

TECHNICAL NOTE

PROJECT: Peel Hall, Warrington

REPORT: 1901/TN/14 – Development Impact Summary

DATE: January 2020

1. This Technical Note has been provided to summarise the impact of vehicular trips arising from the proposed Peel Hall development on the highway network within the study area.
2. The Warrington Borough Council WMMTM16 SATURN model was tested for Peel Hall development impact with the following scenarios:

Opening Year 2022

- a. Do Minimum (no development)
- b. Do Something (120 dwellings)
- c. Do Something (full development - to define mitigation for HE at Junction 9 and required for Air Quality assessments)

Five Years After Opening 2027

- a. Do Minimum (no development)
- b. Do Something (600 dwellings and Local Centre)

10 years After Opening 2032

- a. Do Minimum (no development)
- b. Do Something (full development)

3. The Access Strategy A site access junctions are set out in **Table 1**.

Table 1 – Site access junctions for the proposed Peel Hall development site

Junction Letter Reference (corresponds with flow diagrams)	Site Access Description
G	Birch Avenue
H	Poplars Avenue (West)
J	Poplars Avenue (Central)
M	Grasmere Avenue
AD	Mill Lane turn off/Mill Lane
AE	Mill Lane new roundabout

4. Junctions G, H, J, AD and AE will be assessed for Do Something scenarios with stand-alone junction modelling using Junctions9. The Birch Avenue (G) and Mill Lane (AD) junctions are existing, and therefore a Do Minimum capacity analysis and comparison with Do Something will also be provided.
5. An initial analysis has been carried out on the WMMTM16 Peel Hall SATURN Access Strategy A results to obtain a first level indication of development impact. Development impact spreadsheets (**Appendix 1**) provide development traffic flow data at all junctions on the flow diagrams and a comparison against Do Minimum flows, with the resulting percentage impact.
6. **Table 2** lists the junctions on the highway network where traffic flows are forecast to increase by a total of 5% or greater as a result of the proposed Peel Hall development (in 2022, 2027 and/or 2032). There are 28 junctions in total.

Table 2 – Junctions close to the site with 5%> increase as a result of the development

Junction Letter Reference (corresponds with flow diagrams)	Junction Description
B	Golborne Road/Myddleton Lane
C	Delph Lane/Myddleton Lane
I	Poplars Avenue/Cleveland Road
K	Poplars Avenue/Howson Road
L	Poplars Avenue/Grasmere Avenue
N	Poplars Avenue/Statham Avenue
O	Poplars Avenue/Greenwood Crescent
P	Poplars Avenue/Capesthorpe Road roundabout
Q	A50/Hilden Road roundabout
R	A50/Birchwood Way
S	A50/Poplars Avenue
T	A50/Hallfields Lane
U	A50/Fisher Avenue
V	A50/Northway
AA	Sandy Lane West/Cotswold Road/Cleveland Road roundabout
AB	Sandy Lane/Howson Road/Northway roundabout
AC	Sandy Lane/Fisher Avenue
AF	Ballater Drive/Mill Lane/Enfield Park Road roundabout
AG	Enfield Park Road/Cinnamon Lane North
AH	Enfield Park Road/Crab Lane
AI	Crab Lane/Locking Stumps Lane
AJ	Crab Lane/Fearnhead Lane
AM	Birchwood Way/Blackbrook Avenue roundabout

AN	Hilden Road/Blackbrook Avenue crossroads
AO	Capesthorpe Road/Greenwood Crescent
AP	Capesthorpe Road/Blackbrook Avenue/Enfield Park Road roundabout
AQ	Enfield Park Road/Cinnamon Lane
AR	Enfield Park Road/Croppers Road

7. The second stage analysis was to review the SATURN Node Delay and V over C outputs provided (**Appendix 2**). Junctions with a difference between Do Minimum and the corresponding Do Something scenarios are listed in **Table 3**, where the junction performance was increased to over 1 minute of delay or operation above 75% capacity. Those highlighted in yellow are not listed in **Table 2** above; those with an asterisk are flagged in the future year of 2032 only.

Table 3 – Difference from Do Minimum to Do Something – junction results

Junction Letter Reference (corresponds with flow diagrams)	Junction Description
B	Golborne Road/Myddleton Lane
C	Delph Lane/Myddleton Lane*
D	A49 J9 roundabout including M62 slip roads*
Q	A50/Hilden Road roundabout
S	A50/Poplars Avenue
T	A50/Hallfields Lane
W	A49/A50/Hawleys Lane crossroads
X	A49/JunctionNINE Retail Park*
Y	Cromwell Avenue/Calver Road
AL	Wolston Grange Roundabout (2027 only)

8. From **Table 3** it can be seen that there are 10 junctions listed for review in terms impact on capacity and delay, one of which is flagged for 2027 scenario and three of which are flagged in the 2032 scenarios only. Five of these junctions were not flagged as part of the initial review in **Table 2**.
9. The A49/Sandy Lane West roundabout (junction Z) is linked to the Cromwell Avenue junction with Calver Road (Y), and as such both junctions would be modelled.
10. Therefore, we propose to model the following junctions from **Table 3**, with the addition of the site access junctions (G, H, J, AD and AE) and A49/Sandy Lane West roundabout (junction Z):
- i. Golborne Road/Myddleton Lane
 - ii. Delph Lane/Myddleton Lane
 - iii. A49 J9 roundabout including M62 slip roads
 - iv. A50/Hilden Road roundabout, linked with the A50/Poplars Avenue
 - v. A50/Hallfields Lane

- vi. A49/A50/Hawleys Lane crossroads
- vii. A49/JunctionNINE Retail Park
- viii. Cromwell Avenue/Calver Road linked with Sandy Lane West/A49 roundabout

11. The junctions to be modelled are shown diagrammatically on **Figure 1** below.

Figure 1 – Junctions to be modelled further



12. It is considered that the VISSIM modelling will serve for further testing of the A49 corridor junctions, with additional stand-alone junction modelling for the junctions on this corridor only carried out if required for mitigation testing. The remaining junctions and site accesses will be modelled using Junctions9 and LinSig.
13. It can be noted that the whole of the A49 corridor within the study area is being tested in VISSIM, so the impact at all these junctions will be scrutinised further regardless of the results indicated above.

Part Development 2022 (120 dwellings) – Access Strategy A

14. We have also reviewed the part development scenario for the opening year of 2022 with 102 dwellings built out on site (**Appendices 1 and 2**). This demonstrates that junctions with a 5% impact or greater would be:
- i. Poplars Avenue junction with Grasmere Avenue (L)
 - ii. Poplars Avenue junction with Howson Road (K)
 - iii. Ballater Drive/Blackbrook Avenue RA (AF)
 - iv. Cinnamon Lane North and Enfield Park Road (AG)

15. However, the delay and capacity output plots forecast nothing significant in terms of changes to the Do Minimum scenario, therefore it is considered that no mitigation or further modelling for this scenario of opening year with part development is required.

Access Strategy B – Sensitivity Test

16. Access Strategy B, the sensitivity test for a through route between the A49 in the west and Blackbrook Avenue in the east, has been reviewed as part of the initial analysis. In terms of **Table 2**, Access Strategy B was the same except for there being no Golbourne Road/Myddleton Lane (B); Delph Lane/Myddleton Lane (C); A50/Fisher Avenue (U); Sandy Lane/Fisher Avenue (AC).
17. The following three junctions were forecast to also have a development traffic impact of 5% or greater under Access Scenario B:
 - i. A49/Hawleys Lane/A50 (W)
 - ii. A49/Junction NINE retail park (X)
 - iii. A49/Cromwell Avenue/Sandy Lane West (Z)
18. In terms of the second stage analysis, the changes to delay and capacity in Access Strategy B identified the following junctions for further investigation:
 - i. A49/Hawleys Lane/A50 (W)
 - ii. A50/Hilden Lane roundabout (Q)
 - iii. Cromwell Avenue/Calver Road (Y)
 - iv. Newton Road/Golbourne Road (A)
 - v. A49/M62 J9 roundabout (D)
19. As such, it is considered that these junctions will be investigated further with stand-alone modelling analysis.
20. The new site access signal junction onto the A49 from Poplars Avenue would also be modelled, along with the following site accesses:
 - i. Birch Avenue
 - ii. Poplars Avenue (Central)
 - iii. Mill Lane turn off/Mill Lane
 - iv. Mill Lane new roundabout
21. Again, it is considered that the VISSIM modelling will cover the additional modelling required for the A49 corridor, with additional stand-alone junction modelling for the junctions on this corridor only carried out if required for mitigation testing. The remaining junctions and site accesses will be modelled using Junctions9 and LinSig.
22. It was noted in the Access Strategy B scenario that there were some slight improvements to operation across the network in 2032 compared to 2032 Do Minimum. This is considered to be very positive.

Next Steps

23. To agree the junctions to be taken forward for stand-alone modelling.
24. Continue to progress the VISSIM modelling to assess the development impact on the A49 corridor.
25. Confirm the mitigation strategy.

Appendix 1

Impact Spreadsheets

Appendix 2

Node Outputs Results – Delay and V/C