PROJECT NAME	**Hinckley National Rail Freight Interchange**		
DOCUMENT NUMBER	HNRFI-BWB-GEN-XX-RP-TR-0031	BWB REF	NTT 2814
AUTHOR	Chris Price	STATUS	S2
CHECKED	Vibeeshan Devaharan	REVISION	P01
APPROVED	Malcolm Ash	DATE	07/09/2023

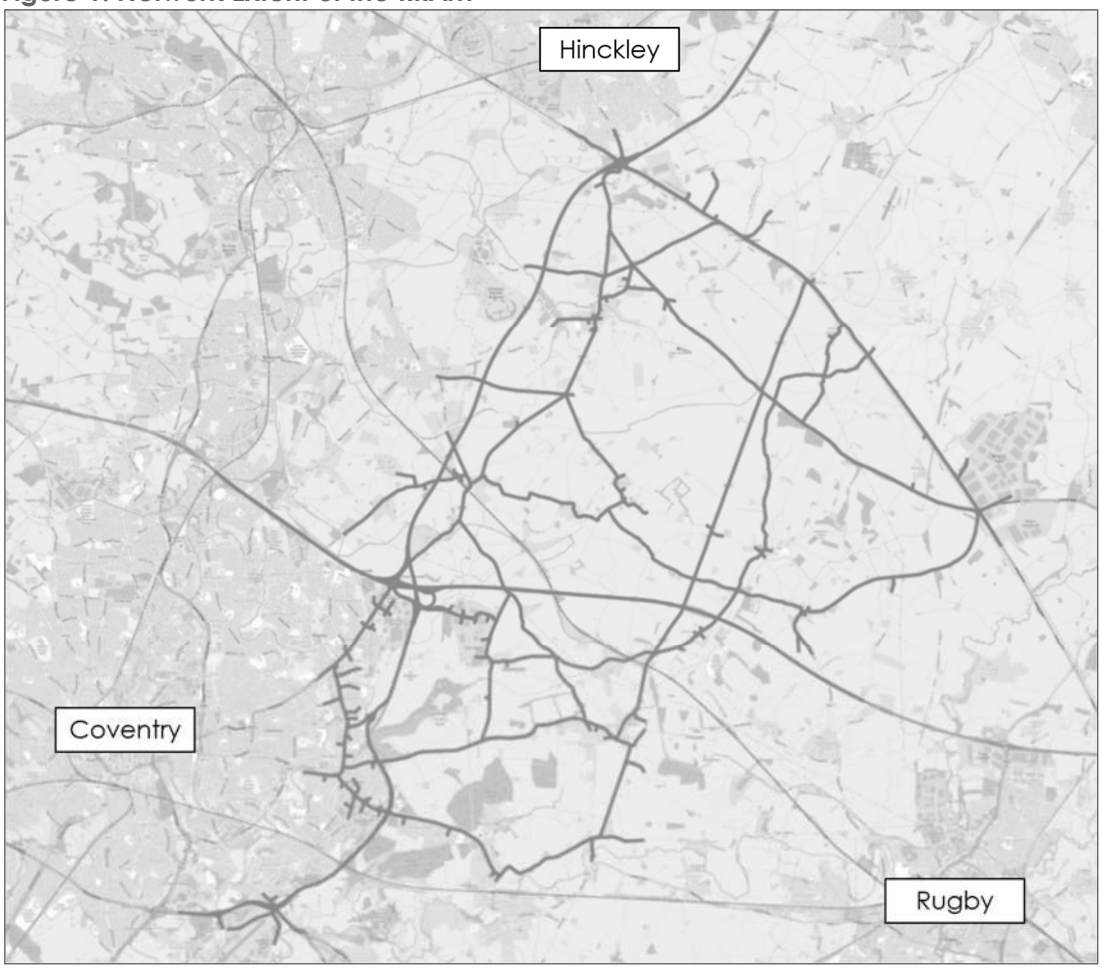
1. INTRODUCTION

1.1 BWB Consulting Ltd (BWB) has been commissioned by Tritax Symmetry (Hinckley) Ltd to provide highways and transport advice to support the DCO submission for the proposed National Rail Freight Interchange at Hinckley, Leicestershire (HNRFI).

1.2 This Technical Note provides a summary of the recent modelling undertaken by Vectos Microsim concerning the anticipated impact of the proposed Hinckley Nation Rail Freight Interchange (HNRFI) development on the Rugby Rural Area Model (RRAM) network. This follows modelling within Leicestershire's Strategic Model (Pan-Regional Transport Model) which was undertaken previously, and indicated the RRAM area will also likely be impacted by the proposed development.

1.3 The RRAM generally covers the area to the north of Rugby between the A5 and A46 and is illustrated within **Figure 1** below.

Figure 1. Network Extent of the RRAM



2. MODELLING SCENARIOS

2.1 Vectos Microsim had initially developed a 2031 Reference case model of the RRAM network in 2021. This model has been updated to include for committed and proposed development traffic to examine the impacts of the proposed scheme. Subsequently, the following scenarios have been developed as part of the future year modelling:

- Scenario 1: 2031 Reference (Background Growth + Committed Developments)
- Scenario 2: 2031 Development with HGV Routing Restrictions (Background Growth + Committed Developments + HNRFI Development)
- Scenario 3: 2031 Development [Sensitivity Test – without HGV Routing Restrictions]
- Scenario 4: 2031 Development with HGV Routing Restrictions and Mitigation at M69 J1 (Optimised Signals)

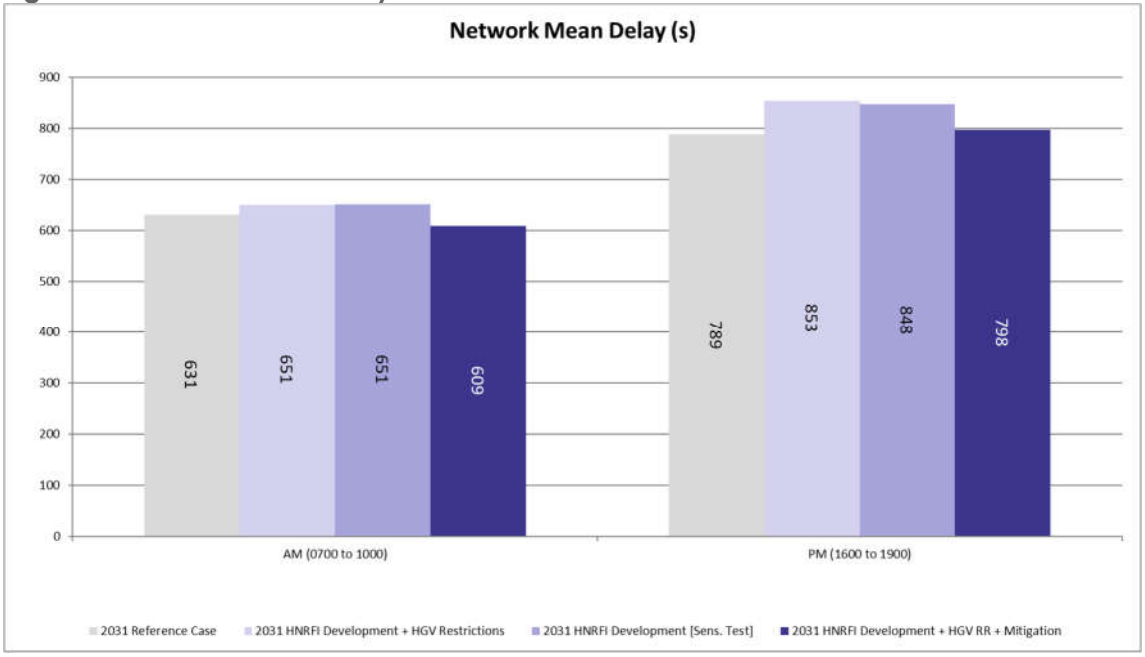
2.2 This technical note primarily presents a comparison between Scenario 1 and 4.

3. MODELLING RESULTS

Network Performance

3.1 In terms of network performance, the 'Network Mean Delay' can be used to provide a indication of how congested/free moving traffic is within a given road network. **Figure 2** below illustrates the mean delay in seconds of RRAM network, for the three-hour peak periods of 07:00 – 10:00 and 16:00 – 19:00.

Figure 2. Network Mean Delay

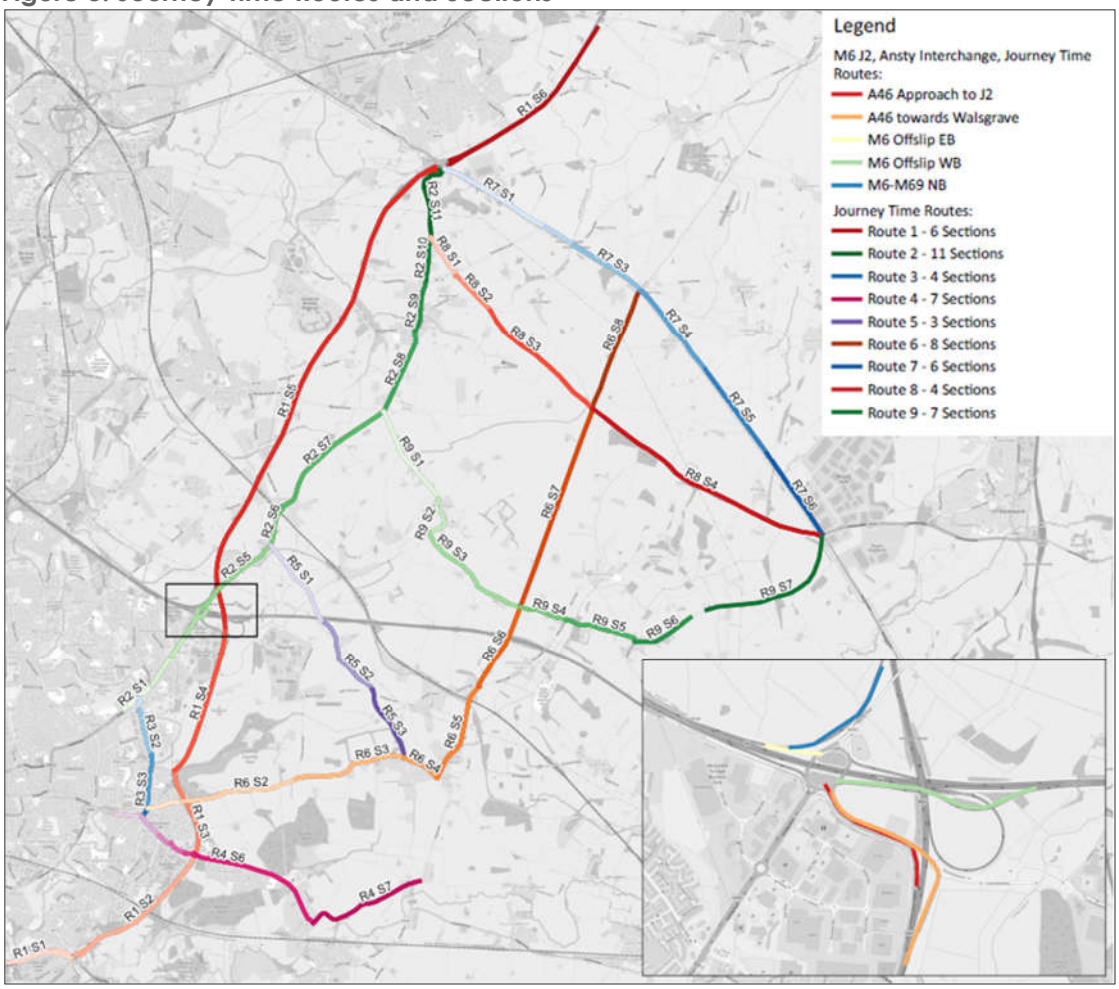


3.2 As shown, Scenario 4 provides a significant level of betterment when compared with Scenario 1 during the AM period with a reduction in Mean Delay of 22 seconds across the RRAM network. However, during the PM period Scenario 4 provides an increase in Mean Delay of 9 seconds, though this is still a significant level of betterment when compared to Scenario 2 and 3.

Journey Time

3.3 The difference in journey time between the modelled scenarios has also been assessed, in which the RRAM has been broken down into several 'routes' and 'sections' which are illustrated within **Figure 3** below.

Figure 3. Journey Time Routes and Sections



3.4 A summary of the overall journey time results for the AM peak hour (08:00 – 09:00) is presented in **Table 1** below.

Table 1. Overall Journey Time AM Peak

Route	Scenario 1	Scenario 4	Difference	% Difference
R1 NB	1231	1274	43	4%
R1 SB	1159	1451	292	25%
R2 NB	886	1037	152	17%
R2 SB	853	860	7	1%
R3 NB	272	276	4	1%
R3 SB	375	357	-18	-5%
R4 EB	690	684	-7	-1%
R4 WB	708	697	-11	-2%
R5 NB	338	332	-6	-2%
R5 SB	306	307	1	0%

R6 EB	854	854	0	0%
R6 WB	987	989	1	0%
R7 EB	791	594	-196	-25%
R7 WB	417	536	119	28%
R8 NB	426	426	0	0%
R8 SB	544	506	-38	-7%
R9 EB	769	774	6	1%
R9 WB	667	669	2	0%
M6 Junction 2, Ansty Interchange				
A46 Approach to J2	72	71	-1	-2%
A46 towards Walsgrave	62	62	0	1%
M6 Offslip EB	57	58	1	3%
M6 Offslip WB	74	75	1	1%
M6-M69 NB	27	27	0	0%

3.5 As shown, there is a negligible difference in overall journey time between Scenario 1 and 4 across the majority of the network, with the exception of a few locations which are noted below:

- Route 1 Southbound (M69 Southbound Off slip) – 25% increase
- Route 2 Northbound (B4109/B4065) – 17% increase
- Route 7 Westbound (A5) – 28% increase

3.6 The routes above have been examined in further detail to understand which sections within the route attributed to the overall increase in journey times. These have been detailed below.

- Route 1 S6 SB – M69 J1 SB Offslip
- Route 2 S11 NB – Hinckley Road NB approach to M69 J1
- Route 7 S1 WB – A5 WB approach to M69 J1

3.7 The above indicates that the impact of the proposed development is primarily at M69 J1 however it should be noted that Vectos modelling utilises fixed time signals. A VISSIM model utilising MOVA has been developed by BWB and the MOVA configurations have been updated which indicates a betterment in overall operation of M69 J1 when compared to the reference case scenario. Details of the VISSIM assessment are presented in technical note HNRFI-BWB-GEN-XX-RP-TR-0003-BN-S4-P04, which forms Appendix 12 of the submitted Transport Assessment document reference 6.2.8.1 (part 13 of 20) and APP-155 of the PINS Library for the DCO[1].

3.8 A summary of the overall journey time results for the PM peak hour (17:00 – 18:00) is presented in **Table 2** below.

Table 2. Overall Journey Time PM Peak

Route	Scenario 1	Scenario 4	Difference	% Difference
R1 NB	1202	1268	67	6%
R1 SB	1100	1052	-48	-4%
R2 NB	1553	1677	123	8%
R2 SB	803	808	5	1%
R3 NB	355	353	-2	-1%
R3 SB	476	504	28	6%
R4 EB	831	828	-3	0%
R4 WB	1217	1125	-91	-7%
R5 NB	326	329	3	1%
R5 SB	306	306	0	0%
R6 EB	866	868	2	0%
R6 WB	950	956	5	1%
R7 EB	414	426	12	3%
R7 WB	423	572	148	35%
R8 NB	428	429	1	0%
R8 SB	459	458	-1	0%
R9 EB	773	772	-1	0%
R9 WB	674	673	-1	0%
M6 Junction 2, Ansty Interchange				
A46 Approach to J2	87	86	-2	-2%
A46 towards Walsgrave	62	62	0	0%
M6 Offslip EB	57	57	0	0%

[1] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR050007/TR050007-001070-Hinckley%20SRFI%20EL.pdf

M6 Offslip WB	52	52	0	-1%
M6-M69 NB	27	27	0	0%

3.9 Again, there is a negligible difference in overall journey time between Scenario 1 and 4 across the majority of the network, with the exception of Route 7 WB which attributes the A5 WB approach to M69 J1. As detailed in Paragraph 3.7, a VISSIM model of M69 J1 had been developed and the MOVA configurations have been optimised to mitigate the impact of the proposed development. Therefore, it is considered no further mitigation should be required.

4. SUMMARY & CONCLUSION

4.1 The network performance results show Mitigation Scenario provides a significant level of betterment when compared with Reference Case Scenario during the AM period with a reduction in Mean Delay of 22 seconds across the RRAM network. During the PM period Mitigation Scenario provides an increase in Mean Delay of 9 seconds, though this is still a significant level of betterment when compared to the other development scenarios.

4.2 The journey time results show the development is projected to have a negligible impact across the majority of the network during both the AM and PM peak periods when comparing the Mitigation Scenario with the Reference Case Scenario. Impacts noted within the RRAM network as result of the proposed development are localised to the approach arms of M69 J1. However, it should be noted that Vectos modelling utilises fixed time signals.

4.3 BWB had developed a VISSIM model of M69 J1 and has optimised the MOVA operation at the junction to mitigate the development impact and provide an overall betterment to the junction. Therefore, it is considered no further mitigation should be required.