

Uttlesford Transport Study

784-B029347

Pre Reg 19 Model Outputs: Newport & Thaxted



29 February 2024 TN 408c

DOCUMENT CONTROL

Document:	Pre Reg 19 Model Outputs: Newport & Thaxted
Project:	Uttlesford Transport Study
Client:	Uttlesford District Council
Project Number:	784-B029347
File Origin:	

Revision:		Prepared by:	Ben Green
Date:	29 February 2024	Checked by:	Ben King
Status:		Approved By:	Ben King
Description of Revision:			

Revision:	Prepared by:	
Date:	Checked by:	
Status:	Approved By:	
Description of Revision:		

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Status:	Approved By:	
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Status:	Approved By:	
Description of Revision:		

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1.0 BACKGROUND

1.1 OVERVIEW

- 1.1.1 This technical note details how the Uttlesford Local Plan site allocations (as proposed in February 2024) 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 within the context of the wider district of Uttlesford 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 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	
Nouport	Land north of Wicken Road, Newport	70	250	
Newport	Land at Pond Cross Farm, Frambury Lane, Newport	280	350	
	Land at Barnards Fields, Thaxted (2ha)	150		
Thaxted	Land east of Wedow Road, off Elers Way, Thaxted	49	489	
	Land south of Sampford Road	290		

- 1.2.2 The dwelling quantum proposed in the villages presents a slight net decrease compared with those contained in the Regulation 18 Local Plan, although the number of dwellings proposed in Thaxted has increased by 38 (from 451), the number of dwellings proposed in Newport has reduced by 150 (from 500).
- 1.2.3 This change is reflected more broadly in the revised quantum of housing included within the Local Plan at the Regulation 19 stage 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 and LinSig, industry standard software packages that enables the assessment of priority junctions and signal junctions respectively. 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 background traffic growth, as well as committed planning and transport schemes being delivered across the authority.
 - The 'Forecast Year' (2040) to identify the additional traffic impacts generated by 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 initially selected for assessment were based upon their proximity to the site allocations. These were then refined based on a prior understanding of operational performance. There has been one existing junction identified in Thaxted and one existing junction identified in Newport for assessment.

- 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 Whilst Degree of Saturation (DoS) is the standard metric for assessing capacity at signal junctions, the DoS has been converted into a ratio (effectively mirroring an RFC value) for ease of comparison.
- 1.3.6 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.
- 1.3.7 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.
- 1.3.8 In addition, the assessment does not 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 junctions 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.
 - TN406 | Newport and Thaxted Model Outputs Technical Note.
 - TN407 | A120 Corridor Model Outputs Technical Note.
 - TN408a | Pre Reg 19 Model Outputs: Saffron Walden.
 - TN408b | Pre Reg 19 Model Outputs: A120 Corridor.

1.5 MORE INFORMATION

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

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TETRA TECH

PRELIMINARY ISSUE

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Uttlesford Transport Study Uttlesford District Council

Figure 1-1: Location of the Villages TTE Proj No Scale @ A3 Suitability Ch'ked by Date Appr'd by Date B029347 **S1** RK Jul 21 SB Jul 21 ASG Jul 21 n/a Client Proi No Origin Vol/System Level/Location Type/Code Role Drawing No Rev TTE 00 XX MD 0 002 Issuing office Tetra Tech Leicester Executive Park, Avalon Way Anstey, Leicester, LE7 7GR Tel: 0116 234 8000 © Tetra Tech Limited



2 | THAXTED

2.0 THAXTED

2.1 OVERVIEW

2.1.1 The Mill End / Park Street junction within Thaxted has been assessed to understand the potential traffic impact of the Local Plan site allocations on the operation of the road network within the village. A location plan of the junction is provided in **Figure 2-1**.





2.2 EXISTING JUNCTION PERFORMANCE

2.2.1 The B184 Mill End / B1051 Park Street / B184 Town Street junction comprises a simple three-arm priority junction with Park Street forming the minor arm. The location of the junction is highlighted in **Figure 2-2**. The turning movements or traffic 'streams' are illustrated in **Figure 2-3**.



Figure 2-2: Location of the Mill End / Park Street Junction

Figure 2-3: Turning Movements at the Mill End / Park Street Junction



- 2.2.2 The PICADY module within the Junctions 9 software has been used to undertake a capacity assessment of the existing priority junction at Mill End / Park Street. Assessments have been undertaken for a 2021 Base Year, a 2040 Reference Case (Base Year flows plus background traffic growth plus committed development) and a 2040 Forecast Year (Reference Case flows plus Local Plan development traffic flows).
- 2.2.3 The capacity assessment results for the Mill End / Park Street junction are summarised in **Table 2-1**.

Junction Capacity	АМ		Р	Μ	
Assessment Results	Delay (seconds)	RFC	Delay (seconds)	RFC	
		2021 Base			
Park St (Stream B-AC)	12.3	0.30	13.8	0.38	
Town St (Stream C-AB)	6.3	0.25	5.9	0.18	
	2040 Reference	Case (Base + Comn	nitted)		
Park St (Stream B-AC)	44.6	0.77	103.8	0.97	
Town St (Stream C-AB)	91.1	0.99	12.2	0.67	
2040 Local Plan Model (Base + Committed + Local Plan Growth)					
Park St (Stream B-AC)	3638.9	99.9	956.4	1.55	
Town St (Stream C-AB)	736.1	1.37	108.1	1.01	

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

- 2.2.4 The capacity assessment results highlight 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-AC) and from Town Street (Stream C-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 traffic unable to discharge across the give-way line from Park Street in the AM peak due to the high conflicting flows and constrained nature of the junction.
- 2.2.5 It is clear from this assessment that the traffic generated by the Local Plan development will have a material impact on the operation of the junction and as such mitigating measures should be provided as and when site allocations come forward.

2.3 MITIGATION

- 2.3.1 A desktop exercise has been undertaken by Tetra Tech's traffic signal engineers to ascertain whether the Mill End / Park Street junction could be put under signal control. The review found that a signal junction at this location could not be delivered due to constraints associated with the width of the carriageway and footways.
- 2.3.2 As signals cannot be provided, nor is there any scope for local widening due to the existing constraints of the built environment, the B184 Mill End / B1051 Park Street / B184 Town Street junction has therefore been reconfigured so as to prioritise northwest to south movements. Under the revised configuration, traffic from Mill End (SE) will be required to give way. The turning movements or traffic 'streams' at the reconfigured junction are illustrated in **Figure 2-5**.



Figure 2-5: Turning Movements at the Reconfigured Mill End / Park Street Junction

- 2.3.3 The PICADY module within the Junctions 9 software has been used to undertake a capacity assessment of the reconfigured priority junction at Mill End / Park Street. Assessments have been undertaken for a 2021 Base Year, a 2040 Reference Case (Base Year flows plus background traffic growth plus committed development) and a 2040 Forecast Year (Reference Case flows plus Local Plan development traffic flows).
- 2.3.4 The capacity assessment results for the Mill End / Park Street junction are summarised in **Table 2-2**.

Junction Capacity	A	м	P	м	
Assessment Results	Delay (seconds)	RFC	Delay (seconds)	RFC	
	2	2021 Base			
Mill End (Stream B-AC)	191.4	1.07	64.4	0.88	
Park St (Stream C-AB)	8.2	0.11	7.9	0.13	
	2040 Reference	Case (Base + Comn	nitted)		
Mill End (Stream B-AC)	2,342.1	1.90	1,123.8	1.53	
Park St (Stream C-AB)	7.6	0.15	6.7	0.21	
2040 Local Plan Model (Base + Committed + Local Plan Growth)					
Mill End (Stream B-AC)	4,855.5	2.74	2,894.7	2.19	
Park St (Stream C-AB)	8.0	0.21	7.3	0.32	

Table 2-2: Performance of the Mill End / Park Street Junction

- 2.3.5 The capacity assessment results highlight that:
 - The junction is expected to operate over capacity in the AM peak and at capacity in the PM peak should traffic flows be reflective of those observed in the 2021 Base Year.
 - Long delays are expected along Mill End (stream B-AC) in the 2040 Reference Case and 2040 Forecast Year scenarios. The junction operates over capacity in both peaks.
 - Significant deterioration to junction performance can be observed through the addition of Local Plan development traffic at the reconfigured Mill End / Park Street junction.
- 2.3.6 It can therefore be concluded that reconfiguring the Mill End / Park Street junction is not sufficient in delivering the necessary capacity benefits to unlock growth at the Local Plan allocation sites in Thaxted.

2.4 SUMMARY AND CONCLUSIONS

- 2.4.1 The mitigation measure tested does not go far enough to alleviate the traffic impact at the Mill End / Park Street junction in the 2040 Forecast Year. Therefore, further work is required to identify a suitable package of mitigation that would be required to alleviate the traffic impact generated by the Local Plan allocation sites at Thaxted.
- 2.4.2 Such investigation into suitable mitigation could take several forms, including:
 - Road signage and vehicle routing strategies to direct traffic away from constrained areas of the local highway network close to the village centre.
 - Restricting various turning movements to reduce the number of conflicts and increase capacity at certain locations.
 - 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 the village centre.
 - Reducing the scale of new development within the village.
- 2.4.3 These conclusions should be understood within the context of the nature of the assessment, which has assigned flows from the strategic model. This does not incorporate the reassignment of traffic due to traffic conditions, and as such represents a worst-case scenario.
- 2.4.4 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 travel choices will help provide further understanding in terms of the impacts on the highway network of the sites in Thaxted.

3.0 NEWPORT

3.1 OVERVIEW

3.1.1 The High Street / Wicken Road junction within Newport has been assessed to understand the potential traffic impact of the Local Plan site allocations on the operation of the road network within the village. A location plan of the junction is provided in **Figure 3-1**.





- 3.1.2 In addition to the High Street / Wicken Road junction, an additional junction has been modelled further to the south along the B1383 London Road to provide access to and from the allocation sites to the south of Wicken Road.
- 3.1.3 Whilst this junction does not currently exist, it has been modelled to reflect the likely access strategy that will be implemented in order to deliver the proposed housing growth in Newport.
- 3.1.4 The junctions have been assessed in two alternative scenarios associated with how the development traffic may access the wider highway network from the sites:
 - Option 1 Access at the existing junction between High Street and Wicken Road only.
 - Option 2 Access at High Street / Wicken Road, together with a new junction onto the B1383 London Road.
 - Option 3 As per Option 2 but with vehicular access for the development parcels south of Wicken Road to be taken from a new junction onto the B1383 London Road only, via a new link road to be delivered as part of the development.

3.2 EXISTING JUNCTION PERFORMANCE (OPTION 1)

- 3.2.1 Option 1 proposes that the existing High Street / Wicken Road junction provide the single point of vehicular access from the local plan allocation sites onto the B1383 High Street, from which traffic can access the wider highway network.
- 3.2.2 The junction of the B1383 High Street / B1038 Wicken Road comprises a simple three-arm priority give-way junction. The location of the junction is highlighted in **Figure 3-2**. The turning movements or traffic 'streams' are illustrated in **Figure 3-3**.



Figure 3-3: Location of the High Street / Wicken Road Junction

Figure 3-3: Turning Movements at the High Street / Wicken Road Junction



- 3.2.3 The PICADY module within the Junctions 9 software has been used to undertake a capacity assessment of the existing priority junction at High Street / Wicken Road. Assessments have been undertaken for a 2021 Base Year, a 2040 Reference Case (Base Year flows plus background traffic growth plus committed development) and a 2040 Forecast Year (Reference Case flows plus Local Plan development traffic flows).
- 3.2.4 The capacity assessment results of Option 1 are summarised in **Table 3-1**.

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

Junction Capacity Assessment Results	АМ		РМ		
	Delay (seconds)	RFC	Delay (seconds)	RFC	
	20	21 Base			
Wicken Road (Stream B-AC)	28.7	0.65	16.2	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)	308.5	1.16	50.2	0.77	
High Street (Stream C-AB)	10.4	0.65	12.0	0.70	
2040 Local Plan Model (Base + Committed + Local Plan Growth)					
Wicken Road (Stream B-AC)	2,755.3	2.62	1,172.4	2.17	
High Street (Stream C-AB)	72.1	0.97	243.8	1.14	

3.2.5 The capacity assessment results highlight that:

- The junction performs well in both the AM and PM peaks during the 2021 Base Year with all arms operating within capacity.
- In the Reference Case during the AM peak, the Wicken Road arm of the junction is forecast to operate over capacity with long delays, increasing from around 30 seconds in the Base Year to over five minutes in the Reference Case. All other arms operate within capacity during both network peak periods.
- With the addition of Local Plan traffic, the capacity concerns at the junction are exacerbated and severe delays are forecast along Wicken Road in the model. The right turn movement into Wicken Road from the High Street is also over capacity in the PM peak.
- 3.2.6 Whilst it should be noted that such delays would be unlikely to occur in practice (because traffic would look for alternative routes on the network), the modelling demonstrates that there is insufficient capacity at the High Street / Wicken Road junction to accommodate the vehicle trips generated by the proposed allocation site.

3.3 PERFORMANCE OF PROPOSED JUNCTION ARRANGEMENT (OPTION 2)

3.3.1 In addition to the existing High Street / Wicken Road junction, Option 2 provides an additional vehicular access along the B1383 at London Road, to the south of the High Street / Wicken Road junction. This additional access would provide some relief to the High Street / Wicken Road junction since traffic could use an alternative route through the network to access the B1383 corridor. A plan showing the indicative location of a new access junction is shown in **Figure 3-1**.

- 3.3.2 It should be noted that provision of a second access as proposed in Option 2 is conditional upon a link road through the Local Plan allocation site being delivered. It is noted that the area of land between existing uses in Newport and the M11 motorway is constrained and there are uncertainties regarding its feasibility. However, for the purposes of this report, it has been assumed that a new link road through the site, connecting the proposed southern access with Wicken Road, is deliverable.
- 3.3.3 In the absence of any design work, it has been assumed that the southern access junction onto the B1383 London Road will take the form of a simple three-arm priority give-way junction similar in nature to the existing junction provided between High Street / Wicken Road.
- 3.3.4 The PICADY module within the Junctions 9 software has been used to undertake a capacity assessment of the existing priority junction at High Street / Wicken Road. Assessments have been undertaken for a 2021 Base Year, a 2040 Reference Case (Base Year flows plus background traffic growth plus committed development) and a 2040 Forecast Year (Reference Case flows plus Local Plan development traffic flows).
- 3.3.5 The capacity assessment results of Option 2 are summarised in **Table 3-2** and **Table 3-3**. Note that only the 2040 Forecast Year has been reported.

Junction Capacity Assessment Results	АМ		РМ		
	Delay (seconds)	RFC	Delay (seconds)	RFC	
2021 Base					
2040 Local Plan Model (Base + Committed + Local Plan Growth)					
Wicken Road (Stream B-AC)	1,668.7	2.07	631.5	1.65	
High Street (Stream C-AB)	67.0	0.97	221.8	1.12	

Table 3-2: Performance of the High Street / Wicken Road Junction (Option 2)

Table 3-3: Performance of a New Junction on the B1383 London Road (Option 2)

	АМ		РМ		
	Delay (seconds)	RFC	Delay (seconds)	RFC	
2040 LP Model (Base + Committed + Local Plan Growth)					
Site Access (Stream B-AC)	23.2	0.25	20.3	0.12	
London Road (Stream C-AB)	3.8	0.01	3.9	0.02	

3.3.6 The capacity assessment results highlight that:

- The proposed southern access junction performs well in both the AM and PM peaks during the 2040 Forecast Year with Local Plan growth, with all arms operating within capacity.
- Despite the relief afforded by the new southern access, the High Street / Wicken road junction is still expected to suffer from excessive delays in both peak periods.
- The provision of a new priority give-way junction onto the B1383 London Road is therefore not sufficient to bring the existing junction within its operating capacity during the peak periods. Whilst this additional vehicular access does reduce the traffic impact at the High Street / Wicken Road junction, it is still expected to operate over capacity beyond an acceptable level.

3.4 PERFORMANCE OF PROPOSED JUNCTION ARRANGEMENT (OPTION 3)

- 3.4.1 Option 3 presents a similar access strategy to that of Option 2, so far as vehicular access onto the B1383 corridor is provided by the existing junction at High Street / Wicken Road and a new junction further to the south along London Road.
- 3.4.2 However, in Option 3, the parcels of land to the south of Wicken Road are assumed to exclusively use the proposed new southern junction onto London Road as the sole point of vehicular access to and from the site. No vehicular access will therefore be provided onto Wicken Road from the southern development parcel. It should be noted however that pedestrian and cycle access could still be provided onto both Wicken Road and Frambury Lane.
- 3.4.3 The Local Plan development parcel to the north to Wicken Road, adjacent to School Lane, shall continue using the High Street / Wicken Road junction to gain access to the wider highway network.
- 3.4.4 The PICADY module within the Junctions 9 software has been used to undertake a capacity assessment of the existing priority junction at High Street / Wicken Road. Assessments have been undertaken for a 2021 Base Year, a 2040 Reference Case (Base Year flows plus background traffic growth plus committed development) and a 2040 Forecast Year (Reference Case flows plus Local Plan development traffic flows).
- 3.4.5 The capacity assessment results of Option 2 are summarised in **Table 3-4** and **Table 3-5**. Note that only the 2040 Forecast Year has been reported.

Junction Capacity Assessment Results	АМ		РМ		
	Delay (seconds)	RFC	Delay (seconds)	RFC	
2021 Base					
2040 Local Plan Model (Base + Committed + Local Plan Growth)					
Wicken Road (Stream B-AC)	1,679.0	2.10	448.1	1.38	
High Street (Stream C-AB)	46.9	0.94	112.7	1.02	

Table 3-4: Performance of the High Street / Wicken Road Junction (Option 3)

Table 3-5: Performance of a New Junction on the B1383 London Road (Option 3)

	АМ		РМ	
	Delay (seconds)	RFC	Delay (seconds)	RFC
2040 LP Model (Base + Committed + Local Plan Growth)				
Site Access (Stream B-AC)	20.9	0.43	16.6	0.21
London Road (Stream C-AB)	4.1	0.12	4.9	0.33

- 3.4.6 The capacity assessment results highlight that:
 - The proposed southern access junction continues to perform well in both the AM and PM peaks during the 2040 Forecast Year with Local Plan growth, with all arms operating within capacity. The accommodation of the entirety of development traffic from the southern parcel has had little material effect upon the operation of the junction.
 - Exclusive use of the B1383 London Road access by the southern development parcels has had a minimal effect on performance in the AM peak period when compared against Option 2. This is because the traffic turning left out of the new site access then becomes part of the increased conflicting flow at the High Street / Wicken Road junction as it travels northbound. Little material benefit is therefore afforded by restricting vehicular access of the southern development parcels to the sole use of the B1383 London Road access.
 - Despite the further relief afforded by the new southern access in the PM peak, the High Street / Wicken Road junction is still expected to suffer from excessive delays in both peak periods.
 - The provision of a new junction onto the B1383 London Road and associated vehicular access restrictions onto Wicken Road from the southern development parcel, is therefore not sufficient to bring the existing junction within its operating capacity during the peak periods. Whilst Option 3 does reduce the traffic impact at the High Street / Wicken Road junction, it is still expected to operate over capacity beyond an acceptable level.
- 3.4.7 It should be noted that the close proximity of local bus services and Newport railway station (serving trains providing direct access to Cambridge and London) could result in a higher modal share of sustainable trips than modelled.
- 3.4.8 Given that pedestrian and cycle access would be far more direct (via Wicken Road or Frambury Lane) than driving, especially to travel north (vehicles would have to come south along the internal road to access the new junction at the B1383 London Road), there is a greater potential for modal shift in Option 3. This would help to alleviate, in part, some of the delays identified at the Wicken Road / High Street junction.
- 3.4.9 Notwithstanding the above, it is likely that mitigation would be required to ensure that these proposed Local Plan development sites are deliverable in transport terms.

3.5 MITIGATION

- 3.5.1 A desktop exercise has been undertaken by Tetra Tech's experienced traffic signal engineers to ascertain whether the High Street / Wicken Road junction could be put under signal control. The review found that a signal junction at this location could be delivered subject to a departure from standard and feasibility design work.
- 3.5.2 As such, the potential capacity of the High Street / Wicken Road junction has been tested under signal control using LinSig (version 3) software, the industry standard for assessing the operation capacity of signal junctions.
- 3.5.3 The standard method of reporting capacity at signal junctions is to use a Degree of Saturation (DoS). However, for the ease of comparison, the DoS has been converted into an RFC value. The Mean Maximum Queue (MMQ) at each approach has also been reported.
- 3.5.4 For the purposes of this modelling exercise, flows through the junction have been modelled consistently with those used to model Option 3.
- 3.5.5 Assessments have been undertaken for a 2021 Base Year, a 2040 Reference Case (Base Year flows plus background traffic growth plus committed development) and a 2040 Forecast Year (Reference Case flows plus Local Plan development traffic flows).

3.5.6 The capacity assessment results of Option 2 are summarised in **Table 3-6**. Note that only the 2040 Forecast Year has been reported.

Junction Capacity Assessment Results	АМ		РМ		
	ммQ	RFC	ММQ	RFC	
	20	21 Base			
High Street (S)	9.4	0.44	7.2	0.37	
Wicken Road	7.5	0.69	5.9	0.64	
High Street (N)	14.5	0.70	13.7	0.65	
2040 Reference Case (Base + Committed)					
High Street (S)	121.6	1.29	102.6	1.24	
Wicken Road	38.6	1.26	31.1	1.24	
High Street (N)	125.4	1.29	117.8	1.23	
2040 Local Plan Model (Base + Committed + Local Plan Growth)					
High Street (S)	211.2	1.54	180.4	1.48	
Wicken Road	63.8	1.48	44.2	1.37	
High Street (N)	214.2	1.52	223.0	1.49	

Table 3-6: Performance of the High Street / Wicken Road Junction under Signal Control

3.5.7 The capacity assessment results highlight that:

- Putting the junction under signal control would operate within capacity should traffic flows be reflective of those observed in the 2021 Base Year.
- Excessive queuing at the junction is expected to occur in both AM and PM peaks in the 2040 Reference Case and 2040 Forecast Year scenarios however, with the junction expected to be operating over its design capacity.
- The physical constraints at the existing junction mean that a dedicated right turn storage lane for B1383 High Street southbound traffic accessing Wicken Road cannot be provided. This traffic therefore blocks the ahead traffic whilst waiting for gaps in opposing traffic to undertake the turn. As such, the southbound ahead movement requires its own stage with lots of unopposed green time to discharge the right turns. This severely limits the available capacity at the junction.
- 3.5.8 It can therefore be concluded that putting the High Street / Wicken Road junction under signal control in its existing state is not sufficient in delivering the necessary capacity benefits to unlock growth at the Local Plan allocation sites in Newport.

3.6 PARISH COUNCIL STUDY

- 3.6.1 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.
- 3.6.2 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

- 3.6.3 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.
- 3.6.4 This compares to the USM with a base year of 2021 and containing 134 committed dwellings, with a further 350 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 484 compared to the sensitivity test in the Newport report of 491 in a 2034 forecast year.
- 3.6.5 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 the High Street / Wicken Road junction as it is the junction with links providing access to the wider district.

Findings

- 3.6.6 The Newport report assessment shows that in the base year (2019) all junctions operate within capacity. In the 2034 Reference Case, the High Street / Wicken Road junction exceeds its operational capacity (RFC of 0.85). The sensitivity test that includes the additional speculative dwellings only assessed the 2024 future year. This forecasts that the High Street / Wicken Road junction will be operating over capacity at this point.
- 3.6.7 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.
- 3.6.8 The junction assessment of the High Street / 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.

3.7 SUMMARY AND CONCLUSIONS

- 3.7.1 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.
- 3.7.2 Several access options have been assessed that seek to provide relief to the High Street / Wicken Road junction through the provision of an alternative access onto the B1383 corridor at London Road. Mitigation was also tested in the form of a new signal junction at the High Street / Wicken Road. It is recognised that there is limited space in which to install traffic signals at this junction, and in this respect, there are limited options through which traffic capacity at the junction could be increased.
- 3.7.3 The three access strategies, along with the assessment of traffic signals, tested do not go far enough to alleviate the traffic impact at the High Street / Wicken Road junction in the 2040 Forecast Year. Therefore, further work is required to identify a suitable package of mitigation that would be required to alleviate the traffic impact generated by the Local Plan allocation sites at Newport.

- 3.7.4 Such investigation into suitable mitigation could take several 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.
 - Restricting various turning movements to reduce the number of conflicts and increase capacity at certain locations.
 - 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.
 - Signlised junctions to the north and south of the village to regulate flow through the village and provide natural breaks for traffic using Wicken Road.
- 3.7.5 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.
- 3.7.6 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 will help provide further understanding in terms of the impacts on the highway network of the sites in Newport.