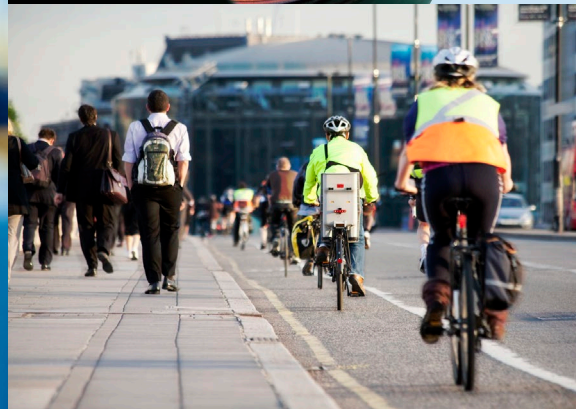
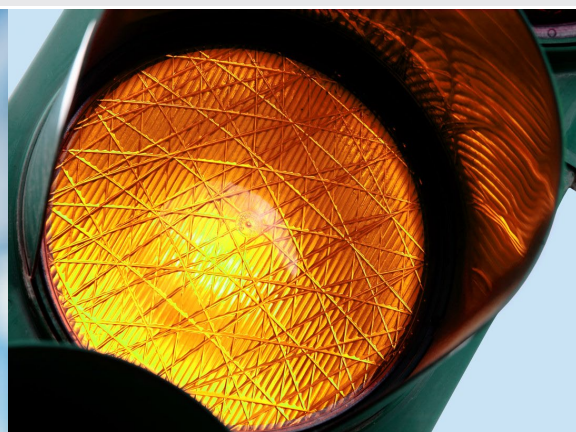


Uttlesford Transport Study

784-B029347

NEWPORT AND THAXTED MODEL OUTPUTS



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1.0 BACKGROUND

1.1 OVERVIEW

1.1.1 This technical note details how the Uttlesford Local Plan site allocations will impact on the performance of the highway network in Newport and Thaxted. It focuses on the future operation of junctions in close proximity to the sites and their ability to accommodate an increase in demand.

1.1.2 The location of the villages is illustrated in **Figure 1-1**.

1.2 DEVELOPMENT SITES MODELLED & PROPOSALS IN THE LOCAL PLAN

1.2.1 The sites and quantum of housing that were assessed within the villages are listed in **Table 1-1**.

Table 1-1: Location of Local Plan Growth in Newport and Thaxted

Location	Site address	Dwellings	Total
Newport	Land north of Wicken Road, Newport	165	400
	Land at Pond Cross Farm, Frambury Lane, Newport	335	
Thaxted	Land at Barnards Fields, Thaxted (2ha)	56	451
	Land at Barnards Fields, Thaxted (10ha)	273	
	Land east of Wedow Road, off Elers Way, Thaxted	70	
	Land to the east of Guelph's Lane Thaxted	52	

1.2.2 Following the conclusion of the assessment, Uttlesford District Council reconsidered the location and quantum of development to come forward within the villages.

1.2.3 Specifically, a revised figure of 489 homes in Thaxted was subsequently included in the Regulation 18 Local Plan the provided (on Land to the north-east of Barnards Field, and Land to the north of Holst Lane), with a further 412 dwellings in Newport (north of Wicken Road and south of Wicken Road).

1.2.4 These represent small increases on the figures modelled, although more broadly, the quantum of housing included within the Local Plan is less than that assessed across the district as a whole.

1.3 SCENARIOS & FOCUS OF ASSESSMENT

1.3.1 The assessment of the impacts of the Local Plan allocation sites was undertaken using Junctions 9, a software package that enables the assessment of priority junctions. A comparison was made in terms of how the junctions performed in:

- The 'Base Year' (2021), to effectively reflect current conditions.
- The 'Reference Case' (2040), to capture junction performance within the context of committed planning and transport schemes being delivered across the authority.
- The 'Local Plan Growth Scenario' (2040) to identify the additional impacts that are generated as a consequence of the proposed Local Plan site allocations.

- 1.3.2 In each instance junction performance was considered in both AM and PM peak periods.
- 1.3.3 The junctions selected for assessment were based upon their proximity to the site allocations.
- 1.3.4 The performance of the junctions is reported in terms of two metrics:
- Delay in seconds
 - Ratio of Flow to Capacity (RFC) – This reflects the ratio of traffic demand through a junction in relation to its design capacity:
 - A junction with an RFC of ‘1.00’ is effectively operating at capacity.
 - Junctions with an RFC greater than ‘1.00’ are operating over capacity.
 - Best practice recommends that an RFC of less than 0.85 is preferable, as anything between 0.85 and 1.00 indicates that the junction is approaching its design capacity and is therefore more likely to be subject to queuing and delays.
- 1.3.5 The assessment utilised outputs from the Uttlesford Strategic Model and the approach adopted was due to the absence of a more detailed VISUM models covering the more rural parts of the district.
- 1.3.6 The overarching modelling methodology underpinning the assessment is detailed in a separate technical note. However, it is worth noting here that the modelling adopted an ‘all or nothing’ approach to the assignment of traffic. This means that flows reported are likely to be greater than those experienced in reality when route choice plays an important role.
- 1.3.7 In addition, the assessment didn’t reflect potential changes in demand as a result of changes in travel choice. With good bus and rail services in close proximity to the sites, reasonable levels of future public transport use are not unrealistic and would further reduce traffic on the network.

1.4 FURTHER READING

- 1.4.1 This technical note focuses on the performance of the network in Newport and Thaxted. It should be read in conjunction with more detailed analysis of the impacts of Local Plan allocations in the following technical notes:
- TN110 | Uttlesford Transport Study Baseline Report
 - TN401 | Strategic Impacts Technical Note
 - TN402 | Saffron Walden Model Outputs Technical Note.
 - TN403 | Great Dunmow Model Outputs Technical Note.
 - TN404 | Takeley Model Outputs Technical Note.
 - TN405 | Stansted Mountfitchet Model Outputs Technical Note.
 - TN407 | A120 Corridor Model Outputs Technical Note.

1.5 MORE INFORMATION

- 1.5.1 For more information on the content of this technical note please contact:

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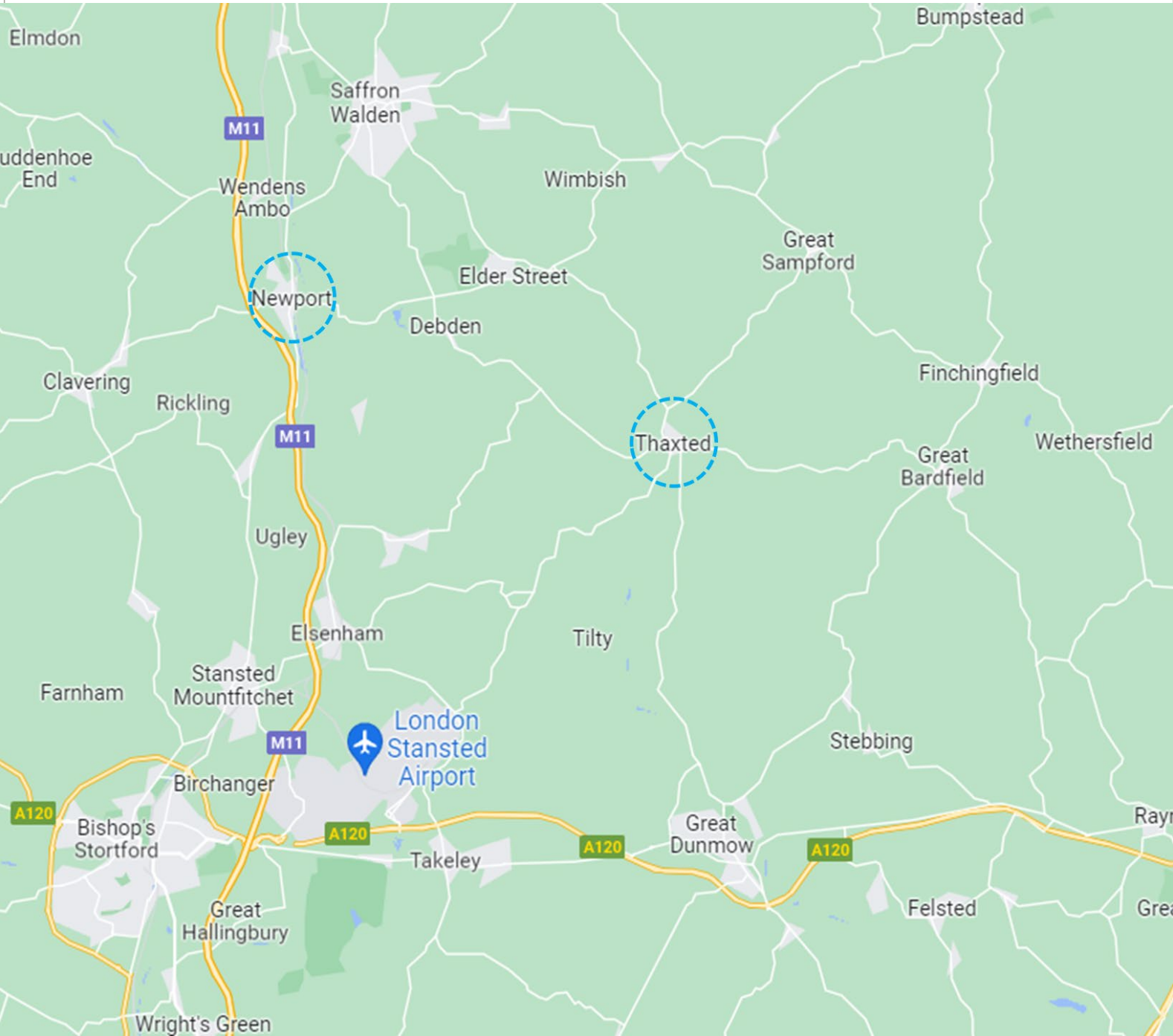
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Rev	Description	Date	Dwn	Chk	App

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Figure 1-1: Location of the Villages

TTE Proj No	Drwn by	Date	Ch'ked by	Date	App'd by	Date	Scale @ A3	Suitability
B029347	BK	Jul 21	SB	Jul 21	ASG	Jul 21	n/a	S1
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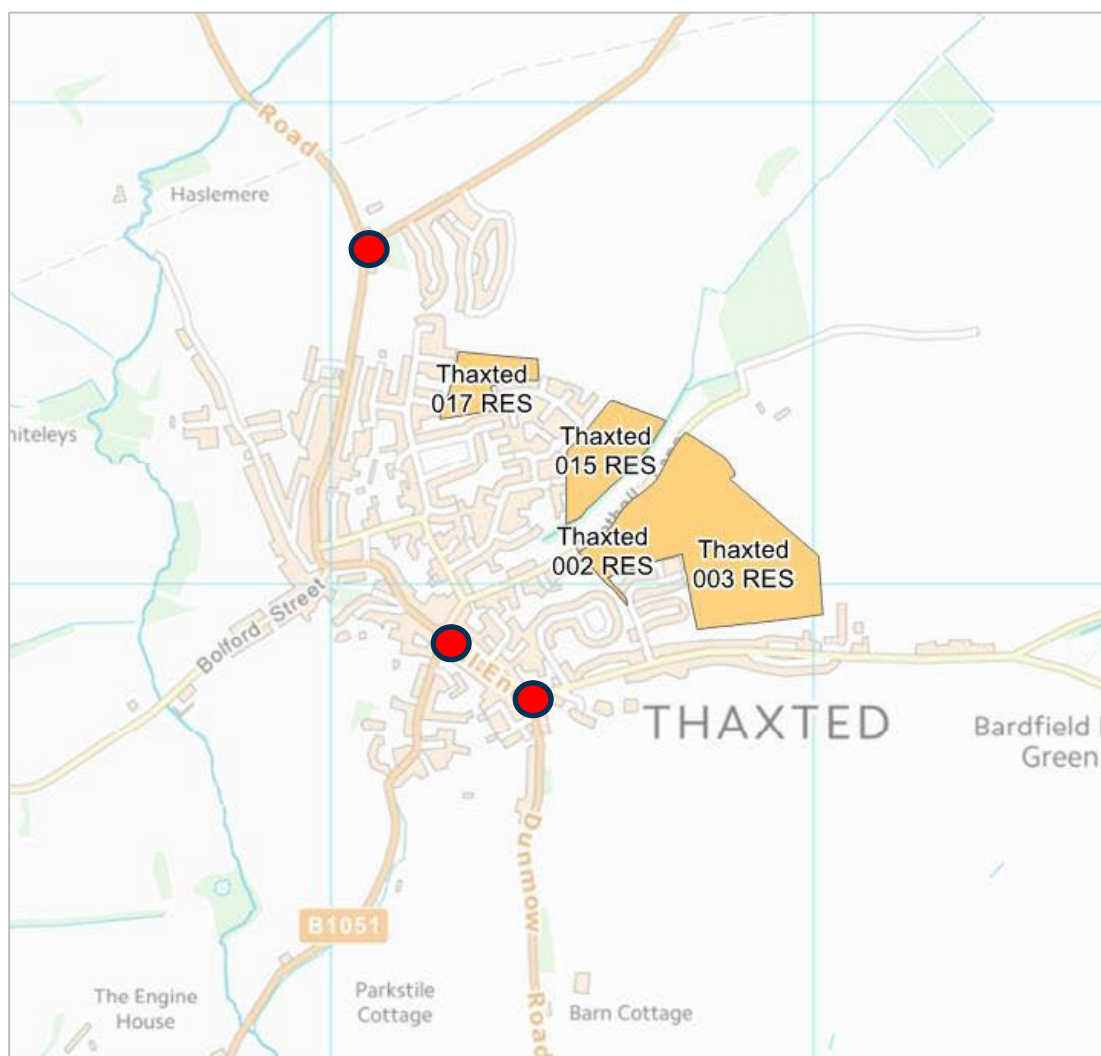
2 | THAXTED

2.0 THAXTED

2.1 OVERVIEW

- 2.1.1 A total of three junctions were assessed within Thaxted to understand the potential impact of Local Plan site allocations on the operation of the road network within the village. The junctions were selected based upon their proximity to the proposed allocation sites and their importance to the wider road network.
- 2.1.2 A location plan of the junctions is provided in **Figure 2-1** and they are considered individually herein.

Figure 2-1: Junctions Assessed & Site Allocations in Thaxted



2.2 B184 MILL END / B1051 PARK ST / B184 TOWN ST / ORANGE ST

- 2.2.1 The junction of the B184 Mill End / B1051 Park Street / B184 Town Street / Orange Street comprises a staggered junction with the Park Street and Orange Street forming the minor arms. The location of the junction is highlighted in **Figure 2-2**. The results of the assessment of the junction are shown in **Table 2-1**. The turning movements or traffic 'streams' are illustrated in **Figure 2-3**.
- 2.2.2 The analysis highlights that:
- The junction operates well within capacity in the Base Year with low levels of delay in both peaks.
 - Delays increase in the Reference Case (2040), particularly for traffic joining the main road from Park Street in the PM peak (Stream B-ACD) and from Town Street / Orange Street (Stream CD-AB) in the AM Peak, but the junction still operates within capacity.
 - When Local Plan traffic is added the junction exceeds its operational capacity and delays increase significantly in both peaks with delays of circa 12 minutes on the B1051 Park Street in the PM Peak.
- 2.2.3 This assessment indicates that the Local Plan will have a material impact on the operation of the junction. The ultimate impacts are likely to be lower than those shown here, due to the methodology as reference in paragraph 1.3.6.. The location of these sites within Thaxted is likely to result in lower private vehicle trip generation due to potential for sustainable modes for local journeys and improvements to the bus service frequency on the Saffron Waldon to Great Dunmow corridor.
- 2.2.4 The junction may still require mitigating measures as and when site allocations come forward. The narrow carriageway will prevent the installation of traffic signals to regulate the flow of traffic and so alternative measures will be required, potentially including reversing traffic priorities at the junction.

Table 2-1: Performance of the B184 Mill End / B1051 Park Street / B184 Town Street Junction

	AM		PM	
	Delay (seconds)	RFC	Delay (seconds)	RFC
2021 Base				
Park St (Stream B-ACD)	12.3	0.30	12.5	0.38
Town St / Orange St (Stream CD-AB)	6.2	0.24	5.3	0.18
2040 Reference Case (Base + Committed)				
Park St (Stream B-ACD)	33.4	0.70	78.4	0.93
Town St / Orange St (Stream CD-AB)	58.8	0.94	10.9	0.63
2040 LP Model (Base + Committed + Local Plan Growth)				
Park St (Stream B-ACD)	503.0	1.48	740.7	1.44
Town St / Orange St (Stream CD-AB)	341.4	1.19	53.1	0.93

Figure 2-3: Location of B184 Mill End / B1051 Park Street / B184 Town Street

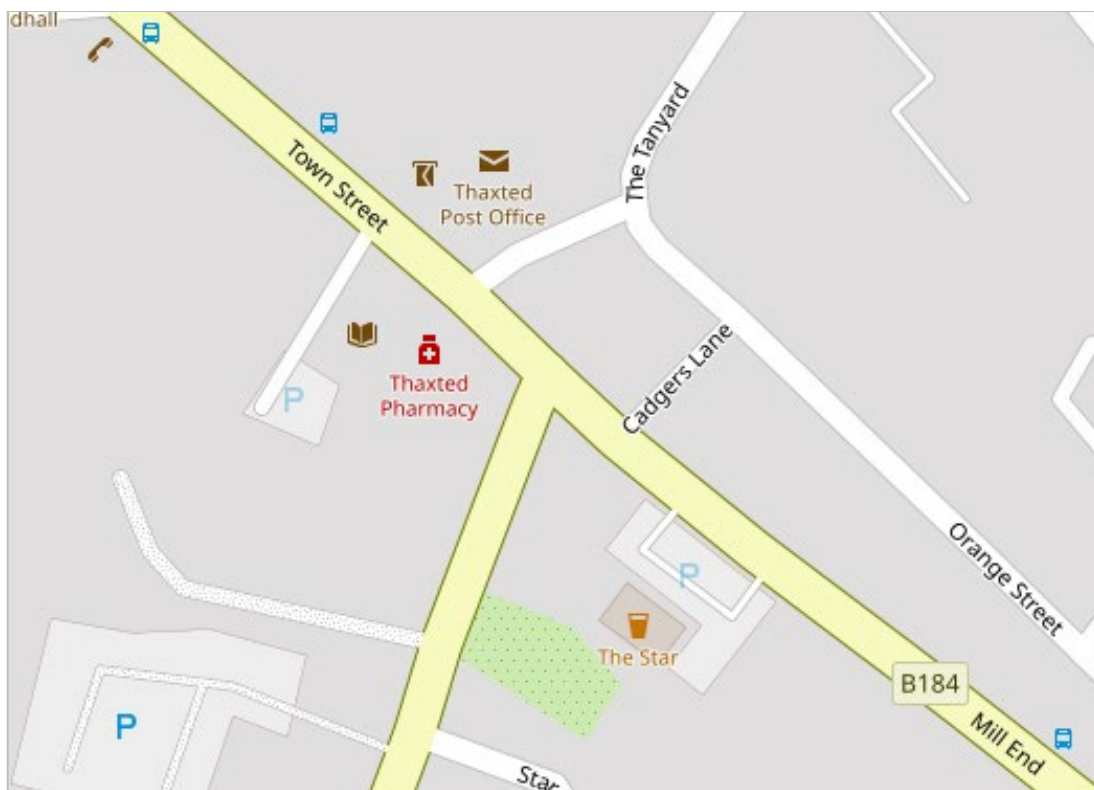


Figure 2-3: Turning Movements at B184 Mill End / B1051 Park Street / B184 Town Street



2.3 B184 MILL END / BARDFIELD ROAD

- 2.3.1 The junction of the B184 Mill End / Bardfield Road comprises a three-arm priority junction. The location of the junction is highlighted in **Figure 2-4**. The results of the assessment of the junction are shown in **Table 2-2**. The turning movements or traffic 'streams' are illustrated in **Figure 2-5**.
- 2.3.2 The analysis highlights that all junction movements operate well within capacity in both the AM and PM peaks during the Base Year with little delay on any arm of the junction. The largest delay is forecast on the Bardfield Road arm of the junction but even this is only around 15 seconds.
- 2.3.3 The junction continues to operate within capacity in the Reference Case with only marginal increases in the delay. However, the addition of the Local Plan growth results in Bardfield Road operating over capacity in the AM peak with delays of circa 4 minutes.
- 2.3.4 In order to mitigate the impact at this junction there appears to be space available within the highway boundary to provide traffic signals to better manage the flow of traffic.

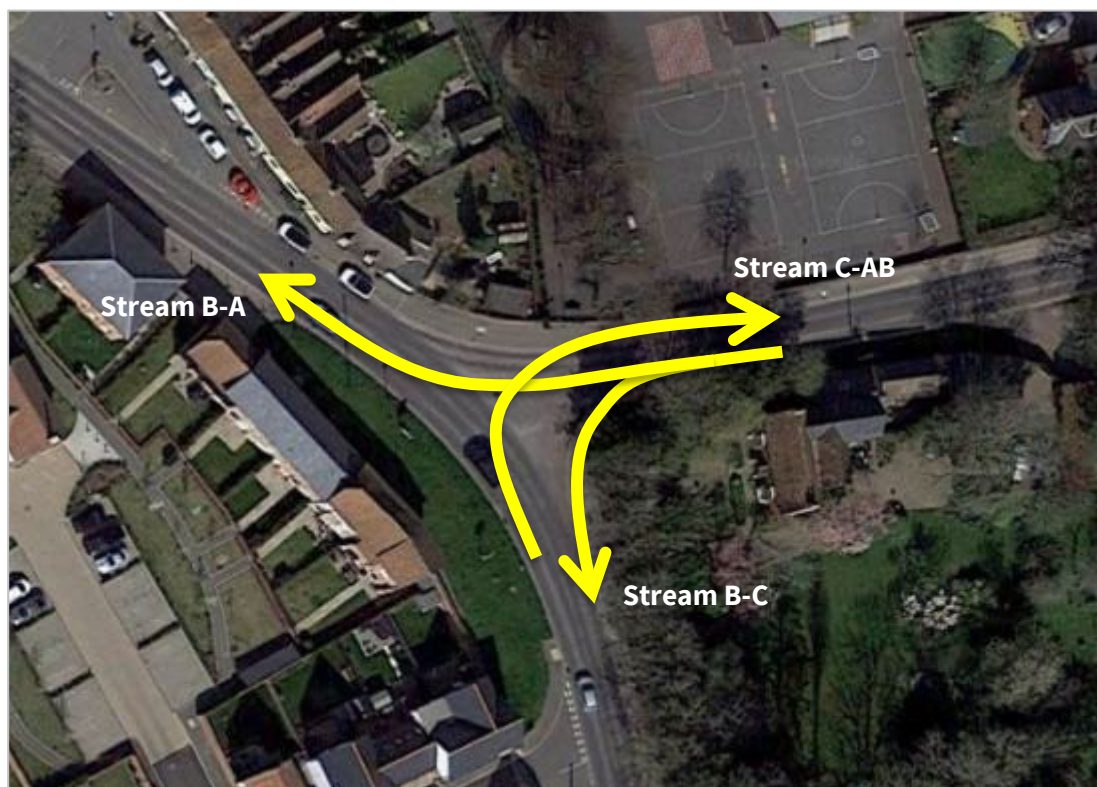
Table 2-2: Performance of the B184 Mill End / Bardfield Road Junction

	AM		PM	
	Delay (seconds)	RFC	Delay (seconds)	RFC
2021 Base				
Bardfield Rd (Stream B-C)	7.9	0.10	6.4	0.04
Bardfield Rd (Stream B-A)	15.8	0.46	11.2	0.23
Dunmow Rd (Stream C-AB)	7.1	0.06	7.3	0.09
2040 Reference Case (Base + Committed)				
Bardfield Rd (Stream B-C)	10.1	0.13	7.1	0.04
Bardfield Rd (Stream B-A)	23.7	0.60	13.9	0.29
Dunmow Rd (Stream C-AB)	7.2	0.07	7.7	0.11
2040 LP Model (Base + Committed + Local Plan Growth)				
Bardfield Rd (Stream B-C)	253.7	1.04	8.9	0.07
Bardfield Rd (Stream B-A)	156.4	1.02	21.35	0.50
Dunmow Rd (Stream C-AB)	7.5	0.08	8.3	0.16

Figure 2-5: Location of B184 Mill End / Bardfield Road



Figure 2-5: Turning Movements at B184 Mill End / Bardfield Road



2.4 B184 WALDEN ROAD / B1051 GREAT SAMPFORD ROAD

- 2.4.1 The junction of the B184 Walden Road / B1051 Great Sampford Road comprises a three-arm priority junction. The location of the junction is highlighted in **Figure 2-6**. The results of the assessment of the junction are shown in **Table 2-3**. The turning movements or traffic 'streams' are illustrated in **Figure 2-7**.
- 2.4.2 The analysis highlights that:
- The junction operates well in the base scenario with all movements under capacity and differs little in the Reference Case.
 - Local Plan growth will have a minimal impact on the operation of the junction with all approaches experiencing only minor delays in both peak periods.
- 2.4.3 As the junction is operating well within capacity in all scenarios and time periods, no mitigation is required in this location.

Table 2-3: Performance of the B184 Walden Road / B1051 Junction

	AM		PM	
	Delay (seconds)	RFC	Delay (seconds)	RFC
2021 Base				
Great Sampford Rd (Stream B-AC)	8.6	0.33	7.0	0.13
Walden Road (Stream C-AB)	7.2	0.23	8.4	0.27
2040 Reference Case (Base + Committed)				
Great Sampford Rd (Stream B-AC)	13.3	0.54	9.0	0.27
Walden Road (Stream C-AB)	7.8	0.35	11.0	0.51
2040 LP Model (Base + Committed + Local Plan Growth)				
Great Sampford Rd (Stream B-AC)	19.6	0.67	11.2	0.35
Walden Road (Stream C-AB)	8.0	0.41	13.1	0.61

Note: The original base data for this junction was taken in 2017. This was growthed to 2021 using factors obtained from TEMPro 7.2.

Figure 2-7: Location of the B184 / B1051

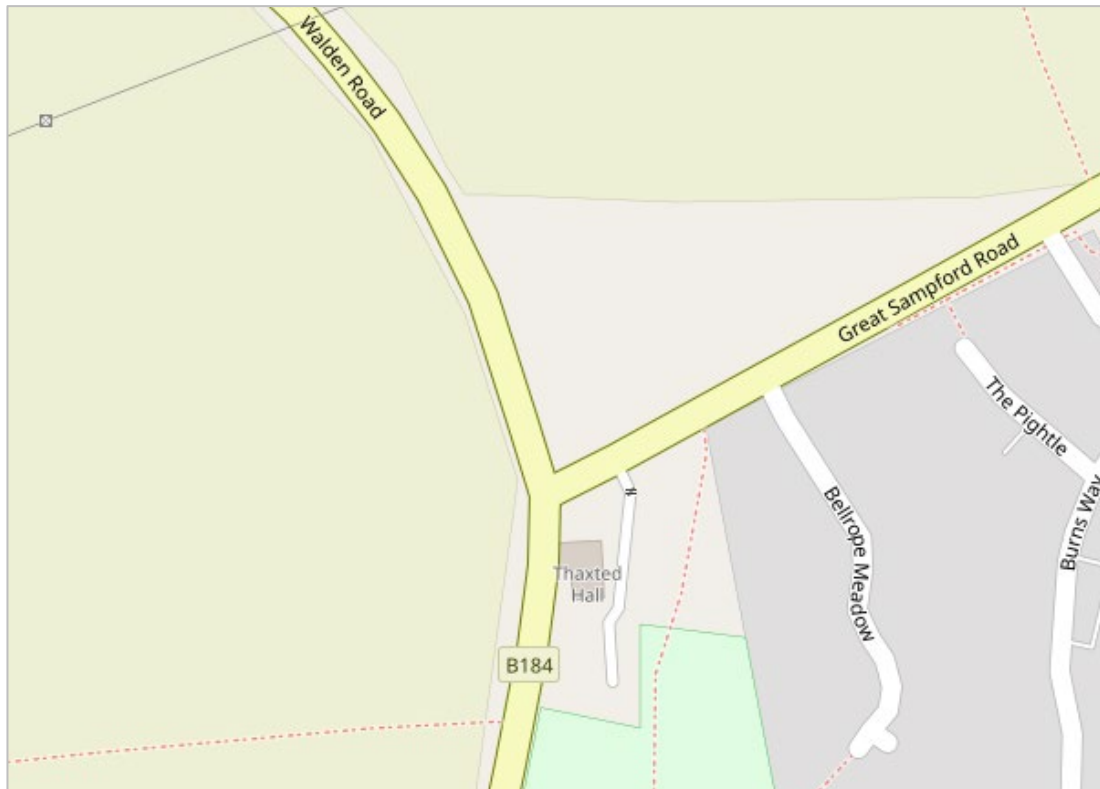


Figure 2-7: Turning Movements of B184 Walden Road / B1051



2.5 SUMMARY

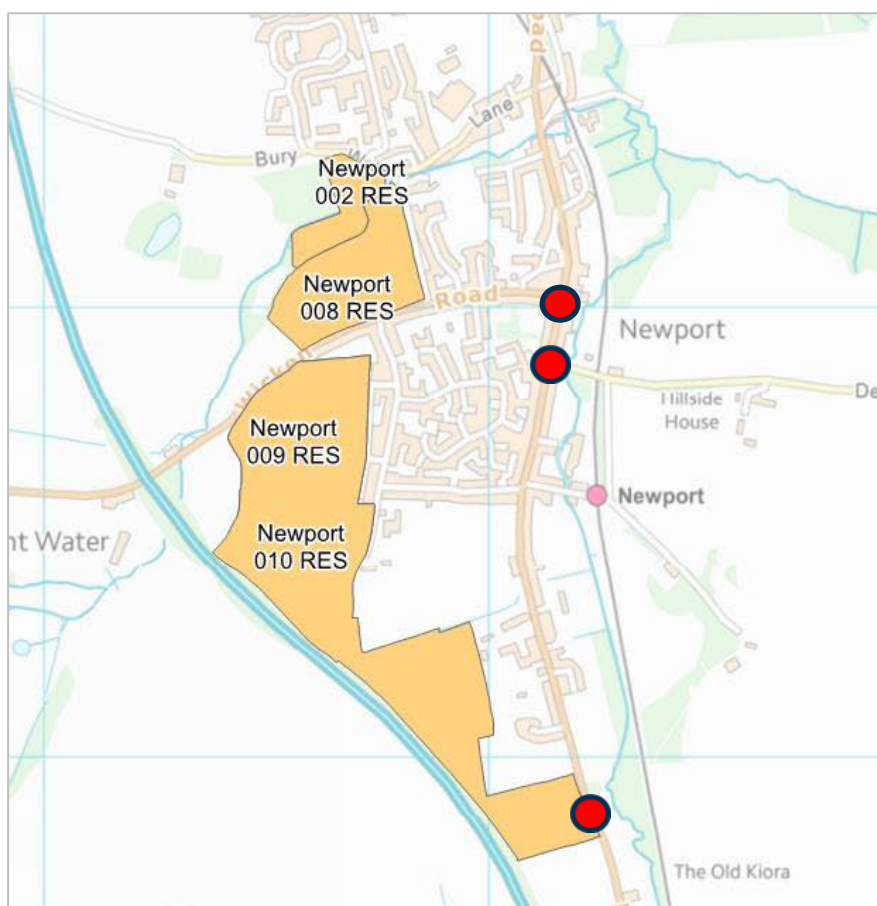
- 2.5.1 The future performance of the three junctions within Thaxted will vary considerably as/when the Local Plan site allocations come forward. However, these conclusions should also be taken within the context of the nature of the assessment, which has assigned flows from the strategic model. This doesn't incorporate the site specific trip generation reflecting potential modal shifts, reassignment of traffic due to traffic conditions, and as such represents a worst case scenario.
- 2.5.2 In this respect, detailed assessments will be required when these sites are brought forward to identify potential mitigation in each location.
- 2.5.3 Sustainable transport measures should form part of any mitigation package including the provision of e-bikes to all new households and free bus passes for a year. However, the rural location of Thaxted is such that a high degree of modal shift if unlikely to be achievable.

3.0 NEWPORT

3.1 OVERVIEW

- 3.1.1 Three junctions were assessed within Newport to understand the potential traffic impacts of Local Plan site allocations on the highway network within the village.
- 3.1.2 Two of the junctions are existing junctions and were selected based upon their proximity to the allocation sites within the village and its importance to the wider road network. A third junction is a proposed new junction that would provide access to the site from the B1383 to/from the Local Plan sites.
- 3.1.3 A location plan of the junctions is provided in **Figure 3-1**.

Figure 3-1: Junction Assessed & Site Allocations in Newport



3.2 B1383 HIGH STREET / B1038 WICKEN ROAD

- 3.2.1 The junction of the B1383 High Street / B1038 Wicken Road comprises a three arm priority give-way junction. The location of the junction is highlighted in **Figure 3-2**.
- 3.2.2 The junction has been assessed in two alternative scenarios associated with how the development traffic may access the network from Site 'Newport 010':
- Option 1 – With access to/from Wicken Road only.
 - Option 2 – With access to/from Wicken Road restricted to westbound turning movements only, together with a new junction onto the B1383 London Road.
- 3.2.3 The results of the assessment of Option 1 are shown in **Table 3-1** with the performance in Option 2 presented in **Table 3-2**. The turning movements or traffic 'streams' are illustrated in **Figure 3-3**.
- 3.2.4 The analysis highlights that:
- The junction performs well in both the AM and PM peaks during the Base Year with all arms operating within capacity.
 - In the Reference Case during the AM peak, the Wicken Road arm of the junction is over capacity with long delays, increasing from around 30 seconds in the Base Year to over four minutes in the Reference Case. All other arms operate within capacity.
 - With the addition of Local Plan traffic, the assessment forecasts that severe delays in the model (over 26 minutes Wicken Road).
 - However, it is unlikely that this would occur in practice because traffic would look for alternative routes on the network (the modelling methodology used for this location is not capable of reassigning trips to avoid delays). The strategic model network does not include Bury Water Lane and Frambury Lane, which would provide alternative routes for some trips.
 - Development sites within Newport are also likely to be responsive to modal shift opportunities. It is envisaged that the proximity of local bus services and a train station providing direct access to Cambridge and London could result in a higher modal share of sustainable trips than modelled, alleviating, in part, some of the queuing identified.
 - Potential mitigation through the restriction of eastbound movements from the site allocation Newport 010, towards the junction is not sufficient in this assessment to bring the existing junction within its operating capacity during the peak periods. This is still the case when supplemented with a new access onto the B1383 further south. In combination with modal shift outlined above a further assessment would be required to determine whether this would bring the junction back within operational capacity.

Table 3-1: Performance of the B1383 High Street / B1038 Wicken Road (Option 1)

	AM		PM	
	Delay (seconds)	RFC	Delay (seconds)	RFC
2021 Base				
Wicken Road (Stream B-AC)	28.8	0.65	16.3	0.42
High Street (Stream C-AB)	6.5	0.33	7.1	0.35
2040 Reference Case (Base + Committed)				
Wicken Road (Stream B-AC)	246.4	1.10	42.9	0.74
High Street (Stream C-AB)	9.6	0.62	10.9	0.67

2040 LP Model (Base + Committed + Local Plan Growth)				
Wicken Road (Stream B-AC)	1,669.9	2.03	647.1	1.64
High Street (Stream C-AB)	56.3	0.95	233.0	1.13

Table 3-2: Performance of the B1383 High Street / B1038 Wicken Road with London Road Site Access Mitigation (Option 2)

	AM		PM	
	Delay (seconds)	RFC	Delay (seconds)	RFC
2040 LP Model (Base + Committed + Local Plan Growth)				
Wicken Road (Stream B-AC)	1,579.2	2.01	400.6	1.31
High Street (Stream C-AB)	33.2	0.89	106.5	1.01

Figure 3-3: Location of B1383 High Street / B1038 Wicken Road

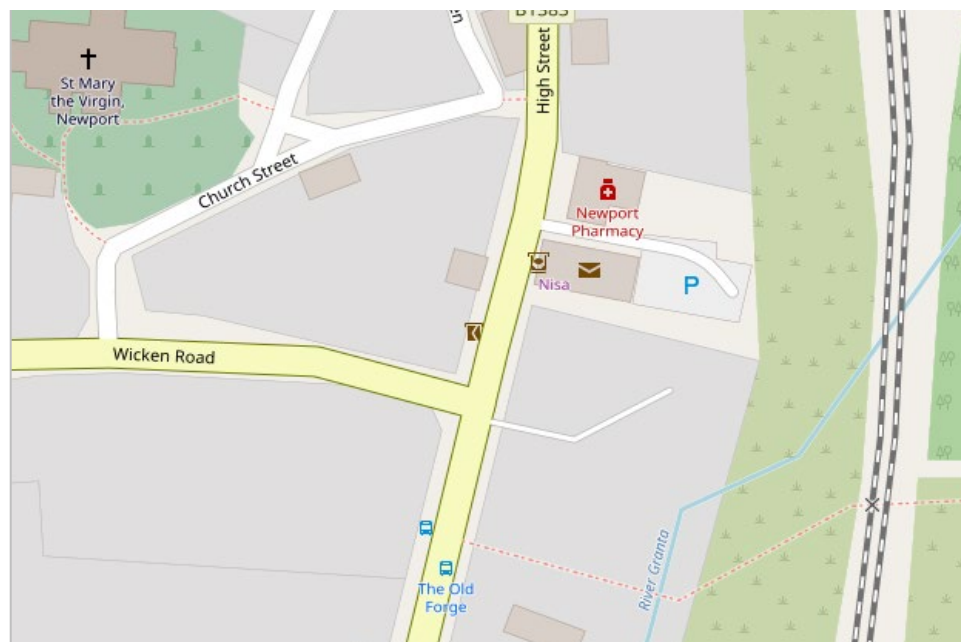


Figure 3-3: Turning Movements at B1383 High Street / B1038 Wicken Road



3.3 NEW JUNCTION ON B1383 LONDON ROAD – SITE ACCESS (NEWPORT 010)

- 3.3.1 The performance of a new potential site access to/from the Local Plan site Newport 010 onto B1383 London Road has been modelled as a three arm priority give-way junction. This would be required in line with ECC guidance on site access for developments over 200 dwellings. The location of the proposed junction is highlighted in **Figure 3-1** where the Newport 010 site boundary meets B1383 London Road.
- 3.3.2 The results of the assessment of the junction are shown in **Table 3-3**. The assessment demonstrates that it would operate within capacity in the Local Plan scenario with little delay at the junction.

Table 3-3: Performance of a New Junction on the B1383 London Road

	AM		PM	
	Delay (seconds)	RFC	Delay (seconds)	RFC
2040 LP Model (Base + Committed + Local Plan Growth)				
Site Access (Stream B-AC)	20.8	0.48	17.9	0.25
London Road (Stream C-AB)	4.4	0.12	5.2	0.36

3.4 B1383 HIGH STREET / DEBDEN ROAD

- 3.4.1 The junction of the B1383 High Street / Debden Road comprises a three arm priority give-way junction. The location of the junction is highlighted in **Figure 3-4**. The results of the assessment of the junction are shown in **Table 3-3**. The turning movements or traffic ‘streams’ are illustrated in **Figure 3-5**.
- 3.4.2 The analysis highlights that:
- The junction performs well in both the AM and PM peaks during the base year, reference case and local plan scenario with all arms operating within capacity.
 - The longest forecast delay for traffic turning right from Debden Road during the AM peak with a delay of around 50 seconds.

Table 3-4: Performance of B1383 High Street / Debden Road

	AM		PM	
	Delay (seconds)	RFC	Delay (seconds)	RFC
2021 Base				
Debden Road (Stream B-C)	6.9	0.06	7.1	0.05
Debden Road (Stream B-A)	14.1	0.25	13.4	0.12
High Street (Stream C-AB)	4.7	0.06	5.3	0.07
2040 Reference Case (Base + Committed)				
Debden Road (Stream B-C)	9.4	0.09	8.0	0.06
Debden Road (Stream B-A)	28.5	0.46	21.2	0.25
High Street (Stream C-AB)	4.4	0.09	4.4	0.12
2040 LP Model (Base + Committed + Local Plan Growth)				

	AM		PM	
	Delay (seconds)	RFC	Delay (seconds)	RFC
Debden Road (Stream B-C)	13.6	0.14	9.0	0.08
Debden Road (Stream B-A)	50.4	0.63	29.4	0.35
High Street (Stream C-AB)	4.3	0.13	4.3	0.15

3.4.3 The junction was also assessed with the reassignment of trips from Newport 010 that would have travelled east on Wicken Road exiting the site onto B1383 London Road and travelling north through the High Street / Debden Road junction. This assessment is shown in **Table 3-5**.

3.4.4 The assessment demonstrates that the junction continues to operate within capacity.

Table 3-5: Performance of B1383 High Street / Debden Road with New Junction on the B1383 London Road

	AM		PM	
	Delay (seconds)	RFC	Delay (seconds)	RFC
2040 LP Model (Base + Committed + Local Plan Growth)				
Debden Road (Stream B-C)	17.3	0.17	9.8	0.09
Debden Road (Stream B-A)	28.5	0.70	36.3	0.40
High Street (Stream C-AB)	4.4	0.09	4.2	0.16

Figure 3-4: Location of B1383 High Street / Debden Road

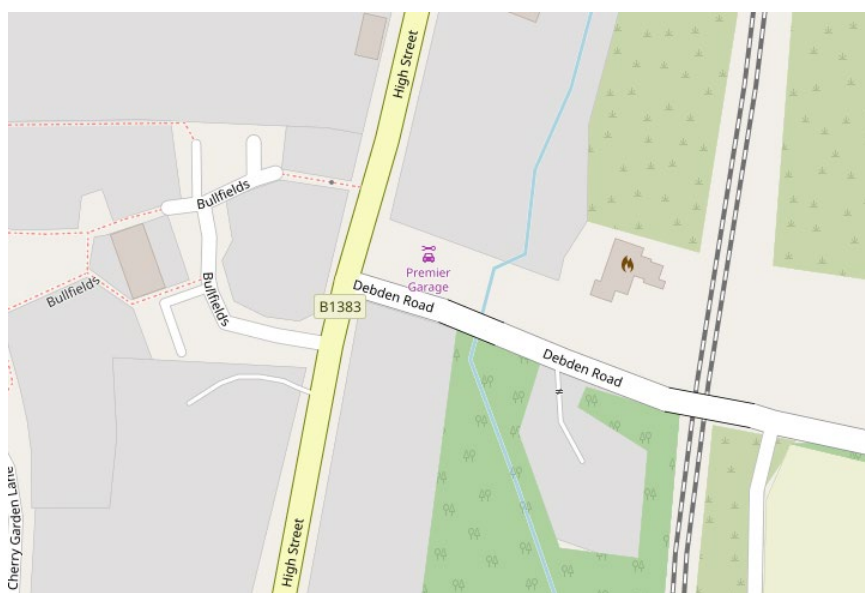


Figure 3-5: Turning Movements at B1383 High Street / Debden Road



3.5 PARISH COUNCIL STUDY

- 3.5.1 In July 2019, Newport Parish Council Neighbourhood Plan Steering Group commissioned a Transport Study (undertaken by Railton TPC Ltd) that assessed the proposed impact of potential developments in Newport.
- 3.5.2 The Parish Council wanted to understand the potential adverse impacts of changes in traffic flows from developments in and around the village of Newport. The study focused on routes to and from the west of the village and was based upon a more detailed network than the Uttlesford Strategic Model (USM) which forms the basis to the junction assessments within this technical note.

Extent of Development & Highway Network Assessed

- 3.5.3 The study has a base year of 2019 and included committed developments totalling 242 dwellings and 121 care home/retirement beds within Newport. An additional 249 dwellings were considered as speculative based on sites at appeal or awaiting appeal decisions, and these were included as a sensitivity test.
- 3.5.4 This compares to the USM with a base year of 2021 and containing 134 committed dwellings, with a further 500 Local Plan dwellings in Newport. The lower number of committed dwellings reflects the exclusion of developments with less than five dwellings from the uncertainty log, together with the difference in base years. The total number of future year dwellings tested in the USM in a 2040 forecast year in the area was 634 compared to the sensitivity test in the Newport report of 491 in a 2034 forecast year.
- 3.5.5 The Newport report assessment covered the junctions of Frambury Lane, Station Road, Wicken Road, Church Street and Bury Water Lane. Assessment with the USM is limited to Wicken Road and Debden Road junctions as these are the junctions with links providing access to the wider district.

Findings

- 3.5.6 The Newport report assessment shows that in the base year (2019) all junctions operate within capacity. In the 2034 Reference Case Wicken Road and Bury Water Lane exceed their operational capacity (RFC of 0.85). The sensitivity test that includes the additional speculative dwellings only assessed the 2024 future year. This forecasts Wicken Road and Bury Water Lane will be operating over capacity at this point.

- 3.5.7 The findings of the report are in line with those from the USM and include an assessment of additional local junctions where capacity issues are anticipated to be experienced, concluding that any proposed development would require some form of mitigation if it were to come forward.
- 3.5.8 The junction assessment on Wicken Road based upon the outputs from the USM, shows greater demand than the Parish Council commissioned report. This reflects the lack of local junctions or route choice in the USM.

3.6 SUMMARY

- 3.6.1 The B1383 High Street / Wicken Road junction will require some form of intervention to mitigate the impact of the additional traffic generated by the Local Plan site allocations proposed in Newport. Whilst issues will arise at the junction before the sites come forward, they will compound the issues likely to be experienced. The full extent of the issues at this junction are likely to be less than highlighted in this assessment. Modal shift due to the public transport connections in Newport and potential for shorter sustainable trips to local facilities present opportunities for reduced private car trip generation.
- 3.6.2 It is recognised that there is limited space in which to install traffic signals on Wicken Road, and in this respect, there are very few options through which traffic capacity at the junction could be increased.
- 3.6.3 Alternative mitigation has been assessed in the form of restricting eastbound turning movements onto Wicken Road from the site allocation Newport Site 010, together with the provision of an additional junction further to the south of the village.
- 3.6.4 However, these don't go far enough and further mitigation is required. This could take a number of forms including:
- Provision of a modal filter on Wicken Road, on the edge of the current built up area of the village.
 - Provision of access onto and improvements of Bury Water Lane, and its associated junction with B1383 Belmont Hill / Cambridge Road.
 - Reducing overall demand through the provision of sustainable transport measures including the provision of e-bikes to all new households, free bus passes for a year and improved pedestrian access to Newport Station.
- 3.6.5 As with the analysis of the highway network in Newport, these conclusions should also be taken within the context of the nature of the assessment, which has assigned flows from the strategic model. This doesn't incorporate the reassignment of traffic due to traffic conditions, and as such represents a worst case scenario.
- 3.6.6 In this respect, detailed assessments will be required when these sites are brought forward to identify potential mitigation in each location. Applying more nuanced demand reductions to the trip generation matrices which underpin the modelling to reflect the proximity of bus and rail travel choices, in particular, will help provide further understanding in terms of the impacts on the highway network of the sites in Newport and Thaxted.

