

**Subject:** RE: Peel Hall, Warrington.  
**Date:** Tuesday, 12 January 2021 at 08:21:35 Greenwich Mean Time  
**From:** Heywood, Robert  
**To:** Colin Griffiths, 'fiona.bennett@highgatetransportation.co.uk'  
**CC:** 'jim.sullivan@hotmail.co.uk', 'Spencer Tewis-Allen', 'Carney, Matthew', 'dave.tighe@highgatetransportation.co.uk', 'Taylor, Mike', 'Gallagher, Niki', 'Skinner, Helen', 'Hughes, Martha', 'Clisby, Paul'  
**Attachments:** image001.png, image002.png, image003.jpg, 5188540.078 Review of Proposed Mitigation.pdf, 5188540.078 Peel Hall Vissim Review.pdf

Fiona/Colin,

Based on the latest submission to date, the Base Vissim model has been found to be of a reasonable standard along the main study corridor in the area of interest to Highways England. The base model is recommended as fit-for-purpose in the area of interest to Highways England whilst caution will have to be applied to the interpretation of any modelling results along the M62 mainline and slip roads, particularly in the evening peak period.

The Proposed Vissim model coding and data input is deemed reasonable, however, concerns have been raised with respect to the proposed traffic signal optimisation strategy at the M62 junction 9 motorway junction, and also the stated Hollins Lane junction capacity as part of the committed development scheme.

Given that WBC have confirmed that they are unable to accept the proposed signal optimisations at M62 J9 with the information supplied we would need to wait until such information is provided to WBC to allow them to reach a conclusion that they are in a position to accept the proposed traffic signal optimisation strategy. Or an alternative mitigation measure to M62 J9 will need to be proposed and accepted by all parties before we are able to confirm the appropriateness of any such mitigation to the SRN.

In the mean time I attach the Vissim review and technical note produced by Atkins on our behalf.

Kind regards,

Rob

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**From:** Colin Griffiths [mailto:colin@satnam.co.uk]  
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Our reference: 5188540.078

Your reference: NW086 20/21

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14 December 2020

Dear Rob

## **Re: Review of Peel Hall Modelling Information**

Atkins has been commissioned by Highways England to audit a Vissim model with supporting Local Model Validation Report (LMVR) and a range of technical notes, which have been produced by The Modelling Group (TMG). TMG are working on behalf of Highgate Transportation (HT) who has been commissioned by Satnam Millennium Ltd (Satnam) in support of a proposed development of land at Peel Hall in Warrington. The relevant Planning Authority for this submission is Warrington Borough Council (WBC)

## **Background**

There is a long planning history to this project and Atkins have provided several reviews in the past as well as providing supporting information to the 2018 Public Inquiry (LPA reference: 2016/28492, PINS reference: APP/M0655/W/17/3178530). Since the previous Public Inquiry, a number of submissions have been issued to Highways England and the latest document reviews include:

- A review of a submitted Addendum to the previously submitted Transport Assessment (HTp/1107/01/A dated January 2018), in support of the proposals for a new residential neighbourhood on land at Peel Hall to be considered at a forthcoming reopened Public Inquiry. This review was issued on 15th April 2020 and included a further review of the Vissim modelling.
- A review of a submitted documents that make up part of a second Addendum to the Environmental Statement (ES Addendum 2). The following documents (in PDF) were reviewed in a letter issued on 5<sup>th</sup> June 2020:
  - 1820\_Peel Hall- ES Non-Technical Summary- Volume 7;
  - 1820\_Peel Hall- Environmental Statement ADDENDUM 2 - Volume 8- 2020; and
  - 1820\_Peel Hall- ES Documents and Figures- Volume 9- Part 1 and 2- 02.04.20.
- A review of a submitted base Vissim model and supporting LMVR. This review was issued on 5<sup>th</sup> June 2020.
- A review of a revised base Vissim model, supporting LMVR and the spreadsheets relating to the conversion of future year flows from a SATURN model for use in the Vissim model for scenarios creation. This review was issued on 31<sup>st</sup> July 2020.
- A review of the revised base Vissim model, proposed Vissim model, supporting documents and technical notes produced. This review was issued on 7<sup>th</sup> September 2020.
- A review of the revised base Vissim model and supporting LMVR. This review was issued on the 30<sup>th</sup> October 2020, following which the base Vissim was accepted by both Highways England and WBC.

## Submitted Documentation

HT submitted the following documentation and model files on the 2<sup>nd</sup> December 2020:

### Vissim Model

- Vissim model '2019AuditedBase\_v6Final' which includes the base models and 18 different modelled future scenarios which cover both morning and evening peak periods;

### Other documents

- Technical Note 'MG0123\_A49WarringtonCorridor\_OptionA\_ModellingReport\_v6.3';
- Spreadsheet 'MG0123\_A7\*Warrington\_VISSIM\_CalVal\_v6';
- Spreadsheet 'MG0123\_A49Warrington\_PeelHallOptA\_Results\_v6.2';
- Spreadsheet 'BaseModelRatioBalances';
- Spreadsheet 'Link Flow Summary Strategy A\_HTp\_M62 Summary';
- Spreadsheet 'MG0123\_A49Warrington\_PeelHall\_DevFlowInputs\_v1';
- Spreadsheet 'MG0123\_Lin2VIS\_MtxConv\_SATVISSIM\_FY\_v10'; and
- Spreadsheet 'MG0123\_Lin2VIS\_MtxConv\_SATVISSIM\_FY\_v10\_ODmatrix\_Result'.

The above documents have been reviewed under the following sub-headings.

### **Peel Hall Vissim Model – Base Model Review**

It should be noted at the outset that, as with previous reviews, this review focuses on the parts of the network that are of primary interest to Highways England. As such, it cannot be said that Highways England agrees or disagrees with any part of the work that does not fall under that heading. Overall, the Vissim base model looks to be of a reasonable standard along the main study corridor. A number of issues which have been noted in the previous reviews have now been addressed in the previous submission dated 16<sup>th</sup> October 2020.

In the latest submission, it has been noticed that the vehicle input zone names have been amended to reflect the LinSig Zone names, rather than Parking Lot reference. This is a welcome refinement and this naming convention provides the same reference point and avoid any confusion for future reference. Such zoning label amendments do not have any adverse impact on the calibration and validation of the previous accepted base model and hence the base model is recommended to be fit for purpose for this scheme evaluation in the area of interest to Highways England.

### **Traffic flow Conversion Process**

Following discussions with TMG and subsequent reviews on the additional evidence provided previously, the latest version of the excel spreadsheets have been amended with relevant naming conventions to improve data reference clarity. The 'Vehicle Input' flows have been examined and traffic flow irregularities have been highlighted as follows:

- Between the base and future year model periods, a relatively steady increase in traffic volume would be expected to reflect the background traffic growth across all Vehicle Inputs. However, between the future years of 2022, 2027 and 2032, various traffic growth rates have applied ranging from 2% to 31% for each of the traffic entry point notwithstanding the following further anomalies.
- The 'Vehicle input' has been reduced in volume by 50% for Birch Avenue (Zone H) in the morning peak period between 2027 DS and 2032 DS scenarios, with an absolute difference in a region of 50 cars, whilst no changes in traffic volume in the evening peak period between the two future year scenarios.
- The 'Vehicle input' from Winwick Park Avenue (Zone L) experiences a constant year-on-year increase, with an exception between 2022 DS and 2027 DS evening peak scenarios where a 40% reduction of traffic volume is predicted, with a net difference in the region of 80 cars.
- The total number development trips in future year 2027 is significantly less than those values applied to years 2022 and 2032 to reflect the Part Development scenario.

With relation to above, following closer investigation, it is agreed that the traffic irregularities were a direct reflection of the traffic flow distribution impact taken directly from the WMMTM16 SATURN model without adjustment. Albeit the flow discrepancies outlined above, the overall model traffic flow inputs are deemed acceptable on this occasion for this transport assessment scheme evaluation.

### Peel Hall Vissim Model – Proposed Model Review

In the latest model submission, a total of 18 different future year scenarios have been provided to cover both the morning and evening peak periods:

- 2022 Background & Committed Traffic Growth + Committed Mitigation Measures (Reference Case)
- 2022 Background & Committed Traffic Growth + Peel Hall Development Traffic (Full Development Scenario) + Committed & Proposed Mitigation Measures (Proposed Test)
- 2022 Background & Committed Traffic Growth + Peel Hall Development Traffic (Full Development Scenario) + Committed & Proposed Mitigation Measures + M4 Mitigation Package (Mitigation Test)
- 2027 Background & Committed Traffic Growth + Committed Mitigation Measures (Reference Case)
- 2027 Background & Committed Traffic Growth + Peel Hall Development Traffic (Part-Build Out with no Internal Link Development Scenario) + Committed & Proposed Mitigation Measures (Proposed Test)
- 2027 Background & Committed Traffic Growth + Peel Hall Development Traffic (Part-Build Out with no Internal Link Development Scenario) + Committed & Proposed Mitigation Measures + M4 Mitigation Package (Mitigation Test)
- 2032 Background & Committed Traffic Growth + Committed Mitigation Measures (Reference Case)
- 2032 Background & Committed Traffic Growth + Peel Hall Development Traffic (Full Development Scenario) + Committed & Proposed Mitigation Measures (Proposed Test)
- 2032 Background & Committed Traffic Growth + Peel Hall Development Traffic (Full Development Scenario) + Committed & Proposed Mitigation Measures + M4 Mitigation Package (Mitigation Test)

It should be again noted that this review focuses on the parts of the network that are of primary interest to Highways England, including the immediate junctions north and south of the M62 junction 9. As such, it cannot be said that Highways England agrees or disagrees with any part of the work that does not fall under that heading.

#### Traffic Flows / Method of Assignment

In summary, the overall principle of using the SATURN modelled future year scenarios to derive Vissim inputs is deemed appropriate, albeit the complex process could have been significantly simplified if TMG had retained the dynamic assignment from the original Vissim model as it would have been significantly easier for the matrices to be directly matched to SATURN cordon matrices. As discussed under **Traffic flow Conversion Process**, a number of traffic flow entry irregularities have been outlined in the above section. The traffic flows applied in the Vissim model largely follow the predicted traffic flow pattern for each of the SATURN modelled future year scenarios, therefore the traffic flows are considered representative for this transport assessment.

#### Use of Modifications

As suggested in our previous review(s), the number of modifications has been significantly reduced and appropriate file names have now been given. This makes the model easier to follow for both the model builder and auditor(s). Each modification has been reviewed and the model set up seems appropriate.

## Network Layout Coding – Committed Development Schemes

According to the Technical Note 'MG0123\_A49WarringtonCorridor\_OptionA\_ModellingReport\_v6.3', the Committed Mitigation Measures scenarios incorporate the following schemes:

- **A49 Newton Road / Hollins Lane Junction** – although this junction is outside of the modelled network extents, the effects of delays at this location form part of the base model validation (through the use of reduced speed areas on the exiting link to replicate vehicle speeds/delays). As a result of committed future mitigation measures in this location, modelling results from the document 'Former Parkside Colliery, Newton-le-Willows WPC Post Submission Highway Response 1' were used to alter the reduced speed area profiles, in order to match the stated improvement to northbound capacity through the junction as a result of a left-turn filter lane being added and the junction being optimised.
- **A49 Newton Road / Winwick Link Road Junction (Winwick Island)** – Widening of northbound and southbound approaches on Newton Road, widening of westbound approach from Winwick Link Road including a segregated left turn lane. Also included, is widening of the circulatory carriageway.
- **A49 Newton Road / Delph Lane Junction** – Additional lane for Newton Road northbound, including widened exit merge.
- **Nine Retail Park Junction** – Widening of Winwick Road northbound to facilitate a dedicated left turn lane into the retail park, Widening of Winwick Road southbound to extend the existing dedicated right turn lane into the retail park.

The modelling of each of the above schemes is discussed under the following sub-headings.

### A49 Newton Road / Hollins Lane Junction

As explained in Technical Note 'MG0123\_A49WarringtonCorridor\_OptionA\_ModellingReport\_v6.3', reduced speed area no. 1458 has now been amended to reflect the stated improvement to northbound capacity through the modified junction as a result of a left-turn filter lane being added and the junction timings being optimised. The reduced speed area has been adjusted from 6 – 13.25 mph in the base model to 12 – 15 mph under the committed development scheme improvement. This has effectively increased the traffic throughput capacity, allowing more traffic to leave the network to the north, relieve traffic pressure within the Vissim network and subsequently reduce the A49 Section 1 NB journey time.

Based on the information provided in the 'Former Parkside Colliery, Newton-le-Willows WPC Post Submission Highway Response 1', there is limited evidence that the northbound capacity has been increased as stated compared to the baseline situation, therefore it is possible that the journey time analysis may have been over-estimated in the future year scenarios. The result of such should be treated with caution.

### A49 Newton Road / Delph Lane Junction

At the A49 Newton Road / Delph Lane Junction, an additional lane for Newton Road northbound, including widened exit merge has been coded in the scenario management modification accordingly and accurately.

### A49 Newton Road / Winwick Link Road Junction (Winwick Island)

At the A49 Newton Road / Winwick Link Road Junction (Winwick Island), changes have been made to reflect the proposed scheme which includes widening and a segregated left turn for traffic entering Delph Lane from the Winwick Link Road. Our previous observation with respect to the lack of reduced speed areas on the approaches to the roundabout have been addressed and deemed appropriate.

### Nine Retail Park Junction

At the Nine Retail Park Junction, an additional northbound left turn lane along Winwick Road and the new four-lane stop line approach from the retail park have been coded in the scenario management modification accordingly.

### Network Layout Coding – Proposed Mitigation Schemes

Two mitigation proposals are tested in all Proposed Mitigation Measures models. Although the proposed mitigation is more extensive, these two sites are the only ones covered by the physical extents of the model. These are as follows:

- **A49 Newton Road / Golborne Road Junction** – Improvements were made to the existing road widths and layout at this junction in order to increase queueing capacity, particularly for right turning vehicles which contribute heavily to the wider impact on the surrounding network.
- **A49 Winwick Road / A50 Long Lane / Hawley’s Lane Junction** – A much more detailed and responsive signal controller was created at this location, in order to allow a more accurate understanding of the potential impacts of planned physical upgrades and improvements to the current vehicle actuated signal control setup.

The modelling of the above schemes is discussed under the following sub-headings.

#### A49 Newton Road / Golborne Road Junction

At the Golborne Road Junction, an additional northbound right turn pocket along Winwick Road has been coded in the scenario management modification accordingly.

#### A49 Winwick Road / A50 Long Lane / Hawley’s Lane Junction

At the A49 Winwick Road / A50 Long Lane / Hawley’s Lane Junction, traffic signal infrastructure improvement and upgrade to MOVA operation at the junction is proposed. With regards to the proposed changes to the traffic signal control strategy, a bespoke VAP logic to mimic the vehicle actuated signal control has been prepared and incorporated in different model scenarios accordingly.

### Network Layout Coding – Additional M4 Proposed Mitigation Schemes

Two further mitigation proposals have been tested in mitigation model scenarios. The details for the intervention are as follows:

- **A49 Winwick Road / Sandy Lane West / A574 Cromwell Avenue Junction** – The northbound left-turn filter lane from the A49 Winwick Road to Cromwell Avenue was widened to two lanes and extended further south. This was in order to allow more storage space for the heavily used left-turn. An additional benefit to this arrangement is the allowance of a rebalancing of signal green time, providing additional capacity for other approaches.
- **M62 Junction 9** – The eastbound on-slip was widened to a two-lane section exiting the junction. There is also some realignment of the A49 Newton Road southbound approach and circulating carriageway in between to accommodate the additional exit lane. This allowed better lane usage on the northern section of the circulatory carriageway for traffic exiting eastbound onto the M62, with an additional knock-on benefit of allowing a rebalancing of stage green-time.

The modelling of the scheme is discussed below.

#### A49 Winwick Road / Sandy Lane West / A574 Cromwell Avenue Junction

The new left turn lane widening has been coded in the Vissim network. The Vissim model assumes vehicles travelling along the A574 Cromwell Avenue towards Westbrook and Old Hall will be using both lanes. The intended destination road markings should be clearly shown in the scheme layout, and any feedback from Stage 1 Road Safety Audit would be welcome.

#### M62 Junction 9

Lane widening on the M62 junction 9 eastbound exit has been coded in the Vissim network. Lane destination markings have been adjusted to allow vehicles to use two lanes within the northern circulatory carriageway to travel eastbound onto the M62 motorway. Stage 1 Road Safety Audit for a previous version of the layout has been undertaken in 2018. The previous layout contains a lane gain on the M62 (east) off slip which has now been removed in the latest version, and the corresponding designer response is deemed acceptable for the new exit lane widening element.

## Proposed Mitigation Measures and Development Impact Assessment

As outlined in the previous sections, the model traffic and network coding are deemed acceptable. This section outlines the proposed mitigation measures and the development impact on the key junctions, which focuses on the network operation which is close to the area of interest to Highways England.

### A49 Newton Road / Hollins Lane Junction

As raised in the previous model review, the reduced speed area no. 1458 has now been updated to reflect the stated improvement to northbound capacity through the modified junction as a result of a left-turn filter lane being added and the junction timings being optimised. However, no detail analysis has been provided to quantify the stated speed adjustment methodology.

Based on the information provided in the 'Former Parkside Colliery, Newton-le-Willows WPC Post Submission Highway Response 1', there is limited information to demonstrate the stated northbound capacity improvement compared with the baseline situation, therefore it is possible that the journey time analysis may have been over-estimated. The potential for queueing traffic to block back onto the M62 junction 9 roundabout should be carefully assessed and evaluated for Highways England's reference.

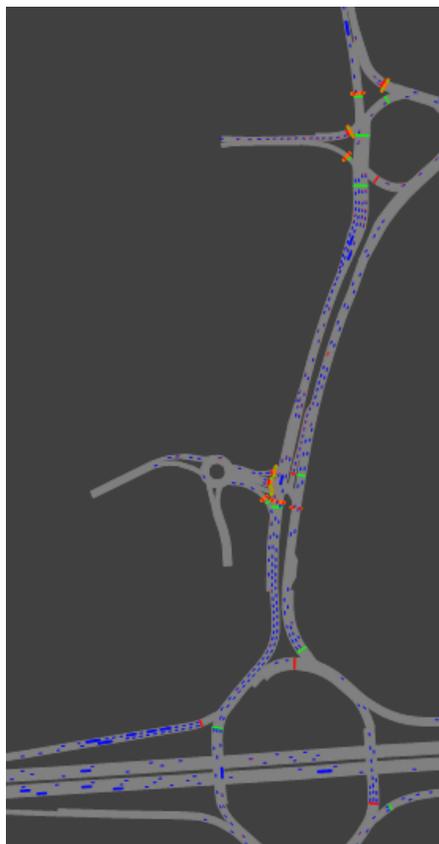
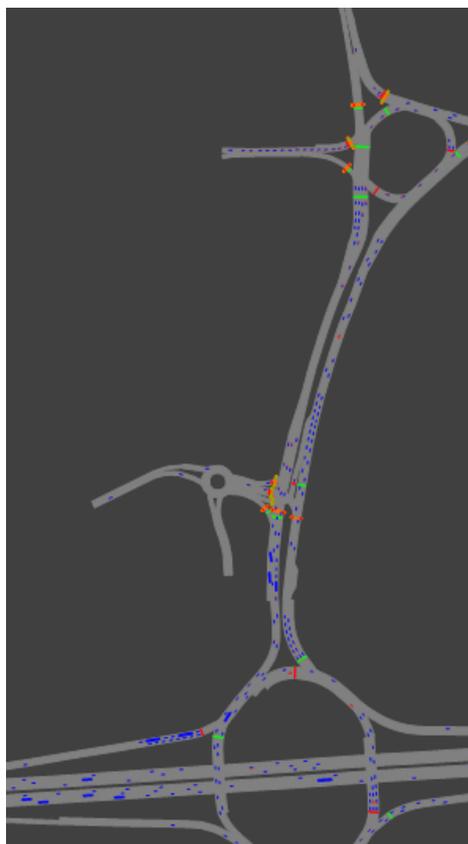
As a sensitivity test, if the Hollins Lane junction mitigation measure provided nil-detriment solution to accommodate the committed development traffic, the traffic would be travelling at the same cruise speed as in the existing situation. As illustrated below in Figure 1, the predicted traffic queue would be likely to be stretch back to the motorway junction and increase the risk of interaction with the M62 mainline on the Strategic Road Network.

Whilst it is acknowledged that the Hollins Lane junction forms part of the committed development scheme which is not the focus of this Peel Hall development, however, the impact of such committed development scheme capacity assumption on the Strategic Road Network is fundamental to Highways England as it is important to provide a robust Reference Case benchmark for this scheme evaluation. It is therefore recommended that the anticipated local junction capacity improvement at the Hollins Lane junction should be confirmed with WBC, and the Hollins Lane junction improvement should be replicated accordingly for Highways England's reference.

*Figure 1 2022 PM Do Something + Committed + Proposed + M4 Mitigation @17:53 (Seed 5)*

*With Hollins Lane Capacity Improvement*

*Without Hollins Lane Capacity Improvement*



A49 Newton Road / Golborne Road Junction

A mitigation measure has been provided to increase the right turn storage capacity. Limited information and narrative has been provided in the technical note to ascertain the effectiveness of such an intervention to alleviate the pressure of the development traffic. The impact on journey times of the scheme combined with the additional development traffic can be seen by reviewing Journey Time A49 Section 1 NB. Tables from TMG TN are reproduced here in order to illustrate the impact.

Table 1 Journey time comparison provided for A49 Section 1 for future year 2022

Section	AM 2022 - 08:00 - 09:00							
	Back+ Comm Traff & Comm Mit	Back+ Comm+ Peel Hall Traff & Comm+ Prop Mit	Diff	%	Back+ Comm Traff & Comm Mit	Back+ Comm+ Peel Hall Traff & Comm+ Prop+ M4 Mit	Diff	%
A49 Section 1 NB	50	49	-1	-2%	50	50	0	-1%

Section	PM 2022 - 17:00 - 18:00							
	Back+ Comm Traff & Comm Mit	Back+ Comm+ Peel Hall Traff & Comm+ Prop Mit	Diff	%	Back+ Comm Traff & Comm Mit	Back+ Comm+ Peel Hall Traff & Comm+ Prop+ M4 Mit	Diff	%
A49 Section 1 NB	58	55	-2	-4%	58	57	-1	-1%

From a review of the above, it can be seen that there are predicted journey time savings following the introduction of a right turn pocket to accommodate the development traffic.

A49 Newton Road / Winwick Link Road Junction (Winwick Island)

No mitigation measure has been proposed at the Winwick Island junction for the development traffic. As part of the committed mitigation measure, the junction capacity has been improved which increases the traffic throughput level across all modelled years. However, as illustrated in Table 2, the total traffic throughput has experienced an overall reduction which implies that lower levels of traffic can enter the junction with the committed measures in place for the same time period. The underlying reason for such model results are due to the downstream blocking which occurs when the network is saturated with no spare capacity.

Table 2: Traffic flow comparison at Winwick Island for future year 2022 AM Peak

		08:00-09:00							
		2022							
Junction/ Movement		Vehicle Flow				Difference			
Junction	Approach	Back+ Comm Traff & Comm Mit	Back+ Comm+ Peel Hall Traff & Comm+ Prop Mit	Diff	%	Back+ Comm Traff & Comm Mit	Back+ Comm+ Peel Hall Traff & Comm+ Prop+ M4 Mit	Diff	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	8	9	1	13%	8	10	2	25%
	A49 NB	942	945	3	0%	942	956	14	1%
	A49 NB to Winwick Link Rd	601	596	-5	-1%	601	600	-1	0%
	Winwick Park Ave to A49 NB	185	185	0	0%	185	186	1	1%
	Winwick Park Ave to Winwick Link Rd	63	63	0	0%	63	62	-1	-2%
	Winwick Park Ave to A49 SB	88	92	4	5%	88	92	4	5%
	A49 SB to Winwick Link Rd	79	85	6	8%	79	85	6	8%
	A49 SB	845	912	67	8%	845	902	57	7%
	A49 SB to Winwick Park Ave	25	26	1	4%	25	26	1	4%
	Winwick Link Rd to A49 SB	964	915	-49	-5%	964	822	-142	-15%
	Winwick Link Rd to Winwick Park Ave	0	0	0	-	0	0	0	-
Winwick Link Rd to A49 NB	79	76	-3	-4%	79	70	-9	-11%	

As can be seen from the Vissim model, this junction is predicted to operate over capacity in all future years with a heavy tidal traffic flow pattern. There is a heavy southbound movement in the morning peak and a heavy northbound movement in the evening peak. The potential for queueing traffic to block back onto the M62 junction 9 roundabout has been carefully assessed and it is deemed that the two full ahead northbound lanes and the two full right turn lanes provided at the Winwick Island junction would provide sufficient capacity to minimise the risk of queueing back on to the M62 junction 9.

Albeit the above, as expressed in the previous section, it is unclear whether the Hollins Lane junction improvement would provide the stated capacity and any downstream blocking would have a ripple knock on impact on the operation of the M62 junction 9.

M62 junction 9 motorway roundabout

The new exit lane widening on the M62 junction 9 eastbound exit has been proposed at the motorway roundabout to mitigate the highway impact of the predicted development traffic. As noted in the Technical Note ‘MG0123\_A49WarringtonCorridor\_OptionA\_ModellingReport\_v6.3’ that the traffic signal timings could be optimised to relieve the pressure on the M62 junction 9 slip roads. Limited information has been provided in the report to substantiate the traffic signal optimisation process or methodology. For the primary area of interests, traffic signal green time analysis at the M62 junction 9 has been presented in Table 3 for Highways England’s reference.

*Table 3: Traffic signal green time comparison at M62 junction 9 between base and 2022 M4 Models*

	AM		PM	
	Base	2022 DS M4	Base	2022 DS M4
A (Roundabout at M62 East Off Slip)	23	17	22	20
B (M62 East Off Slip)	13	19	12	14
C (Roundabout at M62 West Off Slip)	22	17	22	22
D (M62 West Off Slip)	14	19	12	12
E (Roundabout at A49 Newton Road South)	14	20	12	14
F (A49 Newton Road South)	22	16	23	21
G (Roundabout at A49 Newton Road North)	13	12	21	17
H (A49 Newton Road North)	23	24	14	18

As can be seen in Table 3, the traffic green time allocations have been adjusted to allow more traffic to enter the roundabout from the approaches, subsequently, the traffic signal green time allowance for internal circulatory lanes have been reduced accordingly. As one of the key traffic signal optimisation principles for signalised roundabout, it is important to consider green wave progression and internal circulatory lane storage capacity. In the base model scenarios, the traffic signal timing offset strategy follows the above underlying traffic engineering principle which allow the roundabout approaching traffic to pass the first set of circulatory lane stop line without stopping when unhindered.

In the 2022 DS M4 scenarios, with the new proposed signal timing strategy, the traffic approaching from the M62 off slips would be stopped by the first set of circulatory lane stop line hence created an internal exit blocking situation within the motorway roundabout, resulting in vehicle start-stop movements and compromise operational safety and efficiency. Figures 2 has been provided to illustrate the internal circulatory lane queueing situation in 2022, and the internal circulatory lane queueing issue will be exacerbated in the future year of 2032 as shown in Figure 3.

Further input from WBC would be required to ascertain the appropriateness of the proposed traffic signal timing strategy. If the traffic signal is deemed not acceptable from an operational perspective, the traffic queueing impact on the slip roads should be thoroughly reviewed and presented for Highways England’s reference.

Figure 2 2022 PM Do Something + Committed + Proposed + M4 Mitigation @17:41 (Seed 5)

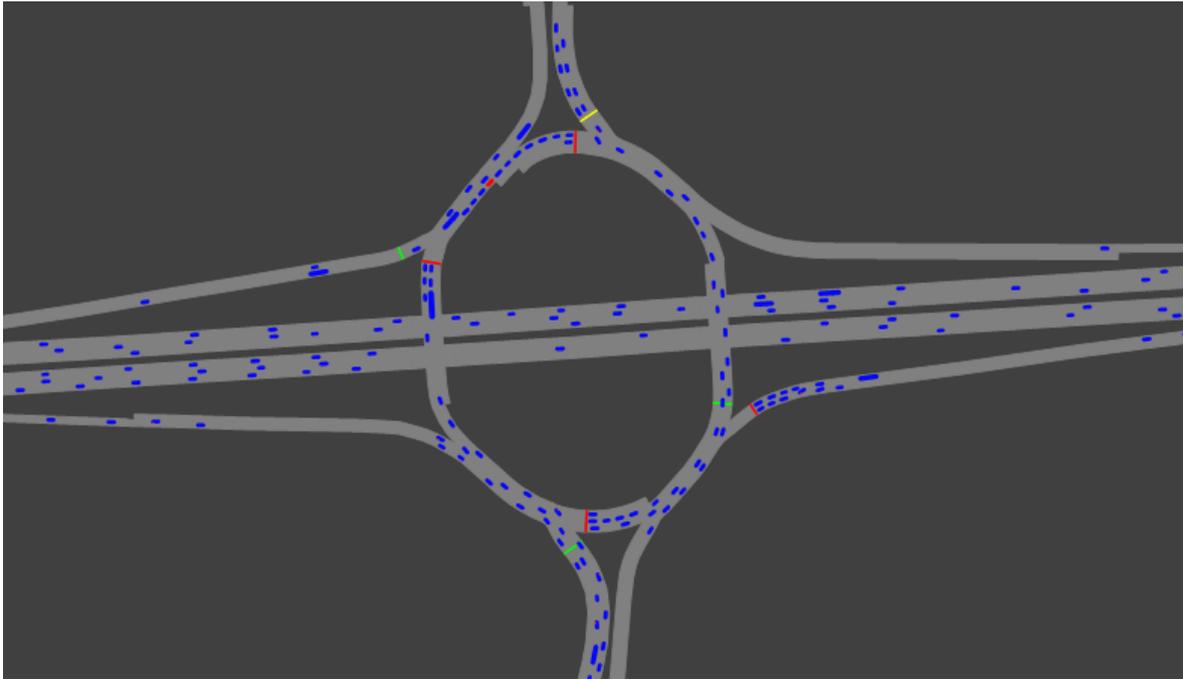
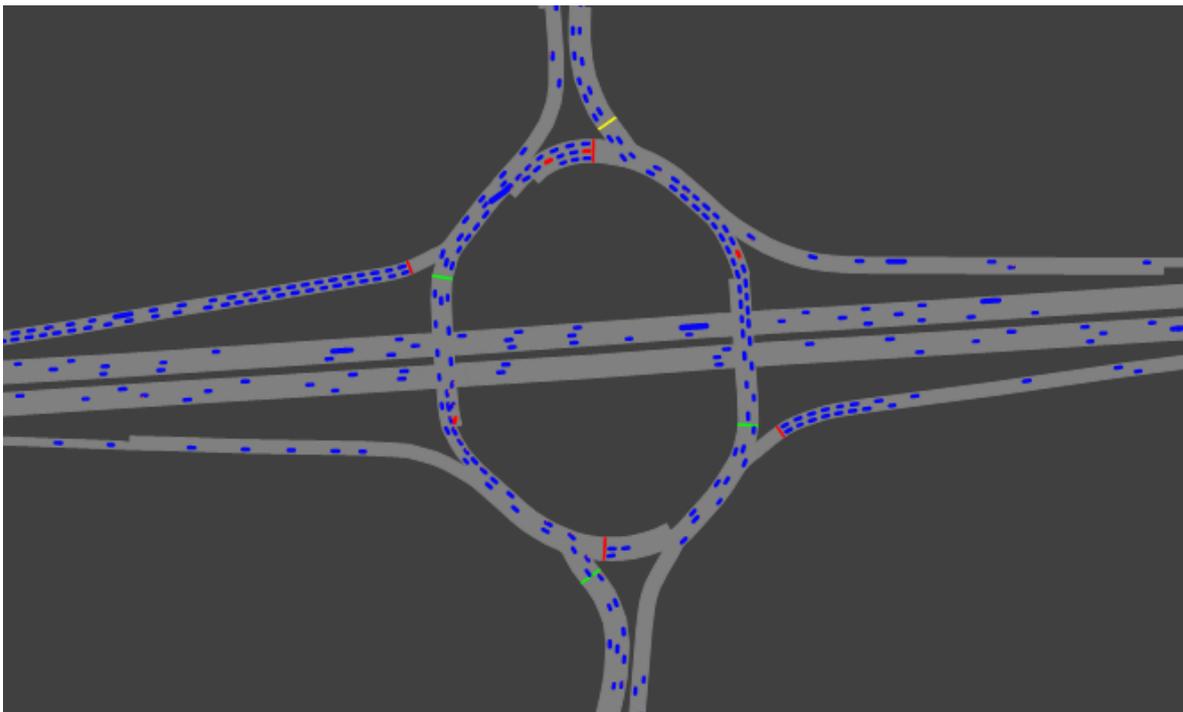


Figure 3 2032 PM Do Something + Committed + Proposed + M4 Mitigation @18:08 (Seed 5)



A49 Winwick Road / Sandy Lane West / A574 Cromwell Avenue Junction

A new northbound left turn lane widening has been provided to allow two traffic lanes travelling towards the A574 Cromwell Avenue. The traffic signal timings have also been optimised to balance the green time allocation on different approaches. The 2022 journey time comparison tables as reproduced below in Table 4 generally shows a + / - 9 seconds difference for the A49 southbound Section 3, where the wider impact on the M62 junction 9 is predicted to be limited. As demonstrated in the Figure 4, the queue length is likely to be retained within the available traffic queue storage capacity along the A49 between Sandy Lane West roundabout and the M62 motorway junction.

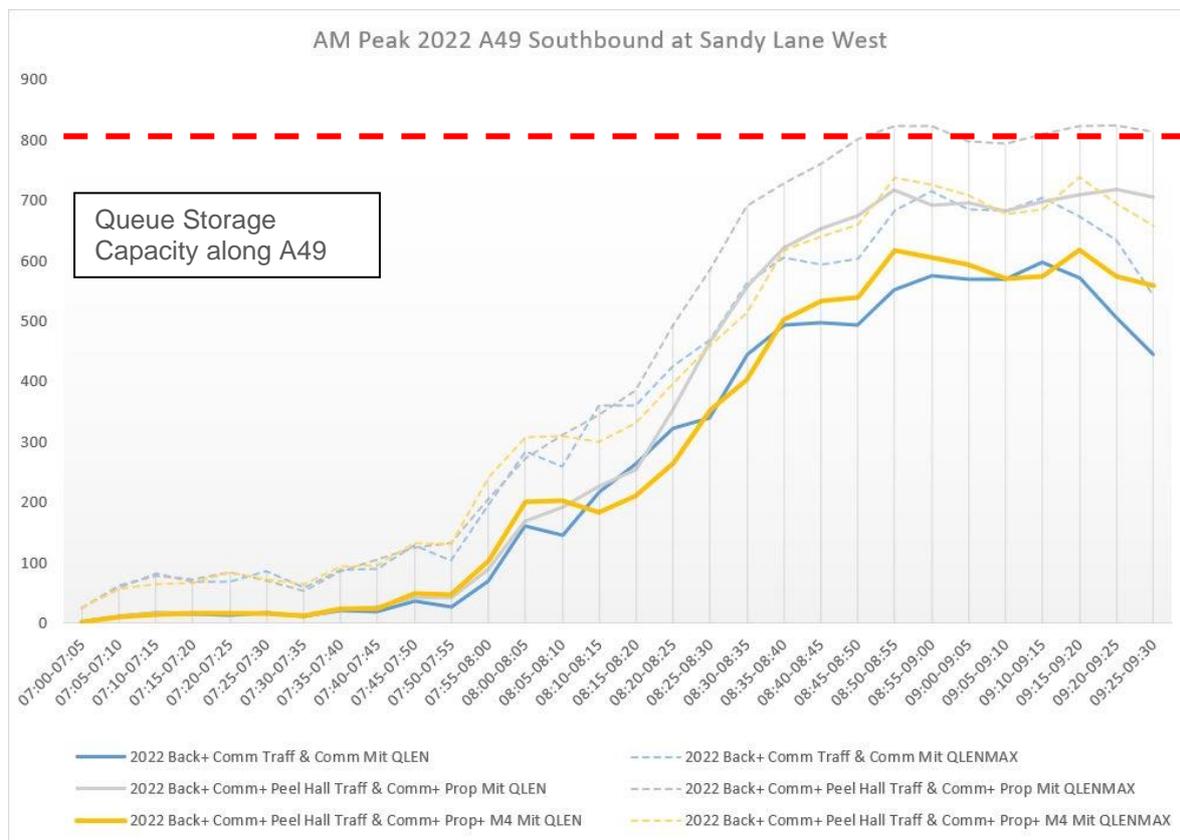
Table 4 Journey time comparison provided for A49 for future year 2022

Section	AM 2022 - 08:00 - 09:00							
	Back+ Comm Traff & Comm Mit	Back+ Comm+ Peel Hall Traff & Comm+ Prop Mit	Diff	%	Back+ Comm Traff & Comm Mit	Back+ Comm+ Peel Hall Traff & Comm+ Prop+ M4 Mit	Diff	%
A49 Section 3 SB	232	256	24	10%	232	241	9	4%

Section	PM 2022 - 17:00 - 18:00							
	Back+ Comm Traff & Comm Mit	Back+ Comm+ Peel Hall Traff & Comm+ Prop Mit	Diff	%	Back+ Comm Traff & Comm Mit	Back+ Comm+ Peel Hall Traff & Comm+ Prop+ M4 Mit	Diff	%
A49 Section 3 SB	141	207	65	46%	141	132	-9	-6%

Figure 4 2022 AM Do Something + Committed + Proposed + M4 Mitigation for the A49 SB at Sandy Lane West Signalised roundabout



In the 2032 AM peak, as illustrated in Figure 5, the queue length is likely to impact on the junction exit of the M62 junction 9 motorway roundabout. The potential queue blocking back onto the M62 junction 9 roundabout have been evaluated by the applicant and been reproduced as Figures 6 and 7 below, with the queue storage capacity indicated with a red dotted line. The queue length is predicted to stretch back very close to the M62 junction 9 roundabout exit in the with development scenario even with the mitigation measure.

Figure 5 2032 AM Do Something + Committed + Proposed + M4 Mitigation @09:07 (Seed 5)

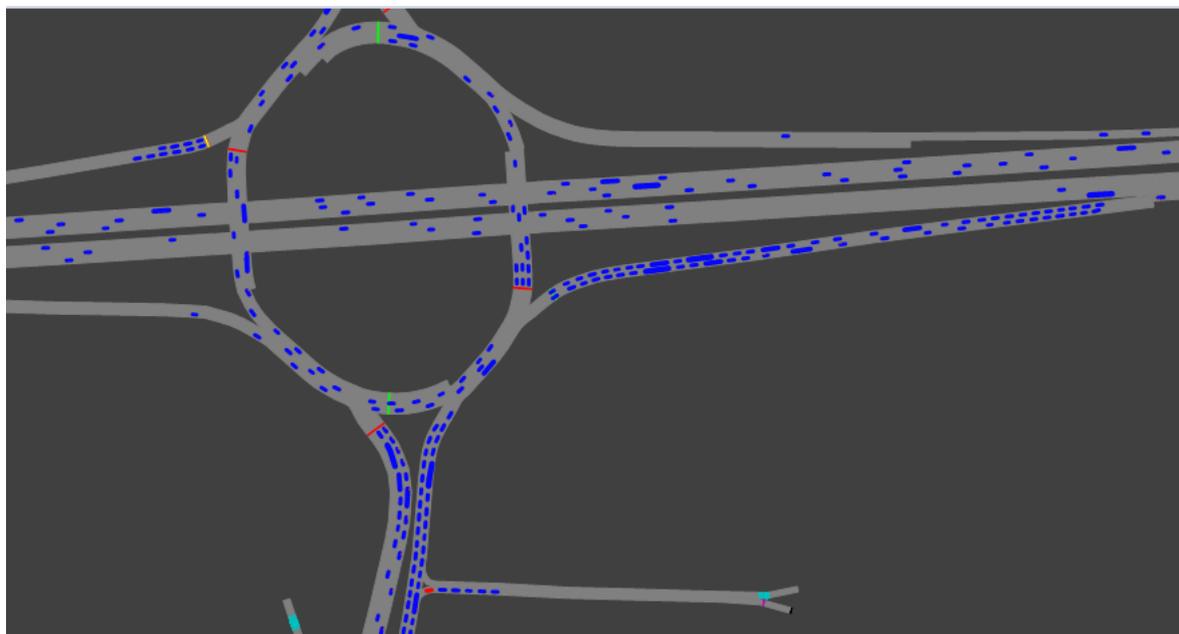
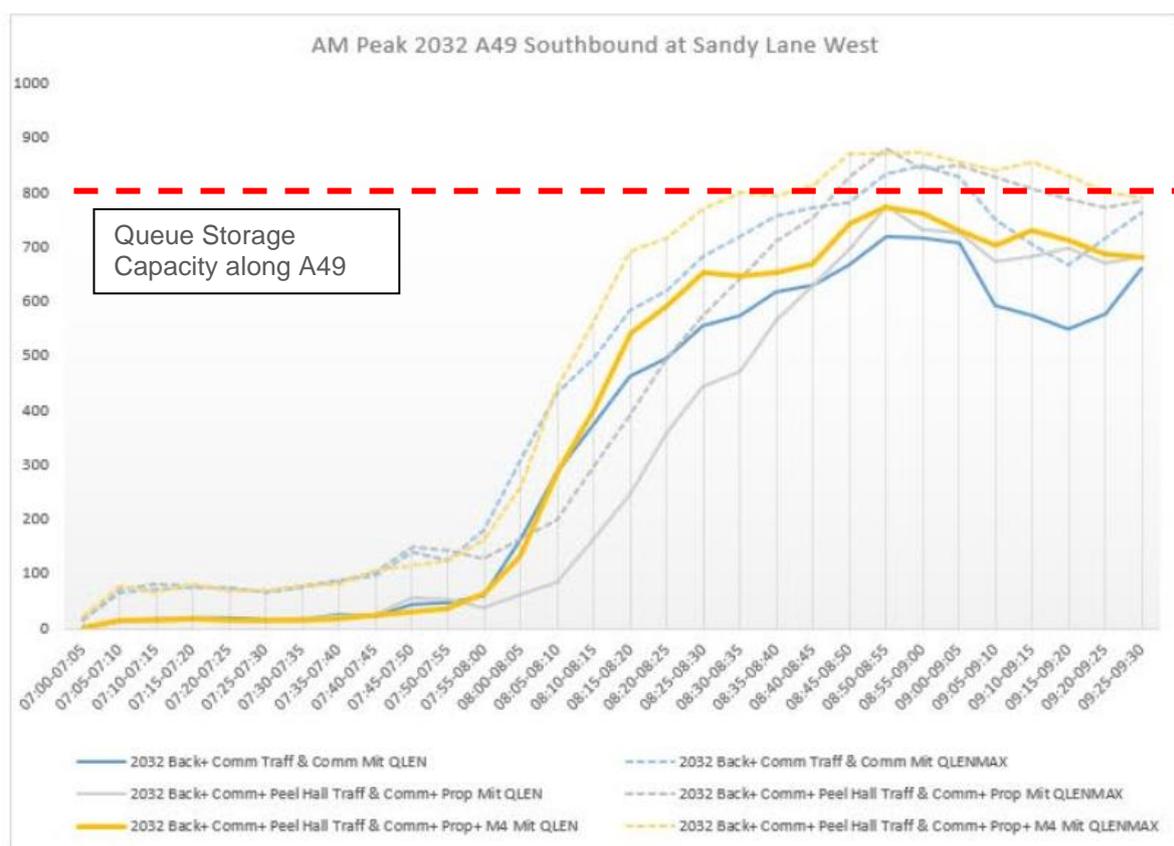


Figure 6 2032 AM Do Something + Committed + Proposed + M4 Mitigation for the A49 SB at Sandy Lane West Signalised roundabout



## Summary

Atkins has been commissioned by Highways England to audit a base Vissim model, proposed Vissim model and supporting documents produced by TMG on behalf of HT who has been commissioned by Satnam in support of proposed development of land at Peel Hall in Warrington.

The base Vissim model has been found to be of a reasonable standard along the main study corridor in the area of interest to Highways England. The proposed Vissim model network coding and set up has been reviewed and it is recommended that the model is fit-for-purpose for this scheme appraisal.

This review focuses on the parts of the network that are of primary interest to Highways England. As outlined in the review, concerns have been raised about the appropriateness of the traffic signal timing optimisation strategy applied at the M62 junction 9 motorway roundabout in the forecast scenarios. The traffic approach from the M62 off slips would be stopped by the first set of circulatory lane stop line thus creating an internal exit blocking situation within the motorway roundabout, resulting in vehicle start-stop movements which compromise operational safety and efficiency.

The 2032 model with development scenario and with the proposed mitigation measures predicts that the A49 southbound traffic queue from the Sandy Lane signalised roundabout is likely to stretch back very close to the M62 junction 9 roundabout exit. Thus there is limited capacity and resilience to cope with any daily traffic fluctuation to the Strategic Road Network.

In addition to the above, with regards to the Hollins Lane junction capacity improvement, there is limited information to quantify the additional northbound capacity compared to the baseline situation, therefore it is possible that the journey time analysis may have been over-estimated in the Reference Case scenario. The potential for queueing traffic to block back onto the M62 junction 9 roundabout should be promptly addressed to minimise risk of interaction with the M62 mainline within the Strategic Road Network.

It is recommended that WBC is to be consulted to confirm the acceptance of the proposed traffic signal time settings at the M62 junction 9, and also advise whether the Hollins Lane junction would provide the stated northbound capacity improvement as these are critical aspects to evaluate the appropriateness and effectiveness of the mitigation measures and to provide assurance of the development impact on the Strategic Road Network.

Yours faithfully

Lun Wong