
A2/A251 Update

To: **(Swale Joint Transportation Board – 24th June 2019)**

Main Portfolio Area: **Growth, Environment & Transport**

By: **Simon Jones, Director of Highways, Transportation & Waste**

Classification: **For Information**

Ward: **Watling**

Division: **Faversham**

Summary: Further update report on the completed studies of the A2/A251 and A2/B2041 junctions

1.0 Introduction and Background

1. Introduction

- 1.1 This report is intended to provide members with a further update on studies that the County Council have commissioned for the A2/A251 and A2/B2041 junctions. Two studies were reported on earlier in the year, one evaluating the performance of the previously presented roundabout and traffic light scheme designs in respect of the cumulative local plan and recently committed growth. The second study looked at the feasibility of evolving design options that would cater for full local plan build out and growth up to 2031. This further report compares options in terms of the following; Traffic Capacity, Pedestrian Crossing, Land Requirements, Costs and Programme. The report provides members with a recommendation for approval of a way forward.

2.0 Schemes evaluated

- 2.1 Four schemes have been considered and are summarised below.
Scheme 2b - Revision of the previous Waterman scheme 2b. Elongated roundabout with the addition of a 2m southern footway.
Scheme 3 – Signalisation of the A2/A251 junction with addition of a 2m southern footway.
Scheme 5 – Roundabout at A2/A251 junction, sized to allow it to be incorporated into the Waterman option 2b at a later date. A2/The Mall would remain as a priority “T” junction.
Scheme 6 – Roundabout at the A2/A251 as scheme 5 but with signalisation of the Right-Turn into The Mall.
- 2.2 All options have been modelled for future scenarios in 2020 and 2031. The 2020 assessment includes additional growth in accordance with TEMPRO predictions. It therefore includes growth factors of 1.0296 for the AM and 1.0287 for the PM peak hour flows on top of the observed 2018 counts.
- 2.3 The 2031 assessment includes all those committed sites at; Ospringe Brickworks, Oare Gravel Works, Perry Court, Lady Dane, Preston Fields and Frognall Lane. Background TEMPRO growth has also been applied. A calculation to remove the above sites from the TEMPRO rates to avoid double counting has been applied.

3.0 Scheme 2b – Elongated Roundabout with partial signal control

- 3.1 The layout provides two lanes for straight ahead traffic on the A2 east approach to the junction and an associated two lane exit on the A2 West to allow traffic to merge back to a one-lane flow. The nearside lane is also marked for left turning traffic and the outside lane would accommodate traffic turning right into The Mall. On the A2 West approach, the layout provides a single lane for straight ahead and left turning traffic and a separate lane for right turning traffic into the A251 Ashford Road. The A251 approach includes one lane for left turning A2 traffic and a separate lane for traffic heading A2 Eastbound and to The Mall. The Mall has a lane for A2 Eastbound traffic and a lane for A2 Westbound and A251 Southbound traffic.
- 3.2 A staggered zebra crossing is provided on The Mall.
- 3.3 Signalisation has been introduced on the circulatory and A2 Western arm to better regulate the traffic from the A2 Western arm and subsequently reduce the delays of traffic entering and exiting The Mall.
- 3.4 Land Assessment – Of the schemes reported, 2b requires the greatest use of non-highway land. A 23m deep section of land would be required on the South side of the A2 approximately 40m East of Kingsnorth Road to the A251 junction. The land is in KCC ownership relating to the Abbey School. A small section of 11m depth of land to the West of the A251 would be required. This land is associated with the Fire Station. No additional land would be required on either approach from The Mall or A2 Eastern arm.
- 3.5 Capacity Assessment – The assessment shows that the junction would operate with spare capacity at 2020 in both the AM and PM peaks. At 2031 the results suggest that the junction would operate slightly over practical capacity but within actual capacity and without substantial delays in both the AM and PM peaks.
- 3.6 Pedestrian Assessment – This scheme provides facilities for crossing at the Mall only. There could be potential to add an additional signal control of the Westbound A2 Lane opposite the proposed signal control of the A2 Eastbound lanes for pedestrian crossing only. This would however have a negative impact on the junctions capacity performance.
- 3.7 Cost and programme – This scheme is both the most expensive and has the greatest programme length to deliver. The construction cost is £2,989,042.00

4.0 Scheme 3 – Signalised junction

- 4.1 The layout provides signal control of the A2/A251 arms of the junction with The Mall remaining in its current form. Two lanes are provided for each of the signal-controlled approaches to the junction for approximately 50m before they revert back to single lanes. The A251 approach has two lanes, one for A2 East, one for A2 West.
- 4.2 Land Assessment – Additional land of approximately 11m depth would be required to the West of the A251. This land is related to the Fire Station. On the analysis completed it is not expected that any non-highway would be required on the South side of the A2.
- 4.3 Capacity Assessment. The assessment shows that the junction would operate with spare capacity at 2020 in both the AM and PM peaks and with moderate queueing on all approaches. A maximum queue of 17 vehicles would occur on the A2 Western arm but clears in each phase. At 2031 the results suggest that the junction would operate well above capacity in both the AM and PM peaks. The junction would suffer from severe queueing in 2031 however the A251 would still benefit when comparing to the existing layout. This is likely to come at a detriment to the A2 East approach which does not experience any queues in the existing layout. The isolated A2/The Mall junction modelling shows it to operate beyond capacity in 2020 for right turning movements from the A2 with a mean queue length of 25 vehicles. However, the introduction of a “Yellow box” areas, signal control at A2/A251 junction and two A2 Westbound lanes would remove any blocking of Westbound traffic.
- 4.4 Pedestrian Assessment – Provides a staggered pedestrian crossing facility on the East arm of the A2.
- 4.5 Cost and Programme – Is the least expensive option. Exact cost to be reported at the JTB. It also benefits from the shortest delivery programme.

5.0 Scheme 5 – Potential Interim Roundabout Option at the A251 and reversed priority junction at The Mall

- 5.1 The layout is based on the dimension of the 2b layout at its eastern end. It has been considered to reduce land requirements and provide the potential for future further development without excessive abortive works. It includes sections of two lane approaches on all arms and the provision of a two lane exit on the A2 Western arm to allow vehicles on the A2 Eastern arm and A251 approaches to use both approach lanes and two lanes through the roundabout. The exiting merge length is relatively short. The A2/The Mall junction has been revised. Turning options would be limited to egress only in an eastbound direction and any A2 Westbound traffic would be required to U-turn at the roundabout. Entry into The Mall would only be permitted at the West of the existing island which allows for an extended right turn bay into The Mall from the A2.
- 5.2 Land Assessment – Land to the East is as reported for 2b. Significantly less land would be required from the KCC school land to the South of the A2.
- 5.3 Capacity Assessment – The assessment shows that the junction would operate within spare capacity at 2020 in both the AM and PM peaks. The assessment shows minimal queueing on all approaches with a maximum mean queue of 6 vehicles on the A2 Western arm and therefore do not extend back to upstream junctions. This layout would offer substantial benefit at 2020 when compared to the existing layout. The A2/The Mall junction are reported to operate within capacity in the AM Peak but above capacity in the PM Peak. The A2 East to The Mall right turn movement would operate above capacity with a mean queue of 44 vehicles which is beyond that of the extended right turn bay. The comparison of these results against those of the existing layout would suggest that in 2020 the revised layout would not provide any overall benefit. Reporting for 2031 performance is therefore not required.
- 5.4 Pedestrian Assessment – There are no formal crossing provisions in this scheme. It is considered possible to introduce the Zebra crossing as proposed on 2b.
- 5.5 Cost and Programme – Not required for reporting due to unacceptable performance.

6.0 Scheme 6 – Potential Hybrid Layout; Roundabout at A2/A251 & Partial Signal Controlled Junction at A2/The Mall

- 6.1 Layout for the roundabout element is consistent with that for option 5 reported above. The change to the above option is the introduction of signal controlling of partial signal control of the A2/The Mall junction. This scheme includes traffic light control on the following approach lanes; A2 East to The Mall right turn lane, A2 West to East. A2 East to West to provide pedestrian crossing.
- 6.2 Land Assessment – An additional land take of approximately 12m would be required from KCC school land from that reported on scheme 5.
- 6.3 Capacity Assessment – The assessment shows that the junction would operate within spare capacity at 2020 in both the AM and PM peaks with moderate queueing on all arms. Most notably it is shown that the queueing in the A2 East to The Mall right turn bay would not extend back to the A2/A251 junction. This layout therefore provides significant improvement over the existing and revised priority layouts in the 2020 assessment year. The assessment shows minimal queueing on all approaches with a maximum mean queue of 6 vehicles on the A2 Western arm and therefore do not extend back to upstream junctions. This layout would offer substantial benefit at 2020 when compared to the existing layout. Reporting for 2031 performance suggests that both the A2/A251 and A2/The Mall junctions would be beyond capacity in both the AM and PM peaks. Most notably the issues arise on the A2 Western arm and approach from The Mall. Severe queueing is reported at both the A2 Western approach to The Mall junction and then continuing through to the A2/A251 junction increasing delays exiting The Mall. The queueing at the Mall is however comparable to that existing without intervention in 2020 and significantly better on the A2 Western approach than the existing arrangement in 2031.
- 6.4 Pedestrian Assessment – Controlled pedestrian crossing facilities are provided crossing the A2 to allow for movements between the The Abbey School and Town Centre. No provision is made on The Mall however it is considered that a staggered zebra could be incorporated into the design.

6.5 Cost and Programme – Construction cost estimated at £2,605,167.

7.0 Conclusions

7.1 The delivery costs associated with all roundabout options would be dependent of a successful external funding grant. The comparative difference between the costs of the full “2b” scheme and the interim scheme 6 are minimal. As such it is concluded that the scheme offering the most capacity, option 2b, should be the preferred aspirational option should growth remain as predicted.

7.2 The traffic light-controlled scheme (3) operates within capacity in the near future and clearly offers benefits both for traffic management, capacity and pedestrian safety and permeability.

7.3 Officers conclusion is that there are two alternative approaches to be taken, these are provided below.

7.4 **Option 1 – (Scheme 3) Managed Intervention.** This option would involve progression of the Scheme 3 (Traffic Signal Controlled option) to detailed design stage and construction. Delivery would be anticipated within the next 18 months and use a combination of available Local Growth Funding, developer contributions and likely to require some Local Authority contribution. Pedestrian crossing would be provided on the Eastern arm of the junction and as above a signal-controlled crossing at The Abbey School would also be progressed. The scheme would alleviate the existing concerns of congestion, safety and provide improved pedestrian amenities and safety. The aspirational option 2b would still be progressed should it be required in the longer term.

Benefits –

- Resolves immediate concerns and provides capacity for short to medium term growth.
- Improves pedestrian permeability and safety at two locations on the A2.
- Removes any threat of Highways England serving notice on the Highway Authority.
- Continues progression of longer term “2b” option.
- Enables intelligent management of queues.

Risks –

- Potential increased longer-term construction related disruption should further work be required in the future.
- Introduces queuing on the A2 Eastern arm currently free flowing.
- May require forward funding from the Highway and Planning Authorities.

7.5 **Option 2 – Aspirational.** This option would be to actively seek external funding for the Option 2b proceeding with design to get the scheme ready for immediate delivery on the success of any bids. This option would make no changes to the existing layout in the short term. It would be unknown as to how long it would take for a successful grant to be achieved, however the scheme is believed to meet a number of likely grant criteria and be attractive to grant providers. Progression would be made to deliver a signal-controlled crossing at The Abbey School to provide benefits to pedestrian movement and accessibility across the A2.

Benefits –

- Delivers a scheme able to support anticipated full local plan growth.
- Reduces level of impact caused by construction in the longer term.
- Retains all developer contributions to be used as match funding for grant applications.
- Delivers one traffic controlled pedestrian crossing at The Abbey School.

Risks –

- Unknown levels of increased congestion.
- Unknown levels of increased traffic collisions.

- Highways England serving notice on the Highway Authority to install traffic signals due to issues at M2 J6 congestion of the off-slip.
- External grant never being successful.
- Growth is not realised as predicted resulting in wasted public funding.

8.0 Recommendations

8.1 Officers recommendation is that Option 1, progression of Scheme 3 is commenced and delivered as soon as is practically possible. The option enables queues to be efficiently managed, removes the safety concerns pertaining to this junction and that of the M2 J6 off slip and provides far greater pedestrian permeability and safety. It is recommended that Option 2 could lead to increasingly unacceptable levels of congestion and queue related safety concerns.

Future Meeting if applicable:	Date:
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Annex List

<i>Annex A</i>	<i>Option 2b Proposed Elongated Roundabout</i>
<i>Annex B</i>	<i>Option 3 Proposed Signalised A2/A251 scheme</i>
<i>Annex C</i>	<i>Option 5 Proposed Roundabout scheme</i>
<i>Annex D</i>	<i>Option 6 Proposed Roundabout scheme with signal control on A2/B2041</i>