 to 9 spaces) but only 3 spaces occupied during the survey periods. These results are not replicated in the text but are available for review at **Appendix A**.
- 3.36 Further parking along Lower Street also occurs, again with natural turnover of usage occurring and not being consistently occupied to its full extent.
- 3.37 In respect to the modelling however, the VISSIM model has been set up to assume that all parking in these areas is unavailable during the peak hours. This is quite clearly a worst-case scenario and one that hasn't been evidenced within the traffic survey results.

- 3.38 Such modelled approach is highly robust and the usage of available parking space for vehicles ceding priority or in some instances allowing greater road available for through-traffic would be expected to greatly increase the operation of the modelled network.
- 3.39 As has been signed off in the base model by ECC Highways and Jacobs however, this complete usage approach to the parking areas on roads within Stansted Mountfitchet offers little flexibility to operation.
- 3.40 It is clear that the main scenario test provides an overly onerous assessment of the traffic situation.
- 3.41 The traffic flows used in the modelling are shown in the figures included in **Appendix C.**

Sensitivity Test 1

- 3.42 Although an initial sensitivity test was presented within the original TA documents, comments received from PINS required a further sensitivity test to be undertaken with proposed but not permitted developments included. The list of these includes those in Table 6.2 of the TA (included within the original TA work) but with the addition of Land at Station Road (ref S62A/2022/0012) which was submitted to PINS in October 2022 (following the submission of the Land South of Henham Road scheme, which was submitted at the end of July 2022):

Table 3.1: Development Schemes – Sensitivity Test

Development Schemes – proposed but not permitted*
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

* - at time of submission and as agreed with ECC Highways

3.43 This sensitivity test gives an indication of how the junctions in Stansted Mountfitchet could operate if all of the proposed schemes in the planning system were to be consented and traffic patterns and behaviour was as presented within the relevant accompanying transport documents to those applications. Therefore, this sensitivity test is considered to be an extremely robust version of the scenario testing given the elements of robustness considered in items *a* to *f* earlier in this section.

3.44 It is particularly noted that three of the schemes listed above have since been refused planning permission by UDC and so the unconsented scenario factors in additional traffic that may not materialise.

3.45 Additional robustness contained within the sensitivity test also includes:

- the application of full development flows from the unconsented schemes regardless of whether their peak development hours (or hours of assessment) overlap with the modelled VISSIM period;
- the application of traffic throughout the modelled network irrespective of destinations within Stansted Mountfitchet (or where destinations were

not specified within accompanying reports – assignment of traffic throughout the full modelled network);

- no application of alternative route choices;
- the use of TRICS data from consented schemes being taken from pre-pandemic survey datasets.

3.46 The traffic flows used in the modelling are shown in the figures included in **Appendix E.**

Alternative Sensitivity Tests

3.47 To reflect a more realistic representation of future operations and to identify that modest changes in traffic flows on the network can result in markedly improved operation of the network, an alternative sensitivity test has been run (both with and without unconsented schemes) which considers alternative assumptions made in both the consented and unconsented schemes applied to the modelled network.

TRICS site surveys and consented trip rates

3.48 The consented schemes used within the main scenario test (and those unconsented schemes that replicated trip rates from consented schemes) use TRICS survey sites that pre-date the COVID-19 pandemic and as such the travel patterns resulting from the effects of the pandemic have not been taken into account.

3.49 This is not the case for the traffic surveys undertaken in September 2022 (which have been accepted as valid and robust by ECC Highways and the consultants, Jacobs) which incorporate the work-life balance and approach to hybridised working that has resulted post-pandemic.

3.50 In particular, travel patterns have changed through increased home-working, hybridisation of working weeks, flexibility on working patterns and an emphasis

on home-life / work-life balance all becoming more commonplace and accelerating trends that have been occurring for some time.

- 3.51 The TA highlighted a list of changes in travel behaviour that can markedly impact upon background traffic patterns which are largely related to the changes occurring since the covid pandemic. Specifically, more home-working, peak spreading due to more flexible working attitudes, along with advances in technology through virtual platforms (such as Teams, Zoom and Skype) that allow work, health and personal meetings to be conducted from home. All of these things would be expected to affect the consented scheme trip rates (and therefore traffic flows) and continue to affect the background flows on the local highway network.
- 3.52 Hybrid working, specifically, has resulted in certain employees being able to work from home in varying degrees from now being permanent home-workers to part-time office workers. Many employees are now working at least 2 to 3 days a week at home, reducing the need to travel in the peak hours on the road network. This does have the effect of reducing traffic impacts of baseline traffic flows or changing the days of the week whereby traffic is more intense than others.
- 3.53 Shifts in travel behaviour are borne out by the TRICS guidance Note on Travel Behaviour (August 2019, published before the pandemic) which refers to the DfT's review of travel to work trends in 2017. This identified a 20% decrease in commuting trips from 7.1 to 5.7 journeys per worker per week between 1988-92 and 2013-14. The Note states: "Work patterns are changing and need to be reflected in the planning process, for example, working from home is growing on both an occasional and usual basis...".
- 3.54 The Note refers to the majority of the forecast population growth being from ageing groups, with over 65s using their cars more than older cohorts, but obviously having different trip patterns from those in work, which will affect peak hour vehicle trip rates. Younger people are now far less likely to drive, with the proportion of 17-20 years olds holding a licence having dropped from nearly half to under a third over 20 years. It states: "Social interactions, substituting face to face interactions with digital communications, all affect trip making. The long-

term implications of these changes are not fully known, but it is difficult to imagine a return to previous levels of car use for younger people. Their economic and social circumstances have changed and so their expectations of transport and patterns of living have evolved.”

- 3.55 The TRICS Note cites a 12% decrease in weekday morning peak hour vehicle trip rates for private houses between 1989-94 and 2014-18 (derived from TRICS survey data), and a 12% reduction in commute trips between 2002 and 2017. It concludes that “evidence demonstrates that there has been a sustained change in travel behaviour. This change is reflected in the trip rates for residential, retail (food), and employment sites. Care needs to be taken to ensure that the design of the residential and retail development, in particular, take account of these changes in travel behaviour.”
- 3.56 A sustained trend towards reduced weekday peak hour vehicles trip rates per dwelling would reduce the volume of traffic generated, not only by the application scheme but also by existing residents in the local area.
- 3.57 Information from the Census undertaken in 2021 indicates that there was an 18% reduction in car drivers when compared to the 2011 data (65% in 2011 compared to 47% in 2021). Table 3.2 shows a comparison of the mode share for journey to work data between 2011 and 2021 census (raw data is contained in **Appendix B**):

Table 3.2: Mode Share Data from 2011 and 2021 Census

	2011 Census		2021 Census	
Working from Home	566	9%	3,099	41%
Commuting	5,826	91%	4,508	59%
Total in Work	6,392	100%	7,607	100%
Mode Share for Those Commuting				
Train (incl. Underground)	916	15.7%	328	7.3%
Bus	74	1.3%	49	1.1%
Taxi	16	0.3%	12	0.3%
Motorcycle	37	0.6%	18	0.4%
Car Driver	4,150	71.2%	3,573	79.3%
Car Passenger	244	4.2%	177	3.9%
Bicycle	55	0.9%	44	1.0%
Pedestrian	302	5.2%	242	5.4%
Other	32	0.5%	65	1.4%
Total Commuting	5,826	100%	4,508	100%

3.58 Further statistics from Office for National Statistics (ONS) for information on homeworking since the pandemic and key points are summarised as follows: (source:<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/ishybridworkingheretostay/2022-05-23>):

- the proportion of workers hybrid working has risen from 13% in early February 2022 to 24% in May 2022; those working exclusively from home has fallen from 22% to 14% over the same period.
- In Spring 2022, when guidance to work from home because of the coronavirus (COVID-19) pandemic was no longer in place in Great Britain, 38% of working adults reported having worked home at some point over the past seven days. Before the coronavirus pandemic the level was 12% (from separate surveys)

3.59 In light of these trends in home-working, the consented scheme flows of committed developments and those of the submitted but unconsented schemes have been reduced by 15% on the basis to allow for a projected increase in hybridisation and home-working. This is in line with the Census data analysis of 18% reduction in car driving for commuting purposes and the increase in hybrid working effects as set out in the ONS study.

3.60 To replicate such an alternative scenario, the following additional tests have been run:

- Alternative Test 2 - retaining the main scenario assumptions but with a reduction of 15% of the consented committed development flows to allow for increased home-working / hybridisation. The traffic flows used in the modelling for this test are shown at **Appendix F**.
- Alternative Test 3 – as per the above test (Test 2) but for the 15% reduction to also be applied to the unconsented scheme flows. The traffic flows used in the modelling for this test are shown at **Appendix G**.

Traffic Comparison Between Scenarios

- 3.61 Prior to the analysis of the VISSIM modelling it is important to consider the traffic flows proposed as part of the Land South of Henham Road scheme in comparison to consented and unconsented schemes.
- 3.62 Table 6.4 in the original TA showed that the predicted increase in the total flow through the Stansted Mountfitchet junctions was a maximum of 2%.
- 3.63 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.
- 3.64 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.
- 3.65 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.
- 3.66 Table 6.4 from the original TA also sets out the two-way traffic volumes through the Stansted Mountfitchet junctions to be 28 vehicles in the AM peak and 29 vehicles in the PM peak (equating to around 1 vehicle every 2 minutes, two-way).

3.67 This is within the two-way movements referenced in the 2007 DfT/DCLG TA Guidance which suggests an increase of +30 peak hour vehicle movements is 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”.

3.68 Despite the proposed development impacts being well below 5% and the absolute predicted numbers being below 30 two-way movements, it was requested at pre-application stage that the assessment should include the Stansted Mountfitchet network.

3.69 **Tables 3.3 to 3.5** below identifies the additional traffic volumes at the key junctions requested to be modelled by ECC Highways at pre-application stage in Stansted Mountfitchet. These traffic volumes have been derived from the following scenarios:

- Consented schemes (full trip rates applied);
- Consented schemes (15% reduction in trip rates);
- Station Road development site traffic (full trip rates applied);
- Station Road development site traffic (15% reduction in trip rates);
- Unconsented schemes, excluding Station Road development site (full trip rates applied);
- Unconsented schemes (as per above) (15% reduction in trip rates);
- Proposed Development scheme (full scheme trip rates applied).

3.70 Full trip rates have been shown for the proposed development scheme rather than being reduced by 15% in order to show a robust comparison – noting also that the flows from the proposed development are assigned through each of the junctions in the network unlike other developments.

Table 3.3: Consented Schemes and Proposed Development Flows

Junctions	Consented Schemes (Committed Developments)		Consented Schemes (15% reduction applied)		Proposed Development	
	AM	PM	AM	PM	AM	PM
Lower Street/Grove Hill	200	209	170	178	28	29
Mountfitchet Castle Street/Chapel Hill/Lower Street/Church Road	208	225	177	191	28	29
Chapel Hill/Benfield Road/Cambridge Road/Silver Street	153	154	130	131	28	29

- 3.71 As can be seen in **Table 3.3** the proposed development traffic is a small proportion of the consented schemes in the local area. A small reduction in trip rates as identified through home-working and hybridisation of working weeks (15% reduction in traffic) would effectively net the impacts of the proposed development traffic. This can be seen by a 30-vehicle reduction in the AM peak at the Lower Street / Grove Hill junction compared to a 28 two-way vehicle increase from the proposed development scheme (full flows applied).
- 3.72 The full consented level of traffic has been adjudged by ECC as being acceptable to them on the basis that these committed developments have received planning permission. This is therefore considered the minimum operational level acceptable to the Local Highway Authority locally.
- 3.73 Should traffic from consented schemes not come forward at the rate predicted at the time of assessment then this would create additional head-room within the local highway network below that of the accepted level of operation.
- 3.74 It is also worth noting that in traffic engineering terms, and as evidenced earlier in this TAR, that levels of robustness are factored into assumptions and analysis throughout the process with each development usually having to take robust approaches to trip generation and operation in order to satisfy

the local authority. Such assumptions regularly over-estimate vehicle generation levels from sites.

Table 3.4: Unconsented Schemes and Proposed Development Flows (Full Flows)

Approach	Station Road Scheme (Unconsented)		Other Unconsented Schemes		Proposed Development	
	AM	PM	AM	PM	AM	PM
Lower Street/Grove Hill	54	58	9	9	28	29
Mountfitchet Castle Street/Chapel Hill/Lower Street/Church Road	53	57	9	9	28	29
Chapel Hill/Benfield Road/Cambridge Road/Silver Street	39	41	13	13	28	29

3.75 **Table 3.4** further identifies the proposed development traffic is to be much smaller than the trip generation of other unconsented schemes locally when judged together (around 61 two-way AM movements at the Lower Hill / Grove Hill junction compared to just 28 two-way AM movements from the proposed development scheme).

3.76 This is particularly weighted towards the Station Road scheme also currently before the Planning Inspectorate (S62A/2022/0012) whereby that development alone is predicted to have twice the impact in volume terms than the proposed Land South of Henham Road scheme at the Lower Street / Grove Hill junction and the Chapel Hill roundabout junction. Slightly smaller impacts / volumes are predicted at the Silver Street junction but again it should be noted that the approach taken by the proposed development assigns all proposed development traffic through this junction which is not the case with the Station Road development traffic.

Table 3.5: Unconsented Schemes and Proposed Development Flows (15% Reduction in Flows)

Approach	Station Road Scheme (Unconsented – 15% reduction applied)		Other Unconsented Schemes (15% reduction applied)		Proposed Development (no reductions)	
	AM	PM	AM	PM	AM	PM
Lower Street/Grove Hill	46	49	8	8	28	29
Mountfitchet Castle Street/Chapel Hill/Lower Street/Church Road	45	48	8	8	28	29
Chapel Hill/Benfield Road/Cambridge Road/Silver Street	33	35	11	11	28	29

3.77 As can be seen in **Table 3.5**, the proposed development flows are also below those of the Station Road scheme even with a 15% reduction in flows for home-working / hybridisation applied at all junctions on that scheme (with no reductions applied to the proposed development).

3.78 As such, it is clear that the proposed development would have a lower impact on the local road network than the Station Road scheme and would be within the headroom created on committed development flows already consented should even a small reduction in trip rates be achieved through home-working and hybridisation.

3.79 This is also on top of the fact that the proposed development trips already are below the 30 two-way movements identified as a “starting point for discussions”, around a 1 to 2% impact at the Stansted Mountfitchet junctions and well below a 10% daily fluctuation level on traffic flows.

3.80 These aspects even before the presentation of the VISSIM modelling results would indicate that the development would not be considered to have a severe impact upon the local highway network.

VISSIM Modelling Results – Main Scenario

3.81 The results of the modelling is summarised below and the full output is included in the Modelling Group report at **Appendix D**.

3.82 For clarity, the comparison of Base and Base + Development scenarios include signal changes / detector introduction on Grove Hill in both scenarios given that the extra loop detector is expected to be implemented by others (and is therefore a committed scheme) and signal changes could be undertaken by the local highway authority at any point of time.

3.83 The results therefore show simply the effects of the proposed development on top of the base situation. These are provided in **Figure 3.2** below for the AM peak and **Figure 3.3** for the PM peak.

Figure 3.2: VISSIM Summary – Main Scenario Test (AM Peak 0745 - 0845)

Route	Direction	Description	AM Peak 07:45 to 08:45																			
			2027 Base				2027 Base + Dev				AVG DIFF.		2027 Base + Sens				2027 Base + Sens + Dev				AVG DIFF.	
			Travel Time				Travel Time				Diff.	% Diff.	Travel Time				Travel Time				Diff.	% Diff.
Min	Avg	Max	St Dev	Min	Avg	Max	St Dev	Diff.	% Diff.	Min	Avg	Max	St Dev	Min	Avg	Max	St Dev	Diff.	% Diff.			
9991	WB/BS	B1051 Extended section to cover full demand - B1051 (100m east of Raven Cottage)	64	66	70	1	63	66	75	2	1	1%	67	100	168	30	73	216	360	91	116	116%
101	WB/BS	B1051 (100m east of Raven Cottage) - B1051 / Lower St	89	129	220	34	97	154	215	37	25	20%	175	265	336	43	233	316	382	45	51	19%
102	WB/BS	B1051 / Lower St - Lower Hill / Chapel Hill Rbout	25	28	32	2	26	29	33	2	2	6%	27	33	38	3	29	34	41	3	0	1%
103	WB/BS	Lower Hill / Chapel Hill Rbout - Chapel Hill / Cambridge Rd	123	131	137	4	125	132	142	4	1	1%	129	137	147	5	124	137	149	6	-1	0%
104	WB/BS	Chapel Hill / Cambridge Rd - Silver St / Sanders Cl	20	20	20	0	20	20	20	0	0	0%	20	20	21	0	20	20	20	0	0	0%
	WB/BS	B1051 Extended section to cover full demand - Silver St / Sanders Cl	320	373	479		331	402	486		29	8%	418	556	710		478	723	952		167	30%
9992	NB/EB	Silver Street Extended section to cover full demand - Silver St / Sanders Cl	98	101	107	2	99	107	145	11	5	5%	102	108	129	8	100	124	305	47	16	15%
201	NB/EB	Silver St / Sanders Cl - Chapel Hill / Cambridge Rd	34	41	55	6	36	50	76	12	9	22%	42	57	85	12	44	64	134	22	7	11%
202	NB/EB	Chapel Hill / Cambridge Rd - Lower Hill / Chapel Hill Rbout	117	157	188	20	138	173	221	25	16	10%	152	188	215	17	166	191	241	17	3	1%
203	NB/EB	Lower Hill / Chapel Hill Rbout - B1051 / Lower St	46	51	57	3	47	54	62	4	3	6%	52	61	71	6	52	66	78	9	6	9%
204	NB/EB	B1051 / Lower St - B1051 (100m east of Raven Cottage)	51	53	55	1	51	53	55	1	0	0%	51	53	55	1	50	52	54	1	0	-1%
	NB/EB	Silver Street Extended section to cover full demand - B1051 (100m east of Raven Cottage)	346	403	462		371	436	559		33	8%	399	467	554		413	497	612		30	6%

3.84 The results show a marginal increase in journey time in the AM peak hour when compared to the 2027 Base scenario (less than 30 seconds westbound and 33

seconds eastbound). This increase is less than 10% of the total journey time of the whole route when viewed against the consented scheme levels of 2027 Base.

3.85 More substantial increases are seen in the journey time comparing the development test to that of the Base + Sensitivity scenario (i.e. with additional unconsented schemes included).

3.86 The effects of the unconsented schemes on the network adds a total of 183 seconds to the journey time across the whole 1.4km long network westbound (comparing 2027 Base to 2027 Base + Sensitivity) whereas the proposed development would only add 29 seconds to the 2027 Base scenario, indicating that the proposed development would have a much more limited impact than other unconsented schemes.

Figure 3.3: VISSIM Summary – Main Scenario Test (PM Peak 1700 - 1800)

Route	Direction	Description	PM Peak 17:00 to 18:00																			
			2027 Base				2027 Base + Dev				AVG DIFF.		2027 Base + Sens				2027 Base + Sens + Dev				AVG DIFF.	
			Travel Time				Travel Time						Travel Time				Travel Time					
			Min	Avg	Max	St Dev	Min	Avg	Max	St Dev	Diff.	% Diff.	Min	Avg	Max	St Dev	Min	Avg	Max	St Dev	Diff.	% Diff.
9991	WB/ SB	B1051 Extended section to cover full demand - B1051 (100m east of Raven Cottage)	62	64	66	1	62	64	66	1	0	0%	62	70	94	9	64	88	157	28	19	27%
101	WB/ SB	B1051 (100m east of Raven Cottage) - B1051 / Lower St	124	191	357	61	136	233	337	54	43	22%	257	358	430	53	325	399	467	39	41	11%
102	WB/ SB	B1051 / Lower St - Lower Hill / Chapel Hill Rbout	28	30	35	2	29	31	36	2	1	3%	29	31	33	1	30	32	35	1	1	4%
103	WB/ SB	Lower Hill / Chapel Hill Rbout - Chapel Hill / Cambridge Rd	106	125	152	13	110	129	146	10	4	3%	109	129	152	10	114	132	151	10	4	3%
104	WB/ SB	Chapel Hill / Cambridge Rd - Silver St / Sanders Cl	19	20	20	0	19	20	20	0	0	0%	19	20	20	0	19	20	20	0	0	0%
	WB/ SB	B1051 Extended section to cover full demand - Silver St / Sanders Cl	339	430	630		357	477	604		47	11%	477	607	728		553	671	830		64	11%
9992	NB/ EB	Silver Street Extended section to cover full demand - Silver St / Sanders Cl	105	112	131	8	109	129	183	26	17	15%	108	145	206	29	128	179	246	32	34	24%
201	NB/ EB	Silver St / Sanders Cl - Chapel Hill / Cambridge Rd	39	46	56	5	45	52	64	6	6	14%	44	58	72	7	51	63	75	6	5	9%
202	NB/ EB	Chapel Hill / Cambridge Rd - Lower Hill / Chapel Hill Rbout	113	137	162	11	126	148	166	10	11	8%	134	158	183	16	142	161	195	14	3	2%
203	NB/ EB	Lower Hill / Chapel Hill Rbout - B1051 / Lower St	42	45	50	2	44	47	51	2	2	5%	44	49	52	2	46	50	53	2	1	2%
204	NB/ EB	B1051 / Lower St - B1051 (100m east of Raven Cottage)	51	52	54	1	51	52	54	1	0	0%	51	52	55	1	51	52	54	1	0	0%
	NB/ EB	Silver Street Extended section to cover full demand - B1051 (100m east of Raven Cottage)	350	392	452		374	429	519		37	9%	382	461	567		420	504	623		43	9%

3.87 As with the AM peak, the PM peak shows marginal increases in journey time as a result of the proposed development when compared against the 2027 Base scenario. The westbound journey time is predicted to increase by 47 seconds overall, and the eastbound journey time is predicted to increase by 37 seconds. Again, these increases are across the full network of some 1.4 kilometres.

3.88 In comparison to the 2027 sensitivity test scenario (with unconsented schemes included in the base situation) there is a 64 second increase westbound and 43 second increase eastbound.

3.89 Again, for context, the impact of the unconsented schemes themselves is more pronounced on the network. The unconsented schemes increase journey times by 177 seconds westbound and 69 seconds eastbound.

3.90 It is considered that the impacts of the proposed development on the road network in the AM and PM scenarios is not severe, with much greater effects felt as a result of the unconsented schemes. The impacts of the development on the main scenario test are largely under 1 minute in each direction.

VISSIM Modelling Results – Alternative Sensitivity Tests (Test 2 and Test 3)

3.91 As set out earlier in this section, two additional sensitivity tests have been run with minor reductions in committed development flows to account for the impacts of home-working and hybridised working weeks.

3.92 The following results in **Figures 3.4** and **3.5** outline the impacts of the development against such scenarios.

Figure 3.4: VISSIM Summary – Alternative Sensitivity Tests (AM Peak 0745 - 0845)

Route	Direction	Description	AM Peak 07:45 to 08:45																			
			2027 Base (SENS2)				2027 Base (SENS2) + DEV				AVG DIFF.		2027 Base (SENS3)				2027 Base (SENS3) + DEV				AVG DIFF.	
			Travel Time				Travel Time				Diff.	% Diff.	Travel Time				Travel Time				Diff.	% Diff.
			Min	Avg	Max	St Dev	Min	Avg	Max	St Dev			Min	Avg	Max	St Dev	Min	Avg	Max	St Dev		
9991	WB\SB	B1051 Extended section to cover full demand - B1051 (100m east of Raven Cottage)	64	65	67	1	63	66	67	1	0	1%	65	69	87	7	66	83	219	34	14	20%
101	WB\SB	B1051 (100m east of Raven Cottage) - B1051 / Lower St	89	113	144	15	103	140	211	29	26	23%	115	180	291	52	129	215	346	49	35	20%
102	WB\SB	B1051 / Lower St - Lower Hill / Chapel Hill Rbout	24	26	29	1	26	28	32	2	2	7%	26	29	33	2	26	30	36	3	0	2%
103	WB\SB	Lower Hill / Chapel Hill Rbout - Chapel Hill / Cambridge Rd	122	132	141	5	123	132	141	5	0	0%	124	134	141	6	124	135	146	6	1	1%
104	WB\SB	Chapel Hill / Cambridge Rd - Silver St / Sanders Cl	20	20	20	0	20	20	21	0	0	0%	20	20	20	0	20	20	20	0	0	0%
	WB\SB	B1051 Extended section to cover full demand - Silver St / Sanders Cl	319	357	401		335	386	471		29	8%	350	431	573		364	482	767		51	12%
9992	NB\EB	Silver Street Extended section to cover full demand - Silver St / Sanders Cl	99	102	106	2	99	103	111	3	1	1%	99	102	112	3	100	107	174	16	5	5%
201	NB\EB	Silver St / Sanders Cl - Chapel Hill / Cambridge Rd	33	41	59	6	35	45	60	6	4	10%	31	43	60	7	38	49	95	13	7	16%
202	NB\EB	Chapel Hill / Cambridge Rd - Lower Hill / Chapel Hill Rbout	118	136	173	13	120	151	177	16	15	11%	128	158	178	14	138	167	194	17	10	6%
203	NB\EB	Lower Hill / Chapel Hill Rbout - B1051 / Lower St	44	49	58	4	42	51	57	4	2	4%	47	54	62	4	47	54	62	5	0	1%
204	NB\EB	B1051 / Lower St - B1051 (100m east of Raven Cottage)	51	52	54	1	51	53	54	1	0	1%	51	53	56	1	51	53	55	1	0	0%
	NB\EB	Silver Street Extended section to cover full demand - B1051 (100m east of Raven Cottage)	345	380	449		348	402	459		22	6%	357	409	468		374	431	580		22	5%

3.93 The development is predicted to increase journey times by 29 seconds westbound and 22 seconds eastbound when compared to the Base 2027 scenario in the AM peak hour. In comparison with the Base 2027 scenario with unconsented schemes added also, the increases are 51 seconds westbound and 22 seconds eastbound.

3.94 Again, it should be noted that the unconsented scheme impacts on the local road network are much more significant (74 seconds westbound, 29 seconds eastbound) than the proposed development.

Figure 3.5: VISSIM Summary – Alternative Sensitivity Tests (PM Peak 1700 - 1800)

Route	Direction	Description	PM Peak 17:00 to 18:00																			
			2027 Base (SENS2)				2027 Base (SENS2) + DEV				AVG DIFF.		2027 Base (SENS3)				2027 Base (SENS3) + DEV				AVG DIFF.	
			Travel Time				Travel Time				Diff.	% Diff.	Travel Time				Travel Time				Diff.	% Diff.
			Min	Avg	Max	St Dev	Min	Avg	Max	St Dev			Min	Avg	Max	St Dev	Min	Avg	Max	St Dev		
9991	WB/ SB	B1051 Extended section to cover full demand - B1051 (100m east of Raven Cottage)	61	63	65	1	62	63	65	1	0	0%	62	64	66	1	62	64	73	2	1	1%
101	WB/ SB	B1051 (100m east of Raven Cottage) - B1051 / Lower St	108	128	173	19	107	155	265	37	27	21%	129	185	270	44	177	267	375	55	83	45%
102	WB/ SB	B1051 / Lower St - Lower Hill / Chapel Hill Rboud	28	29	30	1	28	30	32	1	1	2%	29	31	33	1	28	30	33	1	0	-1%
103	WB/ SB	Lower Hill / Chapel Hill Rboud - Chapel Hill / Cambridge Rd	97	128	145	12	108	129	150	12	2	1%	118	132	147	9	113	131	146	10	-2	-1%
104	WB/ SB	Chapel Hill / Cambridge Rd - Silver St / Sanders Cl	19	20	20	0	19	20	20	0	0	0%	19	20	20	0	19	20	20	0	0	0%
	WB/ SB	B1051 Extended section to cover full demand - Silver St / Sanders Cl	314	368	433		324	397	532		29	8%	357	431	537		399	513	646		82	19%
9992	NB/ EB	Silver Street Extended section to cover full demand - Silver St / Sanders Cl	103	107	112	3	104	113	138	9	6	6%	106	117	162	12	110	133	194	22	16	14%
201	NB/ EB	Silver St / Sanders Cl - Chapel Hill / Cambridge Rd	35	42	51	4	38	46	56	5	4	10%	40	49	66	6	44	54	63	6	5	10%
202	NB/ EB	Chapel Hill / Cambridge Rd - Lower Hill / Chapel Hill Rboud	110	127	152	12	127	139	156	9	11	9%	125	143	162	10	129	149	170	13	6	4%
203	NB/ EB	Lower Hill / Chapel Hill Rboud - B1051 / Lower St	39	43	48	2	40	45	48	2	2	4%	43	47	51	2	43	47	51	2	0	1%
204	NB/ EB	B1051 / Lower St - B1051 (100m east of Raven Cottage)	51	52	55	1	51	52	54	1	0	0%	51	52	53	1	51	52	53	1	0	0%
	NB/ EB	Silver Street Extended section to cover full demand - B1051 (100m east of Raven Cottage)	338	371	418		360	394	452		23	6%	364	409	494		377	436	532		28	7%

3.95 The development is predicted to increase journey times by 29 seconds westbound and 23 seconds eastbound when compared to the Base 2027 scenario in the PM peak.

3.96 Again, it should be noted that the unconsented scheme impacts on the local road network have a more significant (63 seconds westbound, 38 seconds eastbound) than the proposed development.

3.97 Indeed, when the effects of home-working / hybridisation are taken into account, the proposed development scenario is predicted to operate at a similar journey time level to that of the 2027 Base scenario which has been consented by ECC Highways through various committed developments. That is to say, the onus of Government policy is to aim to reduce journeys being necessary, and in doing so this will offer betterments to the local road network – rather than the

“predict and provide” approach. The COVID-19 pandemic has accelerated the move to lower trip rates and fewer peak hour journeys.

- 3.98 It is considered that the proposed development flows, as evidenced above, result only in a marginal increase in journey times across the whole 1.4 kilometre-long study area of the VISSIM model, through junctions where the development has only a 1% to 2% impact and with fewer than 30 two-way peak hour movements additional to the base scenarios. Such a view of impacts is considered to be less than severe, particularly when viewing the robustness levels added to the modelling (as set out in points *a* to *f* earlier in this chapter), and the fact that committed and unconsented schemes are predicted to far outweigh any changes to journey time or network operation than the proposed development scheme.

Further Mitigation Considerations

- 3.99 The results presented within this section do not specifically include additional mitigation measures that could occur locally. The only mitigation “allowed” for is the inclusion of a new detector unit along Grove Hill to rationalise traffic flows on the approach to the Grove Hill / Lower Street junction. However, the final form of this detector unit is not yet specified, and its final specification may result in greater operational performance than modelled.
- 3.100 It is understood that ECC are considering a scheme to reduce HGV through-movements in Stansted Mountfitchet which this development and other unconsented schemes in the planning system have been requested to provide contributions to (if schemes are granted consent). It is anticipated that this will remove some conflicts between HGVs and other vehicles in physically constrained parts of the network – such as where shuttle working occurs due to parked vehicles. A contribution of £25,000 has been requested to implement such a scheme.
- 3.101 Bus stop enhancements and contributions towards bus services to Stansted Mountfitchet, Bishops Stortford and Stansted Airport (£2,671 per unit which equates to just under £350,000) have been requested by ECC and are significant improvements to the public transport network to help the transition towards more sustainable travel patterns and reduce car usage levels.

- 3.102 In addition, Travel Planning measures and the provision of additional cycle stands at key local facilities are also to be secured to further enhance non-car travel options.
- 3.103 Finally, the ability for local residents to vary their working times or travel patterns has not been considered or modelled. It is natural for people to vary their travel times in response to local traffic conditions – this is the concept of “peak spreading” whereby even moving travel departures by as little as 15 minutes can result in more consistent journey times. Whilst this is a natural situation that occurs on local road networks, and is not strictly a mitigation measure, it would have the effect of dampening the impacts of the proposed development.
- 3.104 These measures either singularly or in combination would all be expected to further reduce the impacts of the scheme or the base situations, and provide betterment to the modelling results presented herein which are considered to be robust.

4. Traffic Modelling (Standalone) – Stansted Airport

- 4.1 This section deals with comments received on the standalone traffic modelling for the Stansted Airport junctions – namely, including the traffic flows associated with the consented Stansted Airport expansion scheme and an updated sensitivity test which includes the Land at Station Road development (currently unconsented).
- 4.2 Prior to setting out the modelling changes, it is worth reiterating that the proposed traffic flows using the junctions near Stansted Airport are within the 10% (and 5% for sensitive locations) impact level and below 30 two-way traffic movements as set out in paragraphs 3.60 to 3.67.
- 4.3 The development flows are predicted to have a 1% to 2% impact on the junctions at Hall Road / Parsonage Road (mini-roundabout) and the Coopers End Roundabout. The predicted change in two-way traffic flows are 25 to 26 vehicles in the AM and PM peaks respectively (around an additional vehicle every 2 minutes on average).
- 4.4 The flows associated with the Stansted Airport expansion scheme along with other unconsented schemes using these junctions (including the application site at Station Road) are much higher than the proposed development flows from the Land South of Henham Road development. As such, much of the impact on the road network in and around Stansted Airport relates to the Stansted Airport expansion scheme itself. Should other unconsented schemes subsequently gain consent, they too would have a greater impact than the proposed development on Land South of Henham Road.
- 4.5 **Table 4.1** sets out a comparison of the peak hour traffic flows from the proposed development in relation to the Stansted Airport expansion scheme (consented) and unconsented schemes through these same junctions.

Table 4.1: Comparison of Unconsented Schemes, Stansted Airport Expansion and Proposed Development Flows (two-way vehicle flows)

Junction	Station Road Development (Unconsented)		Other Unconsented Schemes		Stansted Airport Expansion Scheme (to 38 mppa)*		Proposed Development	
	AM	PM	AM	PM	AM	PM	AM	PM
Coopers End Roundabout	31	35	100	92	202	106	25	25
Parsonage Road/Hall Road Mini-Roundabout	35	36	104	94	202	106	25	26

**- please note that the figures for Stansted Airport expansion referenced are to a 38mppa level as agreed between ACE, ECC and MAG as being a level of growth to a 2027 future year. The Airport expansion allows for additional growth above this level to 43mppa, but those consented flows are not contained within this table*

4.6 The original TA submission included traffic flows for the Stansted Airport junctions extracted from counts included in the application for the Land West of Hall Road development which were undertaken in 2018. They were agreed to be suitable for modelling purposes given they were higher than the May 2022 surveyed data (which was unaffected by roadworks / diversions in this area).

4.7 The future main scenario tests and sensitivity tests were updated on the basis of the following:

- It was agreed with ECC and the traffic consultants acting for MAG (Steer) that the Stansted Airport traffic flows associated with the consented scheme for expansion of passenger air flights should be taken into account for the Stansted Airport junctions– namely, the Coopers End roundabout and the mini-roundabout of Hall Road/Parsonage Road. The flows for the airport were provided by Steer and agreed with ECC. They were based on link flow information for the road between Coopers End roundabout and the mini-roundabout for 2017 when it was known that 27 million passengers per annum (mppa) were flying from Stansted

Airport at this time, and that 34% of traffic using the link road were travelling to/from Terminal Road N/Terminal Road S to the airport. The flows were growthed to 2027 using linear projection between 43mppa figures for 2033 and 27mppa figures for 2017. This approach was agreed with ECC and MAG. The flows were included in all future year scenario tests – see the associated table of flows in **Appendix H** for details of the airport flows added.

- Land at Station Road application traffic flows have been added to the sensitivity test – details of traffic flows for this proposed (but not permitted) scheme are shown in **Appendix H**. For clarity, the sensitivity test includes all the sites included in Table 3.1 plus the traffic from the Station Road application scheme.
- The updated flows for with and without development sensitivity tests are also included in **Appendix H**.

4.8 The assumptions used on growth factors and traffic distribution have been retained from the original TA.

4.9 It should be again noted that the traffic associated with the proposed Land South of Henham Road scheme is a small proportion of traffic utilising these two junctions, and that the committed developments applied (including Stansted Airport expansion) and potential application sites (including the Station Road scheme) are predicted to have a much greater impact upon traffic volumes at these junctions.

4.10 Indeed, the proposed development traffic (as referenced in Table 6.4 of the original TA) is predicted to have a 2% impact upon the Parsonage Road / Hall Road mini-roundabout and a 1% impact upon the Coopers End Roundabout. In both the AM and PM peak hours, the predicted proposed development traffic is below the 30 two-way movement level set out as the starting point for discussions on junction capacity analysis.

- 4.11 It is also noteworthy that the Stansted Airport expansion scheme did not assess the operation of either of these junctions despite such a significant increase in predicted flows from that scheme alone.
- 4.12 Discussions with ECC and MAG have confirmed that no specific improvement scheme has been designed for either junction but that MAG / ECC have a secured pool of funds available to implement improvements across the highway network should capacity issues be identified in the future.
- 4.13 The Arcady results of the future main scenario and sensitivity test are included in **Appendix I**.

Main Scenario

Table 4.1: Results of ARCADY model – future year main scenario

Approach	2027 Weekday am peak hour				2027 Weekday pm peak hour			
	Base Case		Development Case		Base Case		Development Case	
	<i>RFC</i>	<i>Queue (vehs)</i>	<i>RFC</i>	<i>Queue (vehs)</i>	<i>RFC</i>	<i>Queue (vehs)</i>	<i>RFC</i>	<i>Queue (vehs)</i>
Junction 1 - Arm 1	0.29	0.4	0.29	0.4	0.48	1.0	0.48	1.0
Junction 1 - Arm 2	0.96	13.1	0.99	17.3	1.01	18.0	1.02	19.6
Junction 1 - Arm 3	0.46	0.9	0.46	0.9	0.58	1.4	0.58	1.4
Junction 1 - Arm 4	0.20	0.3	0.21	0.3	0.27	0.4	0.28	0.4
Junction 2 - Arm 1	0.72	2.6	0.75	3.0	0.63	1.7	0.64	1.8
Junction 2 - Arm 2	0.47	1.0	0.48	1.0	0.35	0.6	0.35	0.6
Junction 2 - Arm 3	0.85	5.2	0.86	5.6	1.04	24.8	1.07	32.0

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.

- 4.14 **Table 4.1** shows that the Coopers End Roundabout and the Parsonage Road / Hall Road mini-roundabout are both predicted to reach theoretical capacity levels on the link arm between the two junctions. Crucially however, this is predicted to occur in the base case scenario (2027 inclusive of the Stansted Airport expansion scheme).
- 4.15 The proposed development of Land South of Henham Road has a very modest impact upon capacity and queueing at the junctions increasing queue lengths at the Coopers End Roundabout by less than 2 vehicles in the AM peak hour. Whilst queueing would be predicted to increase more markedly in the PM peak, it should be noted that the Base case scenario is already expected to have significant queueing occurring.
- 4.16 No mitigation measures have been identified by other consented or unconsented schemes at these junctions and Stansted Airport did not offer any specific improvements at these junctions as part of the expansion scheme either. The impact of an additional 25 to 26 two-way vehicles through this network is considered to be a minor impact in comparison to other schemes and therefore not severe.

Sensitivity Scenario

Table 4.2: Results of ARCADY model – future year sensitivity scenario

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	0.29	0.4	0.29	0.4	0.48	1.0	0.49	1.0
Junction 1 - Arm 2	1.12	49.2	1.15	59.0	1.08	33.1	1.10	36.9
Junction 1 - Arm 3	0.48	1.0	0.48	1.0	0.61	1.6	0.62	1.7
Junction 1 - Arm 4	0.21	0.3	0.21	0.3	0.30	0.4	0.30	0.5
Junction 2 - Arm 1	0.78	3.6	0.81	4.3	0.67	2.1	0.68	2.1
Junction 2 - Arm 2	0.58	1.5	0.59	1.6	0.40	0.7	0.40	0.7
Junction 2 - Arm 3	0.91	8.2	0.92	8.9	1.17	63.6	1.20	73.8

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.

- 4.17 The sensitivity test of the operation of this junction (i.e. the operation of the junctions using base flows along with unconsented schemes, including that of the development at Station Road) identifies that other than the link road arm between the two roundabouts which continues to be over-capacity, the wider junctions operate within capacity levels.
- 4.18 However, the link road arms of both junctions are over capacity levels and with significant queueing experienced.
- 4.19 This situation is worsened by the proposed development flows, however, these result in a small increase in queueing and reduction in capacity when compared to the impacts of other consented and unconsented schemes.
- 4.20 Again, it is worth noting that no mitigation measures have been identified by other consented or unconsented schemes at these junctions despite the base situation resulting in arms of the junctions being over capacity.

- 4.21 The conclusions of the modelling for these junctions remains the same as in the TA in that the impacts of the development traffic are minimal when considering increases in RFC and do not constitute a severe impact.
- 4.22 Whilst mitigation was not proposed given the scale of impact of the development is considered minimal, a sketch of a potential design was provided in the original TA showing how a scheme could be implemented to provide a level of resilience to the network. That scheme involved minor widening on the link road in each direction allowing for some flaring on the approach to the give-way lines. The scheme presented was on land within Stansted Airport's control and so not able to be implemented in any case by anyone other than MAG.
- 4.23 Given the proposed development at Land South of Henham Road has a limited impact upon the operation of this junction it is suggested that it should not be incumbent on the applicant to implement such a scheme. However, the scheme as drawn could be implemented by MAG should they be concerned with future baseline flow levels (including increases due to Stansted Airport's own expansion). It would be expected to increase capacity at the Coopers End Roundabout however, as presented in the original TA submission.
- 4.24 As previously mentioned, it is understood that the operation of the Coopers End roundabout and the Parsonage Road / Hall Road mini-roundabout junctions were not modelled to consider impacts of the consented schemes locally or Stansted Airport's own expansion plans.
- 4.25 The modelling in the Stansted Airport expansion TA focussed on the impacts on the strategic highway network.
- 4.26 However, a "monitor and manage" approach was agreed with ECC Highways with a substantial allocation of funds secured to allow for future improvements to the highway network when issues are identified. Potentially, this resilience scheme as presented (or a variation of it), which is within the land ownership of Stansted Airport, could be implemented through this allocated money should it be deemed necessary.

- 4.27 As with the Coopers End Roundabout, the impacts of the proposed development on the Parsonage Road / Hall Road mini-roundabout junction are below the 30 two-way vehicle figure usually identified as a starting point for analysis and the flows from the proposed development are a small proportion of the existing base situation and the consented Airport expansion vehicle flow level.
- 4.28 Notwithstanding this, a potential scheme for altering the mini-roundabout junction within the adopted highway has been presented. The proposals bring forward give-way lines at the junction, widening the entry widths at the junction to increase capacity and the enhanced give-way positions provide betterment to visibility at the give-way line. Further signage could be introduced also ahead of the junction. An amended junction design is included as **ACE Drawing 2008170-043**.
- 4.29 The potential design has been modelled in order to understand what capacity improvements would result from this. The main scenario case and sensitivity cases are presented in **Tables 4.3** and **4.4** below with full outputs included at **Appendix J**:

Main Scenario

Table 4.3: Results of ARCADY model – Main Scenario Flows comparing existing layout and amended layout (Parsonage Road / Hall Road mini-roundabout)

Approach	2027 Weekday am peak hour				2027 Weekday pm peak hour			
	Base Case (existing layout)		Development Case (new layout)		Base Case (existing layout)		Development Case (new layout)	
	RFC	Queue (vehs)	RFC	Queue (vehs)	RFC	Queue (vehs)	RFC	Queue (vehs)
Junction 1 - Arm 1	0.29	0.4	0.29	0.4	0.48	1.0	0.48	1.0
Junction 1 - Arm 2	0.96	13.1	0.99	17.4	1.01	18.0	1.02	19.7
Junction 1 - Arm 3	0.46	0.9	0.46	0.9	0.58	1.4	0.58	1.4
Junction 1 - Arm 4	0.20	0.3	0.21	0.3	0.27	0.4	0.28	0.4
Junction 2 - Arm 1	0.72	2.6	0.65	1.9	0.63	1.7	0.56	1.3
Junction 2 - Arm 2	0.47	1.0	0.53	1.2	0.35	0.6	0.40	0.7
Junction 2 - Arm 3	0.85	5.2	0.57	1.4	1.04	24.8	0.72	2.6

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.

- 4.30 The potential improvements to the mini-roundabout are predicted to have a significant beneficial effect, with junction operation dropping well below 0.85 RFC on the link road arm to the Coopers End Roundabout.
- 4.31 As has been noted before, it is not believed necessary for the development at Land South of Henham Road to implement these works, but this exercise does indicate that a simple set of changes to the mini-roundabout could have substantial effects on the capacity of the junction.
- 4.32 As also indicated above, the operation of the Coopers End Roundabout itself would not be affected by these changes, but that Stansted Airport’s own mitigation pool of funds could implement a scheme to enhance capacity at that junction should it be considered necessary by MAG or ECC.

Sensitivity Scenario

Table 4.4: Results of ARCADY model – Sensitivity Scenario Flows comparing existing layout and amended layout (Parsonage Road / Hall Road mini-roundabout)

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	0.29	0.4	0.29	0.4	0.48	1.0	0.49	1.0
Junction 1 - Arm 2	1.12	49.2	1.15	59.8	1.08	33.1	1.10	37.1
Junction 1 - Arm 3	0.48	1.0	0.48	1.0	0.61	1.6	0.62	1.7
Junction 1 - Arm 4	0.21	0.3	0.21	0.3	0.30	0.4	0.30	0.5
Junction 2 - Arm 1	0.78	3.6	0.70	2.4	0.67	2.1	0.61	1.6
Junction 2 - Arm 2	0.58	1.5	0.66	2.1	0.40	0.7	0.45	0.9
Junction 2 - Arm 3	0.91	8.2	0.61	1.7	1.17	63.6	0.81	4.1

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.

4.33 As with the main scenario test, the sensitivity test also indicates that changes to the Parsonage Road / Hall Road junction could be made to bring capacity below 0.85 RFC on all arms.

4.34 In order to further indicate the ability to deliver these works, a Road Safety Audit (Stage 1) was undertaken of the updated mini-roundabout option and a Designer’s Response provided which accepted the recommendations of the auditors. The drawing (**2008170-043**) was updated to include tracking of a bus heading south from the link road as requested by the audit team. The RSA, Designer’s Response and updated drawing are contained at **Appendix K**.

Conclusion

4.35 It is concluded that the proposed development is not expected to significantly increase vehicle flows through the Stansted Airport network, with impacts

limited to 1% to 2% on the two key junctions and absolute flows being below the 30 two-way movements considered as a starting point for capacity analysis (as referenced in paragraph 3.66 with reference to the DfT Guidance on Transport Assessment document).

- 4.36 Predicted traffic from the proposals are a small proportion of additional trips in comparison to other consented and unconsented schemes including the Stansted Airport expansion (consented) and the Station Road development (unconsented).
- 4.37 The Stansted Airport expansion application did not model the operation of the two junctions assessed in this report and they were not considered sensitive by that application. No specific mitigation works have been identified by MAG or ECC during the Stansted Airport expansion submission, nor have mitigation measures been identified by other committed developments or unconsented schemes.
- 4.38 Nevertheless, modelling has been undertaken to indicate the operation of the junctions as requested by ECC at the pre-application stage.
- 4.39 As presented within the original TA submission, a possible improvement scheme on the link road between the Coopers End Roundabout and the Parsonage Road / Hall Road mini-roundabout could be implemented by MAG. It is understood that there is a pool of funds set aside to “monitor and mitigate” the local highway network and implement improvements should issues be identified. This allows for flexibility as to when measures are provided. The scheme presented within the TA could be part of such proposals as enhanced capacity was identified within the original TA work. It is again suggested that it should not be incumbent on the applicant to implement such works.
- 4.40 A scheme to enhance the capacity of the Parsonage Road / Hall Road mini-roundabout junction has been prepared and subjected to a Stage 1 RSA. The scheme would enhance the capacity of the junction. Whilst it is not expected that the Land South of Henham Road would be required to implement such a scheme given the low volume of traffic generated by the proposals passing through this junction, a scheme here is viable if considered necessary.

4.41 It is not considered that there are any severe impacts on the road network near to Stansted Airport as a result of the proposed development.

5. Additional ECC and Parish Council Comments

- 5.1 This section considers the additional matters raised by ECC Highways and the Parish Council within their consultation responses to the application submission.

Travel Distances

- 5.2 The distances to all the various amenities have been reviewed and updated accordingly. They have been measured from the centre of the site using the two different pedestrian site access points as follows:

Table 5.1: Distances from centre of site to local amenities

Amenity	Distance from main access point on Henham Road (includes 140m from Site Access to centre of the Site)	Distance from pedestrian access point on Hall Road (includes 120m from Hall Road to centre of the site)
Elsenham C of E Primary School	340m	270m
Tesco Express	640m	570m
St Mary the Virgin Church	n/a (as would travel via Hall Road access)	600m
Elsenham Post Office	690m	620m
Elsenham Surgery	890m	820m
Elsenham Playground	870m	750m
Elsenham Memorial Hall	870m	750m
Elsenham Train Station	1,470m	1,320m
Local Bus Stop – Henham Road (Eastbound)	280m	240m
Local Bus Stop – Henham Road (Westbound)	230m	280m
Local Bus Stop – Hall Road (Northbound)	340m	170m
Local Bus Stop – Hall Road (Southbound)	310m	180m

- 5.3 The distances to the everyday amenities such as the school, local convenience store and post office are within 800m taken from the centre of the site. The local train station is within 1.4km of the site and access to the local bus services is achievable within 400m with bus stops provided on Hall Road as well as the existing stops that are to be improved on Henham Road.
- 5.4 The measurements given in **Table 5.1** above are in line with those referenced in ECC Highways’ consultation response which are reproduced in **Table 5.2** for ease.

Table 5.2: Distances measured by ECC Highways

Amenity	Distance (m)
Elsenhams C of E Primary School	320
Tesco Express	628
St Mary the Virgin Church	689
Elsenhams Post Office	662
Elsenhams Surgery	842
Elsenhams Memorial Hall	798
Train Station	1,366

- 5.5 As set out in the original TA, recommendations set out in Manual for Streets on walking distances suggest up to 800m distances for walkable neighbourhoods to most facilities although these are not to be taken as upper limits at which people will no longer walk. Further details contained in LTN 1/20 and CIHT ‘Providing for Journeys on Foot’ state that walking offers the greatest potential to replace short car trips, particularly those under 2km and that 2km is the preferred maximum distance for some travel patterns – principally commuting.

- 5.6 The conclusion arrived at in the TA that the site is in a sustainable location is still considered to be relevant for the updated distances. This is on the basis that everyday local facilities (primary school, local convenience store and post office) and local bus services are available within a short walking distance (within 400m). The local train station is well within the 2km suggested walking distance which offers the greatest potential to replace car trips.
- 5.7 Enhancements to the cycling facilities at the local shopping area (Tesco Express) and the railway station are to be secured by ECC.

Travel Plan

- 5.8 Requirements for Travel Plans at planning application stage are standard practice up and down the country on the basis that they offer benefits in reducing the use of the car by encouraging people to travel by sustainable modes.
- 5.9 The ECC requirements relate to a need to provide Travel Plan submissions for schemes of 80 residential units or more. In conjunction with the submission of a Travel Plan, there are a number of enhancements to the local highway network and in particular bus facilities that would improve the conditions to travel by bus for residents of the proposed development and other existing local residents alike.
- 5.10 Bus contributions are being sought by ECC Highways at approximately £350,000 in total to secure improved bus services locally to a number of key destinations including Stansted Mountfitchet, Bishops Stortford and Stansted Airport.
- 5.11 Such bus enhancements from the outset would offer greater opportunity for residents to travel by non-car modes to local settlements.
- 5.12 This bus contribution is to be pooled with contributions from other local developments also to ensure that the services provided are as comprehensive as possible. The contribution is to be paid to ECC Highways for their Passenger Transport unit to implement the most appropriate service provision as possible taking into account wider travel planning needs locally.

- 5.13 The Travel Plan produced is expected to include Residential Travel Information Packs that include a period of free travel on the bus network to help to establish it both locally as a service as well as setting out from the outset that bus travel offers a viable travel alternative to the private car.
- 5.14 It is noted that the Travel Plan is an expected condition of any planning approval to be granted for the site, allowing ECC to confirm that suitable measures have been secured to reduce the reliance on private vehicles.
- 5.15 Additional aspects such as liftshare schemes that are linked to key employment locations such as Stansted Airport are to be committed to and are specified within the suggested planning condition from ECC Highways.
- 5.16 Likewise, the provision of a car club and membership for it, and monitoring fees are set out to secure the Travel Plan.
- 5.17 In conjunction with the Travel Plan, a series of off-site improvements are intended to be made to the walking, cycling and bus facilities locally – these are set out as follows.

Off-Site Works

- 5.18 The following works are proposed to the public highway inclusive of non-car improvements:
- The pedestrian access from the site onto Hall Road has been widened to accommodate cyclists;
 - A bus shelter has been included on the eastern side of Hall Road – the shelter uses land within the frontage of the site and the adopted highway;
 - A bus stop in the form of a flag and pole has been included on the western side of Hall Road;

- A new bus shelter on the southern side of Henham Road has been included further east from its existing location (which is not defined on the ground) using land within the frontage of the site;
- A new flag and pole on the northern side of Henham Road adjacent to the existing lamp column which is defined as the current bus stop;
- The existing layout of Hall Road/Henham Road is to be retained and the traffic island extended further north. The extension of the island improves pedestrian crossing facilities by providing a minimum width of 2m between the existing sign post and edge of kerb, along with installation of dropped kerbs and tactile paving either side of Hall Road to aid crossing by vulnerable users;
- Inclusion of additional cycle parking facilities along the Tesco Express frontage and on land near to Elsenham railway station. Whilst no drawing has been produced for these locations, a review has been undertaken of the local highway boundary details and confirmed that sufficient land is available within the public highway to introduce additional parking as requested by ECC. This aspect is to be conditioned.

5.19 The off-site designs have also been updated to take account of the comments received by ECC along with the following additional aspects:

- A Stage 1 Road Safety Audit of the site access including the PROW access, crossings (drop kerb crossings on Hall Road and Henham Road), new arrangements at Henham Road/Hall Road and new bus stops;
- Visibility splays for the proposed crossing of Hall Road from the PROW;
- Details of how the PROW is being accommodated within the proposed access arrangements;
- Increasing the size of the Henham Road/Hall Road island as recommended by ECC rather than reconfiguring the layout of the junction;

- Additional bus stop positions on Hall Road;
 - Further details of the proposed mitigation on the access into the airport
- 5.20 The off-site works designs have been updated to take account of the comments received and following further discussion with ECC.
- 5.21 The designs are shown in **ACE Drawings 2008170-032B, 2008170-034 and 2008170-035.**
- 5.22 Road Safety Audits (RSAs) were undertaken for the off-site works and the main site access audit was revisited to check the design included in the original TA. A Designer's Response was undertaken for each RSA where the recommendations were accepted. The RSAs and associated Designer's Responses are included in **Appendix L.**
- 5.23 No significant issues were raised by the RSAs and all matters have been closed out with the Audit Team as being acceptable.
- 5.24 ECC Highways' consultation response set out a variety of highway improvements required by the scheme or additional aspects to be confirmed. All have been investigated and accepted except item 1e where it is understood the reference to a zebra crossing was included in error.
- 5.25 Further confirmation of the items are set out in the draft unilateral undertaking/draft s106 Agreement.

6. Conclusions

- 6.1 This TAR sets out an updated position in relation to the application for the redevelopment of Land South of Henham Road, Elsenham to provide 130 residential units under application reference S62A/22/0007.
- 6.2 Comments have been received following the original submission from statutory consultees along with the Planning Inspectorate. This TA has set out the responses to those comments.
- 6.3 Due to roadworks locally to Stansted Mountfitchet in May 2022, additional traffic surveys were undertaken in September 2022 to reflect a revised baseline scenario without the effects of the roadworks being felt.
- 6.4 The revised baseline VISSIM model has been submitted to ECC Highways' term-consultants, Jacobs, who have confirmed that the base model is suitably validated for use.
- 6.5 Proposed future year models have been produced utilising the same assumptions as the original TA work. The VISSIM model results indicate that increases in journey times through the network are generally under 30 seconds across a 1.4km network. Impacts felt with other unconsented schemes are disproportionately as a result of unconsented schemes rather than the proposed development scheme.
- 6.6 Significant levels of robustness have been built in to the VISSIM model as set out within the report including the static network, crossover of development and network peaks and how parking areas have been modelled in the coding.
- 6.7 An alternative set of VISSIM tests have been presented making an allowance for reduced trip generation as a result of home-working and hybridisation working practices not allowed for within the consented trip rates. This is supported by evidence on home-working levels in the 2021 Census data. A small change in working practices from the current consented traffic flows would cover the proposed development traffic level.

- 6.8 The proposed development traffic level is below 30 two-way movements through the local Stansted Mountfitchet road network and around a 1% to 2% impact compared to base flows. In traffic modelling terms, such a level of impact and absolute traffic volume would not normally trigger thresholds for further assessment. The results also indicate that the proposed scheme would have a smaller level of impact than other unconsented schemes locally.
- 6.9 Network operation as presented is considered worst-case with additional aspects that would be expected to further enhance network performance such as travel planning measures, public transport investment and potential schemes to prevent HGV movements through part of the network. The modelling is highly robust given the static nature of the network preventing dynamic route choice options to be modelled, traffic assignment routing traffic throughout the full road network, the effects of on-street parking limiting available road space in the modelling approach more so than occurs in reality and unconsented schemes having no guarantee of being permitted. It is therefore expected that that modelled network would operate significantly better than presented.
- 6.10 Analysis has been undertaken on the junctions near to Stansted Airport. Again, impacts at these junctions are below the 30 two-way movement threshold and are around 1% to 2% impact compared to base flows. Junction operation is more significantly impacted by the Stansted Airport expansion and other unconsented schemes. The proposed development flows are a very small proportion of flow at these locations.
- 6.11 A scheme presented in the original TA submission showed how minor modifications within the Stansted Airport network on the approach to the Coopers End Roundabout could enhance the operation of the junction. This junction was not assessed as part of the Stansted Airport expansion application, but it is understood that a significant contribution has been secured to allow for monitoring and mitigating changes to traffic on the local highway network. The scheme present in the original TA identified a potential scheme that could be implemented in due course, but that the proposed development is not of a scale of impact to warrant the implementation of this capacity enhancement.

- 6.12 A further scheme has been identified at the Parsonage Road / Hall Road mini-roundabout junction that could be implemented within highway land that would increase capacity at this junction. Again, the proposed development is not of a scale to warrant the implementation of this capacity enhancement, but the scheme has been presented to indicate that improvements can be made to this junction to significantly improve junction performance.
- 6.13 A review has been undertaken of walking distances from the site to key facilities following comments received from ECC. These changes do not materially change the conclusions to the original TA submission.
- 6.14 A series of off-site highway improvements have been identified including a pedestrian crossing (uncontrolled) on Hall Road, enhancements to the splitter island at the junction of Henham Road / Hall Road to improve pedestrian connectivity and new bus stop locations and shelters. In addition, a commitment to increasing cycle parking at the Tesco Express and Elsenham railway station is to be made, with additional parking achievable within highway land.
- 6.15 A contribution of some £350,000 is to be made to enhanced bus services to provide improved routes to Bishops Stortford, Stansted Mountfitchet and Stansted Airport. This contribution will provide a new service either singularly or in conjunction with other contributions from local schemes.
- 6.16 It is concluded that the proposed development would not result in a severe residual cumulative impact on the road network or result in impacts considered to be unacceptable on highway safety.