Appendix DT/8

HE Atkins Letter of 23rd April 2018

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23rd April 2018

Dear Ben

Re: Peel Hall, Warrington - Review of M62 J9 LinSig Modelling

Highways England has received LinSig models of the M62 J9 and the network immediately to the south on the A49 as well as a supporting Technical Note in support of a planning appeal by SATNAM Millennium for a mixed-use site in Warrington known as Peel Hall.

I write to provide our comments on the modelling in relation to the impact(s) of the development on the SRN and the Proof of Evidence, again as it relates to the implications of the development traffic upon the SRN.

Atkins has already provided to Highways England comments on a range of technical notes and a Transport Assessment which did not include modelling of M62 J9 in an appropriate modelling tool. It was noted at the time that the absence of any assessment for M62 J9 means that it was not possible for any conclusions to be reached about the direct impact of the development upon the SRN. Therefore, it did not allow Highways England to make any recommendations for approval, or otherwise, to the Local Planning Authority.

Related Capacity Assessments in the Transport Assessment

As with previous reviews, the focus of Atkins work is the area of interest to Highways England. As such, junction assessments provided within the Transport Assessment that were either on the SRN or which had the potential for queuing to interact with SRN junctions were reviewed. To that end, the A49/Poplars Avenue junction was reviewed due to its proximity to M62 J9.

A49/Poplars Avenue Review

Drawings of the proposed junction that have been supplied in Appendix 31 of the Transport Assessment. Local modelling of the junction has been undertaken in LinSig with a full model output supplied in Appendix 72 of the Transport Assessment. The LinSig model file has not been supplied.

It is noted that the A49 is a 40mph road in the vicinity of the junction and that Highgate are proposing to run the northbound right turn into Poplars Avenue as opposed by three lanes of traffic. Atkins sought clarification that the Local Highway Authority would allow the proposed arrangement and we understand that the following issues were raised:

- Localised southbound widening had the potential to cause the model to overestimate the potential capacity.

- The refugee island is considered too small for the pedestrian crossings to be controlled by more than one phase.
- The right-turning vehicles have to cross three lanes of traffic on a 40mph speed limit road.

The Local Highway Authority considered the proposals to be unacceptable.

It was concluded within our previous review that the junction is not satisfactory. We recommended that Highgate should amend the proposals such that:

- The northbound right turn does not run as opposed.
- Run the pedestrian crossings across the minor arm in the same stage.
- The capacity of the northbound egress is not reduced by the incorporation of this new junction.
- Confirm that the junction has sufficient capacity under a sensitivity scenario where the southbound flare lane has 75% utilisation.

Review of Proposed Layouts

The proposed junction layouts and mitigations are provided in Appendix A of Technical Note_Rev2_060418_Full.

M62 J9

The mitigation proposals at M62 J9 include the following:

- The exit onto the eastbound on-slip is widened to two lanes with a merge approximately 150m to the east bringing the offside into the nearside.
- The approach on the westbound off-slip is widened to three lanes within a flare lane that is approximately 120m long.

It is noted that a Stage 1 RSA was submitted on 19th April 2018 and that all suggested amendments were accepted.

A49/Poplars Avenue

The proposals for A49/Poplars Avenue under the scenarios where this junction is provided are as described below:

- Two lanes northbound and southbound on the A49 with a segregated right turn lane providing for the movement into Poplars Avenue with this movement proposed to run opposed.
- Segregated right and left turn lanes on Poplars Avenue with three separate pedestrian crossings controlled separately by three pedestrian signal phases

Based on the above, it is noted that the following comments on the previous design have not been addressed:

- The right turn movement into Poplars Avenue continues to run opposed by the southbound movement on a 40mph road which we understand remains an unacceptable design to the Local Highway Authority.
- The refuge islands were regarded as being too small for the pedestrian crossings to be controlled by more than one phase under the Stage 1 RSA.

Atkins continues to consider that the junction design to not be satisfactory due to serious unaddressed safety concerns. It is noted that in order to address these issues it may be that the layout and/or operation of the junction may significantly change leading to a significantly different assessment.

We recommended that Highgate should amend the proposals such that:

- The northbound right turn does not run as opposed or confirm that this is satisfactory to the local highway authority
- Address issues previously raised by the Stage 1 RSA with regard to the pedestrian provision across the minor arm.

Atkins are concerned that the changes to the junction may reduce the operational capacity of the junction and the resulting reduction in the effectiveness of the mitigation measures may have a negative impact upon the operation of the operation of the SRN.

Atkins recommends that, in addition to the amendments requested above, that the junction is taken through a Stage 1 Road Safety Audit and that swept path assessments are provided. This is to ensure that there are not fundamental matters with the layout that would require alterations that subsequently invalidate the current operational capacity assessments.

Review of LinSig Models – M62 Junction 9

Base Modelling

No base modelling of the junction has been submitted.

A validated and calibrated base model is required to ensure that any future year assessment is made can be considered as robust. Without such a model Atkins are not able to comment on the conclusions of the modelling to an acceptable level of confidence that the changes to the operation of junction 9 future year flows are reasonable and robust, and that any proposed mitigation measures are appropriate. It should be noted that a baseline assessment is also a requirement in the DfTs *'Guidance on Transport Assessment'* as part of the baseline transport data, and is considered standard industry practice when undertaking traffic modelling.

Atkins strongly recommends that a base model is submitted for review including the data used to validate and calibrate the modelling work. This baseline model should then be used as the basis for future year / development impact assessments.

Future Year Modelling – Existing Layout

A LinSig model of the existing layout of M62 Junction 9 has been provided with 2030 demand flows both without (Do Min) and with (Do Something) the development.

We have the following comments with regard to the model setup:

- The model uses additional arms to reflect the network between stop lines. These arms are unnecessary and could impact on the accuracy of the model

We have the following comments with regards to the coding of the links within the model:

- There are several instances where controlling radii are not coded into the model leading to a potential overestimation of the capacity of the junction. For example, on Arm 1 the approach is clearly curved but none of the links have a radius coded.
- There are several instances where the nearside lane has not been set where it should be, leading to a potential overestimation of capacity. We would always recommend that all lanes on a roundabout are coded as nearside due to the distribution of destinations across each lane on both the approach and circulatory.
- Flared lanes on the circulatory carriageway and approaches are consistently coded with slightly longer lanes than we have measured resulting in lanes having slightly more capacity than on the ground. Atkins recommends that the lengths of the lanes are reviewed and changed within the model where not correct.
- Arm 12 has a two-lane flare that is modelled as a long lane with a flare. Given that both lanes only contain traffic going to A49(S) it is recommended that this arm is modelled with a two-lane flare using the multi-lane function for short lanes.

We have the following comments with regards to the phases, staging and intergreens:

- Phasing is sensible as are allocations to stage streams.
- Intergreens look to be sensible in the absence of a signal timing sheet.
- Staging is sensible.
- The proposed cycle time is at the higher end of what we would expect, but is considered acceptable.

With regards to the flows in the model, we have serious concerns that the Morning Peak Do Something (with development) model has significantly less demand in it than the Morning Peak Do Min (baseline 2030 flows) model as this is counterintuitive. This may be due to the use of 'Actual'

and not ‘Demand’ flows being taken from the SATURN model for use in the LinSig model. We therefore request further clarification as to how the model flows have been derived

Notwithstanding the above comments, we have reviewed the outputs of the model and have the following comments:

- Both Link 8/1 and 10/1 have queuing that is predicted to be slightly longer than the distance available before the queue blocks traffic attempting to exit the roundabout. There is therefore the potential that the model has overestimated the capacity of the junction. We recommend that the signal timings are re-worked to avoid this situation
- There are clear issues with regards to the operation of the node formed by the westbound off-slip and the circulatory carriageway.

Future Year Modelling – Mitigated Layout
It is noted that the comments on the non-mitigated layout apply to this model.

With regards to the flows in the model, we note the differences in demand between this model and the non-mitigated layout which is presumably related to the use of a SATURN model to derive the flows and the extraction of ‘Actual’ and not ‘Demand’ flows.

Notwithstanding the above comments, we have reviewed the outputs of the model and have the following comments:

- Both Link 8/1 and 10/1 have queuing that is predicted to be slightly longer than the distance available before the queue blocks traffic attempting to exit the roundabout. There is therefore the potential that the model has overestimated the capacity of the junction. We recommend that the signal timings are re-worked to avoid this situation
- There is clear betterment with regards to the operation of the node formed by the westbound off-slip and the circulatory carriageway when compared to the existing layout.

Future Year Modelling – Existing Layout with Poplars Junction
It is noted that the review of the modelling is untaken notwithstanding issues raised with regards to the design of the junction in an earlier part of this letter.

It is noted that the comments on the non-mitigated layout without the Poplars Junction apply to this model.

We have the following comments with regards to the coding of the links within the model:

- Arm J1:3 has a nearside flare that is incorrectly modelled as a long lane. This is also inconsistent with the versions of the model that do not incorporate the Poplars junction
- There should be an exit lane from J1 in the southbound direction to the south of Birch Avenue but no lane is provided

Notwithstanding the above comments, we have reviewed the outputs of the model and have the following comments:

- There are three arms operating above their absolute capacity in the Morning Peak model. This could lead to queues interacting with the SRN which would be unacceptable to Highways England

Future Year Modelling – Mitigated Layout with Poplars Junction
It is noted that the review of the modelling is untaken notwithstanding issues raised with regards to the design of the junction in an earlier part of this letter.

It is noted that the relevant comments on previously discussed versions of the model apply to this model.

Notwithstanding the above comments, we have reviewed the outputs of the model and have the following comments:

- There are significant operational issues at the Poplars junction including one arm operating over its design capacity. This could lead to queues interacting with the SRN which would be unacceptable to Highways England
- There is clear betterment with regards to the operation of the node formed by the westbound off-slip and the circulatory carriageway when compared to the existing layout.

Future Year Modelling – Mitigated Layout with Poplars Junction (adjusted cycle time)
It is noted that the review of the modelling is untaken notwithstanding issues raised with regards to the design of the junction in an earlier part of this letter.

It is noted that the relevant comments on previously discussed versions of the model apply to this model.

Notwithstanding the above comments, we have reviewed the outputs of the model and have the following comments:

- There are potential issues with queuing that is predicted to be slightly longer than the distance available before the queue blocks traffic attempting to exit the roundabout. There is therefore the potential that the model has overestimated the capacity of the junction. We recommend that the signal timings are re-worked to avoid this situation
- There is clear betterment with regards to the operation of the node formed by the westbound off-slip and the circulatory carriageway when compared to the existing layout.

Conclusions & Recommendations

Conclusions

Following our most recent review, and previous reviews, of the modelling and documentation supporting the application Atkins has the following conclusions:

- The LinSig models for the SRN and local roads should be reviewed and amended to address the comments raised by Atkins.
- There is no baseline LinSig model of M62 J9.
- The operation of the junctions on the A49 with the development, is likely to have an impact upon the operation of the SRN and as such Atkins continues to recommend the submission of the VISSIM model that has been stated will be made available.

Recommendations

Atkins recommends that Highways England should reserve their position until the comments above have been satisfactorily addressed and the VISSIM model has been submitted, reviewed, and approved.

VISSIM Model
It has been stated that a VISSIM model, including a validated and calibrated baseline model, is to be submitted in support of the development proposal, and it is noted that Atkins considers that this is a more robust tool for the assessment of the impacts of the development traffic upon the A49 and the M62 J9. The A49 is a congested section of the network and the integration of traffic queues as the result of the development traffic and mitigation measures, are likely to influence how upstream junctions operate, particularly the ability to safely exit the SRN at M62 Junction 9.

Yours Sincerely,

For and on behalf of ATKINS Limited

Gavin Coupe
Managing Consultant
Transportation