

Update of Saffron Walden Traffic Study

This technical note summarises previous reports submitted as part of the earlier withdrawn UDC Local Plan proposals. It then provides an update using latest traffic data of the situation that is likely to occur at the Radwinter Road/Thaxted Road junction without and with an eastern link road. It should be noted that further data regarding traffic routing across the town is still awaited and this note will be updated once it is available.

Overview of town impacts (March 2014 TA Update App C)

The previous work established that mitigation measures would be required to minimise Local Plan development impacts on highway network in Saffron Walden, as summarised in Table 5-1, copied below.

For simplicity the analysis results have been categorised to give a broad indication of the situation in each scenario. These categories are:

- ✓ No capacity issues in either peak hour
- ⊘ One or more arms approaching capacity in either of the peak hours
- ✗ One or more arms at or exceeding capacity in either of the peak hours

Table 5-1: Summary of Saffron Walden Junction Capacity Status

	Junction	2012	2018		2031	
		Base	Committed	Committed + ULP	Committed	Committed + ULP
1	B185 Thaxted Rd / B1053 Radwinter Rd	⊘	⊘	✗	✗	✗
2	B184 Thaxted Rd / Peaslands Rd	✓	⊘	⊘	⊘	✗
3	Mount Pleasant Rd / Debden Rd (existing layout)	✓	✓	✓	✓	⊘
4	B1052 London Rd / Debden Rd	⊘	⊘	⊘	✗	✗
5	B184 High St / B184 George St	✓	⊘	✗	✗	✗
6	B184 High St / Castle St	✓	✓	✓	✓	✓
7	B184 High St / Church St	✗	✗	✗	✗	✗

	Junction	2012	2018		2031	
		Base	Committed	Committed + ULP	Committed	Committed + ULP
8	B184 Audley Rd / B184 High St	⊘	⊘	⊘	×	×
9	B184 East St / Fairycroft Rd / Cates Cnr	✓	✓	✓	✓	✓
10	B1052 London Rd / Borough Ln	✓	✓	⊘	⊘	⊘
10b	B1052 Newport Rd / Audley End Rd	⊘	×	×	×	×

With Link Road in place the operation of some junctions improved, but further measures would be required, as shown in Table 5-2 copied below. In particular, it should be noted that the Link Road results in additional congestion at the Thaxted Rd / Peaslands Rd junction as more traffic routes through it to and from the new road.

Table 5-2: Summary of Saffron Walden Junction Capacity Status: 2031 with Link Road

	Junction	2031		
		Committed	Committed + ULP	With Link Rd
1	B185 Thaxted Rd / B1053 Radwinter Rd	×	×	⊘
2	B184 Thaxted Rd / Peaslands Rd	⊘	×	×
3	Mount Pleasant Rd / Debden Rd (signals)	✓	✓	✓
4	B1052 London Rd / Debden Rd	×	×	×
5	B184 High St / B184 George St	×	×	×
6	B184 High St / Castle St	✓	✓	✓
7	B184 High St / Church St	×	×	×
8	B184 Audley Rd / B184 High St	×	×	×
9	B184 East St / Fairycroft Rd / Cates Cnr	✓	✓	✓
10	B1052 London Rd / Borough Ln	⊘	⊘	⊘
10b	B1052 Newport Rd / Audley End Rd	×	×	×

With the full range of highway Mitigation Measures and with LP development in place it was concluded that (with the exception of the Mountpleasant/Debden Rd junction) there would be either no overall change or an improvement over the forecast year with committed development in the town.

Table 5-3: Saffron Walden Junction Capacity Analysis Summary: 2031 with Mitigation Measures

		2031			
	Junction	Committed	Committed + ULP	With Link Rd	With Link Rd & Mitigation Measures
1	B185 Thaxted Rd / B1053 Radwinter Rd	✗	✗	⊘	✓
2	B184 Thaxted Rd / Peaslands Rd	⊘	✗	✗	✓
3	Mount Pleasant Rd / Debden Rd (signals)	✓	✓	✓	✗
4	B1052 London Rd / Debden Rd	✗	✗	✗	⊘
5	B184 High St / B184 George St	✗	✗	✗	✗
6	B184 High St / Castle St	✓	✓	✓	✓
7	B184 High St / Church St	✗	✗	✗	✗
8	B184 Audley Rd / B184 High St	✗	✗	✗	✗
9	B184 East St / Fairycroft Rd / Cates Cnr	✓	✓	✓	✓

		2031			
	Junction	Committed	Committed + ULP	With Link Rd	With Link Rd & Mitigation Measures
10	B1052 London Rd / Borough Ln	⊘	⊘	⊘	✓
10b	B1052 Newport Rd / Audley End Rd	✗	✗	✗	✗

It is reiterated that the 2014 traffic study identified a suite of junction and routing/mitigation improvements which sought to reduce traffic impact through the town. As such, the eastern link road is a key element of this suite, without which it is unlikely that the other elements would deliver the desired impact.

Overview of Radwinter Road / Thaxted Road Junction (March 2014 TA Update App C)

Existing network: Optimised signals junction operates ~85% with queuing on all arms in 2012.

With committed development in place in 2018 the junction would be at capacity, and with ULP would be over capacity, a situation which worsens by 2031.

Table 1c: B184 Thaxted Road / B1053 Radwinter Road AM Peak (Cycle Time=120sec, Optimised)

Approach & Lane		2012 AM Base		2018 AM with committed development		2018 AM with committed & ULP development		2031 AM with committed development		2031 AM with committed & ULP development	
		DoS	Q	DoS	Q	DoS	Q	DoS	Q	DoS	Q
B1053 Radwinter Rd	1	61.0%	13	68.3%	15	73.5%	17	69.0%	15	73.9%	17
B184 Thaxted Rd	1	86.6%	19	92.2%	23	98.5%	29	97.4%	28	110.0%	54
B184 East St	1	79.6%	14	91.8%	18	112.3%	46	95.0%	20	110.6%	44

Table 1d: B184 Thaxted Road / B1053 Radwinter Road PM Peak (Cycle Time=120sec, Optimised)

Approach & Lane		2012 PM Base		2018 PM with committed development		2018 PM with committed & ULP development		2031 PM with committed development		2031 PM with committed & ULP development	
		DoS	Q	DoS	Q	DoS	Q	DoS	Q	DoS	Q
B1053 Radwinter Rd	1	54.8%	11	59.8%	13	63.3%	14	62.9%	14	66.0%	15
B184 Thaxted Rd	1	84.4%	17	92.4%	22	97.0%	26	102.1%	34	117.5%	73
B184 East St	1	80.7%	17	94.0%	23	103.3%	36	103.9%	38	112.7%	62

Mitigation measures – Link Road

A range of assumptions made for the Study with regard to possible re-routing of traffic around the town as a consequence of the link road being constructed were:

The eastern link road, which would connect Thaxted Road with Radwinter Road, would be expected to relieve the Thaxted Road/Radwinter Road junction, which is a recognised bottleneck on the network. The link road would be enabled through ULP development on the Saffron Walden Policy 1 site and be built in conjunction with that development. Such a route would help to not only relieve the traffic flows at the junction of Thaxted Road and Radwinter Road, but also help to channel traffic away from the centre of the town. It would, however, lead to additional traffic on the alternative route of Peaslands Road/Mount Pleasant Road and Borough Lane and Debden Road, to the south of the town centre.

The key movements which were considered likely to transfer to the link road are:

- Northbound and southbound along Thaxted Road which is destined towards or originating from Radwinter Road.
- Westbound from Radwinter Road to Newport Road through the town, which would have used East Street, Audley End Road and London Road.
- Eastbound from Newport Road to Radwinter Road through town, which would have used London Road, George Street and East Street.

Assumptions have been made with regard to the proportions of traffic movements which would transfer to the link road and Peaslands Road-Mount Pleasant Road-Borough Lane/ Debden Road route and how the flows would reassign on the local road network. This methodology has been developed using a combination of observed junction turning movements and professional judgement. In broad terms it was assumed that:

10% of Radwinter Road westbound traffic going straight ahead at the Thaxted Road junction would use the link road and Peaslands Road route instead;

50% of Radwinter Road westbound traffic going left at the Thaxted Road junction would use the link road instead and just over 50% of this diverted traffic would then turn towards Peaslands Road, the remainder travelling south away from the town;

50% of Thaxted Road northbound traffic right-turning at the Radwinter Road junction is assumed to use the link road;

10% of eastbound London Road traffic approaching from the west of the town is assumed to divert to Borough Lane and Mount Pleasant Road and thence to the link road.

Analysis indicated that implementation of the Link Road in isolation would improve the junction operation in the AM but PM it would still be at capacity in 2031 with committed, ULP and the link road in place.

Table 1c-LR: B184 Thaxted Road / B1053 Radwinter Road AM Peak (Cycle Time=120sec, Optimised)

Approach & Lane		2031 AM with committed & ULP development		2031 AM with committed & ULP development & Link Road	
		DoS	Q	DoS	Q
B1053 Radwinter Rd	1	73.9%	17	55.4%	17
B184 Thaxted Rd	1	110.0%	54	84.0%	26
B184 East St	1	110.6%	44	69.9%	19

Table 1d-LR: B184 Thaxted Road / B1053 Radwinter Road PM Peak (Cycle Time=120sec, Optimised)

Approach & Lane		2031 PM with committed & ULP development		2031 PM with committed & ULP development & Link Road	
		DoS	Q	DoS	Q
B1053 Radwinter Rd	1	66.0%	15	52.2%	10
B184 Thaxted Rd	1	117.5%	73	95.8%	23
B184 East St	1	112.7%	62	84.8%	20

With both the Link Road and with Thaxted Rd with a northbound closure in place:

Table 1c-LR-MM1: B184 Thaxted Rd/B1053 Radwinter Rd AM Peak (Cycle Time=120sec, Optimised)

Approach & Lane		2031 AM with committed & ULP development		2031 AM with committed & ULP development & Link Rd		2031 AM with committed & ULP development, Link Rd & MM1	
		DoS	Q	DoS	Q	DoS	Q
B1053 Radwinter Rd	1	73.9%	17	55.4%	17	60.3%	14
B184 Thaxted Rd	1	110.0%	54	84.0%	26	78.1%	8
B184 East St	1	110.6%	44	69.9%	19	67.5%	12

Table 1d-LR-MM1: B184 Thaxted Rd/B1053 Radwinter Rd PM Peak (Cycle Time=120sec, Optimised)

Approach & Lane		2031 PM with committed & ULP development		2031 PM with committed & ULP development & Link Rd		2031 PM with committed & ULP development, Link Rd & MM1	
		DoS	Q	DoS	Q	DoS	Q
B1053 Radwinter Rd	1	66.0%	15	52.2%	10	51.4%	11
B184 Thaxted Rd	1	117.5%	73	95.8%	23	84.0%	10
B184 East St	1	112.7%	62	84.8%	20	65.8%	15

2016 Impact Analysis Update

Radwinter Rd/Thaxted Rd Junction Analysis – Existing Network

Note: For simplicity this analysis uses the same committed and Local Plan development assumptions for Saffron Walden as were used for the 2013/4 work. However, the base traffic flows have been updated to 2016, making use of the new surveys which were undertaken in April 2016. Growth factors have been adjusted accordingly.

AM	2016 Base		2018+CD+ULP		2033 +CD+ULP	
Approach	Deg Sat%	MMQ	Deg Sat%	MMQ	Deg Sat%	MMQ
Radwinter Rd	66.90%	15	71.4%	17	74.4%	18
Thaxted Rd	81.60%	17	94.8%	23	105.3%	38
East St	81.40%	15	94.3%	21	101.4%	29
PM	2016 Base		2018+CD+ULP		2033 +CD+ULP	
Approach	Deg Sat%	MMQ	Deg Sat%	MMQ	Deg Sat%	MMQ
Radwinter Rd	58.40%	12	105.2%	37	119.1%	71
Thaxted Rd	87.80%	18	107.1%	42	122.2%	82
East St	85.40%	19	104.3%	38	119.7%	80

The updated traffic flows have resulted in a worsening of forecast capacity in 2018 with committed and LP development in place in the AM peak hour, and a slight improvement in the PM peak hour. However, the junction would still be considered to be at capacity in the AM and over capacity in the PM peak hours.

The forecast for 2033 indicates that the junction would be over capacity in both peak hours with committed and LP development in place. The situation is not quite as congested as previously forecast for the AM peak, but worse in the PM peak, where all arms would be expected to be over capacity.

Radwinter Rd/Thaxted Rd Junction Analysis – With Link Road in place

Note: Due to technical problems with the ANPR survey outputs no comparison has yet been made against the Link Road reassignment assumptions made in the 2013/4 work and those indicated by the 2016 surveys. This information will be updated once the ANPR outputs have been resolved.

The tables below show the estimated capacity at the Radwinter Rd/Thaxted Rd junction with the link road in place. The first columns show the situation without the link road, the next columns with only 25% of estimated traffic reassigned to the alternative route, the next with only 50% of this traffic, and the last columns with all of the estimated traffic reassigned.

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AM	2033 +CD+ULP		2033+CD+ULP+Link25%		2033+CD+ULP+Link50%		2033+CD+ULP+Link	
Approach	Deg Sat%	MMQ	Deg Sat%	MMQ	Deg Sat%	MMQ	Deg Sat%	MMQ
Radwinter Rd	74.4%	18	72.4%	17	69.1%	16	63.5%	14
Thaxted Rd	105.3%	38	97.4%	25	92.7%	21	80.7%	15
East St	101.4%	29	96.9%	23	89.1%	18	78.7%	15
PM	2033 +CD+ULP		2033+CD+ULP+Link25%		2033+CD+ULP+Link50%		2033+CD+ULP+Link	
Approach	Deg Sat%	MMQ	Deg Sat%	MMQ	Deg Sat%	MMQ	Deg Sat%	MMQ
Radwinter Rd	119.1%	71	116.4%	62	109.7%	45	54.5%	11
Thaxted Rd	122.2%	82	115.8%	64	112.7%	55	90.9%	19
East St	119.7%	80	114.7%	67	110.1%	55	89.6%	22

It can be seen that the junction would not be expected to operate within capacity without a significant proportion of the traffic reassigning to the link road. For the AM peak somewhere between 50% and 100% of the traffic would be needed to reassign to fully relieve the junction, and for the PM peak even if all the traffic were to reassign the junction would still be at capacity.

Link Road: Estimated Daily Flows

Using ATC surveys from both Thaxted Road and Radwinter Road, the estimated level of reassigned daily traffic that would be likely to use the Link Road is of the order of 3,300 vehicles a day. Currently, on Thaxted Road approximately 7% of vehicles are LGV/MGV/HGVs, and on Radwinter Road these types of vehicle comprise 6% of daily flows.

Conclusion

As set out in the earlier Traffic Study, there are a number of junctions within Saffron Walden which would require mitigation measures in order to deliver the LP growth. The eastern link road is a key element for delivering these measures, particularly in encouraging traffic to circumnavigate the town centre. The town centre, including the Radwinter Rd/Thaxted Rd junction is an AQMA, and the ability to address some of the congestion issues which could exacerbate the air quality would be compromised if the eastern link road is not of sufficient standard to encourage traffic to use it.

The Essex Design Guide states:

Within new residential areas, vehicular movement should be convenient, safe and pleasant, but vehicular access is to be provided for in such a way as to be consistent with the achievement of an attractive environment and the needs of the pedestrian or cyclist who have to share the same space. Through traffic is to be excluded from new residential areas, and the layout and attractiveness of the environment should be such as to discourage the use of the car for local trips and encourage walking and cycling. To achieve these aims, the environmental requirements of the urban space within which each road is located should determine the width and speed of alignment of the road. This

means that the character and pleasantness of the space takes precedence over the speed and throughput of traffic to be carried by the road contained within it. By 'calming' traffic in residential areas in this way, there should be a corresponding benefit in increased pedestrian safety and thus the pleasantness and usefulness of the environment to the pedestrian.

The ECC Development Management Policies document provides guidance on the categorisation of routes and their functions. It would be expected that the eastern link road would fulfil the function of a Secondary Distributor Route, PR2, to accord with the existing function of Thaxted Road; Radwinter Road is a Radial Feeder, PR1. Traffic volumes in excess of 3,000 vehicles per day, including HGVs are, as per the Essex Design Guide, unsuitable for residential roads of the type being proposed by the site promoters.

Therefore, for the reasons set out above, it is recommended that the eastern link road is routed appropriately around the Manor Oaks development and routed sensitively through or around the LP sites to the south. It should be of a standard that will attract traffic to reassign to it, should not compromise the environment of the residential development, and should enable other highway mitigation measures to be implemented across the town.

Whilst we still await the final analysis of traffic routeing, from the work that we have done so far, we are reasonably confident that the estimated level of traffic using the eastern link road would be at least as much as the earlier work assumed, which lends weight to our recommendation that the link road should be direct and not traverse the centre of the development.

If this is not reconcilable then we would not recommend further development in the east of Saffron Walden as it would not be possible to improve the existing road network within the town to accommodate the additional traffic.

Essex County Council
Transportation Strategy & Engagement
15th November 2016