

From: David Stoddart

Sent: 03 April 2024 10:43

To: Doug Bailey; Emily Armstrong; Mark Adams; Gwyn Humphreys

Cc: James Rees; Kevin Blakey; Kevin Edwards; Rachel Penman; Kerry Williams; Michelle Zenner; Malcolm Matheson; Paul Walton; Cerys Jones

Subject: RE: P/2023/0280 Kingmoor scheme, Bryn Lane, Wrexham Ind Estate- Highway Consultation

Good morning Doug,

I'm pleased to provide you with the following details of our proposed mitigation measures.

Industrial Estate Road/Bryn Lane/Ash Road North/Abenbury Way (Wockhardt/Bryn Lane roundabout)

Drawing P21066-200 - BRYN LANE ROUNDABOUT MITIGATION

This is the lining scheme we discussed to allow the underutilised offsite flare on Abenbury Way to be used to make the first exit (left to Industrial Estate Road). The new arrows, guide markings and hatching on the circulatory should help to allow drivers to make this manoeuvre safely.

We have instructed a Stage 1 RSA and will provide you with this and our designers' response in the next week or two.

This scheme allows us to address the existing queues on this arm and mitigate our impact. It could also be incorporated onto the five-arm roundabout proposed by Utopia City.

The results of the impact assessment modelling is provided in Table 1 below with the Junctions 10 output attached:

Table 1: Industrial Estate Road/Bryn Lane/Ash Road North/Abenbury Way Mitigation

Arm	AM		PM	
	RFC	Q (PCU)	RFC	Q (PCU)
2027 With Development				
1 - Bryn Lane	0.40	0.8	0.41	0.8
2 - Ash Road North	0.16	0.3	0.68	2.1
3 - Abenbury Way	0.21	0.3	0.57	1.4
4 - Industrial Estate Road	0.86	6.4	0.33	0.6
2036 With Development				
1 - Bryn Lane	0.42	0.9	0.42	0.8
2 - Ash Road North	0.17	0.3	0.71	2.5
3 - Abenbury Way	0.22	0.4	0.60	1.6
4 - Industrial Estate Road	0.89	8.3	0.34	0.6
2027 With Development Sensitivity Test				
1 - Bryn Lane	0.39	0.8	0.45	0.9
2 - Ash Road North	0.16	0.3	0.70	2.3
3 - Abenbury Way	0.21	0.3	0.59	1.5
4 - Industrial Estate Road	0.89	8.6	0.32	0.5
2036 With Development Sensitivity Test				
1 - Bryn Lane	0.42	0.9	0.47	1.0
2 - Ash Road North	0.17	0.3	0.73	2.7
3 - Abenbury Way	0.22	0.3	0.62	1.7
4 - Industrial Estate Road	0.92	11.8	0.33	0.6

These results can be compared with those for the existing layout shown in Table 3.6 of the TA Addendum. As you will see the mitigation improves the RFC on the Abenbury Way arm in the PM peak, reducing it from 0.95 in the 2036 Without Development scenario to 0.62 in the 2036 With Development Sensitivity Test. The queue reduces from 15.6 PCUs to 1.7 PCUs. These results are without Utopia City as it will need to substantially modify the roundabout as part of its access arrangement. The results do however include all other committed developments assessed.

A534/Industrial Estate Road/Sandy Lane/Borras Hall Lane (Gourton Hall Roundabout)

Drawing P21066-201 - A534 ROUNDABOUT MITIGATION shows lengthening of the flare on the Wrexham Road (eastern) arm using highway verge. This allows greater queue storage and reduces flare starvation. A summary of the results is provided in Table 2.

Table 2: A534/Industrial Estate Road/Sandy Lane/Borras Hall Lane Mitigation

Arm	AM		PM	
	RFC	Q (PCU)	RFC	Q (PCU)
2027 With Development				
1 - Borras Hall Lane	0.32	0.5	0.03	0.0
2 - Wrexham Road	0.79	3.9	0.36	0.6
3 - Industrial Estate Road	0.39	0.8	0.95	19.3
4 - Sandy Lane	0.04	0.1	0.11	0.1
5 - A534	0.96	21.6	0.48	1.0
2036 With Development				
1 - Borras Hall Lane	0.37	0.6	0.04	0.0
2 - Wrexham Road	0.85	5.9	0.38	0.6
3 - Industrial Estate Road	0.40	0.9	0.98	38.0
4 - Sandy Lane	0.04	0.1	0.13	0.1
5 - A534	0.99	46.1	0.49	1.1
2027 With Development Sensitivity Test				
1 - Borras Hall Lane	0.38	0.6	0.03	0.0
2 - Wrexham Road	0.84	5.2	0.36	0.6
3 - Industrial Estate Road	0.39	0.8	0.98	33.9
4 - Sandy Lane	0.04	0.1	0.12	0.1
5 - A534	0.99	45.0	0.47	1.0
2036 With Development Sensitivity Test				
1 - Borras Hall Lane	0.42	0.7	0.03	0.0
2 - Wrexham Road	0.88	7.6	0.37	0.6
3 - Industrial Estate Road	0.40	0.9	1.01	79.3
4 - Sandy Lane	0.04	0.1	0.13	0.2
5 - A534	1.02	111.1	0.48	1.0

These results can be compared with those for the existing layout shown in Table 3.8 of the TA Addendum. As you will see the mitigation improves the RFC on the Wrexham Road arm in the AM peak reducing it from 0.97 in the 2036 Without Development scenario to 0.88 in the 2036 With Development Sensitivity Test scenario inclusive of all committed developments. The queue reduces from 19.7 PCUs to 7.6 PCUs. Whilst an arm in each peak is shown to exceed the theoretical capacity threshold, this is in the Sensitivity Test only, with the RFCs in the core assessment being below the threshold.

Gresford Interchange

Drawing P21066-202 -GRESFORD INTERCHANGE MITIGATION shows a simple lane allocation change on the southbound off-slip. The overwhelming demand on the slip is for the second exit towards the Industrial Estate. If we can allow lanes 1 and 2 to exclusively accommodate this movement (with the nearside lane also being used for the first exit) and lane 3 for all other movements it provides more effective queue storage. There would be a minor change to the lining on the circulatory to help achieve this.

The capacity assessment results for this improvement were presented in Table 3.13 of the TA Addendum and the LinSig output provided in Appendix 5.

We are currently costing these improvements and will share them when ready, but I just wanted to keep you up to speed with the mitigation measures. Obviously the mitigation at the first two junctions may be hypothetical should KSS2 and KSS3 and their associated mitigation come forward though such schemes could be modified to incorporate the above improvements. The above improvements should also allow the Kingmoor scheme to come forward in

advance of the other two should there be any delays with either of them with these improvements not prejudicing the larger scale improvements. Either way, the costings should provide a fair mechanism to calculate the contributions.

I'd welcome any feedback you may have at this stage.

Kind regards

Dave

David Stoddart
Associate Director
