SW Transport Planning Ltd

TECHNICAL NOTE

Proposed Residential Development
by Countryside Partnerships PLC
Land South of Henham Road, Elsenham

Section 62a Planning Application Ref: S62A/22/0007

Response to Applicants Transport Addendum Report

Elsenham Parish Council

March 2023

1 INTRODUCTION

1.1 This technical note has been prepared in response to the Transport Addendum Report (TAR) prepared by Ardent Consulting Engineers dated February 2023 and the associated traffic Modelling Impact Assessment Report (MIAR), prepared by Modelling Group, dated 21 February 2023, appended to the TAR.

1.2 The documents contain new traffic survey data and outputs from a revised Vissim model, with a range of new test scenarios and sensitivity tests. The TAR also responds to questions raised by PINS is response to queries from Essex Highways, MAG Airports and Elsenham Parish Council.

2 REVISED VISSIM MODELLING AND TRAFFIC IMPACT ASSESSMENT

Vissim Modelling - Robustness

2.1 A new Vissim model has been built using new baseline traffic survey information collected in September 2022. Paragraphs 3.8 to 3.41 discuss six criteria (below) from which it is claimed that the modelling presents an unusually high level of robustness:

a) Peak hour trip generation and network peak hours are assumed to coincide;
b) Static routing is assumed, i.e. no reassignment to other routes within the model;
c) All traffic entering model at Grove Hill is assumed to exit at Silver St (and vice versa);
d) Stansted Mountfitchet is not treated as a destination;
e) No wide-area re-routing of traffic has been assumed; and
f) On-street parking in Stansted Mountfitchet is assumed to be fully utilised.

2.2 Regarding point (a), the traffic surveys indicate that the AM network peak occurs between 07:45 and 08:45; whereas the TRICS trip generation rates are based on the period 08:00 to 09:00. The TAR argues that this slight mismatching of time periods represents a worst-case scenario. However, paragraph 3.13 notes that correcting this would reduce the amount of development generated traffic using the network in the AM peak period by only 3 vehicle movements per hour. Such a small difference would have no discernible impact on the modelling results so provides no additional robustness in practice. In the PM peak, the development and network peaks coincide so no adjustment would apply.

2.3 With regard to point (b), the Vissim model covers only a small part of the overall road network and therefore the numbers of entry and exit points are limited, meaning that the model cannot divert traffic to other routes when congestion occurs. The extents of the model would need to be expanded to cover a much wider area in order to predict possible dynamic reassignment to other routes. This is a limitation of the modelling process used. It is however consistent with the approach used by other developers who have similarly constructed their own, separate, Vissim models; for example the 'Land East of Station Road Elsenham' site (Ref S62A/2022/0012), the 'Land East of Elsenham - Isabel Drive' site (Ref UTT/19/2470) and the 'Land East of Elsenham' site (Ref UTT/17/3573). In all cases the extents of the respective Vissim models are the same.

2.4 Without wide-area modelling there is no way of assessing what extent of reassignment might occur or the effects this would have for the operation of the network in Stansted Mountfitchet. The implication from the TAR is that reassignment to other routes might improve conditions in Stansted Mountfitchet, however this unproven. It has to be assumed that such reassignment would only occur if conditions in the town were heavily congested. Any reassignment would not remove traffic already held up, but would reroute additional traffic to other unsuitable rural routes.

2.5 Item (c) deals with a similar point, noting that all traffic entering the model at Grove Hill is assumed to travel through to Silver Street (and vice versa), although some might enter or exit via other roads including Church Road, Lower Street or Cambridge Road. Again there is no way of quantifying this using this or any of the other Vissim models produced by other developers. Nor is it likely to materially alter the results as it has no bearing on the total amount of traffic using the modelled network.

2.6 Item (d) notes that Stansted Mountfitchet is not treated as a 'destination' for site generated traffic; i.e. all site generated traffic is assumed to pass through. Any traffic moving solely between the site and Stansted Mountfitchet would have to use the critical Grove Hill section of network (in both directions) so the impacts here would not be affected by any adjustment to account for Stansted Mountfitchet as a destination.

2.7 Item (e) discusses the inability of the Vissim model to account for wide area rerouting of traffic. This raises the same issues as items (b) and (c) discussed above. However, as already noted, this is consistent with other developers models and any reassignment would only occur if traffic conditions in Stansted Mountfitchet had already reached unacceptable levels.

2.8 Finally, item (f) notes that the traffic surveys show varying levels of on-street parking in Lower Street and Chapel Hill which may affect the way through traffic moves through the network. It is inevitable that parking levels will fluctuate day to day and hour by hour, however, it cannot be assumed that traffic will not be impeded by parked cars. The locations of cars within the parking sections may vary but the restrictions to the flow of traffic caused by parked cars remain a constant feature. It is therefore necessary for the model to reflect this.

2.9 Based on the above, there is no evidence to suggest that the modelling is abnormally or excessively robust.

Vissim Modelling – Test Scenarios and Sensitivity Tests

2.10 The new Vissim model has been used to test a range of future scenarios with and without the proposed development, including a number of new sensitivity tests. In total there are 8 test scenarios reported, as follows:

1) **2027 Base**: including consented developments;
2) **2027 Base+Development**: as above plus the proposed 130 dwellings;
3) **2027 Base Sensitivity Model**: as (1) but including unconsented developments;
4) **2027 Base Sensitivity Model+Development**: as above plus the proposed 130 dwellings;
5) **2027 Base (SENS2)**: as (1) but with trip rates reduced by 15%;
6) **2027 Base (SENS2)+Development**: as above plus the proposed 130 dwellings;
7) **2027 Base (SENS3)**: as (3) but with trip rates reduced by 15%; and
8) **2027 Base (SENS3)+Development**: as above plus the proposed 130 dwellings

2.11 A change from the original modelling is that all of the above scenarios now include the proposed Grove Hill traffic signals mitigation scheme; specifically, the addition of a second queue detector on Grove Hill. This is confirmed in paragraph 2.3.1 of the Modelling Impact Assessment Report in Appendix D of the TAR. In the original modelling this was treated as a mitigation option, but is now assumed to be part of the 2027 baseline as its delivery has been secured through planning permissions on other sites. This of course means that no further alterations or improvements are possible at Grove Hill.

2.12 Paragraph 3.43 of the TAR argues that the Sensitivity Model, including proposed but not yet permitted development, is an extremely robust case. We disagree; the inclusion of these sites is necessary to understand the cumulative traffic impacts within Stansted Mountfitchet. Paragraph 3.45 claims additional robustness based on overlapping peak periods and the lack of dynamic route assignment in the model; the same factors discussed above (paragraphs 2.1 to 2.8) for which there is no evidence of any material impact on the modelling outputs.

2.13 With regard to the new sensitivity tests (SENS1 and SENS2), the TAR argues that the TRICS trip generation rates should be reduced by 15% to account for changes in travel behaviour in the years both before and after the Covid-19 pandemic.

2.14 Reference is made to the TRICS "Guidance Note on Changes in Travel Behaviour" (August 2019) which notes that the number of 'journeys per worker per week' has decreased by 20% in the period between 1988 and 2014, but also notes that during this period the number of people in work and the average distance travelled has significantly increased. However, none of this has any bearing on the trip rates used in the modelling analysis as all of the TRICS surveys used in this case post-date 2014. Reference to TA Appendix E confirms that only surveys from 2014 to 2020 were used to derive the development trip rates.

2.15 The TRICS note also refers to a 12% reduction in weekday AM peak hour trip generation for private housing in the period from 1989 to 2018. The document shows this has been a linear decline over the 30 year period; i.e. approximately 0.4% per year. Reference to Appendix E of the original TA shows that 5 out of the 22 surveys used to calculate the development trip rates pre-date 2018 and were carried out between 2014 and 2018. During this period the reduction in trip rates identified in the TRICS guidance note will have amounted to approximately 2%. However, as this only applies to 5 out of the 22 surveys, it would have no material impact on the trip rates used. The date range used in the TRICS analysis was chosen by the applicant and could have been adjusted to exclude pre-2018 data if it was felt this was an important consideration.

2.16 Paragraphs 3.57 and 3.58 of the TAR refer to Census 2021 journey to work data to highlight changes in travel behaviour compared with the 2011 Census. However, it is necessary to consider the timeline of the Covid-19 lockdown measures to understand how these have influenced the 2021 Census results.

2.17 The 2021 Census took place on 21 March 2021 and captured travel behaviours on that date. This was during the third national lockdown when severe travel restrictions were in force. The only restrictions that had been lifted by that date were the reopening of primary and secondary schools and permission for recreation in public outdoor spaces for up to two people (these changes were applicable from 8th March). All other lockdown restrictions remained in force including the "Stay at Home" order. Therefore, on the date of the 2021 Census, only essential workers were allowed to travel to work. All other work venues, all non-essential shops and all hospitality and leisure premises were closed. Accordingly, comparisons between 2011 and 2021 Census journey to work statistics are meaningless and cannot be relied upon for understanding post-pandemic travel patterns.

2.18 The long-term effects of Covid-19 on travel patterns cannot be reliably estimated at present. Some permanent changes to working arrangements may result, but there is also evidence of reduced public transport usage, possibly related to the high cost of travel season tickets relative to car travel, particularly for commuters making fewer journeys.

2.19 It must also be remembered that the option of working from home only applies to a limited proportion of the workforce, with many industries and work sectors unable to take up this option. Therefore, the extent to which home working will affect overall journey to work patterns over the long-term cannot be quantified at present.

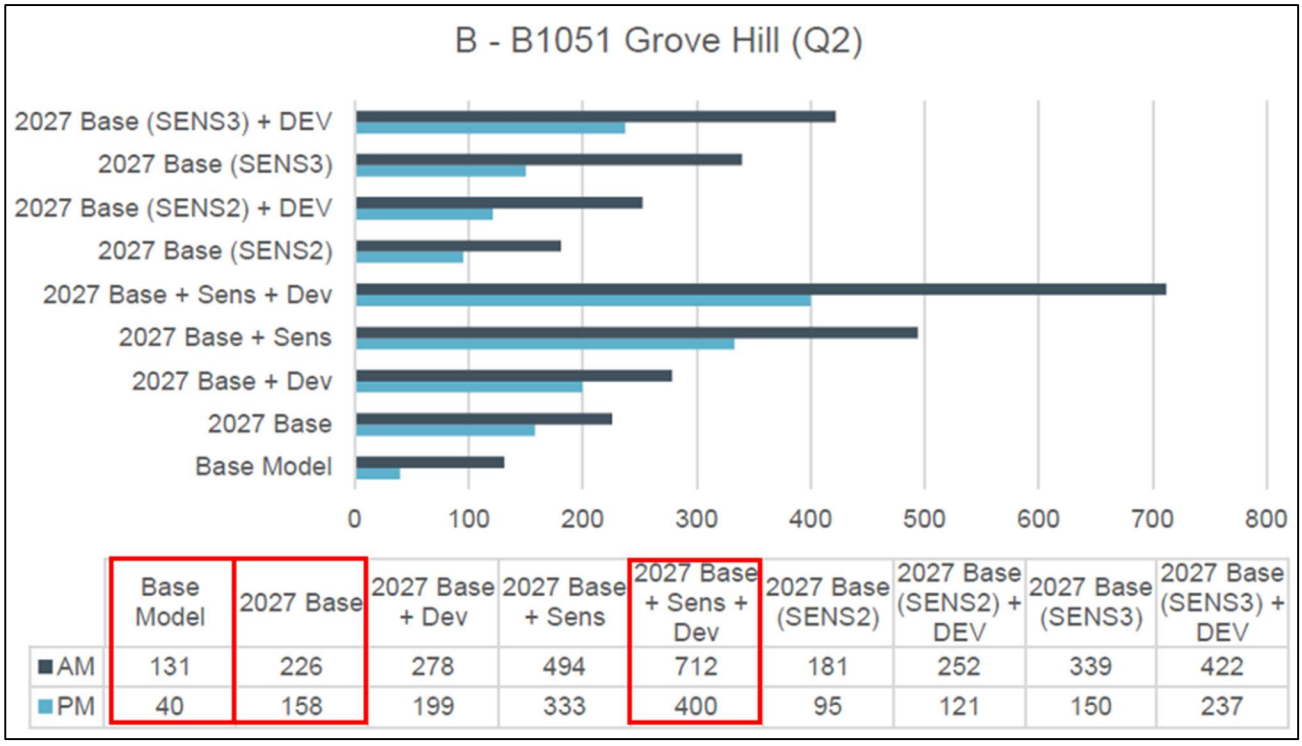
2.20 In view of the above, the proposed 15% trip rate reduction cannot be justified and no weight should be given to the SENS2 and SENS3 modelling scenarios.

Vissim Modelling – Results and Traffic Impact Assessment

2.21 The results from the new Vissim model show a major improvement in performance, with much reduced queues, delays and journey times, relative to the original model (and as reported in our previous Transport Objections September 2022). This seems counterintuitive given that higher levels of future development have now been included. The change can be partially explained by the new traffic surveys, without roadworks effects, but the level of change is substantial and suggests that some other adjustment/optimisation of the model might have been undertaken. Notwithstanding this, the results continue to demonstrate that the cumulative impacts of development are severe.

2.22 With regard to traffic queues, Figures 3.3 and 3.4 of the Modelling Impact Assessment Report (MIAR) in Appendix D of the TAR present queue comparison data for the Grove Hill and Silver Street junctions. These are reproduced below in Figures 1 and 2.

Figure 1 – Queue Comparison Data for Grove Hill (Source Fig 3.3 MIAR)



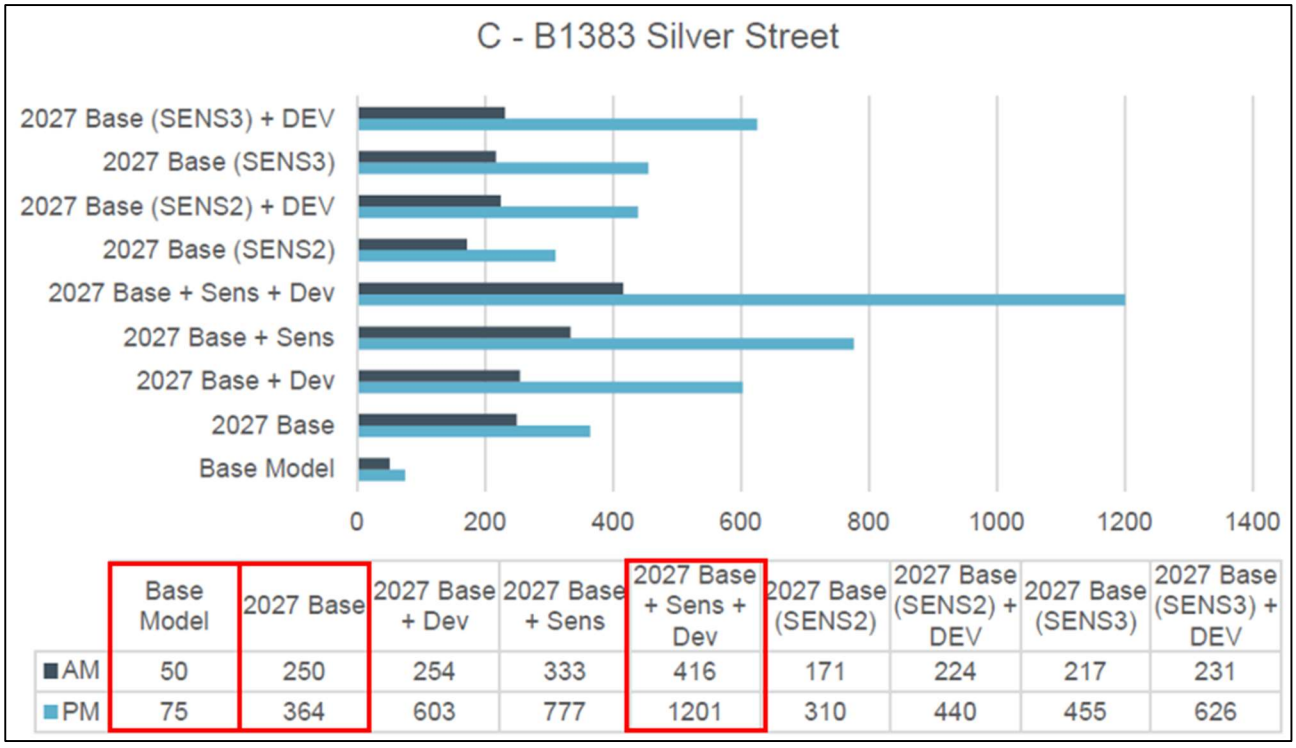
	Base Model	2027 Base	2027 Base + Dev	2027 Base + Sens	2027 Base + Sens + Dev	2027 Base (SENS2)	2027 Base (SENS2) + DEV	2027 Base (SENS3)	2027 Base (SENS3) + DEV
AM	131	226	278	494	712	181	252	339	422
PM	40	158	199	333	400	95	121	150	237

2.23 This shows that AM peak hour queuing is predicted to increase from 131m the current baseline scenario (2022) to 226m in 2027 including committed development; with a further increase to 712m with the proposed development plus other planned (but not yet consented) development. This is a five-fold increase relative to current conditions. The equivalent position in the PM peak is a predicted ten-fold increase in queue length. The comparison between the "2027 Base+Sens" and "2027 Base+Sens+Dev" tests also confirms that the development in isolation from the committed and unconsented development results in very substantial impacts.

2.24 This demonstrates the very significant net and cumulative impacts of future development at a location which already experiences unacceptable traffic congestion and where no further mitigation is possible.

2.25 Queue comparison data for the Silver Street / Chapel Hill junction is shown in Figure 2 (next page).

Figure 2 – Queue Comparison Data for Silver Street (Source Fig 3.4 MIAR)



	Base Model	2027 Base	2027 Base + Dev	2027 Base + Sens	2027 Base + Sens + Dev	2027 Base (SENS2)	2027 Base (SENS2) + DEV	2027 Base (SENS3)	2027 Base (SENS3) + DEV
AM	50	250	254	333	416	171	224	217	231
PM	75	364	603	777	1201	310	440	455	626

2.26 This shows the AM peak hour, the queue on the B1383 Silver Street (the northbound approach waiting to turn right into Chapel Hill) increasing from 50m in the current baseline scenario (2022) to 250m in 2027 including committed development; with a further increase to 416m with the proposed development plus other planned (but not yet consented) development. This represents an eight-fold increase relative to current conditions.

2.27 In the PM peak, the forecast queue increases from a current value of 75m to 1,201m in 2027 with committed and proposed development, a sixteen-fold increase which extends the current queue by more than 1.1 kilometre. Again, the comparison between the "2027 Base+Sens" and "2027 Base+Sens+Dev" tests shows a significant impact in isolation from the committed and unconsented development sites. As with the AM peak, the PM peak results confirm that the net and cumulative impacts of development are severe.

2.28 The original modelling report contained queue comparison data for Lower Street, but no such equivalent information has been provided in the latest report, therefore it is not possible to determine the future impacts of traffic at this location.

2.29 In addition to the queue data above, Tables 3.3 and 3.4 of the new modelling report provide an overview of network-wide impacts for the various test scenarios. These are reproduced in Tables 1 and 2 below.

Table 1 – Network Performance Statistics AM Peak (Source MIAR Table 3.3)

	AM Peak								
Network Performance Data	**Base Model**	**2027 Base**	**2027 Base + Dev**	**2027 Base + Sens**	**2027 Base + Sens + Dev**	**2027 Base (SENS2)**	**2027 Base (SENS2) + DEV**	**2027 Base (SENS3)**	**2027 Base (SENS3) + DEV**
Number of vehicles in the network at end of simulation	89	200	195	252	310	169	183	192	212
Number of vehicles that have left the network at end of simulation	2521	2716	2752	2817	2789	2715	2731	2751	2761
Total travel time (h) of vehicles in network	320187	618834	659114	800961	918154	582641	619929	650116	701468
Average speed (mph)	12.11	14.21	13.59	11.60	10.20	14.96	14.32	13.81	13.02
Total delay time (h) of Vehicles in network	85446	214752	248490	379482	496373	179681	211544	238015	284713
Average Delay per vehicle (secs)	32.74	73.68	84.31	123.64	160.15	62.29	72.58	80.85	95.75
Latent Demand (Vehicles) - not able to enter network due to congestion	0	2	0	1	1	0	0	0	0
Percentage delay per trip	**26.69%**	**34.70%**	**37.70%**	**47.38%**	**54.06%**	**30.84%**	**34.12%**	**36.61%**	**40.59%**

2.30 In the AM peak, the average delay per vehicle increases from approx. 33 seconds in the 2022 base case to 160 seconds in 2027 with committed and proposed developments (a five-fold increase relative to the base case). The percentage delay per trip (i.e. the proportion of time that drivers experience delay) is shown to double from 27% in 2022 to 54% in 2027 with the proposed development plus other committed and planned development.

Table 2 – Network Performance Statistics PM Peak (Source MIAR Table 3.4)

	PM Peak								
Network Performance Data	**Base Model**	**2027 Base**	**2027 Base + Dev**	**2027 Base + Sens**	**2027 Base + Sens + Dev**	**2027 Base (SENS2)**	**2027 Base (SENS2) + DEV**	**2027 Base (SENS3)**	**2027 Base (SENS3) + DEV**
Number of vehicles in the network at end of simulation	78	170	190	229	266	156	166	168	194
Number of vehicles that have left the network at end of simulation	2568	2907	2914	2938	2928	2801	2819	2864	2867
Total travel time (h) of vehicles in network	299484	673991	731650	816010	893674	618596	655877	688994	749359
Average speed (mph)	13.18	15.16	14.20	12.95	11.91	15.90	15.28	14.80	13.82
Total delay time (h) of Vehicles in network	78437	236043	288410	367552	442096	193328	224127	252277	307249
Average Delay per vehicle (secs)	29.64	76.72	92.91	116.06	138.41	65.38	75.08	83.19	100.36
Latent Demand (Vehicles) - not able to enter network due to congestion	0	0	0	0	0	0	0	0	0
Percentage delay per trip	**26.19%**	**35.02%**	**39.42%**	**45.04%**	**49.47%**	**31.25%**	**34.17%**	**36.62%**	**41.00%**

2.31 A similar pattern emerges for the PM peak with the average delay per vehicle increasing from approx. 30 seconds to 138 seconds (a 4.6 fold increase) and the percentage delay per trip almost doubling from 26% to 49%.

2.32 The network performance statistics confirm the same pattern as the queue comparison results, with traffic conditions shown to worsen very substantially in the period to 2027 and that the cumulative impacts of development are severe, bringing the proposed development into conflict with NPPF paragraph 111.

2.33 Paragraph 3.100 of the TAR refers to a planned feasibility study by Essex Highways to investigate options for better enforcement of the current weight limit on Grove Hill. This relates to the current 7.5T weight limit for eastbound traffic (westbound traffic is not restricted). The limit has a number of exemptions including vehicles involved in agriculture, emergency services, building/demolition works, road maintenance, sewerage or utilities works. These permissible exemptions make enforcement problematic.

2.34 Grove Hill forms part of the B1051 route between Stansted Mountfitchet and Elsenham and in practice there are no other suitable HGV routes available. The aim of the feasibility study is to establish whether better signing or other measures might assist better appreciation of the weight limit and the need for compliance with it, by vehicles outside the exempted categories.

2.35 An outright ban of heavy vehicles would not be practical due to the need to maintain access along the B1051 corridor. The road also forms part of the bus route between the two settlements.

2.36 Pending the completion of the feasibility study there is no certainty that any significant improvements are possible or that they would materially affect the modelling results. Accordingly, no weight can be given to this point.

3 TRANSPORT SUSTAINABILITY

3.1 Section 5 of the TAR claims to respond to additional queries raised by ECC and Elsenham Parish Council. Apart from presenting corrected walking distances to local facilities in Elsenham, none of the Parish Council's other concerns have been addressed.

3.2 No response has been provided to the point that Elsenham offers only a limited range of local facilities and services meaning that future residents would be reliant on surrounding higher order settlements, for which sustainable travel options are limited, to meet the majority of their daily needs. As set out in our previous objections, Census 2011 data confirms that residents of Elsenham are heavily reliant on car journeys and public transport usage is low.

3.3 With regard to the Framework Travel Plan, the TAR repeats the main points in the Plan but no new information has been provided. Accordingly, our concerns that the FTP will not materially reduce reliance on car journeys remain unanswered.

4 CONCLUSIONS

Cumulative Traffic Impacts

4.1 The revised Vissim modelling presents a new set of traffic forecasts for Stansted Mountfitchet but continues to show that the cumulative impacts arising from the proposed development alongside other committed and proposed housing are very significant notwithstanding proposals, by other developers, to provide extra queue detection equipment for the Grove Hill traffic signals. The impacts demonstrated by the modelling combined with the fact that no further mitigation is possible, means that residual cumulative impacts will be severe, contrary to the NPPF.

Transport Sustainability

4.2 Nothing in the new information submitted by the applicant alters the fact that opportunities for sustainable travel are limited and residents of Elsenham are heavily reliant on private car journeys to surrounding higher order settlements to meet their daily needs.

4.3 No new information has been provided to counter our view that the proposed Framework Travel Plan will not materially alter the travel patterns to and from the development or reduce its heavy reliance on private car journeys.