

J000069-TN04a ADDENDUM
October 2023

Ref: P/2019/0923 - Land Either Side of
Stansty Chain Road, Wrexham - Outline
Application for Residential
Development and Details Means of
Access

Technical Note 4a Addendum

Prepared on behalf of:



Russell Homes Ltd.

1.0 INTRODUCTION

1.1 Overview

- 1.1.1 This Technical Note Addendum has been prepared by Focus Transport Planning Ltd. (Focus TP) on behalf of Russell Homes Ltd. to respond to comments and/or queries raised by the Wrexham County Borough Council (WCBC) and Welsh Government (WG) in respect of long-standing planning application submissions for the development of land either side of Stansty Chain Road, for residential purposes.
- 1.1.2 An outline planning application for up to 455 dwellings, with highway access in detail, was submitted in December 2019 (Ref: P/2019/0923). The development proposals have been discussed extensively with WCBC Highways and Welsh Government, since the application submission, ultimately reaching a position in early 2021 whereby both statutory consultees outlined that they had no objection to the planning application on highways grounds, subject to prospective planning conditions.
- 1.1.3 In June 2023 a Technical Note (J000069-TN04a) was issued to provide an update to the planning application, in respect of highway matters, and that TN included, amongst other matters, a review of the TA's findings in light of more recent 2023 survey data. Ultimately the TN concluded that the findings of the TA remained sound. Subsequently, the TN and the original planning submissions have been revisited by both WCBC and WG.
- 1.1.4 In correspondence dated 29th September 2023 two queries were raised by WG officers in respect of the proposals, with both queries specifically relating to the proposed mitigation strategy for the development scheme, which would involve some works at both J5 A483 and Plas Coch roundabout. Following the issue of those queries a meeting was held between all key stakeholders in respect of highways, at which those queries were discussed extensively (meeting date 4th October 2023). This Addendum to Technical Note 4a seeks to respond to the queries formally.
- 1.1.5 The following sections of this TN will therefore review each query and provide a detailed response, along with responding to any other queries which arose within

the most recent meeting of all parties. It is hoped that this TN will provide respond to those final remaining matters such that the planning application can be drawn to a close in terms of highways matters.

2.0 WELSH GOVERNMENT QUERIES

2.1 Query 1 - TA Assessment Results

2.1.1 In WG's e-mailed correspondence of 29th September 2023, the first query relates to the presentation of results within the submitted Transport Assessment. The query is outlined below:

"1) WG have a query on Table TA8.10a in the Transport Assessment as it shows saturation levels on the A483(N) arm decreasing when the development traffic is added to the baseline flows. We believe this may be swaying the priority of the direction of traffic through the junction which could affect the mitigation proposed. Due to the time since the original review of the application, we would be grateful if you could provide an overview of the proposals and an explanation for the reduction in saturation on this arm prior to the mitigation being implemented."

2.1.2 This issue was discussed at some length within the meeting of the 4th October. This point relates specifically to the following table within the submitted Transport Assessment:

Table TA8.10a: A483 J5 Signalised Roundabout Junction Mitigation - AM Peak

AM Peak	2019 Survey		2030 Baseline "Do Nothing"		2030 Baseline + Dev't "Do Something"		2030 Baseline + Dev't "Do Something"		2030 Baseline + Dev't "Do Something"	
	DoS	MMQ (PCU)	DoS	MMQ (PCU)	DoS	MMQ (PCU)	DoS	MMQ (PCU)	DoS	MMQ (PCU)
	No Mitigation						Stage 1 Mitigation		Stage 2 Mitigation	
A483 (N)	87.1%	10.3	105.9%	29.6	95.1%	15.0	103.3%	24.9	103.3%	24.9
North Circ	84.5%	14.7	88.1%	16.9	85.7%	14.9	88.5%	8.4	89.1%	8.7
A541 Mold Rd (E)	47.5%	2.8	55.6%	3.3	56.1%	3.3	61.9%	4.3	64.6%	9.2
East Circ	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	44.5%	4.2
A483 (S)	69.6%	7.4	77.7%	9.0	79.3%	9.4	72.3%	8.6	72.3%	8.6
South Circ	64.4%	6.7	75.2%	8.8	78.0%	9.3	72.4%	10.1	73.2%	3.2
S'hill Rd	40.6%	1.5	54.7%	2.0	56.0%	2.1	48.0%	2.0	53.0%	2.2

West Circs	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
A541 Mold Rd (N)	105.3%	31.8	133.6%	101.4	154.6%	148.1	124.3%	88.5	124.1%	87.9
Northwest Circ	88.0%	8.9	87.9%	7.9	89.7%	9.5	70.2%	10.4	70.0%	10.4
PRC	-17.0%		-48.5%		-71.8%		-38.1%		-37.9%	
Cycle Time	55/62s		55/62s		55/62s		60s		60s	

2.1.3 Within the above table it can be seen (highlighted) that the A483(N) off-slip would see DoS increase from 87% in the 2019 survey conditions to 106% in the 2030 Baseline scenario, before falling again to 95% in the 2030 Base + Development scenario. Following the addition of mitigation measures the DoS is then shown as increasing to 103%. As clarified by representatives of JCT, at the meeting of the 4th October, the reason for apparent reduction in saturation is that the green times between all scenarios may (and in this case do) vary - JCT's aim when modelling these junctions was to ensure the best overall balance of performance. In this particular case the only difference between the timings of the two scenarios was a shift of 1 second of green time due to the high DoS levels on the Mold Rd (N) approach. Effectively the A483(N) approach in the "with development" scenario is receiving 1 additional second of green time at the expense of 1 second of green time on the northern circulatory carriageway, hence the DoS falls by c10%.

2.1.4 In our discussion in the meeting it was outlined that had we adopted the same signal timings between the two scenarios, rather than trying to illustrate the best overall junction performance, the A483(N) approach would have seen a further increase in DoS following the addition of development traffic. To illustrate this we agreed in the meeting that we would re-run the model with the same signal timings for these scenarios. To that end the following table illustrates the model outputs of that test:

AM Peak	2019 Survey		2030 Baseline “Do Nothing”		2030 Baseline + Dev’t “Do Something”		2030 Baseline + Dev’t “Do Something”		2030 Baseline + Dev’t “Do Something”	
	DoS	MMQ (PCU)	DoS	MMQ (PCU)	DoS	MMQ (PCU)	DoS	MMQ (PCU)	DoS	MMQ (PCU)
	No Mitigation						Stage 1 Mitigation		Stage 2 Mitigation	
A483 (N)	87.1%	10.3	105.9%	29.6	107.0%	31.8	103.3%	24.9	103.3%	24.9
North Circ	84.5%	14.7	88.1%	16.9	85.9%	15.6	88.5%	8.4	89.1%	8.7
A541 Mold Rd (E)	47.5%	2.8	55.6%	3.3	57.0%	3.6	61.9%	4.3	64.6%	9.2
East Circ	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	44.5%	4.2
A483 (S)	69.6%	7.4	77.7%	9.0	79.3%	9.4	72.3%	8.6	72.3%	8.6
South Circ	64.4%	6.7	75.2%	8.8	77.0%	9.1	72.4%	10.1	73.2%	3.2
S’hill Rd	40.6%	1.5	54.7%	2.0	55.9%	2.1	48.0%	2.0	53.0%	2.2
West Circs	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
A541 Mold Rd (N)	105.3%	31.8	133.6%	101.4	144.3%	130.4	124.3%	88.5	124.1%	87.9
Northwest Circ	88.0%	8.9	87.9%	7.9	90.7%	9.8	70.2%	10.4	70.0%	10.4
PRC	-17.0%		-48.5%		-71.8%		-38.1%		-37.9%	
Cycle Time	55/62s		55/62s		55/62s		60s		60s	

2.1.5 From the above table it is clear that the A483(N) approach, with the same signal timings in the two “with” and “without” development scenarios does get progressively worse, increasing from 106% > 107%. The crucial difference in this scenario is that the Northwest circulatory approach arm now has a DoS of over 90%, as opposed to 89.7% in the original Table TA8.10a. In their original modelling JCT tried to adopt an approach which kept stoplines on the circulatory carriageway at DoS levels of <90%. The knock-on effect of that was that it resulted in the decrease in DoS on the A483(N) approach to a value of less than 100% also (as illustrated in the 1st table above).

2.1.6 What the above also demonstrates is that the proposed mitigation strategy would continue to result in a significant improvement in the operation of the junction with DoS levels on the two worst affected arms in the AM peak being reduced to

levels below that which could be anticipated if the development, and its associated mitigation strategy, are not implemented i.e. vs 2030 future year baseline traffic levels, as follows:

- A483 N, from 105.9% to 103%
- A483 S, from 77.7% to 72.3%.
- South Circular, from 75.2% to 73.2%.
- S'Hill Road, from 54.7% to 53.0%.
- A541 (Mold Road) (N), from 133.6% to 124.1%.
- South Circular, from 75.2% to 73.2%.

2.1.7 The above point is the most crucial to note. Moreover, we would also point to the PM peak modelling results, which demonstrate that more significant improvements in the junction's operation are anticipated in that peak period, as a result of the delivery of the mitigation strategy to the extent that there is clear betterment with development and mitigation than without.

2.2 Query 2 - Amendments to Approach Lane Markings Affecting A483 Off-slips

2.2.1 The second point/query raised in WG's response of 29th September relates to the specific measures proposed as part of the mitigation strategy outlined within the TA for the planning application, as follows:

“2) WG and NMWTRA have concerns that the proposed amendments to the roundabout at A483 Junction 5 may negatively affect the operation of the A483 Trunk road by prioritising other arms over the trunk road slip roads. Although the modelling shows the proposed mitigation should be able to deal with the additional traffic, the WG must prioritise safety by minimising the risk of traffic backing up to the A483 running lane.”

2.2.2 This point largely relates to concern over the proposed change in markings at the J5 roundabout, and the impact that this could have on the A483 off-slips. In particular reference being made to the A483(S) off-slip, where the existing arrangement would be modified to dedicate the left approach lane to traffic exiting towards the A541 Mold Rd (N) and the right lane to traffic travelling towards the A541 Mold Rd (S), with circulatory markings amended at the next internal stopline which would see the left lane for the A483(N) on-slip and the right lane for the A541(S). It was demonstrated by JCT in the 4th October 2023 meeting using

both the “without mitigation” and “with mitigation” Linsig models to illustrate exactly why this strategy was developed. To reiterate and clarify the points made by JCT, the primary purpose behind the proposed mitigation strategy was to make better use of each approach lane at the roundabout in terms of the distribution of traffic around the junction. It was noted in particular that, based on the 2019 survey data, just over 50% of traffic on the A483(S) approach was turning left to Summerhill Rd & the A541(N), with the remaining c40-50% turning right towards Wrexham on the A541(S). Observation of the video survey data had, in this regard, identified that effectively the left lane at this approach was exclusively utilised for left turning vehicles, with the right-turning lane for those heading towards Wrexham.

2.2.3 The illustration by JCT also identified a significant imbalance in the traffic flows circulating around the roundabout, particularly on the southern circulatory section past the A483(S). This was directly as a result of the volumes of traffic heading towards the A541(N), with a c66% of traffic in the left-most lane (>1,000 vehicles left lane vs <500 veh right lane) - traffic can currently only use the left most lane to exit the roundabout on to the A541 Mold Rd dual-carriageway. As a consequence of this, a greater amount of green time is required to clear traffic through this southern circulatory stopline, which is to the direct detriment of green time on the A483(S) approach. However, the proposed mitigation strategy addresses this issue by enabling traffic to exit the roundabout towards the A541(N) from both lanes of the circulatory carriageway, thus spreading flow across both lanes of the circulatory carriageway’s stopline. In turn this has the effect of reducing the amount of green time this approach requires which, in turn, has the benefit of enabling more green time to be given to the A483(S) approach.

2.2.4 In the discussion at the meeting which subsequently ensued, WCBC officers then raised the question as to whether traffic at the northwest circulatory stopline would block back across the proposed second exit lane on to the A541(N). JCT reviewed the model data in the meeting and that identified that there would be no effective queue on this approach (any queue was estimated at 0.5-1.5 vehicles), with traffic clearing through the stopline each cycle, and thereby there should be no blocking back of that egress from the roundabout. Accordingly, the full capacity of two lanes exiting the roundabout to the A541(N) could be utilised.

2.2.5 The above approach - trying to modify lane markings to more evenly distribute traffic approaching and circulating the roundabout - has been adopted as far as possible at both the A483 J5 and Plas Coch roundabout junctions, with the desire being to ensure that lane capacity on each approach is maximised. The consequence of this approach is that it should enable a more equitable split of green time for each approach, which subsequently benefits the overall operation of the junctions and its approaches.

2.2.6 We would again make clear, as we did in the meeting, that the mitigation strategy's physical amendments would enable this maximisation of junction capacity which is currently being lost. If, ultimately, the green times were to be amended to prioritise the trunk road approaches over the local highway network approaches, then that would be for the two Highway Authorities (WCBC & WG) to determine between themselves. But to be clear, that would still not change the inherent significant capacity benefits that would be gained through delivery of the physical works of the mitigation strategy i.e. those efficiency improvements would be enshrined by the physical works to the lane markings and proposed signalisation, regardless of the green times ultimately adopted.

2.3 Further Key Points of Discussion

2.3.1 Following review of the proposed change in road markings there followed some discussion in the 4th October meeting regarding the proposed signalisation of the A541(E) approach to the J5 roundabout (from Wrexham) and, in particular, whether it would actually be to the detriment of the operation of both junctions, with increased queuing. Particular concern was raised by WCBC officers regarding the potential for queuing back to occur towards the Plas Coch roundabout, and across the priority-controlled Berse Road approach.

2.3.2 We can only refer to the evidence provided from the modelling undertaken by JCT in this regard, which clearly demonstrates that this would not be the case. Indeed, it is clear from the modelling that even without the proposed development and its mitigation in place there is forecast to be a significant queuing problem at the A541(E) during the PM peak period. This queuing problem would, in turn, have knock-on consequences for the operation of the Plas Coch roundabout junction. Table TA8.10b of the submitted TA illustrates this (see below):

Table TA8.10b: A483 J5 Signalised Roundabout Junction Mitigation - PM Peak

PM Peak	2019 Survey		2030 Baseline "Do Nothing"		2030 Baseline + Dev't "Do Something"		2030 Baseline + Dev't "Do Something"		2030 Baseline + Dev't "Do Something"	
	DoS	MMQ (PCU)	DoS	MMQ (PCU)	DoS	MMQ (PCU)	DoS	MMQ (PCU)	DoS	MMQ (PCU)
	No Mitigation						Stage 1 Mitigation		Stage 2 Mitigation	
A483 (N)	80.1%	7.9	89.8%	11.8	100.4%	20.6	98.3%	18.5	98.1%	18.3
North Circ	76.9%	10.2	89.5%	14.4	88.6%	14.6	88.8%	9.0	87.7%	8.4
A541 Mold Rd (E)	85.8%	14.1	102.3%	54.1	114.1%	88.3	102.5%	47.0	87.3%	15.2
East Circ	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	65.3%	5.7
A483 (S)	103.8%	25.3	143.2%	99.0	144.3%	109.1	98.0%	17.4	104.1%	26.4
South Circ	89.7%	18.2	89.3%	18.9	89.4%	18.5	88.9%	16.2	87.9%	5.8
S'hill Rd	50.9%	2.1	60.3%	2.7	60.3%	2.6	54.2%	2.1	48.3%	2.0
West Circs	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
A541 Mold Rd (N)	80.4%	8.8	90.0%	11.9	95.1%	15.0	91.5%	12.6	91.6%	12.7
Northwest Circ	77.0%	7.6	87.0%	11.2	87.4%	10.9	68.5%	9.8	70.2%	9.0
PRC	-15.3%		-59.1%		-60.4%		-13.9%		-15.7%	
Cycle Time	63/55s		63/55s		63/55s		60s		60s	

2.3.3 Review of the above table, and the A541(E) approach in particular, identifies that future network traffic growth (non-development growth) is anticipated to see the DoS rises from c86% in surveyed conditions to over 100%, with queuing of approximately 54 PCUs. This increases further to 114% and 88 PCUs with the addition of development traffic. What we can also see, however, is that the introduction of the white-lining changes would see some of these increases tempered back to 103% and 47 PCUs. However, the most notable change is in the implementation of the signalisation of this approach, which would see DoS reduce back to 87% and queuing of just 15 PCUs.

2.3.4 With the above in mind we can see that the proposed signalisation of the A541(E) approach to J5 would bring significant benefits to the reduction of queuing on this

approach during the PM peak period, which is anticipated to increase as a result of the growth in network traffic over the next 10 years or so. The consequence of this would be clear in that it would reduce queuing back to the Plas Coch roundabout and, in particular, the give-way entry of Berse Road to that junction. Indeed, the primary purpose of the implementation of this signalisation was to reduce any significant queuing issues on the A541(E) approach.

- 2.3.5 As outlined in the 4th October meeting, it is worth keeping in mind that the recently shelved Welsh Government proposals for J5 (as part of the wider A483 corridor upgrades) included for the signalisation of this node of the junction, as per the Russell Homes mitigation. Accordingly it is clear that Welsh Government's A483 corridor improvement team were also satisfied that signalisation of this approach arm represents an appropriate improvement measure at this location.

3.0 SUMMARY

3.1 Summary

- 3.1.1 This Technical Note Addendum has provided further written clarity regarding queries raised by Welsh Government in respect of the proposed mitigation strategy associated with the planning application for up to 455 residential dwellings on land either side of Stansty Chain Road, Wrexham. These matters were discussed extensively at a meeting of the 4th October 2023 between all key highways stakeholders, the Applicants and their appointed consultants.
- 3.1.2 The technical approach that has been adopted by the Applicants throughout, has always been to consider the best overall operational performance and improvements at both J5 and Plas Coch roundabouts, and the most efficient measures that could be delivered. This technical based approach, using JCT as the global experts in signal modelling, has identified a series of improvements which would not just deliver some marginal gains which would see the development “consume its own smoke” but rather improvements that would result in overall betterment at these junctions when compared to a scenario with no development (and its mitigation) in place.
- 3.1.3 Overall, the planning application, and specifically the highways mitigation, has provided a robust and sound position based on technical information; backed up by real-world surveys; using specialists in junction analysis; and with recorded support by WG, WCBC, and Mott MacDonald.