

Appendix J: WSP Document - Response to National Highways comments on LMVR



TECHNICAL NOTE -NH Comments 1

DATE:	21 February 2025	CONFIDENTIALITY:	Confidential
SUBJECT:	Heywood NGTM- Response to National Highways comments on LMVR		
PROJECT:	70091259	AUTHOR:	Shourya Dadhich
CHECKED:	Sam Callaghan	APPROVED:	Narendra Sadhale

OVERVIEW

This technical note summarises WSPs response to the comments received from National Highways (NH) dated 15/11/2024 post their review of the LMVR for Northern Gateway Transport Model (NGTM) Base 2022 dated September 2024.

National Highways highlighted the following key points and requested additional information related to the LMVR for the base 2022 Northern Gateway Traffic Model.

1. Evidence to demonstrate the agreement of elements considered in LMVR.
2. Evidence will be required to confirm the appropriateness of the proposed peak hours being assessed in the model are study peak hours, and therefore clarification that the peak level of delay will be assessed in the model.
3. Confirmation regarding the dates used from the TomTom dataset.
4. Evidence to demonstrate the location of Link Calibration/Validation count locations.
5. Providing a full set of results for Turn Flow verification
6. GIS files to allow for a detailed review of the SRN Junctions calibration/validation.
7. Provide evidence of considering the miscalibration of flows while forecasting.
8. Provide an explanation on consideration of routes that do not meet the validation criteria during forecasting
9. Provide sub-sectional journey time information to provide further background to the forecast outputs.

The following sections summarise WSP's response to National Highways comments on the NGTM Base year model.

Evidence point 1

Evidence to demonstrate the agreement of elements considered in the LMVR

Preliminary discussions related to the methodology and approach for the NGTM modelling started in May 2022 with key stakeholders like National Highways, Bury Council, Rochdale Council and TfGM.

WSP and Northern Gateway set up a Transport Steering Group (TSG) for the NGTM providing a platform for key stakeholders to discuss and agree on key principles for the model development and the planning application for the site.

The representatives from the following organisations form part of the TSG group.

1. National Highways
2. TfGM
3. Rochdale Council
4. Bury Council
5. Northern Gateway/ Russells Group

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6. WSP
7. Focus Transport Planning
8. Tetra Tech

The first TSG meeting was held on 07/02/2023 before which the Model Specification Report (MSR) note was shared by WSP. The MSR summarised the key assumptions for the development of the Base year and Forecast year models to be used to support the planning application for Northern Gateway development.

Building upon the MSR, a total of 12 TSG meetings were held (between February 2022- till date) to discuss the various elements / assumptions / agreements for modelling (base and forecast year) and planning.

Table below provides evidence of the meetings held between the TSG group between February 2022 and now related to the NGTM model build.

Table 1 -Summary of TSG meetings held till date

TSG meeting ref	Date	Key agreements/ actions
Initial meeting 1	23/02/2022	Initial meeting with TSG
Initial meeting 2	19/05/2022	Meeting to discuss the following High-level program Survey specifications and dates Use of GSM models
1	07/02/2023	MSR issued on 27/01/2023, MSR specified that TfGM 2019 GSM model will be adopted to produce the NGTM models which includes using the GSM peak hours. WSP requested confirmation from all members by 14/02/2023.
2	04/04/2023	WSP informed TSG members that it is proceeding to extract traffic flows from the recent surveys for the peak hour from TfGM model.
3	09/05/2023	WSP again highlighted that the traffic data is being extracted for GSM peak hours which will for the modelled peak hours. Also, preliminary discussion on forecast model requirements
4	06/06/2023	Progress call.
5	08/08/2023	All TSG members agreed that WSP should proceed with base year build based on the key assumptions as per MSR. All members also agreed that WSP can proceed with the network mitigations. WSP proposed a local update the HGV distribution base year. All members agreed with the proposed mitigation and asked WSP to apply the mitigation. All members also agreed to use the 2019 ELS development log produced by TfGM and update it based on information provided by Bury and Rochdale councils.

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6	22/08/2023	Progress call
7	01/12/2023	WSP shared initial base year validation/ calibration summary which showed that the model is meeting TAG criteria; also acknowledging that further work is being undertaken to refine the base year model.
8	02/02/2024	In person meeting, WSP shared the initial modelling results. All members agreed to the results in principle. WSP shared the base year validation / calibration statistics with TSG members.
9	18/04/2024	Modelling assumptions note/ Model statement issued for agreement. The modelling statement also included the model calibration- validation statistics, journey time validation statistics.
10	17/07/2024	Progress call.

The model evolved in accordance with extensive discussions and requests from all key stakeholders at those meetings and has therefore been subject to significant refinement and agreement.

Modelling was progressed on the basis that the model evolved through the TSG and no party has queried the details set out in the Model Statement for Agreement and the MSR.

The minutes from each of the meeting are attached as Appendix A.

Evidence point 2

The peak hours being assessed in the model are not the study area peak hours, and therefore there are concerns that the peak level of delay will not be assessed in the model. Clarification is sought regarding how this will be considered within forecast scenarios

The NGTM has been developed with morning peak hour of 08:00-09:00 and an evening peak hour of 17:00-18:00. As the LMVR states, these peak hours were used to maintain consistency with the previous Greater Manchester SATURN model (GMSM).

This approach also maintains consistency with the wider GMSM models with the various other elements in modelling like origin-destination data.

This key assumption/approach was highlighted in the MSR (shared in January 2023) and in the following TSG meetings with all TSG members. All TSG members agreed to this approach. This was specifically highlighted, discussed and agreed in TSG meetings 1, 2 and 3 dated April and May 2023.

The agreed approach was also included in the “Northern Gateway Strategic Model. Summary of Agreed Modelling Approach” shared with all TSG members in April 2024.

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Evidence point 3

Confirmation regarding the dates used from the TomTom dataset

Journey time data was extracted from TomTom Traffic datasets from 2022-11-04 to 2022-12-18 with only neutral weekdays included (i.e. Monday, Tuesday, Wednesday and Thursday) to match with the observed surveys. There were no public holidays or school holidays within the dates covered by the TomTom data.

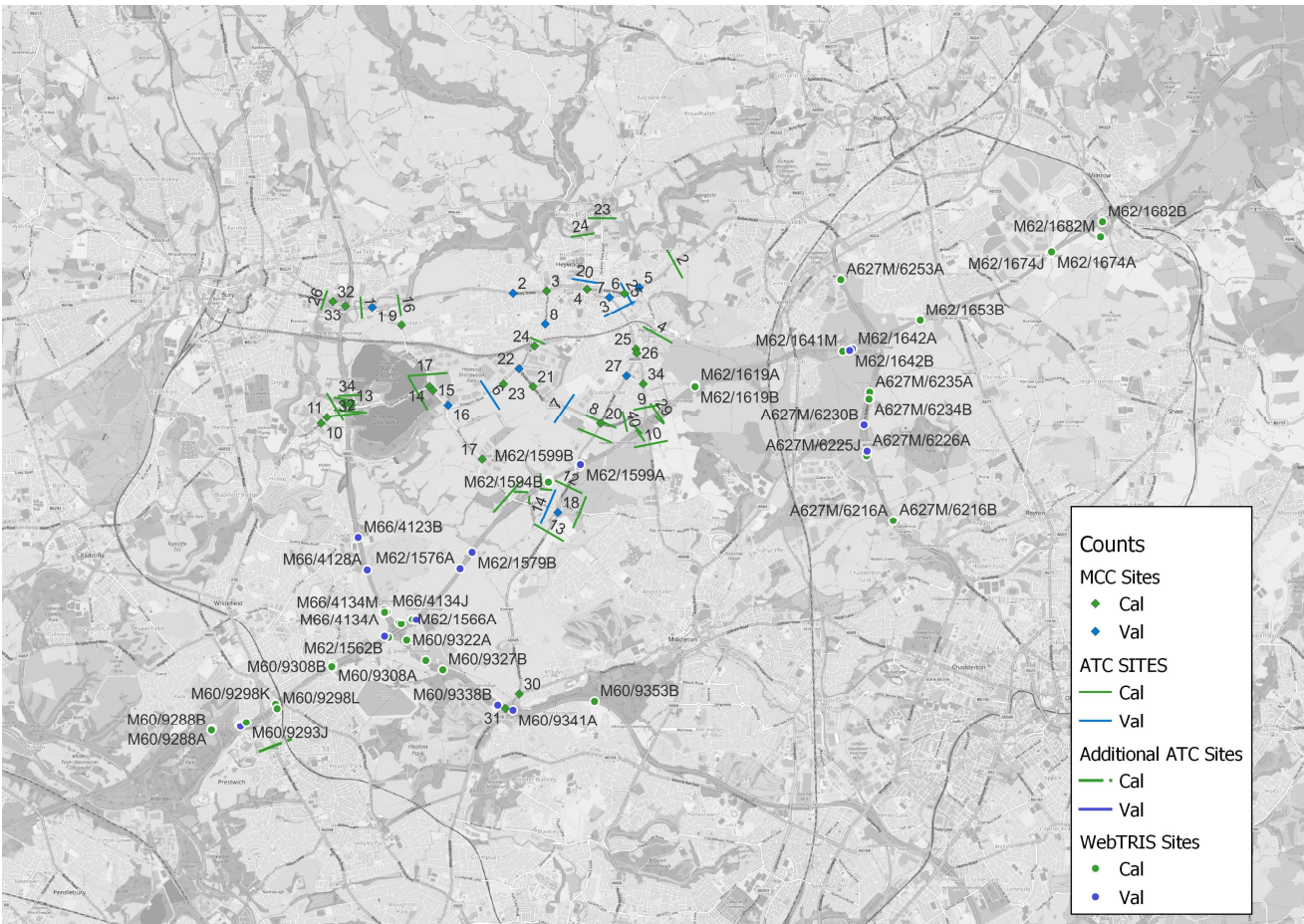
Evidence point 4

Evidence to demonstrate the location of Link Calibration/Validation count locations

The Figure below shows the location of each calibration/validation count site that has been referenced in Appendix B of the LMVR.

GIS files for each count type are included with this response.

Figure 1- Location calibration / validation links



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Evidence point 5

Providing a full set of results for Turn Flow verification

As per TAG for a strategic model, turn flows aren't a necessity for reporting purposes but they have been included in the LMVR as an extra level of validation and therefore provide higher confidence in the model. Excel files have been provided with this response summarising individual turn flow validation for each MCC site, as well as for the whole junction.

Most SRN junctions are coded in SATURN as 'exploded roundabouts' (with exception of M66 J3), made up of multiple additional circulating nodes. With this in mind, it is not possible to create a 3-node sequence in SATURN for all turns to be able to calibrate these to the observed flows.

For this reason, the SRN junctions have not been calibrated to the observed turn counts, with the exception of M66 J3 (MCC 12,13), where this 3-node turn sequence was possible.

A separate analysis was undertaken for M62 J19, M66 J2 and M60 J19, which is shown in Table 3 below.

When looking at the results, it can be seen that each junction has achieved a good calibration/validation performance for all vehicles against the GEH TAG Criteria, with a minimum of 92% of turn flows passing for each junction and 96% across all junctions in the AM Peak. Junction turn flow calibration/validation is at 100% for both the Inter-Peak and PM Peak.

Table 3- SRN Junction Calibration/Validation Performance

Measure (74 turn counts)	Junction	Motorway Turn Flows - All Vehicles		
		AM Peak	Inter Peak	PM Peak
Pass TAG	M62 J19	95%	100%	100%
	M66 J3	100%	100%	100%
	M66 J2	97%	100%	100%
	M60 J19	92%	100%	100%
	TOTAL	96%	100%	100%

Upon National Highway's request, details of the base year results (initial draft) for motorway (count summary, journey time validation statics) were shared with National Highways on 02/08/2024. Further details for each of the junctions listed in the above table from the final base year model and a copy of the spreadsheet shared with NH on 02/08/2024 are included in Appendix C.

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Evidence point 6

GIS files to allow for a detailed review of the SRN Junctions calibration/validation

The GIS shapefile has been provided with this response (Appendix D) which was used to create Figure 3-8 in the LMVR. This included information on which links are set to calibration/validation, as well as which links meet the TAG criteria for all time periods, which can be used for a detailed review of the SRN.

Evidence point 7

Provide evidence of considering the miscalibration of flows while forecasting

Calibration of the counts on the SRN (shown in Figure 10-4 of the LMVR) against the modelled flows are shown in Table 10-16 to Table 10-20 in the LMVR. These tables clearly show that overall, the SRN links show strong performance against the TAG criteria for all time periods.

The one exception to this is in Table 10-18 from LMVR for the M60, where the PM peak hour shows slightly lower performance against the TAG criteria. In this instance, 75% of links pass the criteria, which is very close to passing and can be deemed acceptable.

Evidence point 8

Provide an explanation on consideration of routes that do not meet the validation criteria during forecasting

The M62 westbound journey time route (J1 WB) and Pilsworth Road eastbound route through M66 J3 (J9 EB) falls outside of the TAG criteria in the morning and evening peaks.

The flow Calibration/Validation on these sections passes the TAG criteria in both peaks. However, it was found during calibration of the model that adding additional delay to match the journey times resulted in unwanted re-routing and hence not matching the observed count flows.

In the case of the M62, this caused traffic to re-route through the study area to avoid the SRN. The A58 westbound route through M66 J2 (J4 WB) is too quick (16%) in the morning peak, and therefore falls outside of TAG criteria.

However, as stated in the LMVR, when a slightly relaxed criteria of 20% is applied, this route passes. This can be considered a 'near pass' and is deemed acceptable in this case.

Evidence point 9

Provide sub-sectional journey time information to provide further background to the forecast outputs

Appendix H in NGTM LMVR dated September 2024, compares the journey time routes considered for the NGTM base 2022 model. The base year journey time across all routes satisfy the TAG requirements.

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Appendix H shows all the journey time routes considered for all modelled time periods. Further to Appendix H, Figures 10-5, 10-6 and 10-7 from the LMVR summarise the performance of the journey time routes and their pass or fail based upon TAG criteria.

Sub sectional journey times have been reviewed for the two SRN routes (Route J1 and Route J10) on the M62 and M60/M66, respectively and are presented in Table 4 below.

Review of the sub sectional journey times graphs presented in Appendix E clearly shows each sub section passes TAG criteria for all time periods, with exception to Route J1 WB in the morning and evening peaks.

An excel file has been provided with this response which shows the journey time stats for each route by timing point, with a SATURN node sequence also provided.

Table 4- SRN Sub sectional journey time performance summary

			AMPeak							Interpeak							PMPeak					
Name	Timing Point	SATURN Node	Journey Time Intervals	Obs. Time	Mod. Time	Diff	%	Pass TAG?	Journey Time Intervals	Obs. Time	Mod. Time	Diff	%	Pass TAG?	Journey Time Intervals	Obs. Time	Mod. Time	Diff	%	Pass TAG?		
J1 EB	1	2707	0	0	0	0	0%		0	0	0	0	0%		0	0	0	0	0%			
		2709		0	43	43	0%			0	43	43	0%			0	43	43	0%			
		2713		0	117	117	0%			0	117	117	0%			0	117	117	0%			
		12855		0	138	138	0%			0	135	135	0%			0	137	137	0%			
	2	2715	179.86	180	162	-18	-10%	Yes	123.95	124	159	35	28%	Yes	179.35	179	161	-19	-10%	Yes		
		14437		180	172	-8	-4%			124	169	45	37%			179	171	-9	-5%			
		60014		180	256	76	42%			124	235	111	90%			179	254	74	41%			
		60016		180	302	122	68%			124	272	148	119%			179	299	120	67%			
		2717		180	343	163	90%			124	303	179	145%			179	339	160	89%			
	3	2719	177.13	357	387	30	8%	Yes	178.07	302	338	36	12%	Yes	179.43	359	383	24	7%	Yes		
		2721		357	520	163	46%			302	442	140	46%			359	514	156	43%			
	4	2723	145.72	503	560	57	11%	Yes	145.09	447	483	35	8%	Yes	152.54	511	554	43	8%	Yes		
		2725		503	654	151	30%			447	578	131	29%			511	649	138	27%			
	5	2726	127.24	630	639	9	1%	Yes	124.32	571	624	53	9%	Yes	129.22	641	694	53	8%	Yes		
	TOTAL			630	639	9	1%	Yes		571	624	53	9%	Yes		641	694	53	8%	Yes		
J1 WB	1	2727	0	0	0	0	0%		0	0	0	0	0%		0	0	0	0	0%			
		2724		0	121.82	122	0%			0	120.27	120	0%			0	118.06	118	0%			
	2	2722	172.60	173	164	-8	-5%	Yes	149.85	150	162	13	8%	Yes	157.29	157	160	3	2%	Yes		
		2720		173	236	124	72%			150	266	116	77%			157	292	135	86%			
	3	2718	234.32	408	339	-69	-17%	No	138.82	289	300	11	4%	Yes	189.71	347	335	-12	-3%	Yes		
		60017		408	383	-24	-6%			289	335	46	16%			347	379	32	9%			
		60019		408	427	19	5%			289	369	80	28%			347	423	76	22%			
		14278		408	436	28	7%			289	376	87	30%			347	431	84	24%			
		2716		408	524	117	29%			289	446	157	54%			347	520	173	50%			
	4	2714	636.51	1044	564	-480	-46%	No	197.78	486	486	0	0%	Yes	388.46	735	560	-175	-24%	No		
		12828		1044	577	-467	-45%			486	500	13	3%			735	574	-162	-22%			
		2710		1044	640	-404	-39%			486	565	78	16%			735	638	-97	-13%			
	5	2708	295.03	1339	684	-655	-49%	No	107.74	594	611	17	3%	Yes	181.25	917	685	-232	-25%	No		
	TOTAL			1339	684	-655	-49%	No		594	611	17	3%	Yes		917	685	-232	-25%	No		
	J10 SB	1	3004	0	0	0	0	0%		0	0	0	0	0%		0	0	0	0	0%		
2		3003	33.47	33	38	5	14%	Yes	31.91	32	34	2	5%	Yes	32.39	32	34	2	6%	Yes		
		3001		33	72	38	114%			32	65	33	103%			32	66	34	104%			
3		2998	52.54	86	92	6	7%	Yes	49.78	82	84	2	3%	Yes	51.40	84	85	2	2%	Yes		
		3996		86	159	73	84%			82	146	64	79%			84	149	65	78%			
		2997		86	201	115	134%			82	186	104	128%			84	189	106	126%			
4		2935	133.91	220	234	14	7%	Yes	126.38	208	216	8	4%	Yes	133.96	218	220	3	1%	Yes		
		3283		220	280	60	27%			208	259	51	25%			218	265	47	22%			
5		5669	77.37	297	318	21	7%	Yes	74.03	282	295	12	4%	Yes	75.53	293	301	8	3%	Yes		
		12824		297	369	71	24%			282	342	60	21%			293	349	56	19%			
		5670		297	384	86	29%			282	355	73	26%			293	364	70	24%			
6		5673	183.51	481	524	43	9%	Yes	167.35	450	481	32	7%	Yes	180.72	474	496	22	5%	Yes		
TOTAL				481	524	43	9%	Yes		450	481	32	7%	Yes		474	496	22	5%	Yes		
J10 NB		1	5672	0	0	0	0	0%		0	0	0	0	0%		0	0	0	0	0%		
			5671		0	125	125	0%			0	122	122	0%			0	186	186	0%		
		12823		0	140	140	0%			0	137	137	0%			0	208	208	0%			
		5668		0	183	183	0%			0	185	185	0%			0	293	293	0%			
		3282		0	223	223	0%			0	218	218	0%			0	367	367	0%			
	2	12826	216.10	216	231	15	7%	Yes	217.63	218	226	8	4%	Yes	368.37	368	382	14	4%	Yes		
		12827		216	254	38	18%			218	249	31	14%			368	450	81	22%			
		2936		216	270	54	25%			218	264	47	21%			368	495	126	34%			
	3	12831	108.51	325	305	-20	-6%	Yes	80.90	299	297	-1	0%	Yes	159.45	528	530	3	1%	Yes		
		12832		325	319	-5	-2%			299	311	13	4%			528	545	18	3%			
		2999		325	409	84	26%			299	398	100	33%			528	661	133	25%			
	4	3000	122.10	447	430	-17	-4%	Yes	116.53	415	419	4	1%	Yes	154.44	682	699	16	2%	Yes		
		3002		447	462	16	4%			415	451	36	9%			682	756	74	11%			
	5	3005	65.20	512	498	-14	-3%	Yes	58.29	473	486	13	3%	Yes	106.04	788	810	22	3%	Yes		
	TOTAL			512	498	-14	-3%	Yes		473	486	13	3%	Yes		788	810	22	3%	Yes		