



National Highways

Northern Gateway JPA1.1

Transport Assessment Review





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Executive Summary

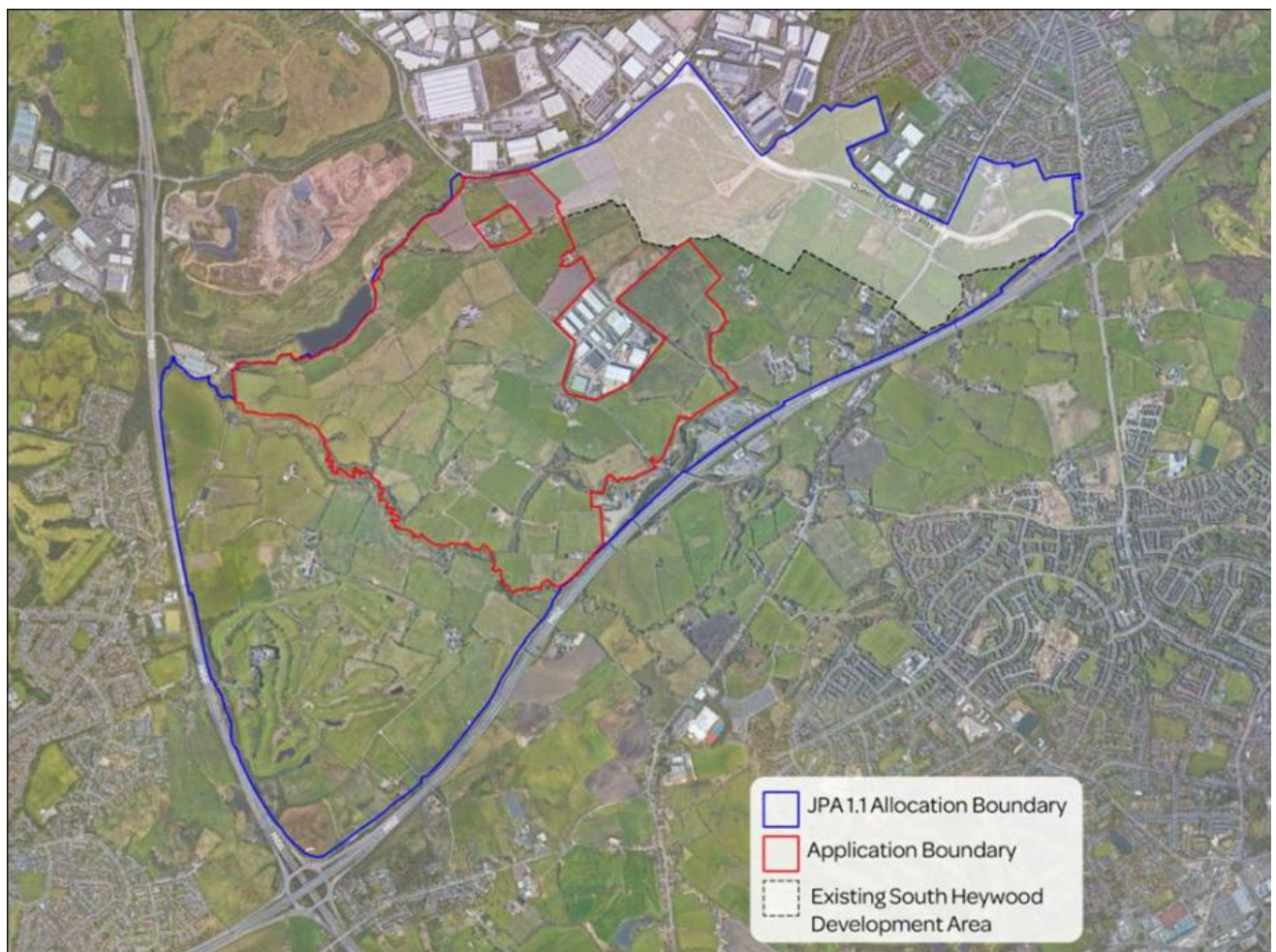
Introduction

National Highways has been consulted by Rochdale Council on an outline planning application (Ref. 25/00418/OUT) (all matters reserved) for a national-scale employment development on part of the Northern Gateway (NG) site allocation JPA1.1, comprising:

- Up to 600,000sqm of employment floorspace, comprising:
 - B2, E(g)ii and E(g)(iii) totalling 180,000sqm
 - B8 (including Data Centres) totalling 420,000sqm
- Potential supporting uses of up to 5,000sqm

The planning application boundary is shown in the context of the full JPA1.1 site allocation in Figure 0-1.

Figure 0-1 – Northern Gateway Application Boundary (TA pg.3)



As part of the suite of planning application documents, a Transport Assessment (TA) has been produced by Tetra Tech. The TA and supporting information have been reviewed by WSP on behalf of National Highways, with detailed comments provided within this report, which broadly follows the same structure of the TA.

This Executive Summary provides an overview of the fundamental comments that have been raised as part of the review. However, these comments should be considered in conjunction with those raised within the main body of the report. The fundamental comments have been summarised into the categories below.

The Vision

The proximity of the NG site allocation JPA1.1 to the Strategic Road Network (SRN) is likely to be a key benefit to future operators of the site and therefore part of the rationale for its allocation for employment uses. Indeed, marketing materials for the site state: *“Northern Gateway is the largest accessible site in the UK, in the heart of the Manchester conurbation at the confluence of three motorways.”*¹

Whilst National Highways supports the principle of a Vision-Led approach to the site, given the predominance of road-reliant land use classes in the proposed development e.g. logistics use, a Vision-Led approach needs to recognise this in order to form a realistic view of the infrastructure requirements (at the SRN) for a development of this scale and land use type in this location.

The assessment and planning of a mitigation package across all modes at this stage could have a direct impact on the attractiveness of a location which can accommodate buildings from 2,000sqm up to gigascale 302,000sqm units. From National Highways’ perspective, it is critical that the TA follows a sound and realistic approach to assessment and the identification of mitigation, to ensure that the proposed growth ambitions can be realised without compromising the safety and operation of the SRN.

National Highways views masterplanning the full site allocation development as an important part of the planning application, to understand what interventions are deemed to be required, where, and when. The TA currently has a lack of clarity in terms of the expected build out of the full site allocation and associated phased delivery of mitigation.

Highway Safety

Safety is a crucial element for National Highways when considering the impacts of developments. It is expected within a TA that sufficient information is provided to enable National Highways to understand any potential safety implications of the development on

¹ <https://www.northern-gateway.co.uk/flexibility/>

the SRN. The information provided within the submitted TA is very high level, and limited to a review of historic collision records, with no analysis of the potential development impact.

Paragraph 25 of the DfT Circular states the following relating to safety:

- The Design Manual for Roads and Bridges (DMRB) sets out the details of the Secretary of State's requirements for access, design and audit in the highway scheme design process to which development proposals must conform.
- GG 104 (or its subsequent update) identifies the framework and approach for safety risk assessment to be applied when undertaking any activity that may have an impact on safety on the SRN.
- A Walking, Cycling and Horse-Riding Assessment and Review in compliance with GG 142 must be completed during the options or concept change that proposes modification to the SRN.
- Development promoters should prepare a preliminary design and Stage 1 Road Safety Audit (see GG 119) before planning permission is applied for, to demonstrate that road safety issues have been considered.

As part of the TA, a proposed scheme is included at M66 Junction 3 in all scenarios with the proposed development. It should be noted that, should the development be conditioned against improvements (for example at Junction 3), a road safety audit will be required.

Places for Everyone (PfE) and the TA

The PfE SRN Future Work Programme report (SYSTRA, 2022) recognised that the NG allocation would have a significant impact on the M62 and M66 corridors. The indicative transport mitigation for the NG site, presented in Appendix D of the PfE, includes the following 'necessary' measures for the SRN:

- M66 Junction 3 / Pilsworth Road junction upgrade;
- M62 J19 / A6046 Heywood Interchange – intervention to be determined; and
- M66 Junction 2 / A58 – localised junction improvements.

From National Highways' perspective, as set out in its PfE Statement of Common Ground (SoCG) with the GM Authorities, the assessments undertaken and indicative schemes identified above as part of the PfE should be considered as the starting point to support the TA, to be built upon with more detailed work undertaken in the TA, based on the current proposals.

Development Access

The proposed development is located to the south of Pilsworth Road, with proposed accesses onto Pilsworth Road (via Moss Hall Lane) and onto Whittle Lane. However, it is known that Rochdale Council and Transport for Greater Manchester (TfGM) aspire for Whittle Lane to be closed to all traffic other than Public Transport. There are potential implications relating to the operation of the access onto the local road network if Whittle Lane is restricted, and potential impacts on the distribution of development traffic. This may

impact the volume of traffic using each SRN junction, and therefore the mitigation required for the SRN. As such, greater certainty is required regarding the proposed access to the site, with the applicant agreeing an appropriate strategy with Rochdale Council and TfGM to take forward.

Northern Gateway Transport Model (NGTM)

The Northern Gateway Transport Model (NGTM) has been developed by the Strategic Modelling Team at WSP (Leeds) on behalf of the Applicant, and underpins the TA prepared by Tetra Tech as the Applicant's primary transport consultant. Outputs from the NGTM (e.g. traffic flows) have been taken directly from the NGTM for the TA assessments.

The NGTM has not been signed off as being fit for purpose to support the planning application at the current time by National Highways, and therefore there remain risks associated with using outputs from this model within the TA.

National Highways requested copies of the NGTM model files (base and forecast) to allow for AECOM to provide an independent assurance of the model. However, the model files have not been provided at the time of writing, and therefore a full review of the model has not been possible at the current time. To receive the model files, National Highways has been asked to sign a Non-Disclosure Agreement (NDA), however National Highways does not consider there to be a need for this having consulted its legal team. National Highways' position is that if it is unable to refer to the contents of the model files then this will impede its statutory planning duties and therefore they must be provided.

The NGTM review undertaken by AECOM is based upon the modelling documentation provided, and therefore the level of review undertaken is limited.

Based upon the review of the modelling by AECOM three 'significant' comments were raised relating to the base model, and five 'significant' comments were raised relating to the forecast model:

■ Base Model

- **Model Specification Report (MSR) Update:** The MSR sets out the overall specification for the traffic modelling. Given the issues raised, this report should be updated to reflect an amended methodology required to address the points raised.
- **Modelled Peak Hours:** Although the modelled peak hours do not match with the study area peak hours, it was noted that, based on the detailed analysis carried out by the developer's consultant, the modelled AM peak hour is representative of the observed AM peak (based on 2022 observed traffic flows at each junction). However, the modelled PM peak flows are slightly lower than the observed data with a significant difference at some individual junctions. AECOM recommends assessing the individual junctions by uplifting the junctions with a local factor rather than a global factor to ensure robustness of the model.
- **Turn Flow Validation:** Noting that TAG guidelines clearly indicate that it might be difficult to achieve the flow validation criteria for turning movements in a strategic

model, there are a number of turns at key SRN junctions (M60 J19 in particular) where a significant difference is observed. Therefore, AECOM advises that there are potential risks using the turn flows from the model directly in the assessment of the junctions in the forecast scenarios.

■ Forecast Model

- **Reference Demand Forecasting:** AECOM have a number of concerns towards the methodology of estimating the background demand growth. AECOM recommend further information is provided to address the lack of clarity.
- **Scheme Coding:** With the absence of information about how the development was coded within the model, in terms of zone system, internal road network and overall demand loading and routing, AECOM could not verify the appropriateness of the development coding and representation within the model. It is recommended that UFS files for each of the models is provided.
- **Future Highway Schemes:** The TFR reported eight highway schemes titles as Committed and Non-Committed in the immediate vicinity of the development site. Only one scheme, the M60 Simister Island junction upgrade, would be considered committed. The other schemes which are all included in the DS scenarios are not considered committed. It is recommended these schemes are included within the redline boundary of the development proposals or the classifications are updated.
- **Scenarios Testing:** While it is appreciated that an extensive set of DS scenarios have been assessed in the TFR, the scenarios currently modelled are considered variations on the theoretical DS situation rather than “likely” DS situation. AECOM recommends that a simple, standard set of scenarios where development and scheme align with Tag Unit M4 are modelled for the opening year and 10 years plus opening.
- **Outputs:** The TFR presents a high level of flow difference plots. AECOM notes that it is difficult to assess the outputs from these plots and recommends providing clear zoomed-in traffic flow difference plots for the study area, Select Link Analysis SLA plots, Journey Time Impacts, Junction Delays for the key SRN junctions, Link Capacity and Queues for the DM and DS scenarios.

Further comments are raised by AECOM which are classified as ‘Medium’ however these comments are also required to be addressed. Through the TA review, comments have been raised with additional detail requested relating to the inputs, coding and outputs from the NGTM.

At this time, and as a result of not being able to access the model, there is a lack of understanding of the development distribution and therefore a view is unable to be taken on whether the modelled distribution is acceptable. This may impact the volume of traffic forecast to use the SRN junctions, and therefore the mitigation which is required.

Given the NGTM forms the basis of assessment (junction modelling and merge/diverge analysis), the comments related to the NGTM are fundamental importance to National Highways and require addressing.

Vision Led Approach (Policy On/Policy Off)

The TA places emphasis on ‘Policy On’ scenarios, which assumes improvements in active travel and public transport, with a consequential reduction in car drivers. Currently, there are no commitments for public transport/active travel schemes, and therefore there is no certainty regarding this scenario. The TA requires additional detail to be provided relating to the methodology used to develop the ‘Policy On’ scenarios.

The Policy On scenarios rely upon the TfGM Northern Gateway Framework Document (NG TFD) which sets out the public transport and active travel strategies which define the transport vision for Northern Gateway. In the TA review, comments are raised relating to the use of “Scenario 2” from the TFD including:

- The assumptions made that a percentage of car drivers will become car passengers;
- The percentage of Car Drivers applied in Scenario 2, and whether this percentage should be consistent across the NG site allocations JPA1.1 and JPA1.2.
- The use of 60% Car Drivers within the assessment.

Given the prominence in the TA of the Policy On scenarios, further detail is required relating to how this is applied in the assessments. It is suggested that an agreement between the Applicant and TfGM is made regarding this assessment. Notwithstanding this, National Highways still requires scenario testing relating to the “Policy Off” tests.

As part of Vision-Led planning, scenario testing is essential in determining predicted impacts of a development. The Vision-Led approach is based upon planning for outcomes relating to flow scenarios. Given the nature of the proposed development (road reliant sectors) and the proximity of the site to the SRN, this means that there is a road-based component to the vision for the site. Whilst ideally the site will benefit from good active travel and public transport infrastructure connections (core to any vision for the site), it is uncertain how effective these will be in managing down vehicular trips to the site. There could be a scenario in which active travel and public transport uptake is lower than envisioned and therefore the proportion of car drivers is higher (e.g. the ‘Policy Off’ scenarios). Therefore, the TA should be cognisant of scenario testing and the outcomes from both the Policy On/Off assessments. The use of the terminology for the ‘Policy Off’ scenarios as Non-Vision-Led is not accepted as a result.

Approach to Assessment

The peak hours of the SRN have not been assessed within the TA in both the morning and evening periods. This is the case for the existing peak (based upon current traffic flow data) and the development peak (based upon the trip generation within the TA). Consequently, the TA is not assessing the correct peak periods, which may impact upon the conclusions presented.

As part of the pre-application scoping discussions, it was advised that, to help understand the impact of the development and the required mitigation, the TA scenarios would need to provide an understanding of the impacts of the development on the existing network.

The TA does not clearly set out the impact of the development, which could be achieved by the following step changes to traffic flows:

- **Step 1** - Existing Network with Base Flows;
- **Step 2** - Existing Network with Base Flows + Growth + Committed Development;
- **Step 3** - Existing Network with Base Flows + Growth + Committed Development + Northern Gateway Development;
- **Step 4** - Base Flows + Growth + Committed Development + Northern Gateway Development + Mitigation.

By structuring the scenarios based upon the above the following understanding can be reached:

- **Step 2 vs Step 3** - Provides an indication of the development impact on the network and allows an understanding of where mitigation is required.
- **Step 2 vs Step 4** - Provides an indication of the impact of the mitigation, with the aim of the network operation moving towards the network operation within Step 2.

It is highlighted within the TA that there is a request for the development to be modelled in an opening year. This requirement comes from DfT Circular 01/2022 and is due to the uncertainty relating to background growth. Such testing allows for an understanding of the full impact of a proposed development closer to current network conditions with fewer uncertainties relating to commitments (development and schemes) and background traffic growth.

Operational Assessment

The comments made regarding the NGTM, the approach to assessment and the Vision-Led approach (scenario testing) all have an impact on the operational assessment undertaken as part of the TA and therefore updates to the operational assessments should follow once those comments have been addressed.

The operational assessment has been undertaken using junction models and merge/diverge analysis. The following junction models have been developed as standalone assessments for the TA:

- M66 Junction 3 – Single junction Vissim model.
- M66 Junction 2 – Junction Model (Transyt).
- M62 Junction 18 (Simister Island) – No Assessment.
- M62 Junction 19 – Junction Model (Transyt).

CD 122 Merge/Diverge analysis is provided for:

- M66 Junction 3.
- M66 Junction 2.
- M62 Junction 18 (Simister Island).
- M62 Junction 19.

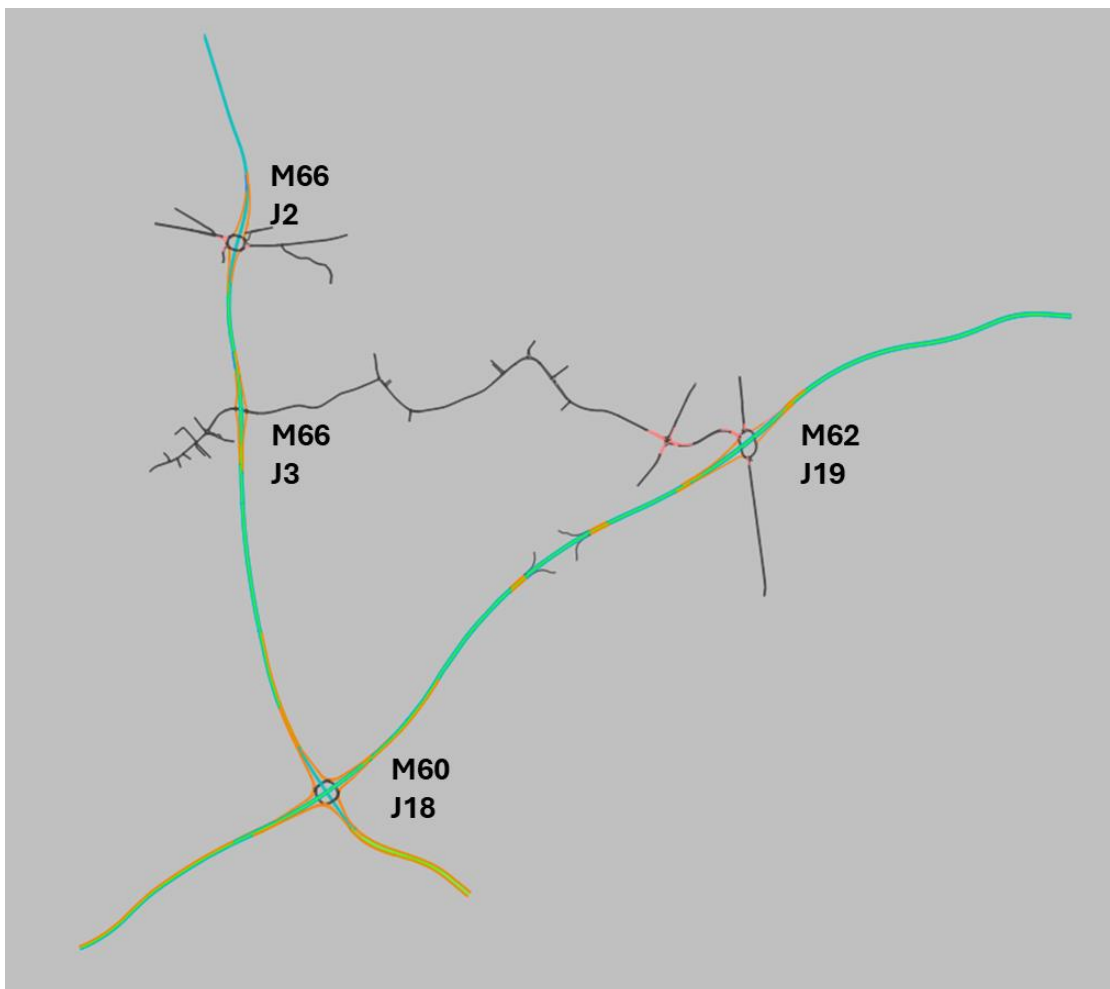
- It is noted by WSP that the sifting criteria used within the TA to determine the junctions for assessment highlights that the M60 Junction 19 should be assessed, however an assessment has not been provided in the TA.

As the operational assessment has been undertaken using junction models, there is no understanding provided in the TA regarding the operation of the TA mainline, or the interaction between junctions.

National Highways have developed a wider area Vissim model (which has been further enhanced by the local authorities) to support the assessment of the Northern Gateway allocation and then emerging planning application. The Vissim model covers the full extent of the SRN study area being assessed in the planning application along with the key Pilsworth Road - Queen Elizabeth II Link Road corridor. The model extents are shown in Figure 0-2 below.

The Vissim model was developed in conjunction with a wider area SATURN model (NGTM) with model both utilising traffic data collected in November 2022 following the opening of the Queen Elizabeth II Link Road.

Figure 0-2 – Vissim Model Extents



National Highways require the operational impact of the development at the SRN to be assessed using the wider area Vissim model that has been developed for that purpose, with standalone lower tier junction models being used to inform signal timings for ‘with development’ and/or ‘with highway mitigation’ scenarios where appropriate.

Infrastructure, Mitigation and Phasing

Funding has been confirmed by the Department for Transport (DfT) for an improvement scheme at M60 Junction 18 Simister Island, with the Government clarifying that funding will be made available subject to Value for Money (VfM) and a successful DCO outcome. The Simister Island scheme aims to not just address existing congestion concerns, but to accommodate growth within the area, including the Northern Gateway.

Aside from the Simister Island scheme, there is currently no commitment from National Highways to fund any schemes within the vicinity of the Northern Gateway.

Paragraph 1.1.4 of the TA states *“Mitigations on the Strategic Road Network will be dictated by the National Highways Project Control Framework (PCF) process.”* This not accurate, as it is the responsibility of the developer through the Transport Assessment to identify and assess the necessary mitigation and set out a strategy for its funding and delivery, for which there may be a number of potential routes. **The mitigation for the development on the SRN should not rely on National Highways, the PCF Process and RIS. The application TA will be what NH uses to inform its planning response.**

Paragraph 1.1.5 of the TA refers to the ‘mitigation’ being brought forward by Key Stakeholders and states: *“At this early stage, the Application seeks to confirm its commitment to supporting those future mitigations which will emerge and be determined as the proposals develop.”* From National Highways’ perspective, there needs to be greater certainty now over the mitigation requirements to deliver the full Northern Gateway allocation so that an appropriate funding and delivery strategy can be agreed, including the apportioning of appropriate developer contributions. As stated above, there is no commitment from National Highways to provide further investment into the SRN over and above the now committed Simister Island scheme and as such, this cannot be relied upon as a strategy for mitigation.

For the SRN the TA should set out the following:

- The locations where mitigation is required.
- The type of mitigation required.
- The scale of mitigation that is required.
- When the mitigation is required.

This should be based upon all the evidence within the TA, and not just the junction modelling (as suggested in the TA).

The following comments are raised regarding the mitigation strategy within the TA:

- At this time, none of the elements included in the Common Highway Mitigation Package are committed, however this has been included in all of the ‘with development’ assessment scenarios. There is a risk that elements of this package are not delivered, however this has not been assessed. The SRN schemes presented in the TA were identified through an Options Assessment Report in advance of the TA being developed, and therefore did not make use of trip generation and distribution analysed within the TA. Therefore, the TA does not demonstrate that the solutions presented are most appropriate for the development demand.
- The TA focuses upon a new access junction at the M62 Birch Services and does not consider other options to upgrade the existing M62 Junction 19. The TA states that these can be investigated further if required. The TA also states that smaller mitigation schemes can be investigated further if required. It is recommended that this work is undertaken now, given the uncertainties around the funding and delivery of a new access junction at Birch Services.
- Within the SRN mitigation is focused around M62 Junction 19 and M66 Junction 3, there is an absence of any mitigation at M66 Junction 2. It was identified in the PfE that an intervention at M66 Junction 2 is necessary. The TA needs to evidence what is required at M66 Junction 2 and when it is required.
- The TA states that public transport and active travel strategy elements will be funded proportional to the development impacts as the proposed scheme progresses. Further detail is required to demonstrate how this will be implemented, and how agreement will be reached with key stakeholders.

Travel Plan

The TA states that a travel plan will be implemented, however at the time of undertaking the TA review, a travel plan has not been provided. This is a critical document from National Highways’ perspective. It would be expected to be produced in line with paragraph 118 of the NPPF: *“All developments that will generate significant amounts of movement should be required to provide a travel plan”* and current Planning Practice Guidance (PPG) which states: *“Travel Plans should where possible, be considered in parallel to development proposals and readily integrated into the design.”* The PPG provides guidance on the expected Travel Plan content, including detailed analysis (to supplement that which is presented in the TA) of travel habits, proposed measures for non-car modes, modal shift targets, and monitoring requirements.

1 Introduction

1.1 Preamble

1.1.1. National Highways has been appointed by the Secretary of State as a strategic highway company under the provisions of the Infrastructure Act 2015. National Highways is responsible for operating, maintaining, and improving the Strategic Road Network (SRN) in England, in accordance with the License issued by the Secretary of State for Transport (April 2015) and Government policies and objectives.

1.1.2. National Highways' approach to engaging with the planning system is governed by the advice set out in:

The Strategic Road Network: Planning for the Future – A guide to working with National Highways on Planning Matters (2023)

1.1.3. The document is written in the context of statutory responsibilities as set out in National Highways' License, and considering Government policy and regulation, including the:

- National Planning Policy Framework (NPPF);
- Town and Country Planning Development Management (Procedure) Order (England) 2015 (DMPO); and
- DfT Circular 01/2022 The Strategic Road Network and the Delivery of Sustainable Development ("the circular").

1.1.4. As a statutory consultee in the planning system; National Highways have a regulatory duty to co-operate. Consequently, National Highways are obliged to consider all proposals received and to provide appropriate, timely and substantive responses.

1.1.5. National Highways expects good quality transport evidence to be submitted as part of a planning application, in accordance with the documents listed above and current transport planning guidance. Paragraph 74 of 'The Strategic Road Network: Planning for the Future' states:

"In submitting a planning application, the development promoter should provide all the information we will need to fully consider the interaction of the development with the SRN, and the suitability of any related actions proposed."

1.1.6. National Highways' desire to be a proactive planning partner goes beyond the statutory role, but follows the spirit of the license which stipulates that National Highways should:

"Support local and national economic growth and regeneration."

1.2 Background

1.2.1. The following two sites are allocated in the *Places for Everyone Joint Spatial Plan* (PfE) and together form the 'Northern Gateway' (NG):

- **Policy JPA1.1 (Heywood and Pilsworth)** – 1,200,000sqm industrial and warehousing floorspace (935,000sqm delivered within the Plan period to 2039), approximately 1,200 homes, a primary school and ancillary services, a local centre, hotel, leisure, and conference facilities, and new and improved sustainable transport, active travel, and highway infrastructure. JPA1.1 straddles the administrative of Bury (327ha) and Rochdale (307ha) covering a total area of 634ha.
- **Policy JPA1.2 (Simister and Bowlee)** – 1,550 dwellings, primary school, local centre, and sustainable and active travel facilities and highways improvements. 98ha and straddling the administrative boundary of Bury and Rochdale.

1.2.2. The PfE SRN Future Work Programme report (SYSTRA) recognised that the NG allocation would have a significant impact on the M62 and M66 corridors. The indicative transport mitigation for the NG site, presented in Appendix D of the PfE, includes the following ‘necessary’ measures for the SRN:

- M66 Junction 3 / Pilsworth Road junction upgrade;
- M62 J19 / A6046 Heywood Interchange – intervention to be determined; and
- M66 Junction 2 / A58 – localised junction improvements.

1.2.3. Paragraph 11.27 of the PfE states the following regarding the access strategy from the SRN for the NG site:

1.2.4. “The allocation clearly has excellent access to the motorway network but will benefit from improved linkages between Junction 19 of the M62 and Junction 3 of the M66. The local authorities will continue to explore opportunities for a new junction at Birch which could provide additional accessibility and be of benefit to the allocation in the longer term.”

1.2.5. The PfE Statement of Common Ground (SoCG) between National Highways and the GM Authorities recognised that *“further detailed assessment work will be undertaken as the plan for growth is both refined and delivered through the Local Plan process, Masterplans, Supplementary Planning Documents and/or Planning Applications... Any requirement for enhancement of the SRN, and at interfaces with the Local Road Network, will be further assessed in more focused analyses.”* The SoCG also advocates *“masterplanning (including phasing) of the larger sites to better understand the timescales within the plan period when significant impacts are expected as a result of the PfE allocations.”*

1.2.6. National Highways has now been consulted by Rochdale Council on an outline planning application (Ref. 25/00418/OUT) (all matters reserved) for a national-scale employment development on the northern NG site (JPA1.1), comprising:

- Up to 600,000sqm of employment floorspace, comprising:
 - B2, E(g)ii and E(g)(iii) totalling 180,000sqm
 - B8 (including Data Centres) totalling 420,000sqm
- Potential supporting uses of up to 5,000sqm

- 1.2.7. The site which is the subject of the outline planning application is shown in the context of the full JPA1.1 site allocation in Figure 1-1.

Figure 1-1 – Northern Gateway Application Boundary (TA pg.3)



- 1.2.8. Whilst the submitted planning application only includes a proportion of the overall allocated development quantum, a key requirement of the local planning authorities and National Highways is that the transport infrastructure requirements for the SRN need to be determined for the whole allocation, to support the phased delivery of the site.
- 1.2.9. It should be noted that whilst access is a reserved matter, under article 5(3) of the Development Management Procedure Order 2015, an application for outline planning permission must indicate the area or areas where access points to the development will be situated, even if access has been reserved.

1.3 Scoping and Pre-application Engagement

- 1.3.1. Tetra Tech has been appointed by the Northern Gateway Development Vehicle LLP (NGDV) to provide transport planning advice in relation to development proposals at the Heywood and Pilsworth (JPA1.1) site. A Transport Assessment (TA) has been submitted as part of the outline planning application.

- 1.3.2. National Highways has engaged with a number of stakeholders throughout the pre-application stage, including:
- NGDV;
 - Tetra Tech, transport consultants to the NGDV;
 - Rochdale Borough Council;
 - Bury Council;
 - Transport for Greater Manchester (TfGM);
 - Greater Manchester Combined Authority (GMCA); and
 - Pell Frischmann, transport consultants to the local authorities.
- 1.3.3. The pre-application scoping discussions have been held over a long period of time, from 2022 up to the planning application submission in 2025. The key scoping activities are listed below, as per Table 1.1 of the TA:
- 9x Transport Steering Group (TSG) meetings – various dates
 - Transport Technical Meeting to discuss Tetra Tech’s Transport Assessment Scoping Note Update (TASNU) and Addendum – September 2024
 - National Highways’ response to TASNU & TASNU Addendum - November 2024
 - 5x Highways Technical Working Group Meetings - January-April 2025
 - National Highways’ response to Tetra Tech Technical Note 10 and the Transport Model Local Model Validation Report (LMVR) – March 2025
- 1.3.4. In response to the final item listed above, a Technical Note was provided by Tetra Tech to National Highways on Friday 9th May, which was during the initial 21-day period for National Highways to respond to the planning application as a statutory consultee.
- 1.3.5. A Risk Register is in place for the project and has been populated by the members of the Highways Technical Working Group. A summary is provided below of the top risks raised by National Highways which remain pertinent following the submission of the planning application and are all rated as ‘very high’ or ‘high’ in terms of the overall unmitigated risk rating:

Table 1-1 – Joint Risk Register: Top National Highways Risks

Risk ID	Risk Owner	Risk Description	Risk Cause	Overall Risk Rating (unmitigated Assessment) Probability x Impact
11	Joint Venture / Joint Districts	Funding uncertainty of SRN schemes	In terms of any SRN scheme which is necessary to deliver the proposed level of development, as per paragraph 29 of the DfT Circular 01/2022: <i>"there cannot be any presumption that such infrastructure will be funded through a future RIS"</i> There is currently no commitment from NH to fund any schemes, until further details of future RIS settlement are known following 2025 Government spending review.	25
14	Joint Venture / Joint Districts	Risk of seeking to relocate Birch MSA	JPA1.1 Access Strategy is based on relocating Birch MSA, which is currently operational.	25
3	Joint Venture / Joint Districts	Insufficient evidence to confirm SRN infrastructure requirements.	Insufficient evidence has been provided to National Highways to show the forecast impacts on the SRN junctions in the immediate vicinity of the site, and across the wider SRN, to establish what SRN infrastructure is necessary to support the Northern Gateway (the JV application and the full build out of the site).	20
4	Joint Venture / Joint Districts	Construction of a new junction at Birch MSA may not be the optimal solution for the M62.	Lack of consideration of alternatives, e.g. upgrading the existing M62 Junction 19.	20
2	Joint Districts	Timeframe for agreeing a common transport evidence base	For a development proposal of this scale, there can be a lengthy post-application period before National Highways is in a position to make a positive recommendation to the LPA. Furthermore, the Developer JV has already advised that there will be supplementary information submitted post-application, as not all comments received to date have been addressed in the Transport Assessment which will be submitted.	16
7	Joint Districts	Risks of cumulative impacts of wider proposals,	Limited analysis and assessment of the cumulative impacts of the wider growth proposals	16

		including JPA1.2 Simister & Bowlee, JPA 2 Stakehill, wider Atom Valley MDZ.		
12	Joint Venture / Joint Districts	No commitment to fund public transport and active travel measures required to support the delivery of the full build-out of the site.	No funding commitment currently.	16
16	Joint Districts / Joint Venture	Misalignment of timelines for Developer JV Planning application and Western Access scheme	Developer JV planning application is ahead of preferred option/OBC for Western Access	16

1.3.6. The overall approach to pre-application engagement has been welcomed by National Highways. Notwithstanding, whilst elements of the TA methodology may have been agreed in principle during this period, the formal review process can only commence following the submission of the planning application and once a full suite of information has been provided and subjected to a comprehensive technical review.

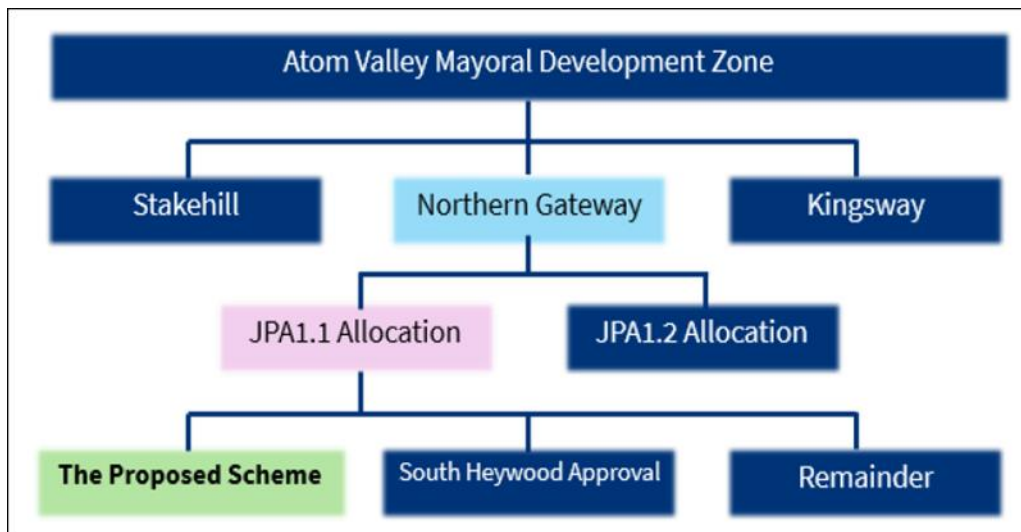
- 1.3.7. National Highways' expectation is that the TA includes the following essential elements:
- Compliance with the policies and approach set out in DfT Circular 01/2022;
 - Details of the proposed phasing of the development and associated infrastructure;
 - Details of forecast development trip generation and distribution for each user class;
 - Methodology and calculations of background traffic growth, committed development, other PfE site allocations and wider Atom Valley proposals;
 - Assessment of development impact on the Strategic Road Network (SRN);
 - Understanding of required mitigation on the SRN, with supporting evidence;
 - Identification of suitable mitigation for the SRN, where required;
 - Appropriate scenario testing in terms of operational assessment, and merge/diverge analysis; and
 - Understanding of any potential safety implications of the development on the SRN.

WSP Comments	Comment 1-01
• In accordance with the policy guidance set out in ‘The Strategic Road Network: Planning for the Future’, National Highways’ expectation when reviewing a planning application is that the development promoter provides all the information required to fully consider the interaction of the development with the SRN, and the suitability of any related actions proposed. • Whilst access is a reserved matter in this planning application, under article 5(3) of the Development Management Procedure Order 2015, an application for outline planning permission must indicate the area or areas where access points to the development will be situated, even if access has been reserved. • The <i>Places for Everyone</i> transport evidence recognised that the Northern Gateway would have a significant impact on the M62 and M66 corridors and identified a number of necessary mitigation measures to support the delivery of the site allocations, including improvements to M66 Junction 3 / Pilsworth Road, M62 J19 / A6046 Heywood Interchange and M66 Junction 2. • The submitted planning application only includes a proportion of the overall allocated development quantum of site JPA1.1. In addition to understanding the impacts and infrastructure requirements for the planning application development quantum, a key requirement of the local planning authorities and National Highways is that the transport infrastructure requirements for the SRN need to be determined for the whole allocation, to support the phased delivery of the site. • Whilst elements of the TA methodology may have been agreed in principle during the pre-application scoping period, the formal review process can only commence following the submission of the planning application and once a full suite of information has been provided and subjected to a detailed technical review.	

1.4 Planning Context

The Proposed Scheme forms part of a strategic, long-term development proposal for GM, with the spatial designations shown in Figure 1-2.

Figure 1-2 – Context of Local Strategic Spatial Allocations (TA pg. 4)



■ **Atom Valley Mayoral Development Zone**

- Single largest employment opportunity for the GM City Region: 1.6m sqm of employment space, supporting 20,000 high-quality jobs, and 7,000 homes;
- The MDZ includes Northern Gateway, Stakehill, and Kingsway.

■ **Northern Gateway (JPA1.1 & JPA1.2)**

- JPA1.1 (summarised below), JPA1.2 allocated for 1,550 dwellings, primary school, local centre;
- NG to deliver 1.2m sqm employment, 2,550 dwellings, two primary schools, and ancillary uses.

■ **JPA1.1 Allocation Site**

- Deliver 1.2m sqm employment floorspace, 1,200 dwellings, primary school, and ancillary facilities.

■ **Application Site & Proposed Scheme**

- Forms part of the JPA1.1 Allocation, bordered by South Heywood Masterplan Area (SHMA);
- 600,000sqm of employment, 5,000sqm supporting land uses.

■ **South Heywood Masterplan Area**

- Has received hybrid (part full / part outline) permission from RMBC for 175,460sqm industrial floorspace, 1,000 dwellings, and primary school (ref: 16/01399/HYBR; 22/01569/OUT).
- Incorporates highways infrastructure (including Queen Elizabeth II Way) and funding for public transport improvements.

■ Remainder of JPA1.1 Allocation Site

- Remainder, excluding the Proposed Scheme and SHMA, will provide 425,000sqm of employment floorspace and 200 dwellings, subject for future planning applications.

1.5 Transport Assessment and Key Stakeholders

1.5.1. The following terms are used in the TA:

- **Proposed Scheme** – Development proposed within the Application Site;
- **JPA1.1 Allocation** – Comprises part of the Northern Gateway, alongside the JPA1.2 Allocation; and
- **Cumulative Impacts** – Of full JPA1.1 and JPA1.2 Allocation Sites.

1.5.2. The TA has used data and evidence from both site-specific analysis of transport requirements associated with development proposals, and the cumulative demand associated with the more strategic site allocations and designations.

1.5.3. For reference, BC, RMBC, TfGM, and NH are described as Key Stakeholders (KS).

1.6 Development Context

1.6.1. JPA1.1 is GM's largest allocated employment site and is situated within/adjacent to a congested highway network. TfGM has set a Vision/target to have 50% of trips in GM made by sustainable modes by 2040. As GM transitions to this, modal share strategies will deliver improved opportunities to allow for this. The strategy seeks to reduced travel by car in 2040 as compared to 2017 levels.

1.6.2. The TA acknowledges that significant mitigations, even new junctions on the SRN, may be required to support and achieve the wider aspirations of the PfE. It states that the allocations set out in the PfE will come forward at different times, yet all should contribute towards the overall mitigation solution. It is stated in the TA that the Proposed Scheme seeks approval early in the plan period and is prepared to fund or deliver its proportional share of mitigation.

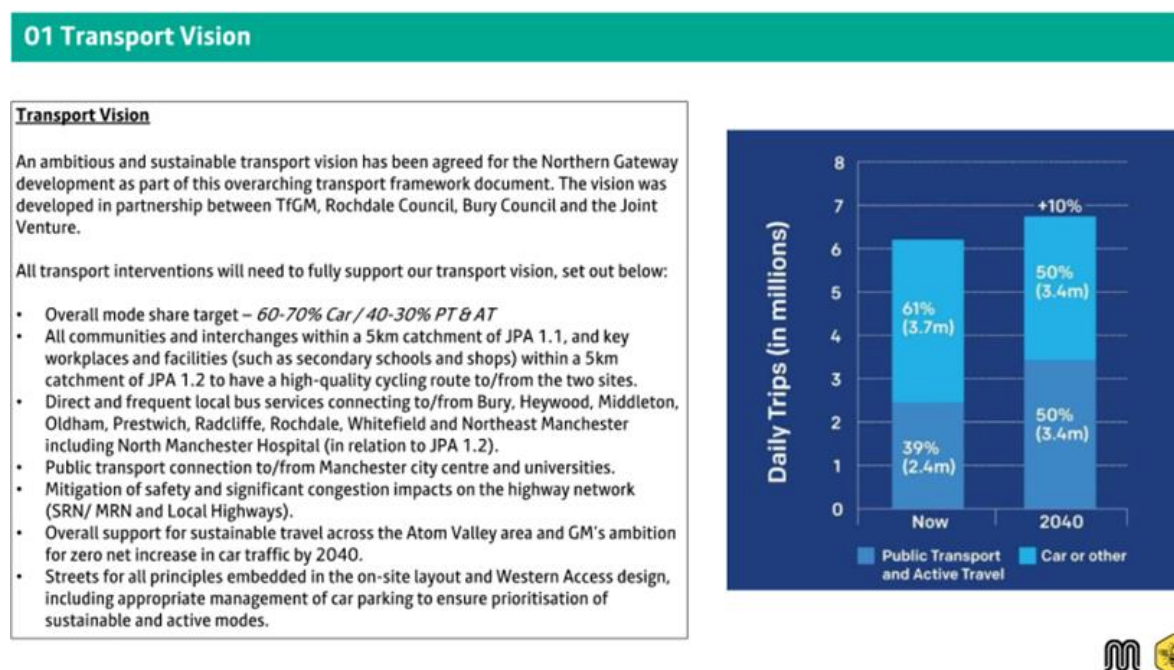
WSP Comment	Comment 1-02
• It is acknowledged that, as an identified Key Stakeholder, National Highways has been involved in the PfE development process and in the scoping of the proposed development site. • NH have and will continue to have a proactive role in the assessment of the wider Northern Gateway area and the JAP1.1 and JPA1.2 Allocation Sites as and when development proposals are bought forward, to ensure that the developments adhere to the identified frameworks agreed on by the other Key Stakeholders. • Whilst the TA references contributions to mitigation and proportional funding, there is no further detail regarding how this would be proposed.	

2 The Vision

2.1 Strategic Priorities

- 2.1.1. The strategic priorities within the Northern Gateway Development Framework (NGDF) Supplementary Planning Document (SPD), adopted by BC and RMBC in April 2025, associated with the delivery of JPA1.1 are to:
- Rebalance economic growth.
 - Provide a strategically significant employment location.
 - Deliver comprehensive and coherent development.
 - Support Advanced Manufacturing and development of skills.
 - Promote robust placemaking principles.
 - Deliver sustainable communities.
 - Create high-quality and sustainable connections with surrounding communities.
 - Promote exemplar sustainability standards.
 - Embed a network of high-quality and naturalised green and blue infrastructure.
 - Enhance and support local habitats and biodiversity
- 2.1.2. Within this context, transport priorities of JPA1.1 should seek to:
- Provide realistic and attractive alternatives to the car.
 - Maximise the accessibility of the site by public transport.
 - Give priority to pedestrians and cyclists across the site.
 - Provide the capacity (both public transport and highway) for growth.
- 2.1.3. There is an emphasis on Vision-Led approach to transport for the next twenty years, moving away from the ‘predict and provide’ approach which sought to estimate future volumes of traffic on the network and provide highway capacity to meet this demand.
- 2.1.4. The initial stages of TfGM’s Northern Gateway Transport Framework Document (TFD) were presented in “*NG – Draft Transport Strategy*” and “*NG – Draft Active Travel Masterplan*” (both November 2022), setting out initial mitigation options, priorities, and funding streams. The TFD builds on this work and provides a comprehensive Framework to guide the development of NG in context of the GM Transport Strategy 2040. The Vision is shown below:

Figure 2-1 – TfGM Transport Vision (TA pg.10)



- 2.1.5. It is noted that the NG TFD has been cross-referenced within this TA due to overlap of the provided information in both documents.
- 2.1.6. As noted within the TA, NH requested the inclusion of assessment scenarios which align with the more traditional ‘predict and provide’. The TA has included assessments to consider both approaches, however states that the Vision-Led approach is the appropriate approach for planning purposes.

WSP Comment	Comment 2-01
• As per the Transport Framework Scoping Review undertaken by WSP (January 2025, document: 70095637-136-001), it is acknowledged that the proposed study area currently suffers from significant transportation challenges, particularly for Active Travel and Public Transport. National Highways are supportive of proposed measures to encourage modal shift for both residents and employees of the proposed Site to reduce the impact of the development on both the Local and Strategic Road networks. • WSP have the following comments regarding a Vision-Led approach: • The adoption of a Vision-Led approach is advocated in DfT Circular 01/2022. • The proximity of JPA1.1 to the SRN is likely to be a key benefit to future operators of the site and therefore part of the rationale for its allocation for employment uses. Given the predominance of road-reliant land use classes in the proposed development e.g. logistics use, a Vision-Led approach needs to recognise this from a National Highways’ perspective in order to form a realistic view of the infrastructure requirements (at the SRN) for a development of this scale and land use type in this location.	

- Given the location and scale of the Northern Gateway site, it is recognised that highway infrastructure to mitigate the impact of development will be required at the SRN and that this will be a key component to any 'transport vision' for the Northern Gateway development.
- The Scenario 2 Vision summarised within the TfGM Northern Gateway Transport Framework can be considered a reasonable starting point for the analysis of the impacts of the phases of development, however the ability to achieve the Scenario 2 Vision will be dependent on what interventions are provided particularly those which support sustainable travel to and from the site.
- The TA should be cognisant of the need for scenario testing associated with Vision-Led planning, and the requirement of the 'Policy Off' testing. The terminology of the 'Policy Off' testing being Non-Vision-Led is not accepted.

3 National Policy

3.1 National Planning Policy Framework

3.1.1. The following sections of the NPPF are referenced within the TA, with the TA stating that the Proposed Scheme and wider NG development accords with current NPPF requirements. In relation to transport, the following paragraphs are referenced in the TA:

- Paragraph 109 - 110:
 - *“Transport issues should be considered from the earliest stages of plan-making and development proposals, using a Vision-Led approach to identify transport solutions that deliver well-designed, sustainable and popular places.*
 - *Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health”.*
- Paragraph 115 - 116:
 - *“In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*
 - *a) sustainable transport modes are prioritised taking account of the vision for the site, the type of development and its location;*
 - *b) safe and suitable access to the site can be achieved for all users;*
 - *c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code⁴⁸; and*
 - *d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree through a Vision-Led approach.*
 - *Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios.”*

WSP Comment	Comment 3-01
• As per the Transport Assessment Scoping Note (August 2024, document: 784-B048805), it is recommended that reference be made to Paragraph 22 of the NPPF, which states: <i>“Where larger scale developments such as new settlements or significant extensions to existing villages and towns form part of the strategy for the area, policies should be set within a vision that looks further ahead (at least 30 years), to take into account the likely timescale for delivery”.</i>	

- Additionally, due to the Vision-Led approach of the Proposed Scheme being focused on the reduction of impact to the local and strategic highway networks and to encourage modal shift away from private vehicle travel, it is recommended that Paragraph 117 also be included within the body of the text:

“Within this context, applications for development should:

- a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;*
- b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*
- c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;*
- d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and*
- e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.”*

3.2 National Highways

DfT Circular 01/2022

- 3.2.1. The DfT Circular 01/2022 sets out how NH will engage with the planning system whilst fulfilling its role as delivery partner and managing the SRN. The Circular details that new development should reduce reliance on private vehicles through appropriate infrastructure. Promoting sustainable travel should also be used to reduce the need to introduce new SRN connections which may negatively affect safety, reliability, and efficiency, with NH engaging in the planning process where the SRN is affected.

WSP Comment	Comment 3-02
• The Circular also sets out the following, which should be considered within the TA: • Paragraph 29: <i>“New connections and capacity enhancements to the SRN which are necessary to deliver strategic growth should be identified as part of the plan-making process, as this provides the best opportunity to consider the cumulative impacts of development...and to identify appropriate mechanisms for the delivery of strategic highway infrastructure. However, there cannot be any presumption that such infrastructure will be funded through a future RIS.”</i> • Paragraph 51. <i>“Where a transport assessment indicates that a development would have an unacceptable safety impact or the residual cumulative impacts on the SRN would be severe, the developer must identify when, in relation to the occupation of the development, transport improvements become necessary.”</i>	

Planning for the future

3.2.2. National Highways' planning guide, *Planning for the future: A guide to working with National Highways on planning matters* (2023) describes the approach taken by NH when engaging in the plan making system, to be read in conjunction with the Circular. It sets out the stages of a Vision-Led approach:

- Establish a vision.
- Develop scenarios.
- Generate options.
- Test options.
- Produce a vision strategy.

3.2.3. NH sets out its role in supporting the economy through the SRN Economic Overview:

“Transport assessments should be carried out in line with prevailing government guidance and industry standards in agreement with us, through pre-application and scoping. Where modifications to the SRN are proposed, schemes must be subject to road safety, environmental and any other relevant assessment.

Local authorities and developers also need to ensure that their proposals comply with requirements for access, design and audit as set out in the Design Manual for Roads and Bridges (DMRB)”

Economic Role of National Highways

3.2.4. This document provides a summary of the multi-functional economic role of the SRN, and highlights the four key areas through which NH can support the UK economy:

- **Role 1:** Resilient, reliable and value for money connectivity for SRN reliant sectors.
- **Role 2:** Strategic Connectivity: Supporting international trade and inter-regional connections.
- **Role 3:** Planning and placemaking: Ensuring the right development in the right places.
- **Role 4:** A catalyst for growing social value and boosting prosperity.

3.3 Active Travel England

3.3.1. In July 2023, Active Travel England (ATE) became a Statutory Consultee for development proposals equal to or exceeding: 150 housing units, 7,500sqm of floorspace, or 5ha. Several areas of guidance have been published which are relevant to the submitted planning application:

Planning Assessment Toolkit

3.3.2. These documents can be used to determine whether the active travel provision promoted by developers is in line with local policy requirements and technical guidance. Paragraph 1.2 states:

“The ATE Planning Application Assessment Toolkit is not in itself the determinant of a planning application. Its purpose is to allow the user to assemble the evidence and assess the development proposal against current expectations. Users are expected to use their professional judgement in providing an evidence-based recommendation.”

3.3.3. It is states that a TA should provide information on the following aspects, and “clearly outline the mode share targets, proposed measures, monitoring strategy and remedial measures in the even these are not met”:

- Multi-modal trip generation.
- Qualitative analysis of sustainable travel infrastructure in the surrounding area and the impact of the proposals on these networks.
- Detail of proposed improvements to active travel infrastructure and any other strategies to enable an increase in walking and cycling rates.

3.4 Public Transport Policies

National Bus Strategy: 2024 Bus Service Improvement Plans Guidance

3.4.1. The statutory framework for the delivery of the National Bus Strategy at the local level is through Bus Service Improvement Plans (BSIP), published October 2021, with additional guidance published January 2024. It is specified that BSIPs require a vision for buses which aligns with the National Bus Strategy and Local Transport Plans. This guidance specifies that buses must be an attractive option for people, be better integrated, and more accessible.

LTN 1/24: Bus User Priority

3.4.2. Published in March 2024, this note builds on the National Bus Strategy (March 2021), superseding LTN 1/97 Keeping Buses Moving. The guidance provides a basis for supporting and prioritising buses and their passengers within an integrated road network. Local authorities are expected to demonstrate that they have given due consideration to this guidance when designing schemes that qualify for dedicated Government funding.

WSP Comment	Comment 3-03
The TA includes a review of relevant national policies, including those of National Highways. Several key extracts of the DfT Circular 01/2022 have been highlighted above and these will be revisited later in this review.	

4 Local Policy and Guidance Updates

4.1 Overview

- 4.1.1. Chapter 4 of the TA states: *“A detailed overview of the relevant planning policy is set out within the Planning Statement (prepared by Turley) which supports the Application. This section captures changes in local highways and transportation policy context since the original TA Scoping Note was issued in July 2022”.*

4.2 Places for Everyone Joint Development Plan

- 4.2.1. Regarding the allocation of site JPA1.1, the TA states:

Paragraph 4.2.5: *“Like all sites at PfE, the JPA1.1 Allocation Site had to undergo stringent assessment to be allocated. It was tested and modelled and ultimately deemed acceptable subject to mitigations that are highlighted in PfE. Evidence provided by GMCA, TfGM, and the NGDV to support JPA1.1, pertaining to sustainable delivery and long-term development vision, has been scrutinised by the Planning Inspector, and confirmation provided that the development satisfies tests identified in the NPPF. Part of the evidence scrutinised by the Planning Inspector; it demonstrated a level of investment at which development would remain viable.”*

Paragraph 4.2.7: *“Opportunities to provide rebuttals and comments towards the allocation of sites in PfE have been numerous across the consultation period. In promoting the JPA1.1 Allocation Site, Locality Assessment Reports (LARs) presented evidence on matters such as traffic impact, sustainable accessibility, active travel and viability”.*

Paragraph 4.2.8: *“The Planning Inspector appointed to assess PfE scrutinised that evidence and in allocating the JPA1.1 Allocation Site, has confirmed that the development satisfies the tests set out in the NPPF which requires confirmation on the acceptability and sustainability of site allocations. As such, it can be said that the JPA1.1 Allocation Site is accepted to be deliverable, viable and sustainably located”.*

WSP Comment	Comment 4-01
- The assessments undertaken and indicative schemes identified as part of the PfE should be considered as the starting point, to be built upon with more detailed work as the development of the site allocations comes forward through the planning process. - The PfE Statement of Common Ground (SoCG) between National Highways and the GM Authorities recognised that: <i>“further detailed assessment work will be undertaken as the plan for growth is both refined and delivered through the Local Plan process, Masterplans, Supplementary Planning Documents and/or Planning Applications... Any requirement for enhancement of the SRN, and at interfaces with the Local Road Network, will be further assessed in more focused analyses.”</i>	

The PfE Expectation for Mitigation

4.2.2. The TA states that the overall strategy for mitigation incorporates the PfE Policy JPA1.1 requirements, with the transport aspects outlined below:

- *“1. Be in accordance with a comprehensive masterplan, design code and infrastructure phasing and delivery strategy, in line with Policy JP-D1 'Infrastructure Implementation', that has been agreed with the local planning authorities.*
- *3. Make provision for new and improved sustainable transport and highways infrastructure having regard to the indicative transport interventions set out in Appendix D in accordance with Policy JP-C8.*
- *6. Ensure the design and layout allows for effective integration with surrounding communities, including active travel links and connections to local services, employment opportunities and over the M62 to proposed new development at Simister/Bowlee (JPA1.2).*

4.2.3. The TA states that the proposed scheme will adhere to the requirement of this policy and Policy C8.

WSP Comment	Comment 4-02
As referred to in paragraph 4.2.12 of the TA, the indicative transport mitigation for the NG site, presented in Appendix D of the PfE, includes the following measures, classed as ‘necessary’ for the SRN: • M66 Junction 3 / Pilsworth Road junction upgrade; • M62 J19 / A6046 Heywood Interchange – intervention to be determined; and • M66 Junction 2 / A58 – localised junction improvements.	

Promoting Sustainable Travel

4.2.5. The Circular 01/22 (paragraph 49) states the need to set out assumptions for forecast traffic levels to “*avoid the default factoring up of baseline traffic*”; for NG this would include consideration for the GM 2040 Strategy. Paragraph 23 states:

“The general principle should be accepted where proposals would include measures to improve community connectivity and public transport accessibility, and this will be weighed against any negative safety, traffic flow, environmental and deliverability considerations, impacts on the permeability and attractiveness of local walking, wheeling and cycling routes, and alternative options to manage down the traffic impact of planned development...”

WSP Comment	Comment 4-03
- Sustainable travel mitigations are presented within Section 11 of the PfE Topic Papers, including the following interventions which have been identified as part of the GMSF Locality Assessments: - Bus Rapid Transit Corridor to Manchester City Centre; - Permeable network for pedestrians and cyclists to / from / within the development; - Introduction of local bus services to / from / within the allocation.	

4.3 Greater Manchester Local Transport Plan – Renewing our Vision

- 4.3.1. The TA states: *“In December 2023, a report was produced which detailed how the vision for the Local Transport Plan would be updated. It will inform stakeholder engagement on the Plan throughout 2025”.*

WSP Comment	Comment 4-04
From the information provided in the TA, it is not clear how the above document has/may influence the Vision for the proposed development, and the approach to assessments and mitigation.	

4.4 TFGM’s NG Transport Framework Document

- 4.4.1. TfGM has produced a draft Transport Framework Document (TFD) for the JPA1.1 site allocation, the purpose of which is as follows:

“to succinctly summarise the work done so far by stakeholders, and outline the transport vision, transport issues and opportunities for the site as well as identify a transport infrastructure delivery plan for the site.”

- 4.4.2. The TFD states that it will be used to support the SPD, funding bids for transport interventions, and that it will be used by developers to help guide the transport aspects of the planning applications. The TFD is a live document and will be updated as further work is undertaken.
- 4.4.3. The TFD considers three trip generation scenarios to assess the appropriate transport interventions required to mitigate the impacts of the Northern Gateway proposals:
- Scenario 1** – Business as Usual (Tetra Tech Baseline) – Transport patterns are still mostly car-dominated, to satisfy conventional land use and travel demands;
 - Scenario 2** – Achievable transport vision (developed by TFD, optimal scenario for planning) – Representing the most likely, balanced, and affordable sustainable transport

packed. This will be developed using an iterative assessment of transport interventions, their viability, cost, and their likely impacts; and

- **Scenario 3** – Ambitious vision-led scenario with impacts from wider 2040 strategy – Ambitious transport intervention package containing interventions and strong car parking management to achieve long-term sustainable travel and more ambitious GM Right Mix targets (including tram-train, wider network upgrades).

4.4.4. Through the analysis undertaken in the TFD, it draws the following conclusions:

- Existing travel by public transport and active travel in the surrounding area is low (below the Bury / Rochdale average);
- Public transport and active travel investment is needed early on, to ensure the vision is delivered (and build momentum from a low base);
- The scale of development requires strategic road and local road investment;
- A comprehensive package of transport investment is needed including public transport, active travel services and highway measures including at M66 J3, M62 J19 and the Western Access, balancing investment between modes and aiming to create a sustainable site from the outset;
- It is recommended Scenario 2 is adopted to understand the transport impacts and mitigations needed to achieve the vision at site level (and help discussions for adequate S106 contributions);
- Scenario 2 will need to be agreed with Bury / Rochdale, the Joint Venture and National Highways;
- Scenario 2 to be used to plan future public transport services and the highway improvements including Western Access, M66 J3 and M62 J19;
- The TFD will be adopted as a live document that will need to be reviewed and updated as work progresses, and planning applications are progressed.

WSP Comment	Comment 4-05
• In the review of the TFD for National Highways, WSP concluded that Scenario 2 can be considered a reasonable starting point for analysis as to the impacts of the phases for Northern Gateway, however the ability to achieve the Scenario 2 Vision will be dependent on what interventions are provided, particularly those which support sustainable travel to and from the site. This comment is pertinent to the review of the TA, which adopts a vision based on Scenario 2 from the TFD.	

4.5 Northern Gateway Development Framework (NGDF) SPD

4.5.1. Bury and Rochdale Councils have adopted a joint Supplementary Planning Document (SPD) for the JPA 1.1 Heywood/Pilsworth site allocation. The SPD sets out the vision, design principles, and detailed planning guidance for the area, providing a framework for assessing future applications. The SPD sets out the following objectives:

- Set out the councils' vision and strategic objectives for the site shaped by public consultation and stakeholder collaboration.

- Facilitate a coordinated and comprehensive masterplanning approach, to be implemented consistently across multiple planning applications.
- Establish key development requirements that all planning applications relating to land within the site are expected to adhere to.
- Provide an overarching spatial Development Framework to communicate development and design parameters, including land use, access, movement and green infrastructure.
- Provide design principles and guidance, to inform the more detailed design considerations and approaches needed to deliver the Northern Gateway vision.
- Describe the proposed approach towards delivery of physical infrastructure.

4.5.2. WSP reviewed the SPD on behalf of National Highways in December 2024 and recommended that, overall, National Highways should support the approach, with the key comments from the review provided below:

- DfT Circular 01/2022, National Highways' *Planning for the Future* guidance (2023) and the National Highways Route Strategies could be referenced, given the need for enhancement to the SRN to support the Northern Gateway development.
- WSP advise that National Highways should recognise the following key constraints and opportunities identified in the SPD, as follows:
 - Constraints:
 - Current capacity of the existing two main access points from the M62 J19 and Pilsworth Road.
 - Noise and air quality considerations from the proximity of the M62 and M66 motorways.
 - Opportunities:
 - Improved highways infrastructure at nearby local and strategic junctions.
 - Improved transport infrastructure through a range of modes including potential introduction of Bus Rapid Transit linking to local communities, travel hubs and circular bus routes around Northern Gateway based on quality bus corridor principles.
- The development principles have the following implications for the SRN:
 - Step 6: Use and Gateways - Maximising the potential associated with a development of this scale and critical mass, **namely around the potential reprovision of the Birch Motorway Service Area (MSA) as part of a wider Mixed-Use Gateway** to include other uses which should support employment uses and act as a focal hub to the wider development.
- The wider Northern Gateway site is predicated on taking access from the location of existing Birch Motorway Service Area (which would need to be re-provided). WSP note there is ongoing engagement between National Highways, the local planning authorities

and the Northern Gateway Developer Joint Venture around the SRN access strategy to support the site with no final conclusion drawn at this time.

- To support the phasing and delivery of the highway infrastructure (at the SRN), it will be important to understand the full mitigation requirements for the full Northern Gateway (JPA 1.1) site along with what is required for early development and/or phases of development.
- The SPD identifies that as the site builds out from the north, further work will be undertaken to explore how later phases, and infrastructure, can be brought forward and that significant levels of investment in the SRN will be required as it likely that improvement at M66 Junction 3 and M62 Junction 19 (including Birch MSA) will be required.
- The importance of engagement with National Highways on the requirement at the SRN will be paramount for the Northern Gateway. The SPD recognises that the exact requirements for improvement to the SRN will be determined through joint working and detailed highways modelling with National Highways.

WSP Comment	Comment 4-06
• WSP reviewed the NGDF SPD on behalf of National Highways and the findings are summarised above.	

4.6 Public Transport Policy and Funding, and Bus Franchising

- 4.6.1. The TA sets out the funding allocation for Greater Manchester for public transport, with GMCA receiving £16.309m for FY24/25 in addition to the initial BSIP Phase 1 allocation. It also provides details of the recently franchised TfGM bus network.

WSP Comment	Comment 4-07
• The funding figure presented is for the whole of GM and it is not clear what specific interventions are/may be proposed that would improve accessibility to the site. It is important for National Highways to have a full understanding of all public transport measures which are necessary to mitigate the impact of the development and achieve the stated vision.	

5 Site Context and Existing Conditions

5.1 Site Location

The location of the site is shown in Figure 1-1. It is located approximately 4km southeast of Bury town centre and 7.5km southwest of Rochdale town centre. The site is bounded by Brightley Brook and Pilsworth Road to the north, Birch Industrial Estate and the committed SHMA to the east, the M62 to the south, and Whittle Brook to the west. QEII Way to the north has been delivered in advance as mitigation for JPA1.1. The JPA1.1 Allocation Site is described in detail in the PfE evidence base.

5.2 Strategic Highway Network

5.2.1. The Site is located in close proximity to the SRN, with existing routes via the following (and to a lesser extent M60 Junction 19):

- M62 Junction 19;
- M66 Junction 2; and
- M66 Junction 3.

5.2.2. The TA notes that NH are currently progressing a DCO for the upgrade of Simister Island (M62 Junction 18), which has been incorporated into the Do Minimum and Do Something Scenarios.

WSP Comment	Comment 5-01
- The TA does not provide any reference regarding the current operation of the SRN, which should be borne in mind when making planning decisions. The following locations experience delay within the study area network: - M62 westbound and M60 northbound- originating from the west of Simister Island. - M66 Junction 3. - M66 Junction 2. - In terms of the SRN operation, the distance between the north facing M66 Junction 3 slip roads, and south facing M66 Junction 2 slip roads are substandard, which should be considered in the TA when additional traffic is likely as a result of the proposed development. - As highlighted within the Risk Register (Table 1-1) there is currently no commitment from NH to fund any schemes, until further details of future RIS settlement are known following 2025 Government spending review. This should be considered within the TA.	

5.3 Local Highway Network

- 5.3.1. Moss Hall Road / Whittle Lane run through the Site in a north-south alignment. To the North, Moss Hall Road connects to the Queen Elizabeth II Way corridor, with a significant portion of this corridor recently construction to accommodate the SHMA.
- 5.3.2. The TA states that the LAR sets out information on the local highway network, forming the foundation for the JPA1.1 Site Allocation application in transport terms. It is noted in the TA that the key stakeholders were party to the processes at PfE as part of the adoption process.

Personal Injury Accident Analysis

- 5.3.3. Data has been obtained from CrashMap for the five-year period from 2018 to 2023, with extracts shown in TA Appendix B. This reviewed 21 links on the local highway network, with 29 collisions recorded. 17 were classified as slight, 10 as serious, and 2 as fatal, with no notable clusters identified. QEII Way has only been open since late 2022 and, therefore, stats for this link are limited.
- 5.3.4. It is states that no typical accident patterns have been identified.

WSP Comment	Comment 5-02
- Appendix B of the TA has been investigated as presented for the PIA Assessment, with a number of clarifications required: - The data used is based upon CrashMap data, which gives an indication of the collision severity, where it occurred and when it occurred. It does not give more detailed information, unlike other sources (for example Stats19 data), and therefore it is unknown if any common patterns are seen in causation. - It is recommended that the years of 2020 and 2021 are removed from the analysis, with additional years supplementing these to provide the full five years required. - The main body of the TA does not provide analysis of the collisions on the SRN, and sections of the SRN mainline/SRN junctions are not included in Appendix B. It is requested that this analysis is undertaken to provide the safety context for the SRN. - No analysis has been completed in the TA regarding the potential impact of the development on safety on the SRN. - No analysis has been completed comparing whether collisions at and around Junction 19 have changed following the opening of Queen Elizabeth II Way.	

5.4 Accessibility on Foot and by Cycle

- 5.4.1. It is identified that there are limited opportunities for walking and cycling at the existing site due to the area being largely undeveloped. *Plan 3* of the TA shows existing pedestrian infrastructure within and in vicinity of the Site; *Plan 4* shows the existing cycling infrastructure.

- 5.4.2. It is noted that, due to the size of the Site, there are limited existing residential areas from which future staff may choose to travel on foot. Seven residential areas are identified as having potential walkability to the Site, although a number of these areas are beyond 2km. Seven additional sites are identified as being within 5km cycling distance of the Site, with numerous additional areas available within 10km (with note that this is specified as e-bike travel).
- 5.4.3. Twelve linkages are identified between the perimeter of the Site and local existing infrastructure which may be utilised, although it is noted that this of poor quality and would require upgrades.

WSP Comment	Comment 5-03
As highlighted in the TA, the existing infrastructure for walking and cycling in the local area is of poor quality, and therefore significant upgrades are required to support modal shift.	

5.5 Public Rights of Way

- 5.5.1. *Plan 5* of the TA illustrates there are four PRoW within the Site, with a further 16 within the wider JPA1.1 Allocation Site. A walkover of these routes was undertaken for this application, with findings presented in TA *Appendix C*. The findings demonstrated that many PRoW routes were poorly maintained or blocked. The scale of the Site and the JPA1.1 Allocation is seen to be isolated, with routes concluded to poorly used.

WSP Comment	Comment 5-04
Linking to the previous section (Accessibility by Foot and Cycle), the existing PRoW network at the site is poor, and therefore significant upgrades are required to support modal shift.	

5.6 Accessibility by Public Transport

- 5.6.1. The NG TFD sets out mapping, analysis, and text to describe the existing public transport services in a strategic context. It states that:

“The key centres that neighbour the Northern Gateway (Heywood, Bury, Rochdale, Middleton, Radcliffe, Whitefield, Prestwich) site are relatively well served by frequent bus routes serving the main town centres.

However, the Northern Gateway itself is not currently well-served, which is largely reflected due to the undeveloped nature of the site, and the subsequent limited demand for public transport services in the area at present.”

- 5.6.2. The nearest bus stops to the east of the Site are on the A6045 Manchester Road, with hourly services between Heywood and Middleton (Route 125). To the west of the Site, bus stops

are located on Parr Lane, with two routes (Route 94 North Manchester General Hospital to Bury; and Route 97 Bury to Manchester) providing three services per hour on a weekday.

5.6.3. Further to this, TfGM operate a Local Link Bus service within Heywood and Middleton. The SHMA is identified to provide £1m of S106 contribution towards bus services.

WSP Comment	Comment 5-05
It is identified within the proposals for the site for the developments throughout the Northern Gateway allocation to be heavily reliant on public transport, with significant improvements required for the site to achieve the aim of “Right Mix”. Currently the site is not currently well served, and therefore, as with active travel infrastructure, significant upgrades and services would be required to support modal shift.	

6 The Proposed Scheme and Northern Gateway

6.1 Land Uses

The Proposed Scheme

6.1.1. The Proposed Scheme is for up to 600,000sqm of employment floorspace with up to 5,000sqm of supporting uses. The 600,000sqm employment floorspace comprises:

- B2, E(g)(ii) and E(g)(iii) – 180,000sqm; and
- B8 (including Data Centres) – 420,000sqm.

WSP Comment	Comment 6-01
- The Potential Supporting Uses Table (Table 6.1 of the TA) highlights a wide range of potential supporting uses for the proposed quantum of 5,000sqm, all with different trip patterns, and some which would have peak hour impacts. - It is noted that the supporting uses have not been included within the development assumptions for trip generation.	

The JPA1.1 Allocation

6.1.2. The PfE JPA1.1 Allocation Site is allocated for “*up to 1,200,000sqm of industrial, advances manufacturing and warehousing space together with 1,200 dwellings*”. Table 6-1 provides an overview of the JPA1.1 Allocation Site:

Table 6-1 – JPA1.1 Allocation and Content (TA pg. 29-30)

JPA1.1 Area / Land Use	Development Quantum	Context
Full Allocation		
Industrial	1,200,000 sqm	Full Allocation
Residential	1,200 dwellings	Full Allocation
South Heywood Masterplan Area		
Industrial	175,460 sqm	Already approved
Residential	1,000 dwellings	Already approved
Proposed Scheme		
Industrial	c. 600,000 sqm employment uses c. 5,000 sqm supporting uses	Subject to this application

Remainder of JPA1.1 Allocation		
Industrial	c. 424,540 sqm	Excluded from current application
Residential	c. 200 dwellings	Excluded from current application

Northern Gateway

- 6.1.3. Northern Gateway comprises both the JPA1.1 and JPA1.2 Allocation Sites:
- JPA1.1 is summarised in the previous subsection; and
 - JPA1.2 comprises around 1,550 dwellings, a primary school, and a local centre.

6.2 The Proposed Scheme – Access Strategy

- 6.2.1. Two primary access points have been identified as part of the Proposed Scheme:
- **Primary Access, Moss Hall Road** – Access from the Moss Hall Road / Pilsworth Road junction, with Birch Industrial Estate access maintained; and
 - **Initial Primary Access, Whittle Lane** – Existing access point from the south at its junction with Heywood Old Road, access to Birch Industrial Estate maintained, with Whittle Lane subject to an HGV weight restriction.
- 6.2.2. RMBC and TfGM aspire for Whittle Lane to be closed to all traffic other than Public Transport, with this aspiration tested in this TA. This access strategy can be advanced with either Whittle Lane option; without Whittle Lane in the early stages of development the Site would be served by a single access.
- 6.2.3. Secondary roads will lead off of primary access corridors and provide active travel routes. Pedestrian and cycleway access will be provided through segregated routes and connect to the wider area.
- 6.2.4. It is assumed that all existing PRoWs will be closed, with a network of replacement PRoWs provided, with this network delivered with reference to GMs Streets for All design guide (2023).

WSP Comment	Comment 6-02
- It is identified that, with the exception of public transportation, there is an option favoured by TfGM whereby Whittle Lane would be closed to all over traffic, with a weight restriction added if the link remains open to all vehicles. It is therefore inferred that the main point of access to the site would be via Pilsworth Road / Moss Hall Road. - The access to the site is an important element for the development application, as this may impact the operation of areas within the network, and therefore different access arrangements may have different SRN impacts. Therefore, an understanding of the access is required, to understand the likely impacts on the network.	

- It should be noted that whilst access is a reserved matter, under article 5(3) of the Development Management Procedure Order 2015, an application for outline planning permission must indicate the area or areas where access points to the development will be situated, even if access has been reserved. Based on the information presented in the TA, there remains uncertainty around this.
- There are no tests undertaken within the modelling which reflect the full closure of Whittle Lane to general traffic, with the proposed development quantum of 600,000sqm. The Sensitivity test undertaken (SATURN Model Run 17), shows that the remaining access to the site (3 Arrows) is forecast to be over capacity in the interpeak and evening peak. This is particularly the case exiting the site in the evening peak with a forecast maximum queue of 259.3pcu and average delay of 578seconds/pcu. This raises concerns of vehicles experiencing difficulty in exiting the proposed development. Therefore, it should be demonstrated that with the closure of Whittle Lane, the proposed development quantum can be accommodated within the study area network.
- Additionally, further confirmation and evidence regarding the closures of the existing PRow should be provided, and a detailed plan showing where previous and proposed routings will be located. It is acknowledged that this will likely be submitted at the detailed design stage of the Application.

6.3 Movement Networks

- 6.3.1. The Proposed Scheme is submitted in outline, with no detailed plans submitted for approval which illustrate on-site design or layout. On-site highway infrastructure will be developed at the reserved matters stage and will be in accordance with the recommendations contained within the Design Code submitted with the Application. There would be an emphasis on people and three key movement functions:
- Pedestrian, cyclist, public transport and vehicle circulation;
 - Access to buildings; and
 - Public space for human interaction and sociability.
- 6.3.2. Public transport routes will feature bus stops and shelters; footways and cycleways will be built to best practice and will perform several functions:
- Providing site permeability;
 - Connecting with existing footways / cycleways / PRowS where they connect into the site; and
 - Providing a leisure route to encourage walking and cycling.
- 6.3.3. The NGDV will safeguard an area of land within the site for the future delivery of an on-site Transport Interchange. The provision of an on-site shuttle bus will be explored through S106 contributions. The NGDV will safeguard areas for hire bike stations to improve accessibility.

WSP Comment	Comment 6-03
• The approach to outlining the design of the proposed site to enable modal shift away from private vehicles at the forefront of the design process, aligns with the approach outlined in	

Policy documentation (the Circular 01/2022; the NPPF). It is requested that sight of these designs is provided as and when they come forward at the detailed design stage.

- As stated in Sections 5.4 to 5.6 of this report, the current infrastructure and services at the site itself are poor, and therefore require significant upgrades to support modal shift.

6.4 Treatment of PROW's

- 6.4.1. The specific details of any PROW changes and network will not be known until the Scheme is developed in full detail. The ability for pedestrians and cyclists to travel through the Site will be enhanced and fully embedded into the detailed layout.

WSP Comment	Comment 6-04
• Further details as and when they are brought forward as part of the detailed design of the site is requested. This includes any information regarding the approach to closing and opening old / new PROW's, particularly with a view that the existing provision will be replaced / supplemented with newer routes.	

6.5 Parking Provision

- 6.5.1. An appropriate level of car parking provision would be provided as part of the Scheme, with the specific levels subject to reserved matters approval. Notwithstanding, this would be provided in accordance with the parking standards of BC and RMBC.

WSP Comment	Comment 6-05
• It is acknowledged that the provision of parking will be in line with BC and RMBC parking standards. The proposed level of parking provision should align with the Vision for the proposed development. • Sight of proposed parking and site layouts is requested as and when they become available to enable the identification of any locations where parking may have the opportunity to be reduced through Vision principles.	

6.6 Proposed Transport Improvements/Mitigation

- 6.6.1. The proposed transport improvements and mitigation are detailed in five categories:
- Mitigation which has already been delivered to support the JPA1.1 Allocation Site.
 - New on-site infrastructure within the JPA1.1 Allocation Site, including new highways, active travel routes and public transport facilities.
 - Off-site mitigation, identified through PfE, this TA and/or by BC, RMBC, TfGM and NH as part of wider transport strategies. This includes S278 highway works on the local and

strategic road networks, active travel routes or public transport facilities and services as well as funding towards those items.

- Proportional funding towards future, as yet unidentified highways works or future active travel or public transport initiatives, which will emerge from TfGM and GM strategies, and which may also serve wider GM Transport Strategy Objectives.
- Implementation of a Travel Plan.

WSP Comment	Comment 6-06
• It is noted that whilst the TA identifies off-site mitigation which has been identified through the PfE or other wider transport strategies, there is no commitment from National Highways to provide further investment into the SRN over and above the committed Simister Island scheme and as such, this cannot be relied upon as strategy for mitigation. • Mitigation is also discussed in paragraph 1.1.4 of the TA which states <i>“Mitigations on the Strategic Road Network will be dictated by the National Highways Project Control Framework (PCF) process.”</i> This not accurate, as it is the responsibility of the developer through the Transport Assessment to identify and assess the necessary mitigation and set out a strategy for its funding and delivery, for which there may be a number of potential routes. • Paragraph 1.1.5 of the TA refers to the ‘mitigation’ being brought forward by Key Stakeholders and states: <i>“At this early stage, the Application seeks to confirm its commitment to supporting those future mitigations which will emerge and be determined as the proposals develop.”</i> From National Highways’ perspective, there needs to be greater certainty now over the mitigation requirements to deliver the full Northern Gateway allocation so that an appropriate funding and delivery strategy can be agreed, including the apportioning of appropriate developer contributions. As stated above, there is no commitment from National Highways to provide further investment into the SRN over and above the committed Simister Island scheme and as such, this cannot be relied upon as strategy for mitigation. • The TA states that a travel plan will be implemented, however at the time of undertaking the TA review a travel plan has not been provided. This is a critical document from National Highways’ perspective. It would be expected to be produced in line with paragraph 118 of the NPPF: <i>“All developments that will generate significant amounts of movement should be required to provide a travel plan”</i> and current Planning Practice Guidance (PPG) which states: <i>“Travel Plans should where possible, be considered in parallel to development proposals and readily integrated into the design.”</i> The PPG provides guidance on the expected Travel Plan content, including detailed analysis (to supplement that which is presented in the TA) of travel habits, proposed measures for non-car modes, modal shift targets, and monitoring requirements.	

7 Emerging Mitigation Works and Mitigation Strategies

7.1 Sources Informing the Need for Mitigation

- 7.1.1. The TA highlights five principal sources from which the need for mitigation can be derived:
- The allocation of the JPA1.1 Allocation Site described the mitigations which were considered to be necessary based on the assessment and evidence that informed the decision to allocation.
 - The assessments undertaken by TfGM in their NG TFD which establish the required Public Transport and Active Travel infrastructure and services to support their “Scenario 2” Vision.
 - Current and best practice design guides to inform the extend and standard of active travel and public transport services on-site.
 - Planning Policy setting out the need for mitigation and Travel Plan measures.
 - The numerical assessments of junction performance, merge/diverge arrangements etc undertaken for the SRN and local road networks across multiple development phasing, future year and route options.
- 7.1.2. In addition, it is anticipated in the TA that mitigation will be guided during the determination period by requests from the key stakeholders through consultation responses and ongoing Highway Technical Working Group meetings.

WSP Comment	Comment 7-01
• The principal source to understand the need for mitigation (and the mitigation required) should be the TA as this will be the most up to date and detailed document. The TA should use supporting information to guide the understanding relating to mitigation. The TA should demonstrate what is required (and can be delivered by the developer and/or LPA via their funding routes) for both points of SRN access to make the development acceptable in planning (NPPF) terms. • The PfE should not be relied upon as a main source from which mitigation can be derived, as the work completed within the TA should build upon and ultimately supersede the PfE. • The TA mentions the Scenario 2 test as being a principal source from which the need for mitigation can be derived, however does not reference the ‘Policy Off’ scenarios. Given that there are no commitments for schemes and public transport/active travel upgrades, there is no certainty relating to Scenario 2. As part of Vision-Led planning, scenario testing is essential, and therefore the ‘Policy Off’ scenarios should be incorporated into the decision-making process relating to the need for mitigation.	

7.2 Mitigation Types

- 7.2.1. The mitigation has been identified as falling within five categories, as summarised in Section 6.6.

- 7.2.2. The TA notes that there is also Public Transport funding deposited as part of the SHMA (part of the JPA1.1 Allocation) which will be used to improve overall public transport services beyond the existing situation.

WSP Comment	Comment 7-02
The comments provided in Section 6.6 require consideration in relation to mitigation.	

7.3 Highway Infrastructure and Common Highways Mitigation Package

- 7.3.1. The following off-site highway works have been included in all the modelling assessments which test development coming forward:
- M60 Junction 18 Simister Island improvement;
 - Updates and traffic management interventions along Moss Hall Road/Whittle Lane;
 - The QEII Way, already delivered, but included as it was delivered as mitigation to support JPA1.1.
 - M66 Junction 3 improvements identified by Pell Frischmann on behalf of BC.
 - The upgrade of Pilsworth Road and junctions from M66 J3 through to the Pilsworth Road/Moss Hall Lane -south junction, including the Western Access Works junction.
- 7.3.2. The Common Highways Mitigation Package refers to the last three elements as they are mitigation works associated with the development, which are included in all assessments which include development coming forward.

WSP Comment	Comment 7-03
- The TA highlights that the proposed M66 J3 scheme identified by Pell Frischmann on behalf of BC is included in all assessments which include Northern Gateway development. It is known that option development and business case work for the M66 J3 scheme and Western Access are being progressed by the LPAs, however at this time this scheme is not committed, though it has been treated in the modelling as committed scheme. - As there are elements of the Common Highways Mitigation Package which are not committed, there is a risk that these scheme elements will not be delivered. Therefore, clarification is sought regarding what the fallback option will be for the development should these schemes not be delivered. - There is no modelling presented for a scenario which includes the existing network with development flows to understand the impact of development in isolation, and therefore whether the schemes identified for the Common Highways Mitigation Package are the most appropriate schemes.	

7.4 Development Phasing and Infrastructure alongside Development

- 7.4.1. The TA highlights which elements of mitigation will be present or will be required at each stage of development:
- The J18 works, Whittle Lane/Moss Hall Road works and Common Mitigation Package will be delivered in all scenarios and will be in place by 2032.
 - The on-site highway, sustainable and active travel infrastructure will be rolled out as a Proposed Scheme develops.
 - A Travel Plan will be present from the first occupation of the Proposed Scheme.
 - The Public Transport and Active Travel Strategy elements identified by TfGM within the NG TFD will be funded proportional to the development impacts as the Proposed Scheme progresses. The TA notes that it will be important to have those elements and bus services in place from first occupation of the Proposed Scheme and introduced at an appropriate level to serve demand.
 - Strategic Road Network and Local Road Improvements if identified in the junction modelling and if agreed to be necessary.
 - Funding for future Public Transport and Active Travel Strategy elements identified by TfGM towards achieving the GMCA 2040 strategy target will be made subject to viability.
- 7.4.2. The TA notes that extensive modelling has been undertaken to identify the mitigation required to facilitate the Proposed Scheme coming forward, together with the wider JPA1.1 Allocation Site, and cumulative Northern Gateway proposals (including JPA 1.2).
- 7.4.3. The QEII link features in both the Do Minimum and Do Something scenario, as it has already been delivered. The travel plan, active travel and public transport mitigations are included in model scenarios titled Policy On. These model runs reflect a future scenario where Government and TfGM strategies to reduce vehicular travel have been partly successful (i.e. to TfGM's Scenario 2 level).
- 7.4.4. The strategic model outputs feed into junction assessments across the study area, and results from specific junction assessments may identify additional discreet highway improvement mitigations to be delivered by the development.

WSP Comment	Comment 7-04
- The TA suggests that the M66 Junction 3 scheme (as part of the Common Mitigation Package) will be in place by 2032. At the time of writing this scheme is not committed. - The TfGM TFD Page 20 highlights that Phase 2 of the development is now expected to start first occupation from 2030, with the developer expecting to be able to deliver up to 600,000sqft per year (up to 56,000sqm per year) once development begins. Given the TA states that the Common Mitigation Package will be in place by 2032, there may be discrepancy between some occupation of the site and the mitigation being in place. Therefore, it needs to be understood if the mitigation is required in advance of any occupation, or whether the predicted	

occupation at the time of the delivery of the Common Mitigation Package is considered to be acceptable.

- It is welcomed that the aim is to have public transport and active travel elements in place from first occupation of the Proposed Scheme.
- The TA states that the public transport and active travel strategy elements will be funded proportional to the development impacts, as the proposed scheme progresses. Further detail is required to demonstrate how this will be implemented, and how agreement will be reached with Key Stakeholders regarding this.
- The TA states that SRN improvements will be considered if identified in the junction modelling and agreed to be necessary. The mitigation for the SRN should not just take into consideration the junction modelling. It should also consider:
 - Safety- the safety element of any proposed development is a key metric for National Highways and therefore requires specific consideration.
 - Integration of the SRN with sustainable transport solutions, such as road based severance with increased active travel usage.
 - Merge, diverge and weave analysis, this would aid the understanding of the risks on safety and operation and indicate the impacts of the proposals on the strategic function of the SRN.
- It should also be noted that the PfE identified the following SRN improvements as being necessary to support JPA1.1, although it was noted that further analysis would be required to confirm the requirements:
 - M66 Junction 3/Pilsworth Road upgrade.
 - M62 Junction 19/A6046 Heywood Interchange- intervention to be determined.
 - M66 Junction 2/A58 – localised junction improvements.

7.5 Mitigation Identified within the Evidence Base for PfE

7.5.1. As highlighted in Appendix D of PfE the necessary mitigations identified to support JPA1.1 on the SRN are:

- M66 Junction 3/Pilsworth Road upgrade.
- M62 Junction 19/A6046 Heywood Interchange- intervention to be determined.
- M66 Junction 2/A58 – localised junction improvements.

7.5.2. The traffic modelling now being undertaken at Application stage through the Northern Gateway Traffic Model (NGTM), forms the basis of the assessment from which conclusions on traffic impacts and mitigations can be drawn. The TA states that when forming a view on the acceptability or otherwise of peak period congestion it is notable that the PfE Allocation was made in the expectation that JPA1.1 would not fully mitigate its impact, and three of the ten tested junctions were forecast to operate over-capacity, post mitigation, including M62 J19 and M66 J2.

WSP Comment	Comment 7-05
• The PfE highlighted that, to support JPA1.1, transport interventions were deemed “Necessary” at the M66 J3, M66 J2 and M62 J19. • It is not agreed that the statement that the PfE Allocation was made in the expectation that JPA1.1 would not fully mitigate its impact. There were deficiencies noted in the approach taken at the PfE stage which should be remedied within the TA, with the impacts of development assessed in detail in the TA. • Given the TA is based upon the latest available modelling and information, the conclusions made regarding the identification of mitigation should be based upon the information from the TA.	

7.6 Emerging Mitigations to Achieve the Vision-Led / Transport Strategy Sustainable Travel Targets

- 7.6.1. GM and the Government have set strategies to improve sustainable and active travel and reduce vehicle travel to the point where 50% of journeys are by sustainable modes other than the private car.
- 7.6.2. At a strategy level, examples of some of the potential public transport schemes planned to be delivered by local authorities in the area are:
- Bus Rapid Transit between Oldham and Bury (via Middleton and Northern Gateway).
 - Bus Rapid Transit between Heywood and Manchester City Centre (via Northern Gateway).
 - Bury-Rochdale QBT Opportunities for bus services to have improved journeys to the NG with improved bus priority connections to Bury and Rochdale.
 - Metrolink extension to Middleton via Rhodes.
 - Tram/train service between Rochdale and Bury (via Heywood), with potential new stations at Broadfield and Heap Bridge close to Northern Gateway.
- 7.6.3. The NG TFD “Scenario 2” is described by TfGM as representing the most likely, balanced and economically viable Vision-Led transport package, which is considered to be a realistic future scenario. The TA states that TfGM have also identified the extent of mitigation measured they considered necessary to achieve Scenario 2 level of car use.
- 7.6.4. The TFD illustrates the mode shares anticipated under “Scenario 2” which are:
- Car drivers: 65% for NG (JPA1.1 and JPA1.2) and 56% overall weighted mode share (AM).
 - Car Passengers: 5% for NG and 9% overall weighted mode share.
 - Sustainable travel modes: 30% for NG and 35% overall weighted mode.

- 7.6.5. The TA notes that the car passenger trips do not increase the number of vehicles and that car sharing is a sustainable method of travel, and thus in Scenario 2 sustainable travel mode share is actually 35% for NG and 4% overall weighted mode share.
- 7.6.6. It is stated that as the JPA1.1 Allocation site will not be fully built out until 2039 at the earliest, some of those future strategic mitigations are not yet known. The modelling of Policy On scenarios has been achieved by reflecting reduced traffic generation to 60% of trips as vehicles and network traffic growth forecasts as detailed in the TASNU.

WSP Comment	Comment 7-06
- Whilst emerging strategies have been identified in the TA, none of the strategies/implementations are committed at this time. It is understood that these strategies will be required to be implemented to achieve the desired level of modal shift. - The information regarding how background growth and committed developments have been applied within the Policy On assessments is limited within the TA and NGTM forecasting report and therefore more clarification is sought. It is noted that in the TASNU Addendum paragraph 5.4 that the reduced development trips will exist within a network traffic volume which experiences no growth. However, further detail is requested on the evidence behind no growth being applied, and how the growth has been applied (i.e. blanket across the whole network). - It is acknowledged that the 5% of car passengers would not increase the number of vehicles, therefore Scenario 2 has 65% of Car drivers. As the modelling is based upon 60% of car drivers, there is a 5% discrepancy. It is unclear the impact this 5% may have. - The proposed application is for JPA1.1 only, and it does not appear that a mode share has been presented for JPA1.1 in isolation within the NG TFD. Given that the mode share for JPA1.1 cars is higher than that for JPA1.2 cars in Scenario 1, clarification is sought regarding the breakdown for Scenario 2, and whether it is appropriate that a combined value is used for tests with JPA1.1 only. The Car mode share for Scenario 1, would indicate that the mode share for JPA1.1 would be higher than JPA1.2.	

7.7 Emerging Highway Works Mitigations

- 7.7.1. The TA states that the potential need for, and extent of, highways works mitigations will be informed by the junction modelling. In the Vision-Led approach, the GM Transport Strategy aims to have fewer vehicular trips in 2040 than were present in 2017. The TA notes that there should be no need for wider mitigations, but the proposed development will focus impacts close to the site.

WSP Comment	Comment 7-07
- As highlighted within the comments in Section 7.4 the need for mitigation should not just be based upon the junction modelling, and the TA should acknowledge the importance of safety on the road network. - The TA states that there should be no need for wider mitigations, however at this time there is no certainty regarding the public transport/active travel measures as they are not committed.	

7.8 M66 Junction 3 Motorway Access Mitigation

- 7.8.1. The original assessments of NG within the LARs, which were used as evidence for the site allocations, envisaged a significantly improved motorway junction at M66 J3, along with an intervention at M62 J19 and M66 J2. Around the same time, considerations turned to focus on an alternative solution, potentially involving an access to the M62, accompanied with a smaller scale improvement at M66 J3.
- 7.8.2. On behalf of Bury Council, Pell Frischmann sifted 16 potential improvement options at this junction to identify the layout within Appendix D of the TA as the preferred solution. The layout was then tested within a microsimulation model to assess how the layout is likely to operate in the peak hours in the future years of 2032 and 2039. The preferred solution layout has been incorporated into the strategic model as part of the “Common Highway Mitigation Package”, in all future assessments which involve development on the JPA1.1 Allocation Site.

WSP Comment	Comment 7-08
- Whilst the Pell Frischmann Option Assessment Report did include some information on existing conditions (connectivity and constraints), the options were developed in advance of the trip generation and distribution from the site being known, and therefore the forecast impact of the development was not known. As a result, it is unclear whether the solution from the Option Assessment work is the most appropriate solution at Junction 3. - As highlighted within Section 5.2, there is a limited space for weaving between M66 Junction 3 and M66 Junction 2, which was not considered in detail as part of the Option Assessment work and has not been considered within the modelled scheme. - It is understood from the pre-application working group meetings that a larger junction may be required at this location in future, and therefore modelling of other schemes may therefore be required. - Clarification is sought regarding the potential extra active travel demand through M66 Junction 3 within the Policy On scenario, and whether the infrastructure with the proposed scheme would be sufficient.	

7.9 New M62 Motorway Access Mitigation

- 7.9.1. The TA states that, on the basis of the PfE findings, it was envisaged that in order to accommodate the development of the full JPA1.1 Allocation Site a new access solution to the M62 is likely to be required. A solution was identified by Pell Frischmann on behalf of the LPAs, which has been coded into model scenarios, based upon a direct access from the M62 at the current Birch Services location.

7.9.2. The TA notes that NH have undertaken some initial PCF analyses of alternative solutions to improve M62 J19. The TA states that these alternative solutions have not been assessed in the TA but can be investigated further if required.

WSP Comment	Comment 7-09
- Regarding access to/from the M62, it is important to note that the PfE states that an intervention is necessary to the M62 J19 / A6046 Heywood Interchange. It also states that <i>"The local authorities will continue to explore opportunities for a new junction at Birch which could provide additional accessibility and be of benefit to the allocation in the longer term"</i>. - Paragraph 29 of the Circular states: <i>"New connections and capacity enhancements to the SRN which are necessary to deliver strategic growth should be identified as part of the plan-making process, as this provides the best opportunity to consider the cumulative impacts of development (including planned growth in adjoining authorities) and to identify appropriate mechanisms for the delivery of strategic highway infrastructure. However, there cannot be any presumption that such infrastructure will be funded through a future RIS."</i> - There is insufficient evidence provided within the TA to justify the fact that a new access junction on the M62 is necessary (as per the wording of paragraph 29 above) to deliver the growth associated with JPA1.1. WSP note that there are additional solutions at M62 Junction 19, M60 Junction 19 and M66 Junction 3 which could be tested as an alternative to a new access junction on the M62. - The TA states that alternative solutions to improve M62 Junction 19 have not been assessed in the TA but can be investigated further if required. The TA also states that smaller schemes can be investigated further if required. The identification and assessment of the measures which are necessary to mitigate the impacts of the development should be included in the TA. - With reference to the final part of the paragraph 29 extract above, the mitigation (identification and funding) for the SRN should not rely on National Highways, the PCF Process and a future RIS. At this time, National Highways has undertaken PCF 0 Study work, but there is no certainty at this time of a scheme progressing and being successfully funded and delivered. - The DfT Circular 01/2022 provides a section on 'New connections and capacity enhancements' which should be considered within any works regarding a new access. - As part of the PfE, or subsequent optioneering work by Pell Frischmann, detailed analysis has not been undertaken regarding the requirement of an M62 Access based upon development specific information (i.e. trip generation and distribution). - The proposed access does not appear to take into consideration the existing congestion on the M62 westbound. Based upon current levels, this congestion would extend to the slip roads and the M62 Access. - As with M66 Junction 3, clarification is sought regarding the potential extra active travel demand through M62 Junction 19 within the Policy On scenario, and whether the infrastructure with the proposed scheme would be sufficient.	

7.10 M66 Junction 2 Mitigation

7.10.1. The TA states that PfE identified that improvements at M66 J2 may be required. No improvement has been coded into the NGTM, with NGTM traffic volumes input into a TRANSYT model of the existing layout as part of the TA. The TA states that initial PCF work by NH has identified options which improve M66 J2 but those are not included in the modelling within this TA.

WSP Comment	Comment 7-10
- The PfE Appendix D highlights that an intervention at M66 Junction 2 is necessary. Notwithstanding this, the need for a mitigation scheme should be based upon the assessments undertaken in the TA. - The work completed at PCF Stage 0a by NH focussed on options at M66 J3 and M62 J19. Whilst the PCF study identified issues at M66 J2, a scheme has not been investigated in depth for this location. - The mitigation (identification and funding) for the development on the Strategic Road Network should not rely on National Highways, the PCF Process and RIS. At this time, National Highways has undertaken PCF 0 Study work, but there is no certainty at this time of a scheme progressing and being successfully funded and delivered.	

7.11 Local Links Mitigation

7.11.1. Pell Frischmann were commissioned by BC to assess the road network between the Pilsworth Road/Moss Hall Road junction, and M66 Junction 3, to identify link and junction capacity improvement, and to incorporate active travel facilities. This element of mitigation is known as the “Western Access Works”.

WSP Comment	Comment 7-11
- It is known that option development and business case work for the M66 J3 scheme and Western Access are being progressed by the LPAs, however at this time this scheme is not committed, though it has been treated in the modelling as committed scheme. - The Western Access Works will need to align with any mitigation brought forward at M66 J3 during the process.	

7.12 Advance Delivery of Mitigation

7.12.1. Queen Elizabeth II Way opened to traffic in November 2022 and is included in Do Minimum and Do Something scenarios within the modelling. The TA mentions that this is advance mitigation for the JPA1.1 Allocation Site, and that the SHMA has made public transport

contributions which at the time of drafting remain unspent but are available to use enhancing bus services to JPA1.1.

7.13 Mitigation on Site

- 7.13.1. The Northern Gateway Development Framework (NGDF) Supplementary Planning Document (SPD) was adopted by BC and RMBC in March 2025, setting out the vision and key principles required for delivering the JPA1.1 Allocation Site. On-site infrastructure will be “future-ready” to integrate with and enhance the active travel and public transport facilities and services which emerge over coming years.
- 7.13.2. The planning application for the Proposed Scheme is for outline planning permission (all matters reserved), and therefore permission is not being sought for the detailed on-site layout or means of access at this stage.

WSP Comment	Comment 7-12
Whilst the means of access are not being applied for at this time, it is requested that National Highways continue to be consulted with this information when it comes forwards.	

7.14 Potential Access Options as Mitigation

- 7.14.1. There are two access options which have been considered within the TA:
- Whittle Lane- public transport only, or constrained for vehicles to prevent rat-running;
 - South Heywood Link- potential connection between Application site and Queen Elizabeth II Way.
- 7.14.2. The TA notes that with Whittle Lane closed as a vehicle access, there would only be one vehicle access point to the public highway (i.e. all traffic via the Moss Hall Lane/Pilsworth Road southern junction). It is also considered that Whittle Lane could be capacity constrained to restrict traffic volume. It is suggested that a signalised shuttle working arrangement could achieve that. In most model scenarios Whittle Lane has been modelled as being open to traffic but with the capacity reduced.
- 7.14.3. A second potential access option identified in the TA is the potential connection known as the South Heywood Link, to provide an additional road connection to Queen Elizabeth II Way.

WSP Comment	Comment 7-13
• Whilst access is a reserved matter, under article 5(3) of the Development Management Procedure Order 2015, an application for outline planning permission must indicate the area or areas where access points to the development will be situated, even if access has been reserved. Based on the information presented in the TA, there remains uncertainty around this. • It is stated in the TA that early discussions with TfGM and RMBC indicate that their wish is for Whittle Lane to be public transport/active travel only. This is potentially a crucial element in determining the operation of the network as this could impact upon the distribution of traffic through the network. • Transport modelling assessments have been undertaken for two scenarios with Whittle Lane as a Public Transport Route. Both of these options have been undertaken with the cumulative JPA1.1 and JPA1.2 development, and therefore it is not known what the predicted impact of this is with the proposed development quantum of 600,000sqm. • WSP notes that even with the constraints there the percentage of vehicles travelling via Whittle Lane (for example Figure 2 of Appendix N) shows that 24% of trips are travelling to the site northbound on Whittle Lane, and 22% out of the site in the evening peak (Figure 3). Whilst the NGTM has been requested, at the time of writing, the NGTM has not been provided and therefore a check of the appropriateness of this distribution cannot be checked.	

8 Approach to Assessment

8.1 Scoping Assessments

- 8.1.1. The approach to undertaking the traffic impact assessment element of the TA is set out below:
- Preliminary Transport Assessment Scoping Note (PTASN) - prepared by Focus Transport Planning in 2022.
 - Transport Assessment Scoping Note Update (TASNU) - prepared by Tetra Tech in August 2024.
 - No formal comments received, so TA would progress on the basis of the preliminary and updated scoping notes- early September 2024.
 - Addendum Note- issued late September 2024.
 - Formal comments received by NH and TfGM in December 2024.

WSP Comment	Comment 8-01
Comments relating to scoping are provided in Section 1.3 of this report.	

8.2 Vision-Led and Traditional Approaches to Assessment

- 8.2.1. The applicant has provided model runs to reflect 'Policy On' (Vision-Led) and 'Policy Off' scenarios, stating that in line with National and Local Government priorities, the appropriate tests are the Vision-Led assessments.
- 8.2.2. The TA states that the Vision for NG is towards a sustainable travel and active travel-based future, with the focusing on identifying and funding the right mitigations which integrate with government strategies for reducing traffic and encouraging active and sustainable travel.
- 8.2.3. The TA states that the application has been assisted by TfGM bringing forward their Northern Gateway Transport Framework Document (NG TFD) which sets out the public transport and active travel strategies which define the transport Vision for NG. The TA states the following:
- "Scenario 2" identifies 65% of NG trips being made by car drivers, to be the most likely Vision-Led position.
 - The TfGM figures have 5% car passenger travel whereas the 'Policy Off' is 13%. The travel Plan will seek to increase that.
 - If the TfGM estimates for bus, cycle and walking are retained, it must therefore be the case that the Scenario car driver % will more likely be a maximum of 57%.
 - The Policy On assessments have been progressed on the basis of 60% by vehicle driver.

WSP Comment	Comment 8-02
• Our comments on the Vision-Led approach are covered in Comment 2-01. • The TA highlights that the Travel Plan will look to increase car passenger modes, however the Travel Plan has not been developed to inform how this will be achieved. This is a critical document from National Highways' perspective and we would expect it to be produced alongside the TA in accordance with the NPPF and PPG. • It is welcomed that the site has a sustainable and active travel-based Vision, however the importance of scenario testing requires acknowledgement in the TA. • Based upon the NG TFD, the mode share for Car Drivers is 65% as highlighted in the TA. The assumption being made to reach 57% is that 8% of car drivers will become passengers, with no change to public transport walking and cycling. However, there is no evidence to provide to support this change. • It is unclear from the TFD if the 65% represents both JPA1.1 and JPA 1.2, or just JPA 1.1. If it is the former, the Scenario 1 mode share highlights a higher driver mode share for JPA1.1 than JPA1.2. Therefore, clarification is sought over the JPA1.1 mode share for Scenario 2, as that is what is being applied for. • It has been requested for scenarios to be assessed using full trip rates, to understand the predicted network impacts, if the Vision-Led approach were not to be achieved. Further tests have been incorporated into the TA.	

8.3 Strategic Model

Modelling Agreement

- 8.3.1. The TA states that the NGTM is an agreed assessment tool, that all parties recognise as best available information.
- 8.3.2. A Local Model Validation Report (LMVR) has been prepared, alongside a Modelling Specification Report (MSR) which has been provided to all parties. A Modelling Agreement Statement (MAS) built upon those two document and stakeholder inputs at TSG meetings. The MAS sought endorsement by all parties in advance of the assessment of the proposals.
- 8.3.3. Comments were provided by NH on the LMVR in early 2025, which were responded to.
- 8.3.4. It is stated that at an HTWG meeting, in March 2025, NH confirmed that they would defer to TFGM's HFAS team for acceptance of the model. This is commented on as part of Comment 8-03 below.

WSP Comment	Comment 8-03
• It is acknowledged that given the local focus of the strategic model to the Northern Gateway site, the tool should be the most appropriate strategic modelling tool for the application. • At the time of writing the TA, the modelling had not been formally agreed by NH.	

- The supporting modelling documents have been reviewed by AECOM as part of this review, based upon the information provided by the applicant. At the time of writing this review, the model files had been requested but not received.
- As noted in the TA, as of March 2025, National Highways had not signed the Modelling Agreement Statement. Whilst the MAS had been received, NH were not in a position to sign the MAS without reviewing the inputs and outputs of the modelling, which underpins the assessments for the application.
- It is incorrect to state that NH confirmed they would defer to TFGM's HFAS team for acceptance of the model.
 - At the time the TA was submitted, queries raised by NH relating to the model were still outstanding.
 - Within the Highways Technical Working Group Risk Register, Risk #8 highlighted the risk of the NG Transport Model not being assured, or that identified issues with the model take significant time and effort to resolve.
 - An independent review of the Strategic Model documents has been undertaken by AECOM and summarised in Section 11.3.

Highways Technical Working Group

8.3.5. On 29th January 2025, a new Highways Technical Working Group was inaugurated. The Group met fortnightly to discuss and address highways related matters pertaining to the application.

WSP Comment	Comment 8-04
• National Highways have been keen to collaborate with the working group in relation to the application.	

Future Years, Do Minimum Models

8.3.6. The Do Minimum (DM) models are intended to reflect the future conditions if the proposed development and remainder of the NG allocations do not come forward. There are DM scenarios for 2032 and 2039, for Policy On and Policy Off scenarios.

WSP Comment	Comment 8-05
• The TA provides a summary of how the Policy Off scenarios have been developed but does not detail how the Policy On Do Minimum scenarios have been developed. This also does not appear to be explained in detail within the Northern Gateway Traffic Model Transport Forecasting Report, and therefore further detail is sought. • There is not a scenario which reflects the existing network with the proposed development. This would give an indication of the development impact in isolation of anything else, in addition to giving a clearer idea of what interventions are required and where.	

Future Years, Do Something (With Development Models)

- 8.3.7. The Do Something (DS) models are intended to reflect future conditions if the proposed development and remainder of the allocations come forwards. There are DS scenarios for 2032 and 2039, for Policy on and Policy Off scenarios. The DS models have been produced through applying the respective Proposed scheme, JPA1.1 allocation and JPA1.1 and JPA1.2 cumulative allocations traffic to the Do Minimum model matrices for network assignment.

WSP Comment	Comment 8-06
As highlighted in Section 7.8 the work relating to the options used in the modelling was undertaken in advance of understanding the requirements of schemes on the existing network, with no operational/safety assessments undertaken at that time. Therefore, it is not clear whether the schemes modelled are the most appropriate schemes.	

8.4 Assessment of Public Transport and Active Travel

- 8.4.1. The TA notes that the assessment of public transport and active travel is being carried out by TfGM and the assessment is set out in the NG TFD. The assessments include:
- A review of baseline statistics.
 - A review of baseline infrastructure and services.
 - A review of multimodal trip rates and trip generation.
 - The derivation of a public transport and active travel strategy, to deliver the necessary infrastructure and capacity to accommodate levels of pedestrian cycle and bus patronage, consistent with the vision for Northern Gateway. The calculations are based on their “Scenario 2” which they describe as “realistic”.
- 8.4.2. The TA notes that it has been agreed between the key stakeholders that the delivery of active travel and public transport measures will be determined from this TfGM work. The TA has been produced to assess development in line with delivering the Transport Vision.

WSP Comment	Comment 8-07
To ensure the site is sustainable, appropriate Public Transport and Active Travel measures need to be implemented. Whilst the TA states it has been produced in line with delivering this Vision, the TA should be cognisant of other visions and scenarios which may come to fruition (for example not achieving the reduction in car users in this area). Vision-Led assessments should involve assessing and understanding different scenarios, and therefore there should be recognition that whilst it is acknowledged that the site is aiming to be sustainable, there is a possibility that the stated vision won't be realised in terms of the Public Transport and Active Travel targets, and therefore the level of car users is higher.	

8.5 Scenarios and Sensitivity Testing

- 8.5.1. 25 scenarios were assessed within the Strategic Model to support the TA and EIA, which are all summarised within Appendix G of the TA. DS1 scenarios present the impacts of JPA1.1 in isolation, whilst DS3 includes the addition of JPA1.2. Three scenarios have been undertaken representing the application quantum (22.1, 22.2 and 22.3). These scenarios are classified as Sensitivity Scenarios and reflect a 2039 forecast year. Scenarios 22.1 and 22.2 reflect a Policy Off scenario, with 22.1 including the Birch Services access. Scenario 22.3 reflects a Policy On scenario, without the access. The TA notes that the key tests for the TA are those for the proposed development by 2039, the cumulative NG allocations coming forward by 2039 and for the earlier phase of just part of the Proposed Scheme being developed by the year 2032.

WSP Comment	Comment 8-07
- The TA describes the tests for the Proposed Allocation as a key test for the TA, however these tests have been classified as Sensitivity tests. Based on the requirements of the NPPF, the scenarios which assess the quantum of development for which planning permission is sought should be considered to be the core tests, though the scenarios which assess the full development quantum of site allocation JPA1.1 are also important from National Highways' perspective. - Clarification is sought regarding the importance of the scenarios tested, and how the 'Core'/'Sensitivity' scenarios have been defined. - There are only two tests within Appendix G, with Whittle Lane as Public Transport only. Both of these scenarios reflect the full allocation (JPA1.1 and 1.2), and therefore there are not any tests which allow for understanding of how the network is predicted to operate with the application quantum, and the JPA1.1 allocation in isolation. Given that this is the preferred Whittle Lane layout for TfGM and RMBC it is requested that this is tested. This may have an impact upon the operation of the access junction to the site and the distribution of traffic using M66 Junction 3, and M62 Junction 19, and therefore may impact the conclusions made about the predicted network operation. - There are not any scenarios tested which have the proposed development with the existing network. This would give an indication of the development impacts (in isolation) and would provide greater indication of what is required within the network in terms of mitigation.	

8.6 Assessment of Impacts and Junctions and Slip Roads

- 8.6.1. The forecast traffic volumes were output from the NGTM to undertake individual junction modelling. Merge/diverge calculations have also been carried out at slip roads on the SRN junctions within the study area (M66 J2, M66 J3 M62 J19 and proposed M62 Access Solution), in line with CD122.

WSP Comment	Comment 8-08
• The TA does not provide merge/diverge calculations for the proposed M62 Access solution, and therefore this is requested. Whilst there are scenarios which use flows from the scenarios which include the Access solution, the junction itself has not been reported. • Clarification is sought regarding how the traffic volumes have been used for locations where flow calibration/validation of the base model did not meet the required criteria. • Further detail is required relating to the forecast demands at the SRN junctions, due to the junction models using traffic flows direct from the NGTM. • The TA states that NH confirmed that the impacts on Simister will need to be reflected but detailed operational capacity modelling is not required. Further comments relating to the assessment of Simister Island are provided in Section 13.2.	

8.7 Assessment of Construction Traffic Effects

- 8.7.1. The TA concludes that no early or mid-phase construction will result in traffic volumes which are greater than may be expected to take place under the full JPA1.1 Allocation Site operational phase scenario. Similarly, the traffic generated by the final construction phases of the JPA1.1 Allocation Site will be a small proportion of the traffic volumes which will have already become established from the proportion of the site which has been constructed. Therefore, no construction traffic impact assessments have been undertaken. Construction traffic can be managed through Construction Traffic Management Plans.

WSP Comment	Comment 8-09
• Within the Northern Gateway TA Scoping Review, WSP stated that the approach of proposing a Construction Traffic Management Plan is reasonable.	

8.8 Approach to Assessment Summary

- 8.8.1. The TA states that the approach to assessment was to undertake all assessments to the agreed scope using an agreed model across an agreed set of development scenarios. The intention is to identify likely operational conditions based on the prospect that the sustainable travel strategies identified for NG and the wider GM sub-region are effective in delivering the Vision-Led approach. The LHA's and NH also required undiscounted trip rates and network traffic growth to be tested.
- 8.8.2. It is stated that the assessments allow for comparison of peak hour and interpeak conditions, with and without the Proposed Scheme, the full JPA1.1 Allocation Site and NG cumulatively.
- 8.8.3. The TA states that the approach gives decision makers sufficient information to form a view on what the development traffic impacts are likely to be and then upon what mitigations might be required, and whether those should be in the form of highway improvement works, contributions towards highway works or future active travel and public transport strategies.

WSP Comment	Comment 8-10
• Whilst elements of the application will have been agreed in principle, formal agreements have not been made due to the requirement of needing to receive and review a complete set of information presented in the planning application. • The assessments undertaken do not reflect the network peak hour, or the development peak hour. Further analysis is provided in Appendix A of this report. Therefore, the assessments may not reflect the peak network operation in all scenarios. • There are several references within the TA to NH requiring undiscounted trip rates and network traffic growth, however, as stated in 8.9.2 this was requested by NH and LHA's to gain a detailed understanding of the forecast development impacts. These scenarios have been requested to reflect a scenario where active travel and public transport targets are not met. Whilst it is acknowledged that ideally the site will be sustainable, there are currently no formal commitments/funding, and therefore this Vision is required as part of the TA process. • In terms of mitigation, as discussed elsewhere in this review, it is the responsibility of the applicant to identify mitigation required, including when it is required and what is required. In addition, it is the responsibility of the applicant to identify possible funding streams for the mitigation.	

9 Scope Evolution and Revised Assessment Methodology

9.1 Evolution of the Policy On Assessment

- 9.1.1. Initially the TASNU suggested that the Policy On development trip rates for NG would be set at 50% of the total people trip rates. Following a meeting between TT and TfGM in November 2024, TfGM said that the likely proportion of development car trip users in a Policy On assessment was likely to be higher than TT had identified. That work was presented in January 2025 in the NG TFD, with car driver mode share set at 65% in Scenario 2. TT made a revision in November 2024 to the development trip component from 50% to 60%, which is the level of vehicle traffic which underpins the Policy On assessments in the TA.

WSP Comment	Comment 9-01
- Clarification is sought whether agreement was reached with TfGM regarding the use of a 60% value for the total people trip rates. - Given the January 2025 value of 65% being presented by TfGM, it is unclear at this time whether the 60% modelled is appropriate, and the impact of applying a 65% value. - It is unclear if the 65% presented in the NG TFD is for a combination of JPA1.1 and JPA1.2. If it is for a combination of both allocation sites, clarification is sought regarding the value for just JPA1.1. - Linked to the above, the Scenario 1 percentage split for JPA1.1 car drivers is higher than for JPA1.2. Therefore, clarification is sought regarding how this has been taken into consideration for Scenario 2. - The information regarding how background growth and committed developments have been applied within the Policy On assessments is limited within the TA and NGTM forecasting report and therefore more detail is sought. It is noted that in the TASNU Addendum paragraph 5.4 that the reduced development trips will exist within a network traffic volume which experiences no growth. However, further detail is requested on the evidence behind no growth being applied, and how the growth has been applied (i.e. blanket across the whole network). - In line with the above, the trip rates have been applied globally for all origins/destinations. It is requested that additional detail is provided to ensure this is an appropriate methodology.	

9.2 Northern Gateway Development Transport Framework Document

- 9.2.1. The NG TFD identifies “Scenario 2” as not fully achieving their future strategy/vision, but is described as representing the most likely, balanced and economically viable Vision-Led transport package. TfGM identified the extent of mitigation measures which they considered would be necessary in order to achieve that Scenario 2 level of car use.

- 9.2.2. As mentioned in Section 8.2 of this report, TT summarise that “it must therefore be the case that the Scenario 2 car driver % will more likely be a maximum of 57%”, and the Policy on assessments had already been progressed on the basis of 60%.
- 9.2.3. TfGM say the Scenario 2 should be used to plan future public transport services and the highway improvements including Western Access, M66 J3 and M62 J19. The applicant is content with that, on the basis that the assessment which have been undertaken, with far higher levels of development traffic, will allow a view to be reached on the likely impacts on the highway network from a scenario 2 future.

WSP Comment	Comment 9-02
Comments on the TFD are provided in Section 4.4.	

9.3 National Highways Comments

- 9.3.1. The TA states that NH prepared a document titled *Northern Gateway Transport Assessment Scoping Note Review*, which was received by the Applicant and their Consultants on 12th December 2024. TT prepared a response (TTN10) and submitted it to the planning authorities and NH. Alongside TT’s response to NH’s comments, a parallel response was prepared by the strategic modelling team (dated 21st February 2025) with respect to comments raised by NH on the NGTM LMVR.

WSP Comment	Comment 9-03
- The <i>Northern Gateway Transport Assessment Scoping Note Review</i> was sent to Bury Council on 4th December 2024. - TTN10, dated 28/01/25, was provided to National Highways and WSP on 7th February 2025. - WSP’s review of TTN10 confirmed that some earlier comments had been adequately addressed, including the provision of a 12-hour trip profile and a response on Giga Scale Trip Rates. However, a number of WSP’s comments raised in its <i>Northern Gateway Transport Assessment Scoping Note Review</i> remained relevant and it was concluded that these would need to be addressed in the submitted TA or through additional information submitted during the pre-application period (supported by the Highways Technical Working Group forum) or during the post-application determination period. These comments have been covered in the appropriate sections of this review document.	

9.4 TfGM and Districts’ Acceptance of Model

- 9.4.1. TfGM commissioned HFAS on behalf of BC and RMBC to review the NGTM Base Model in order to provide confidence to the Councils that the model is fit for purpose for forecasting. The findings of the review were reported in November 2024. The report details the review

including checks on the network coding, matrices and model validation detailed in the LMVR. The TA states that the review concluded that they could have confidence in the 2022 Northern Gateway Transport Model for use in forecasting.

WSP Comment	Comment 9-04
- It is welcomed that other stakeholders are conducting their independent reviews of the model. As part of this review, AECOM have undertaken an independent review of the model information for National Highways. - The TfGM review does highlight that revised speed flow curves have been used to lower link speeds on the M60 anticlockwise between J18-20. HFAS note the changes appear reasonable with the exception of between J19 and 18 in the evening peak, as it is unrealistic as a free-flow speed as there is a risk it may results in overestimation of delay on this section of motorway (and potentially unrealistic rerouting) in the forecast scenarios. Clarification is sought regarding how this may impact rerouting on the SRN. - The TfGM review highlights that on the M60 in the evening peak hour; the model achieves slightly below TAG criteria validation. Therefore, clarification is sought regarding how this may impact the forecast scenarios.	

9.5 Identification of Further Sensitivity Tests

9.5.1. Nine sensitivity scenarios have been modelled which are summarised in Appendix G of the TA. These sensitivity scenarios have been identified to provide additional detail on specific aspects of the development.

WSP Comment	Comment 9-05
Based upon the comments provided in this TA review other scenarios may be required to satisfy NH.	

9.6 Model Refinements

9.6.1. The following refinements have been listed:

- When the first results from the model were obtained, it was observed more traffic than expected was forecast to route through M66 J3. It was possible to adjust the strategic model to more accurately reflect a purpose-built detailed microsimulation model at M66 J3 to more accurately reflect the more detailed operational limits at this location.
- More traffic was also forecast to route through Whittle Lane. Tests have been undertaken to allow the route to be reserved for buses /active travel, in addition to constraining the capacity on the bridge over the M62.

WSP Comment	Comment 9-06
• Further information is requested regarding the changes made to the M66 Junction 3, including whether the changes have also been made within the base and Do Minimum scenarios. • The TA does not suggest that adjustments have been made to other junctions in the study area, and therefore it is not known whether the operational limits are appropriate at the other SRN junctions. • At the time of writing this review the NGTM model files have been requested but have not been received to allow for an understanding to the coding at M66 Junction 3 and other SRN junctions.	

10 Multimodal Trip Generation

10.1 Quantum of Development Assessed

10.1.1. The assessments which have been undertaken include:

- Early Delivery Proposed Scheme: 395,000 sqm of employment.
- Early Delivery Cumulative JPA1.1 and 1.2: 395,000sqm of employment and 473 houses.
- Proposed Scheme: 600,000sqm of employment.
- Full JPA1.1 Allocation: 1,025,000sqm of employment + 200 dwellings.
- Full Cumulative JPA1.1 and 1.2: 1,025,000sqm of employment + 1,750 dwellings.

WSP Comment	Comment 10-01
The TA highlights in Table 10.3 that the predominant land use for the Proposed Scheme is B8, therefore reaffirming the importance of the B8 trip rates for trip generation.	

10.2 Trip Rates

10.2.1. The trip rates used within the TA are provided in in Appendix L.

Trip Rates ('Policy Off')

10.2.2. WSP and National Highways provided comments in the document “National Highways – Northern Gateway – Transport Assessment Scoping Note Review – Ref: NW 068-001”, dated November 2024. The review included commentary on the proposed trip rates used for the Northern Gateway site. A response is provided in Appendix I of the TA, named “Tetra Tech TTN10 – Response to NH comments on Scope”, dated 28th January 2025.

Advanced Manufacturing Trip Rates

10.2.3. It is seen as an acceptable approach to use a proxy site to derive Manufacturing trip rates, however, National Highways requested additional details regarding the proxy site used to obtain the trip rates. Details regarding the proxy site are provided in Section 9.4 of the TA, summarised into the following:

- Advanced Manufacturing is a comparatively new employment land use with few major established sites available for reference within traditional trip generation databases.
- Direct trip demand data is available for the Waverley Advanced Manufacturing Park (Waverley AMP) Rotherham.
- The Waverley AMP development represents a brownfield regeneration projects in South Yorkshire, located to the east of the built-up area of Sheffield/Rotherham and close to M1 Junction 33.

B1(C) Trip Rates

10.2.4. Within the Transport Assessment Scoping Note Review (dated November 2024), WSP highlighted that their independent exercise to derive trip rates resulted in broadly similar trip rates and generation for B1(c) land use.

B2 Trip Rates

10.2.5. Within the Transport Assessment Scoping Note Review (dated November 2024), WSP highlighted that their independent exercise to derive trip rates resulted in broadly similar trip rates and generation for B2 land use.

B8 Trip Rates

10.2.6. Within the Transport Assessment Scoping Note Review (dated November 2024), WSP noted that the trip rates for B8 land use were lower than that derived by WSP, resulting in lower traffic generation. Therefore, WSP requested a sensitivity test using the trip rates derived by WSP. Given that the proposals are currently allocating B8 as the highest proportional land use, the trip rate used may have an impact upon the operational analysis undertaken and therefore highlights the importance of appropriate B8 trip rates.

10.2.7. Within TTN10, Appendix TTN10-2, Tetra Tech have undertaken a review of the B8 Trip Rates used within the TA. Tetra Tech have provided analysis of the following:

- Tetra Tech analysis of TRICS in 2025.
- Tetra Tech analysis of a proxy B8 site, which has provided B8 trip rates that National Highways midlands have accepted for a proposed B8 scheme.
- The National Highways trip rates.

10.2.8. The filters for the Tetra Tech 2025 trip rates have been set as the following:

- England (Excluding London and the South).
- Suburban area & Edge of Town only.
- 5,000 to 105,335 sqm.
- Last 10 years of data available (19/10/13 to 19/10/23).

Residential Trip Rates

10.2.9. Within the Transport Assessment Scoping Note Review (dated November 2024), WSP highlighted that their independent exercise to derive trip rates resulted in broadly similar trip rates and generation for Residential land use.

WSP Comment	Comment 10-02
Advanced Manufacturing The Waverley traffic surveys provide an indication of traffic flows for an advanced manufacturing location; however, it is noted that the count was in 2016 which is 9 years old. In previous correspondence it was noted that a 2021 count was undertaken however this	

may have been impacted by Covid. Therefore, clarification is sought whether there is any more recent data which could be used to support the advanced manufacturing counts.

- It is noted within the Waverley Traffic surveys that the peak hours for arrivals and departures are as follows (using the total column):
 - Morning Peak Arrivals:
 - i. 07:30-08:30 (357) compared to 08:00-09:00 (319).
 - Evening Peak Arrivals:
 - i. 16:00-17:00 (33) had a higher count than 17:00-18:00 (17) although there is a higher count earlier in the afternoon.
 - Morning Peak Departures:
 - i. 07:30-08:30 (38) compared to 08:00-09:00 (34)
 - Evening Peak Departures:
 - i. 16:00-17:00 (189) had a higher count than 17:00-18:00 (132) although there is a higher count earlier in the afternoon.
- The above analysis highlights the commentary made through this report, and in Appendix A, regarding the time periods assessed in the TA.

B1(c)

- Within the Transport Assessment Scoping Note Review (dated November 2024), WSP highlighted that their independent exercise to derive trip rates resulted in broadly similar trip rates and generation for B1(c) land use.

B8

- WSP note that Tetra Tech have provided additional analysis within TTN10, and specifically Appendix TTN10-2 which is welcomed. As part of the additional analysis, information has been provided of a TRICS exercise undertaken by Tetra Tech in 2025, and details from a proxy site.
- A review of the B8 trip rate analysis previously undertaken by WSP, highlights that one site has higher trip rates when compared to the other sites used with the analysis, which skews the average trip rate to be higher than that used within the Tetra Tech modelling. This reaffirms the variation in trip rates between B8 sites and supports the case for sensitivity testing based upon occupational land use.
- However, based upon the comments received from Tetra Tech, WSP have revisited the B8 trip rates with a high-level sensitivity check using TRICS in May 2025, with the TRICS outputs in Appendix B.
- The table below provides a comparison of the following trip rates, with the total trip generation for B8 for the proposed development (420,000sqm- taken from TTN-10:
 - Used in the TA/modelling (PTASN/TASNU);

- Tetra Tech: 2025 analysis;
- Tetra Tech: Proxy Site (Wellesbourne Airfield re-development);
- WSP: 2025 analysis.

Source	Trip rates per 100sqm			Total Trip Gen (vehicles)
	Arr	Dep	Tot	
AM Peak Hour (0800-0900)				
PTASN/TASNU	0.092	0.041	0.133	559
Tetra Tech: 2025 TRICS	0.050	0.046	0.096	403
Tetra Tech: Proxy Site	0.098	0.052	0.151	634
WSP (2025)	0.083	0.062	0.145	609
PM Peak Hour (1700-1800)				
PTASN/TASNU	0.027	0.085	0.112	470
Tetra Tech: 2025 TRICS	0.060	0.055	0.115	483
Tetra Tech: Proxy Site	0.020	0.101	0.121	508
WSP (2025)	0.064	0.089	0.153	643

- The table highlights the following:
 - Across the two selected hours the trip rates shown have a broad range between arrivals and departures across the four sources of data. This highlights the uncertainty in forecasting.
 - In the morning selected hour, the arrival trip rates are broadly similar, with the exception of the Tetra Tech 2025 TRICS. The departure rates again are similar but with the 2025 WSP rates being slightly higher. The overall trip generation ranges by 231 vehicles, with the modelled trip rates in the assessment being broadly in the middle.
 - In the evening selected hour, the arrival and departure trip rates vary greatly between the four datasets, with no pair of data aligning well with another. The overall trip generation ranges by 173 vehicles, with the modelled trip rates in the assessment being at the lowest end of the range.
- Based on the above analysis a sensitivity test with higher B8 trip rates is requested to be undertaken.

- As highlighted in TTN-10 the trip generation for B8 vehicles for the proposed planning application of 600,000sqm has higher trip generation from 07:00-08:00 than 08:00-09:00, and higher trip generation for 16:00-17:00 compared to 17:00-18:00.

Residential

- Within the Transport Assessment Scoping Note Review (dated November 2024), WSP highlighted that their independent exercise to derive trip rates resulted in broadly similar trip rates and generation for Residential land use.

Trip Rates ('Policy On')

10.2.10. The TA summarises that the Policy On trip generation have been set such that 40% of the people trips are being carried out using sustainable methods of travel. The Policy On trip rates have not been applied to the early delivery phase of 395,000sqm to reflect a scenario where Vision-Led mitigations/aspirations have not taken effect yet.

10.2.11. The Policy On trip rates have been derived through the following methodology:

- Taking the Total Person Trip Rates from the Policy Off Trip Rates.
- Adopting 60% of all trips as being vehicles drivers (excl bus).
- The LGV and HGV rates have not been amended, as those are associated with operational vehicles.

10.2.12. A summary of the policy on trip rates are provided in Appendix L of the TA. Using the example of B8 trip rates, the process is as follows:

- Vehicle trip rates extracted from TRICS (Table TTN4-5) for total vehicles.
- Multi-modal trip rates extracted from TRICS. It has been assumed that the vehicle trip rate from Table TTN4-5 has been used as the Vehicle Driver trip rate for the multi-modal rates.

WSP Comment	Comment 10-03
- Whilst the focus for NH relates to the Policy Off trip rates, the analysis and wording in the TA is heavily focused on the Policy On scenarios. Therefore, the Policy On trip rates have been reviewed. - Further details are required relating to the calculating of the Policy On trip rates, as WSP have been unable to calculate the People Trips, which have been used to derive the Policy On trip rates. It would be useful to be provided a working example of how the trip rates have been used to derive the Policy On trip rates. - WSP have used the TRICS database to analyse the three sites used within the Multimodal B8 trip rates. It was noted that when running the sites through TRICS that that multimodal trip rates in TRICS is higher than reported in the TA. It was noted within the TRICS database that Site 3 (NT-02-F-01) has a land use area of 105,335sqm and not the value specified in the TA appendices. It is acknowledged at the time of running TRICS for the TA that the value may	

have been different, however this does appear to impact the outturn trip rates and will impact the person trip calculations.

- The process used to develop the Policy On trip rates does not appear to consider the temporal complexities of mode choice within the TRICS data used, with consideration required of the peak periods for individual modes.
- WSP have completed a review of Multimodal B8 trip rates using the TRICS portal to cross reference the sustainable mode splits present by TT. The TT process, whilst considering the notes above on the process, presents that the Policy Off trip rates for B8 include only 14% of sustainable modes. WSP's TRICS review has noted a range of surveyed mode splits for B8 sites to have a range of sustainable mode splits between 8.4% to 35.9% depending on the direction of travel and time of day, with more directly comparable numbers to the TT work being 23.9% in the morning and 22.2% in the evening, both suggesting that the current usages of sustainable travel might be higher than calculated in the TA.

10.3 Trip Generation: Policy On

10.3.1. The trip generation for the Policy On scenarios is provided in Table 10-1. The TA notes that the generation has been set out such that 40% of the people trips are being carried out using sustainable methods of travel. The Policy On trip rates have not been applied to the early delivery phase of 395,000sqm to reflect a scenario where Vision-Led mitigations and aspirations have not taken effect yet.

Table 10-1 – Policy On Trip Generation (TA Table 10.6 and 10.7)

Method of Travel	AM Peak (0800-0900)			Interpeak (Av 100-1600)			PM Peak (1700-1800)		
	Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot
Proposed Scheme Quantum (600,000sqm)									
Sustainable	532	143	674	245	319	564	104	473	577
Vehicles	798	223	1012	367	479	846	156	710	866
Total	1329	365	1686	612	798	1410	260	1183	1443
JPA1.1 Allocation (1,025,000sqm + 200 dwellings)									
Sustainable	925	313	1238	439	562	1000	225	829	1054
Vehicles	1388	484	1857	658	842	1500	338	1243	1581
Total	2313	797	3096	1097	1404	2501	563	2072	2635

WSP Comment	Comment 10-04
- Within Appendix L of the TA, there is a summary of the process used to calculate the trip generation for the Policy On and Policy Off scenarios. It is noted by WSP that the land use split in Table 10.4 of the TA (Full JPA1.1 Allocation Land Uses) does not match Table TTN4-13 (Indicative Development Schedule) of Appendix L, and therefore there are discrepancies between the trip generation. However, the development quantum in the TA does match the Trip Generation for the Full Allocation in TTN10. Given that the TA refers to Appendix L throughout the chapter, it is recommended that Appendix L is updated for clarity. - Whilst it is acknowledged that the early delivery phase does not include the Policy On trip generation, further clarification is sought regarding how the mitigation will be determined due to potential conflicting results from the assessments. For example, if the early delivery phase assessments suggest mitigation is required, but the Policy On assessment for the proposed scheme quantum suggests mitigation is not required. - With the Policy On scenarios, there is a reduction in car drivers and an increase in sustainable transport. Within the sustainable transport measures there will be additional public transport provision, and therefore clarification is sought regarding whether this has been accounted for within the modelling (NGTM and operational junction models).	

10.4 Trip Generation: Policy Off (Average Rates)

10.4.1. The trip generation for the Policy Off scenarios is provided in Table 10-2.

Table 10-2 – Policy Off Trip Generation (TA Table 10.8, 10.9 and 10.10)

Method of Travel	AM Peak (0800-0900)			Interpeak (Av 100-1600)			PM Peak (1700-1800)		
	Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot
Proposed Scheme Initial Phase Quantum (395,000sqm)									
Sustainable	144	40	184	59	79	138	36	163	198
Vehicles	584	187	770	305	373	678	127	494	621
Total	728	226	954	364	452	816	163	657	820
Proposed Scheme Quantum (600,000sqm)									
Sustainable	279	66	345	114	161	275	63	322	385
Vehicles	1050	291	1341	498	637	1135	198	860	1058
Total	1329	357	1686	612	798	1410	260	1183	1443
JPA1.1 Allocation (1,025,000sqm + 200 dwellings)									

Sustainable	489	196	685	216	288	504	146	571	717
Vehicles	1824	586	2410	881	1116	1997	417	1501	1918
Total	2313	782	3096	1097	1404	2501	563	2072	2635

WSP Comment	Comment 10-05
- The differences in the number of vehicles from the Policy On assessments against the Policy Off assessments reaffirms the need for the scenario testing requested by National Highways. Whilst there is a vision for the site, National Highways require understanding of the impacts within the SRN were the full vision not to come to fruition. - As part of the November 2024 review, the 12-hour trip generation profile was requested to enable National Highways to understand the peak period and interpeak traffic general profile for the site. This 12-hour generation profile has been included for the “Policy Off” trip rates, in Appendix TTN10-1 of TTN10 (Appendix I). The provision of this trip generation profile is welcomed.	

10.5 Development Loading

10.5.1. The development traffic has been loaded onto the highway network at 8 zones within the NGTM. The development traffic has been split based on the size of the area each zone provides access to. The TA states that full details are provided in the NGTM forecasting report.

WSP Comment	Comment 10-06
- As stated in the AECOM Strategic Model Review (Section 11.3), the Strategic Model has not been received and with the absence of information about how the development was coded within the model, AECOM could not verify the appropriateness of the development coding and representation in the model. - The trip distribution diagrams are presented in Appendix N for ‘DS3’ which is the combined JPA1.1/JPA1.2 distribution. Clarification is sought whether the JPA1.1 distribution, and that provided in Appendix N will be the same. - The trip distribution diagrams represent a scenario with Whittle Lane open to general traffic. Both TfGM and RMBC have aspirations of restricting Whittle Lane to Public Transport only. Clarification is sought on the distribution with Whittle Lane closed to traffic, and whether this would impact upon the development demand travelling through M66 Junction 3, M66 Junction 2 and M62 Junction 19. - The distribution assumed in the Policy On scenario, assumes a blanket reduction in car drivers compared to the Policy On scenario. However, there are some destinations which are further afield which will not benefit or benefit less from the proposed active travel/public transport	

measures, and therefore it is queried whether applying the blanket reduction is an appropriate methodology.

10.6 Trip Rates and Traffic Generation Summary

10.6.1. The Policy On trip rates have been derived through:

- Taking the Total Person Trip Rates from the Policy Off (Average) Trip Rates.
- Adopting 60% of all trips as being by vehicle drivers (excl bus).
- The LGV and HGV rates have not been amended, as those are associated with operational vehicles.

10.6.2. The Proposed Scheme is forecast to generate the following people trips:

- AM peak hour (0800-0900): 1686 trips.
- Interpeak (average 1000-1600): 1410 trips.
- PM peak hour (1700-1800): 1443.

10.6.3. The Proposed Scheme is forecast to generate the following trips:

- Non-vehicle driver trips:
 - AM peak hour (0800-0900): 674 trips.
 - Interpeak (average 1000-1600): 564 trips.
 - PM peak hour (1700-1800): 577 trips.
- Vehicle Driver trips:
 - AM peak hour (0800-0900): 1012 trips.
 - Interpeak (average 1000-1600): 846 trips.
 - PM peak hour (1700-1800): 866 trips.

WSP Comment	Comment 10-07
• The comments made as part of this review may impact the outturn numbers presented within this subsection of the TA.	

11 Traffic Impact Assessment- Strategic Modelling

11.1 NGTM Model Runs

- 11.1.1. Model runs have been completed for the TA and EIA requirements. Each model run has been carried out for the morning and evening peak hours, as well as for the interpeak. The scenarios which include development also include the Common Highway Mitigation Package (QEII way, M66 J3 improvements and the Western Access improvements). All Do Something scenarios also include works to Whittle Lane, either as a capacity constrained access or closed to general vehicle traffic. The runs also include the Simister Island DCO scheme.
- 11.1.2. The model runs assessed within the TA are replicated in Table 11-1 and Table 11-2 for the Core and Sensitivity tests respectively.

Table 11-1 – Core Tests (TA pg.59/60)

Run	Scenario
0	2022 Baseline 2039 Do Minimum- Policy On
5	2032 Do Minimum
6	2032 Do Something 1a Policy Off 395,000sqm JPA1.1 Allocation Excludes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane capacity constrained and South Heywood Link Closed
8	2032 Do Something 3a Policy Off 395,000sqm JPA1.1 Allocation 473 dwellings within JPA1.2 Excludes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane capacity constrained and South Heywood Link Closed
10	2039 Do Minimum

11	2039 Do Something 1a Policy Off All JPA1.1 Allocation Excludes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane capacity constrained and South Heywood Link Closed
12	2039 Do Something 1b Policy Off All JPA1.1 Allocation Includes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane capacity constrained and South Heywood Link Closed
13	2039 Do Something 3a Policy Off All JPA1.1 Allocation All JPA1.2 Allocation Excludes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane capacity constrained and South Heywood Link Closed
14	2039 Do Something 3b Policy Off All JPA1.1 Allocation All JPA1.2 Allocation Includes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane capacity constrained and South Heywood Link Closed

Table 11-2 – Sensitivity Tests (TA pg.60/61)

Run	Scenario
17	2039 Do Something 3 – S1 – Whittle Lane Policy Off All JPA1.1 Allocation All JPA1.2 Allocation Excludes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane Closed (PT Only) and South Heywood Link Closed
18	2039 Do Something 1 – S.2.1 – South Heywood Link Policy Off All JPA1.1 Allocation Includes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane capacity constrained and South Heywood Link Connection provided
19	2039 Do Something 3 – S.2.2 – South Heywood Link Policy Off All JPA1.1 Allocation All JPA1.2 Allocation Includes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane capacity constrained and South Heywood Link Connection provided
20	2039 Do Something 3 – S.3.1 – Policy On Policy On All JPA1.1 Allocation All JPA1.2 Allocation Includes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane capacity constrained and South Heywood Link Closed

21	2039 Do Something 3 – S.3.2 – Policy On Policy On All JPA1.1 Allocation All JPA1.2 Allocation Excludes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane capacity constrained and South Heywood Link Closed
22.1	2039 Do Something 3 – S.4.1 – Proposed Scheme Quantum with M62 Access Policy Off Proposed Scheme traffic generation Includes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane capacity constrained and South Heywood Link Closed
22.2	2039 Do Something 3 – S.4.2 – Proposed Scheme Quantum without M62 Access Policy Off Proposed Scheme traffic generation Excludes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane capacity constrained and South Heywood Link Closed
22.3	2039 Do Something 3 – S.4.3 – Proposed Scheme Quantum Policy On Policy On Proposed Scheme traffic generation Excludes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane capacity constrained and South Heywood Link Closed
25	2039 Do Something 3 – S.6 – Overall Future Vision Policy On All JPA1.1 Allocation All JPA1.2 Allocation

	Includes M62 Access solution Includes Common Highway Mitigation and J18 DCO works Whittle Lane Closed (PT Only) and South Heywood Link Connection provided
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WSP Comment	Comment 11-01
- No tests have been completed with the proposed development quantum (600,000sqm) on the existing network. This would give an indication of where mitigation is required, and would help to inform what measures are required. - It is unclear how Committed Developments have been incorporated into the Policy On tests. The information provided suggests that in the Policy On tests there is no growth applied, and this would therefore mean that Committed Developments have not been considered. Therefore more information is required regarding the development of the Policy On scenarios. - It is noted that the test for the application (600,000sqm) is classified as a sensitivity test. Given that the focus of the application are these tests (e.g. Run 22), it is recommended that these tests are classified as 'Core'. - It was previously recommended by WSP in our scoping discussions that an opening year test (2032) be undertaken with the full quantum of floorspace for the Proposed Development (600,000sqm). - From the review of the Strategic Model, AECOM recommend the following assessments are undertaken using the NGTM (Appendix D for further details): - Full Development "Opening year" (2039) Baseline/Reference Case; - Full Development "Opening year" (2039) Baseline/Reference case + Development proposals (develops quantum and supporting infrastructure directly achievable by the developer); - Full Development "Opening year" (2039) Baseline/Reference case + Full Development Proposals + Identified Mitigation; - Interim Year Baseline/Reference case + Development Proposals (develops quantum and supporting infrastructure directly achievable by the developer); and - Interim Year Baseline + Development Proposals + Identified Mitigation. The Review states that the first three scenarios will align with the DfT Circular 01/22 of assessing the full development opening year, whereas the phased development will be used to identify trigger points for any identified mitigation. WSP agree with AECOM broadly with the scenarios identified but would suggest that the opening year tests are undertaken at 2032 (or similar) to ensure that the development impacts are understood with reduced uncertainties in wider forecasting.	

11.2 NGTM SATURN Model Outputs

11.2.1. The following datasets have been extracted from the model to inform the traffic impact assessment, and the sifting analysis:

- **Volume of Traffic** – changes in the number of vehicles on the network with and without the development in place, and how interventions may influence the distribution of traffic across the network.
- **Turning Movements** – Turning movements at the 18 junctions have been extracted, in an Origin Destination (OD) format.
- **Routing** – Select Link Analysis of the development Site Access Roads to determine the routing of development trips on the network. The trip distribution diagrams are presented in Appendix N.

WSP Comment	Comment 11-02
- It is acknowledged that the Volume of Traffic has been extracted from the model and used to support the merge/diverge analysis, whilst the turning movement outputs have been used to inform the junction models. - It is not clear how the areas where the model does not validate/calibrate in the NGTM have been considered relating to the junction modelling and merge/diverge analysis. - With the exception of for Simister Island (Table 13.1 of the TA), there are no outputs/analysis explicitly presented in the TA relating to the changes in the number of vehicles on the network with and without the development in place. It is noted that Section 8.5 and Appendix F of the NGTM does include some flow difference plots between certain scenarios. Analysis of these plots does not seem to have been undertaken to highlight the key changes. - As highlighted by AECOM in the Strategic Model Review (see Section 11.3) the flow difference plots are unclear, and it is difficult to assess the outputs from these plots.	

11.3 AECOM Strategic Model Review

11.3.1. The NGTM underpins the assessments undertaken as part of the TA, and therefore AECOM have undertaken an independent review of the information provided relating to the Strategic Model. The NGTM model files (base and forecast) were requested however at the time of writing these have not been received. Therefore, a review has not been undertaken of the modelling itself, only the documentation which has been provided.

11.3.2. The AECOM Report for the Base Model Review is provided in Appendix C, and the Forecast Model Review in Appendix D. The documents reviewed are as follows:

- **Base:**
 - 'Model Specification Report (MSR) [Northern Gateway Traffic Model – Model Specification Report, WSP, January 2023]; and,
 - 'Local Model Validation Report (LMVR) [Northern Gateway Traffic Model – Local Model Validation Report, WSP, September 2024].

■ Forecasting:

- ‘Transport Forecasting Report (TFR) [Northern Gateway Traffic Model – Transport Forecasting Report, WSP, March 2025].

11.3.3. AECOM have defined that any items requiring further clarification have been classified into one of three levels:

- **Minor** – Observations that have a minimal impact on modelling results;
- **Medium** – Observations that have a medium impact on modelling results; and
- **Significant** – Observations that raise substantial concerns and are likely to materially affect the modelling outcomes.

AECOM Comment	Comment 11-03
Base Model: • Significant, Model Specification Report Update: The MSR sets out the overall specification for the traffic modelling. Given the issues raised, this report should be updated to reflect an amended methodology required to address the points raised. • Medium, Missing Turn Flow Data: The LMVR does not provide details of turning flows at M62 J18, which is a crucial junction for routing as it connects M60/M66 and M62. AECOM requested the turn flow details of this junction given its proximity to the development site. • Significant, Modelled Peak Hours: Although the modelled peak hours do not match with the study area peak hours, it was noted that, based on the detailed analysis carried out by the developer’s consultant, the modelled AM peak hour is representative of the observed AM peak (based on 2022 observed traffic flows at each junction). However, the modelled PM peak flows are slightly lower than the observed data with a significant difference at some individual junctions. AECOM recommends assessing the individual junctions by uplifting the junctions with a local factor rather than a global factor to ensure robustness of the model. • Significant, Turn Flow Validation: Noting that TAG guidelines clearly indicate that it might be difficult to achieve the flow validation criteria for turning movements in a strategic model, there are a number of turns at key SRN junctions (M60 J19 in particular) where a significant difference is observed. Therefore, AECOM advises that there are potential risks using the turn flows from the model directly in the assessment of the junctions in the forecast scenarios. AECOM recommend that the above concerns should be addressed before any forecast works are completed using the NGTM 2022 base model. Forecast Model: • Significant, Reference Demand Forecasting: AECOM have a number of concerns towards the methodology of estimating the background demand growth. AECOM recommend further information is provided to address the lack of clarity. • Medium, Trip Rates: Whilst it is noted that “Policy On” trip rates assume 60% of person trips as vehicles, AECOM observed that there is no clear explanation about “Policy Off” trip rates which are used in the development trip generation.	

- **Medium, Trip Rates:** The difference between the “Policy On” and “Policy Off” is counter intuitive, “Policy On” are identified as being higher given the level of impact it could potentially have on forecasts this should be clarified.
- **Medium, Development Trip Distribution:** Evidence should be provided to demonstrate the differences in the application of different distribution methodologies (donor zone vs Census data) for the DM and Northern Gateway development trips.
- **Medium, LGV & HGV Trip Distribution:** As Census to work does not provide information for LGVs and HGVs, these trips were distributed using the donor zone method. However, the TFR did not provide further information about the donor zones characteristics, and therefore AECOM require that zonal information to be provided to determine their appropriateness, considering this will have a sole impact on goods vehicles.
- **Significant, Scheme Coding:** With the absence of information about how the development was coded within the model, in terms of zone system, internal road network and overall demand loading and routing, AECOM could not verify the appropriateness of the development coding and representation within the model. It is recommended that UFS files for each of the models is provided.
- **Significant, Future Highway Schemes:** The TFR reported eight highway schemes titles as Committed and Non-Committed in the immediate vicinity of the development site. Only one scheme, the M60 Simister Island junction upgrade, would be considered committed. The other schemes which are all included in the DS scenarios are not considered committed. It is recommended these schemes are included within the redline boundary of the development proposals or the classifications are updated.
- **Significant, Scenarios Testing:** While it is appreciated that an extensive set of DS scenarios have been assessed in the TFR, the scenarios currently modelled are considered variations on the theoretical DS situation rather than “likely” DS situation. AECOM recommends that a simple, standard set of scenarios where development and scheme align with Tag Unit M4 are modelled for the opening year and 10 years plus opening.
- **Significant, Outputs:** The TFR presents a high level of flow difference plots. AECOM notes that it is difficult to assess the outputs from these plots and recommends providing clear zoomed-in traffic flow difference plots for the study area, Select Link Analysis SLA plots, Journey Time Impacts, Junction Delays for the key SRN junctions, Link Capacity and Queues for the DM and DS scenarios.

AECOM recommend that the above concerns should be addressed once the concerns from the base model have been addressed, before the works can be considered fit for purpose of informing the forecast impact of the development proposals.

12 Traffic Impact Assessment - Junction Analysis

12.1 The Study Area – As set out in the TASNU

12.1.1. The junctions identified as potentially requiring assessment are listed within Section 12.2 of the TA. The SRN junctions are replicated below:

- Detailed Junction Operational Assessment:
 - 1- M62 J19 Interchange and Slip Roads.
 - 11- M66 J3 Interchange and Slip Roads.
 - 12- M66 J2 Interchange and Slip Roads.
- Other Locations for Potential Consideration Subject to More Detailed Review of Development Traffic Assignment:
 - 19- M60 J18 Interchange and slip road.
 - 20- M62 J20 and slip roads.
 - M60 J19 and immediate sections of the A576 corridor.

WSP Comment	Comment 12-01
• It is welcomed that assessments of the three SRN junctions which are likely to experience the greatest impact (M62 J19, M66 J3 and M66 J2) have been listed for junction operational assessment. • No junction assessments of the proposed M62 Birch access junction have been undertaken. • Clarification is sought how the modelling takes into consideration the additional active travel users through the junction in the Policy On scenario compared to the Policy Off scenario as this may impact the available green time for vehicles, and therefore the operation of the junction. • The modelling undertaken will not be able to provide an understanding of how the Strategic Road Network itself (M62/M66/M60) is predicted to operate with the proposed development, unlike if a microsimulation model were used.	

12.2 Sifting to Identify Junctions Requiring Assessment

12.2.1. The TASNU set out sifting criteria to establish if any junctions would be committed from the individual junction assessments on the basis that they experience immaterial impact in terms of traffic increases. The two tests which were identified were:

- Is the junction subject to an increase of one trip per minute or more, on any arm/approach?
- Is the junction subject to a 5% or more increase in traffic between the 'Do Minimum' and 'Do Something' traffic volumes, in any of the assessed peak periods?

12.2.2. The sifting analysis was undertaken using 2039 Do Something Traffic Volumes. Following the two sifting tests, none of the junctions were sifted out.

12.2.3. The TA notes the following:

- M62 J20 triggers the sifting criteria in one AM peak hour scenario. NH have commented that this junction is required for assessment as part of the JPA1.2 Allocation Site Proposals (not the subject of this TA).
- M60 Junction 19- NH commented that this junction is required for assessment as part of the JPA1.2 Allocation Site proposals.
- Simister Island is subject to an ongoing Development Consent Order Application.

WSP Comment	Comment 12-02
• It is noted that M62 Junction 20 and M60 Junction 19 have not been assessed as part of the TA. The expectation is that with JPA1.2 there would be a higher level of impact at these two junctions compared to JPA1.1. WSP had not seen the complete sifting analysis until the TA was presented. The sifting analysis highlights that in the majority of scenarios M60 Junction 19 meets the sifting criteria and therefore should be assessed.	

12.3 Junction Assessments – Key Performance Indicators

12.3.1. The junction assessments have been undertaken using the following software packages:

- Junctions 9 (PICADY)- Priority T-junctions and crossroads
- Junctions 9 (ARCADY)- Priority roundabouts
- LinSig- Signalised junctions.
- Transyt- M62 Junction 19 and M66 Junction 2 (including Wash Lane junction).
- Vissim- M66 Junction 3.

12.3.2. The performance indicators identified in the TA are:

- Junctions 9
 - Ratio of Flow to Capacity (RFC) values, where a value of 1 indicates that the junction is operating at its theoretical capacity.
 - Max queue lengths (MQ) measured in Passenger Car Units (PCU).
 - Average delays provided in sec/PCU.
- LinSig
 - Degree of Saturation (DegSat) values, where a value of 100% indicates that the junction is operating at its theoretical capacity.
 - Mean Max Queue lengths (MMQ) measured in Passenger Car Units.
 - Average delays provided in sec/PCU.
- Transyt
 - Queue lengths (Q) measured in passenger car units.
 - Average delays provided in sec/PCU.

- Vissim
 - Queue lengths measured in PCU.
 - Journey Times.

WSP Comment	Comment 12-03
Whilst not mentioned in the Performance Indicator list within the TA, it is noted that for the Transyt models of M62 J19 and M66 J2, summary results for Degree of Saturation have been used.	

12.4 Junction Assessments – Full Results

12.4.1. The TA states that for each scenario at each junction, the key performance indicators are reported in Appendix P.

WSP Comment	Comment 12-04
Appendix P of the TA includes tables for each scenario including key performance indicators such as Degree of Saturation (%), Average Delay and mean maximum queues. Whilst this is welcome, the junction models have been requested and received, to provide a greater insight into the model results.	

12.5 Junction Assessments Summary Results

12.5.1. Summary results from the junction models have been provided in Appendices Q to Y, which summarise the worst performing arm at each junction, for the various flow scenarios.

WSP Comment	Comment 12-05
The junction models have been requested and received, to provide a greater insight into the model results.	

12.6 Merge Diverge Assessment

12.6.1. Merge/diverge assessments have been undertaken using DMRB CD122 guidance for the following SRN junctions:

- M62 Junction 18 (Simister Island).
- M62 Junction 19.
- M66 Junction 2.
- M66 Junction 3.

12.6.2. The merge/diverge assessments have been undertaken for the following scenarios (a summary of the Scenarios is provided in Table 11-1 and Table 11-2 of this review):

- Run 10 – 2039 Do Minimum
- Run 8 – 2032 Do Something 3a
- Run 13 – 2039 Do Something 3a
- Run 14 – 2039 Do Something 3b
- Run 21 – 2039 Do Something 3 – S.3.2 – Policy On

WSP Comment	Comment 12-06
• The sifting undertaken highlighted that M60 Junction 19 meets the criteria in the majority of scenarios and therefore should be assessed. • It is requested that a merge/diverge assessment is also undertaken for the proposed M62 Access solution. • No assessments have been completed based upon the Proposed Allocation of 600,000sqm of JPA1.1. As this is the subject of the TA, this analysis should be provided. • Whilst a merge/diverge analysis is welcomed, consideration should also be given to a weaving analysis. This is particularly relevant between M66 Junction 2 and 3 where there is around 675 metres between the merges/diverges of each junction. Guidance for weaving calculations can also be found in DMRB CD122. • The NGTM model files have not been provided to allow for a check of the flows in the various scenarios which appear to feed into the merge/diverge analysis. • It is unclear how the flows from the SATURN model have been used in the merge/diverge assessment, for example: • Have the traffic flows been taken directly from the SATURN model? • Have the traffic flows been converted from PCUs into vehicles prior to undertaking the merge/diverge assessment? • How do the peak periods from the SATURN model align with the peak hours for each location? It is noted that some of the assessment results are close to the borderline of another layout type. A slight change in the peak hour used may influence the results of the assessment. • WSP NH's review of the NGTM Base 2022 SATURN model in November 2024 highlighted various locations on the SRN and associated slip roads (M62, M66 and M60) for which the link count validation showed GEH values greater than 5.0, indicating poor flow calibration. WSP NH requested that this miscalibration should be taken into consideration when forecasting. It is unclear how this has been considered within the forecast merge/diverge assessments, and therefore further clarity is requested. • The merge/diverge assessment should be updated to be cognisant of comments made in this TA review.	

13 Traffic Impact Assessment- Junction Analysis – Key Findings

13.1 M66 Junction 3 Vissim Modelling

13.1.1. The TA summarises the following findings in Section 13.2:

- In the 2039 Policy on DS (Run 21), which includes the cumulative development and excludes the M62 access solution, the proposed junction improvement results in significant junction operational improvements over the existing layout in the Base.
- In the 2039 Policy Off DS (Run 14), which includes the cumulative development and M62 access solution, the proposed junction improvements result in betterments over the 2039 Policy Off DM on the existing layout. In terms of queues, those reduce on 3 out of 4 arms. The arm subject to increase in queueing is the M66 Northbound off-slip and the maximum DS queue is 233m. The TA states that NH have described the safe operation maximum queue as 260m.

13.1.2. The TA concludes that the M66 J3 is forecast to operate well and better than the base case with the proposed mitigation in place.

WSP Comment	Comment 13-01
• Clarification is sought regarding how the flows from the NGTM have been applied to the model. • There are six scenarios which have been assessed within the model. There are no tests which reflect the Proposed Scheme Allocation of 600,000sqm JPA1.1, which is the focus of the TA. • Appendix E provides an overview of the modelling undertaken. Clarifications are requested following a review of the flows presented, regarding why the following is occurring: ○ Morning Peak: ■ In certain scenarios there are zero flows from the southbound off-slip to Pilsworth Road east. ■ There are reductions in the number of right turners onto the southbound on-slip from the base. ■ The number of ahead movements to Pilsworth Road westbound is lower than the base. ○ Evening Peak: ■ There are reductions in the number of right turners onto the southbound on-slip compared to the base. ■ There are reductions in the number of right turners onto the northbound on-slip compared to the base.	

- The operation of the junction is impacted by the number of right turners onto the slip road, and therefore it is important for NH to understand the reasons for these reductions, and the realism that this would occur.
- The model files have not been supplied for review, and these are requested for National Highways to provide assurance on the outputs supplied.
- It is unclear whether the Policy On scenarios reflect the additional active travel which may pass through the junction and potentially impact upon the junction operation.

13.2 M60 Junction 18 (Simister Island)

- 13.2.1. The traffic forecasts from the NGTM have incorporated the Simister Island scheme submitted to the DCO inquiry. The flows from the NGTM have been compared against the 2044 National Highways Simister Island flows for the morning, interpeak and evening peak.
- 13.2.2. The TA concludes that the traffic flows upon which the case for the DCO has been promoted are higher than the highest flows derived from the cumulative development scenarios, and therefore the DCO scheme will accommodate the PfE developments including JPA1.1 and JPA1.2.

WSP Comment	Comment 13-02
• It is difficult from the information supplied to understand the locations of some of the flows being referred to in Table 13.1 (page 69) of the TA. It would be useful to provide a reference diagram with the locations and a more detailed description of the links to allow for a better understanding. • As the NGTM model files have not been provided at this time, a view on the suitability of the flows at Simister Island has not been reached. Therefore, it is requested that the models are provided. • Whilst a comparison between the DCO outputs and the development's traffic modelling may aid wider understanding it does not provide information on the predicted impacts of the development proposals, and it is recommended that with and without development impacts are presented to inform judgement of development impacts.	

13.3 Individual Junction Models- Do Minimum tests

- 13.3.1. Do Minimum tests have been undertaken for forecast years 2032 and 2039, to understand the predicted peak hour conditions on the network without JPA1.1 or JPA1.2. The following is summarised within the TA:
- 2039 Do Minimum- Policy On (Run 0)
 - The only junction forecast to exceed its capacity is M66 J2.
 - 2032 Do Minimum- Policy Off (Run 5)

- Four junctions are forecast to operate over capacity including M62 J19 and M66 J2.
- 2039 Do Minimum- Policy Off (Run 10)
 - The same four junctions as in Run 5 are forecast to operate over capacity.

13.3.2. The TA states that without the Policy On strategy, elements of the network are forecast to be overloaded in 2039, without further development.

WSP Comment	Comment 13-03
• As highlighted, no tests have been undertaken within the existing network to include the Proposed Development, which would give an indication of where mitigation is required and would help inform what mitigation is required. • The Do Minimum junction model results suggest that M66 Junction 2 is forecast to operate over capacity, and therefore highlights that intervention is required.	

13.4 Individual Junction Models- Vision-Led, Policy On Assessment

Assessment Comparison 1

13.4.1. The following analysis is presented for Assessment Comparison 1, relating to the SRN
2039 Do Minimum (Run 0)

13.4.2. The M66 Junction 2 is the only junction to be over 100% DoS (1% in the morning peak hour)

Run 20

13.4.3. M66 J2 is forecast to be at 104% and 101% DoS in the morning and evening peak respectively. The queue results for M66 Junction 2 (Table 13.3 of TA pg. 74) highlights a queue in the Run 20 morning peak of 661m and 445m in the evening peak on the M66 northbound off-slip. The TA states that the available queueing length of the slip road is 600m, and therefore the modelled queue of 661m exceeds this by 61m.

13.4.4. The TA summarises that all junctions will operate within acceptable limits except M66 J2, where the queue on the northbound off-slip and circulatory carriageway would exceed the available queueing space.

Run 21

13.4.5. M62 J19 is forecast to operate at 117% DoS in the morning peak hour, and M66 J2 is forecast to be at 101% and 100% DoS respectively in the morning and evening peak. The westbound off-slip highlights a forecast queue in Run 21 over 700m in length, which do not occur in the DM, and therefore the TA notes that the impacts are associated with the cumulative Northern Gateway proposals.

- 13.4.6. The TA highlights that with the full allocations coming forward, some form of intervention at M62 J19 is required. The intervention could be the M62 Access Solution or improvements at J19 such as those which NH are investigating. The TA mentions that the NH investigation is at PCF Stage 0 and there are three options being considered, including the M62 Access solution.
- 13.4.7. At M66 Junction 2, the TA reports a morning peak queue of 580m and an evening peak queue of 331m on the northbound off-slip. The TA states that the queueing length on the slip road is 600m, and therefore the queue is contained within the queue limit.
- 13.4.8. The TA summarises that the M62 J19 is forecast to be subject to significant queues, and at M66 J2 the circulatory queues would be in excess of queueing capacity.

Run 22.3 (Proposed Scheme Quantum (2039))

- 13.4.9. A comparison chapter has been provided to show the impacts associated with the Proposed Scheme (600,000sqm employment) against the cumulative JPA1.1 and 1.2 Allocations.
- 13.4.10. In Run 22.3 M62 J19 is forecast to operate at 103% in the morning peak hour. M66 J2 is forecast to operate at 101% in the morning peak hour and 99% in the evening peak hour.
- 13.4.11. The TA notes that at M62 J19 the queue is forecast to be 115m on the westbound off-slip in the morning peak. The M66 J2 queue on the northbound off-slip is forecast to be 566m in the morning peak and 128m in the evening peak. The TA states that the forecast queue on the M66 J2 northbound off-slip is contained within the queue limit.
- 13.4.12. The TA summarises that the proposed scheme quantum impacts are acceptable, and that the application quantum would not require the new M62 access junction but would be required with the Cumulative development.

Run 25

- 13.4.13. This scenario provides an assessment if all aspirations are delivered. The results highlight that M66 J2 is forecast to operate at 105% in the morning peak hour and 102% in the evening peak hour. The morning and evening peak results on the M66 J2 northbound off-slip show queues of 586m and 482m. The TA concludes that the queue is contained within the queue limit but an intervention should be investigated due to the forecast delays. It is concluded that M66 J2 does not fall within acceptable operational limits.

Policy On, Do Something Testing – Summary

- 13.4.14. The TA summarises that an improvement at M62 J19 is likely to be required to support the cumulative development, and an intervention to reduce queues and delays at M66 J2 should be explored in the delivery of JPA1.1 and 1.2 Allocation Sites in full.

WSP Comment	Comment 13-04
Run 20 - The available queueing space on the M66 J2 northbound off-slip is approximately 360m, not 600m. The 360m is measured from the stopline to the nose with the M66 mainline. An available distance of 600m would extend within the weaving section of the M66 northbound. - Consequently, both the morning and evening peak results for M66 J2 highlight the need for intervention in Run 20. Run 21 - The results in the TA states that M62 J19 is forecast to operate at 117% (paragraph 13.5.18). This matches the output in Appendix Q, but doesn't seem to correlate with TIA 15. Therefore, clarification is sought. - Based on the evidence provided, there is a demonstratable need for an intervention at M62 J19 with the full allocation. - The mitigation (identification and funding) for the development on the Strategic Road Network should not rely on National Highways, the PCF Process and RIS. National Highways have undertaken PCF 0 Study work, but there is no certainty at this time of this progressing. - WSP disagree that the queues presented in the TA are contained within the available queue limit for the M66 northbound off-slip, in particular in the morning peak. A queue of 580m would extend onto the M66 mainline in the weaving section between Junction 3 and Junction 2. - Despite the above, based upon the evidence provided, the conclusions that a scheme is required in this scenario at M62 J19 and M66 J2 is agreeable. Run 22.3 - It is acknowledged that the impacts of the Proposed Scheme (Run 22.3) are forecast to be less than the full JPA1.1 and 1.2 development (Run 21). - The comparison of the Do Minimum (Run 0) against the Proposed Scheme (Run 22.3) would provide the predicted impact of the Proposed Scheme, which isn't explicitly included in the TA. - The comparison shows: - Increased queues on the M62 J19 westbound off-slip. - Increased queues on the M66 J2 northbound off-slip. - WSP disagree that the queues presented in the TA are contained within the available queue limit for the M66 J2 northbound off-slip, and therefore an intervention is required. - WSP therefore disagree with the comment that the Proposed Scheme quantum impacts are acceptable in this test, as the impacts at M66 J2 are not acceptable. - The results presented in the TA relating to DoS values are consistent with Appendix Q, and Appendix X for M62 J19. However, they do not match the results in Appendix P, TIA 18.	

Run 25

- WSP disagree that the queues presented in the TA are contained within the available queue limit for the M66 J2 northbound off-slip, and therefore an intervention is required.
- However, it is agreed with the conclusion that a solution is required at M66 J2.

Testing Summary

- Based on the evidence provided, it is agreeable that a solution is required at M62 J19 for the full development.
- The evidence provided also suggests that a solution is required at M66 J2, however this is required for the proposed quantum, given the queues forecast to extend onto the northbound mainline from the slip road.

13.5 Non-Vision-Led, Policy Off Assessments

Assessment Comparison 3

13.5.1. This comparison is between the 2039 Do Minimum, against the 2039 Cumulative JPA1.1 and 1.2 scenarios, with and without the M62 Access Solution.

13.5.2. The results presented in Table 13.17 of the TA (pg. 86/87), and Appendix P highlights the following for M62 Junction 19:

- Do Minimum (M62 J19)
 - The maximum DoS at the junction was 152% in the morning peak, on Middleton Road.
 - The DoS on the slip roads fall within 100% DoS in both the morning and evening peak.
- Run 13- Without M62 Access Solution (M62 J19)
 - The maximum DoS at the junction was 173% in the morning peak, on the westbound off-slip.
 - The maximum DoS on the slip roads in the evening peak was 96% on the eastbound off-slip.
- Run 14- With M62 Access Solution (M62 J19)
 - The maximum DoS at the junction was 86% in the evening peak on Queen Elizabeth II Way.
 - The DoS on the slip roads fall within 100% in both the morning and evening peak.

13.5.3. The TA summarises that in these tests the M62 Junction 19 is overloaded and subject to long queues and large delays in the DM and DS without the M62 Access Solution, however it is resolved if the M62 Access Solution is brought forward.

13.5.4. The results presented highlight the following for M66 J2:

- Do Minimum (M66 J2)

- The maximum DoS is 124% in the morning peak on the northbound off-slip, with queues forecast to extend to the M66 mainline.
- The DoS on the southbound off-slip is forecast to fall within 100% DoS.
- Run 13- Without M62 Access Solution (M66 J2)
 - The maximum DoS at the junction is 131% in the morning peak on Bury New Road.
 - The northbound off-slip has a forecast DoS of 126% in the morning peak, with a DoS of 115% in the evening peak.
- Run 14- With M62 Access Solution (M66 J2)
 - The maximum DoS at the junction is 124% in the morning peak on the northbound off-slip, with a DoS of 113% in the evening peak.

13.5.5. The TA summarises that in this scenario the junction will be unacceptably congested even without development in 2039.

WSP Comment	Comment 13-05
M62 J19 • The results highlight that the model predicts that the location of the congestion differs in the Do Minimum (Middleton Road), compared to the 'with development' scenario (westbound off-slip), noting that the DoS on the westbound off-slip falls within 100% in the Do Minimum. Therefore, the development is predicted to have a negative impact on the operation of the slip road. From the results presented, the forecast queue in the Do Minimum is not predicted to negatively impact the SRN, whilst it is in the 'with development' scenario. • It is not clear from the results presented, how the Birch Access junction is forecast to operate in Run 14, and therefore clarification is sought. M66 J2 • The results presented highlight that the junction is forecast to operate over capacity in the Do Minimum scenario, with some increases in DoS with the development.	

Assessment Comparison 4

13.5.6. This comparison shows the differences in impacts between the proposed scheme quantum and cumulative quantum in the policy off scenarios where a new M62 access is not delivered in the 2039 forecast year.

13.5.7. The results from the TA highlight that with the cumulative quantum the M62 J19 and M66 J2 are forecast to operate over capacity, and that is still the case with the proposed application quantum. The TA states that it is clear that in the Policy Off case, the proposed application quantum could not come forward without a new M62 Access and without an improvement at M66 J2.

WSP Comment	Comment 13-06
• The results provided suggest that an improvement at M66 J2 is required with the proposed application quantum and the cumulative development quantum. • The results also suggest that an improvement is required in both scenarios at M62 J19, however WSP note that this improvement does not necessarily need to be the M62 Access. However, the TA does not assess any other improvements at M62 J19.	

Assessment Comparison 5

13.5.8. This comparison provides an understanding of the predicted impacts of if a proportion of the JPA1.1 Allocation (395,000) was developed and opened by 2032 with 473 homes from JPA1.2 being delivered. The comparison provided is to the 2032 Do Minimum.

13.5.9. The results presented highlight the following for M62 J19:

- Run 5- Do Minimum (M62 J19)
 - The maximum DoS at the junction is 115% on the westbound off-slip in the morning peak.
 - Middleton Road northbound is shown to have a DoS of 100% in the morning peak.
 - The maximum DoS in the evening peak is 86%, on the westbound off-slip.
- Run 8- Cumulative Development (M62 J19)
 - The maximum DoS at the junction is 144% on the westbound off-slip in the morning peak.
 - Middleton Road northbound is shown to have a DoS of 102%.
 - The maximum DoS in the evening peak is 89%.

13.5.10. The TA highlights that the M62 Junction 19 is forecast to operate over capacity in both the Do Minimum and the Cumulative Development tests.

13.5.11. The results presented highlight the following for M66 Junction 2:

- Run 5- Do Minimum (M66 J2)
 - The maximum DoS at the junction is 113% on the northbound off-slip in the morning peak.
 - The evening peak experiences a DoS of 100% on the northbound off-slip.
- Run 8- Cumulative Development (M66 J2)
 - The northbound off-slip experience a DoS of 112% in the morning peak and 106% in the evening peak.

13.5.12. The TA highlights that the M66 Junction 2 operates beyond acceptable limits in this test.

13.5.13. The TA also highlights that the assignments do not replicate any of the beneficial Policy On or Vision-Led measures. The TA states that the Run 22.3 assessment of the

Proposed Scheme (600,000sqm) with Policy On, excluding the M62 Access Solution suggests that all junctions operate within acceptable limits. It follows on that if 395,000sqm of the Proposed development was to be tested in Policy On, the impacts would be lower than those in Run 22.3, given that 395,000sqm will generate a lower level of traffic to 600,000sqm proposed scheme test.

WSP Comment	Comment 13-07
• The TA highlights that in 2032 the M62 Junction 19 and M66 Junction 2 are forecast to operate over capacity in both the Do Minimum and 'with development' scenarios. • The TA makes the case that the modelling does not include the Policy On or Vision-Led measures in this test, and therefore the development quantum being tested would perform better with these measures. However, the TA notes (paragraph 10.4.5), "the Policy On trip rates have not been applied to the early delivery phase of 395,000sqm to reflect a robust scenario where Vision-Led mitigations and aspirations have not taken effect yet", and therefore in the TA's wording the testing undertaken as Policy Off is a robust scenario. • The results for Run 22.3 highlight that M62 J19 and M66 J2 are forecast to be over capacity in the morning peak, and therefore it is not agreed that all junctions operate within acceptable limits.	

13.6 Sensitivity Testing

13.6.1. Sensitivity tests within the modelling have been carried out to inform considerations of:

- Impacts from just the JPA1.1 Allocation Site as compared to the cumulative JPA1.1 and JPA1.2 Allocation Sites impacts.
- The inclusion of a South Heywood Link.
- Whittle Lane Open (limited vehicular capacity vs Whittle Lane closed to vehicular traffic except buses).

Sensitivity Test 1

13.6.2. This sensitivity test provides a comparison of the JPA1.1 Allocations impacts (Run 12) with the Cumulative JPA1.1 and 1.2 Allocation impacts (Run 14). Both of these scenarios include the M62 Access Solution and represent a 2039 forecast year.

13.6.3. The TA states that the extent to which operational conditions are better if only the JPA1.1 Allocation Site is present can be seen, demonstrating that a proportion of the mitigation identified to support the delivery of Northern Gateway (cumulative) should be attributed to JPA1.2 Allocation Site.

WSP Comment	Comment 13-08
- The TA does not provide any analysis of the Run 12 and Run 14 results within this section, but does reference Appendix T. It is noted that for Run 12, the M62 J19, M66 J2 and two other local road junctions have DoS values of 0%. As there are values in the TIA Appendices (Appendix P), it is assumed that this is an error in the appendix table. - A comparison of Run 12 vs Run 14 at M66 J2 is provided below: - The northbound off-slip is forecast to operate at 124% in Run 12 and Run 14 in the morning peak. - In the evening peak the southbound off-slip is forecast to operate at 120% in Run 12 and 113% in Run 14. - The southbound off-slip is forecast to operate at 109% in Run 12 and 54% in Run 14. - The results presented show that all the above comparisons have forecast improvements from Run 12 to Run 14, however some of the local road network arms are forecast to operate worse. - As this sensitivity test includes the M62 Access, the test does not demonstrate the differences in impacts of the development without mitigation, in particular at M62 J19. A more applicable comparison would be Run 11 vs Run 13 which would give an understanding of the forecast impact at the M62 J19 without mitigation. - A comparison of Run 11 vs Run 13 is provided below for M62 J19: - The westbound off-slip is forecast to experience an increase in DoS in the morning peak in Run 13 (from 138% to 173%). - There are differences on the local road network between Run 11 and Run 13. - In the evening peak all DoS values (in both tests) fall within 100%. - At M66 J2, in both tests, in both the morning and evening peak the northbound off-slip is forecast to operate over capacity.	

Sensitivity Test 2

13.6.4. Sensitivity Test 2 focuses upon the impacts with the inclusion of a South Heywood Link. The TA concludes that the benefits of providing the South Heywood Link in the context of the assessments appear to be immaterial.

WSP Comment	Comment 13-09
The results presented show little difference at M66 Junction 2 with the inclusion of the South Heywood Link, with some differences at M62 Junction 19, however no links are forecast to exceed 90% DoS.	

Sensitivity Test 3

13.6.5. Sensitivity Test 3 focuses on the impact in the network if Whittle Lane serves as an active travel and public transport only link, as per the preference of TfGM and Whittle Lane. A

comparison has been undertaken between Run 13 (cumulative assessment with no M62 access) against Run 17 (with Whittle Lane as Public Transport only).

- 13.6.6. None of the scenarios feature Whittle Lane running at its full capacity, and therefore the comparison is Whittle Lane as Public Transport only against Whittle Lane with a constrained capacity.
- 13.6.7. The TA notes that closing Whittle Lane improves the operation of the Heywood Old Road/Whittle Lane junction, and at two other junctions with Langley Lane, whilst all other junctions experience a worsening in operational performance. It is highlighted that with Whittle Lane closed, traffic volumes increase to the north onto the Pilsworth Road/Queen Elizabeth II Way, the Western Access Links, the M66, Moss Hall Brow and on Pilsworth Road towards A58 Bridge Street.

WSP Comment	Comment 13-10
- The maximum DoS at M62 J19 in the morning peak in Run 17 decreases from 173% to 152%, however it is noted in Run 17 that there are more links over 100% DoS. - The westbound off-slip for M62 J19 is forecast to operate over capacity in both scenarios in the morning peak. - The results for the Pilsworth Road/Moss Hall Road – South (3 Arrows) junction with Whittle Lane closed to general traffic highlights that Moss Hall Road (south) is forecast to operate over capacity in the evening peak with a maximum RFC of 1.31, an average delay of 578s/pcu and a maximum queue of 259.3pcu. Given the preference of TfGM for Whittle Lane to be public transport, this raises concerns over the ability of development traffic to be able to leave the site.	

13.7 Results Comparison (PFE Evidence)

- 13.7.1. The TA notes that having assessed the development impacts in detail, it is pertinent to ask whether the likely traffic impacts from the development are better or worse than were envisaged at the time when the site was allocated. The TA states that with the Policy On tests the impacts are lower than were thought would transpire by 2040 at the time of allocating the site. In the Policy off assessments with the cumulative developments of JPA1.1 and 1.2, with a new M62 access solution, impacts are significant reduced at M62 J19 and slightly higher than previously identified at M66 J2.

WSP Comment	Comment 13-11
Given the TA is based upon more detailed and up-to-date information, the conclusions presented in the TA take precedence over the high-level testing undertaken as part of the PFE evidence base.	

13.8 Model Review

13.8.1. The junction models underpinning the assessment were provided by Tetra Tech for M62 Junction 19 and M66 Junction 2, both of which have been developed within Transyt.

WSP Comment	Comment 13-12
- WSP note that the modelling undertaken will focus upon junction impacts and will not provide an indication of SRN mainline operation. Therefore, at this time, it is not known how the development is predicted to impact upon the SRN mainline. <u>M62 Junction 19</u> Base Model Review - Model has been coded with a scaled Google Earth image as a background. This has also been used to determine the link lengths and turning radius of the traffic streams, which feeds into the saturation flows. The link lengths and saturation flows appear to be appropriate within the model. - The lane allocations used within the model generally appear to be accurate, however there are some 'weaves' that have been included which do not reflect the on-street lane designations. It is noted that these weaving connectors generally have a traffic flow of 0 in many scenarios, however in others traffic is using weaving connectors. It is unclear if allowing traffic to weave through the roundabout is accurate or whether it may be underestimating the impact on the junction. - Whilst unlikely to have a material impact on the model results, all streams have been coded with a cruise speed of 40mph, however some approaches/exit arms are not signed as 40mph. - The Traffic Model types used in the model are suitable. - It is suggested that the Max Queue Storage values are included on any links that have a limited storage before they would block back into an upstream link. For example, the circulatory links and flares. - The signals in the model match the controller specifications in terms of stages, intergreens and phase delays. The model runs a 60 second cycle time which matches the AM and PM cycle times specified in the controller specifications. The green splits and offsets have been optimised within the model for each scenario and appear reasonable. - The base flows within the modelling appear to have been taken from the NGTM. However, as there is survey data available to reflect the base year, it would be expected that the data would be used directly to inform the base modelling. Mitigation Model Review - A detailed drawing of the scheme has not been provided at this time to check against the lane allocations modelled. - Additional weaving connectors have been included on the roundabout circulatory when compared to the base. In some of the locations they have been included, they may pose a safety risk and may underestimate operation if the junction is clearly marked with destination	

markings so vehicles would use the same lane travelling through the roundabout. Therefore, further clarification is sought regarding the inclusion of weaving connectors.

Results

- No base model validation, such as a comparison of modelled and observed queue lengths. has been presented to show that the models can be considered fit for purpose. As no validation has been presented, there is no certainty that the base model reflects the base conditions, which raises concerns regarding the forecast modelling undertaken.
- In the absence of base model validation being presented, WSP have undertaken a high-level sense check against Google Traffic (noting that the base model reflects a 2022 scenario, and therefore conditions may have changed). The base models generally don't reflect the level of delay that is shown in Google Traffic, including the following examples:
 - In the morning and evening peak there are delays on the westbound off-slip, however the model has queues of 11 PCU and 10 PCU respectively.
 - In the evening peak there are delays on the Queen Elizabeth II Way approach, however there is a queue of 3 PCU for this approach.
- It should be ensured that reported queue lengths and delays include any links which queues have been passed back upstream due to the use of the CTM/Flare Traffic Model.

M66 Junction 2

Base Model

- The model has been coded with a scaled Google Earth image as a background. This has also been used to determine the link lengths and turning radius of the traffic streams, which feeds into the saturation flows. The link lengths and saturation flows appear to be appropriate within the model.
- The lane allocations used within the model generally appear to be accurate, with the exception of:
 - Traffic stream 3/3 should be able to access the M66 S, however in the model it feeds into traffic stream 5/2 then 7/2. It should also be able to feed into traffic stream 7/3.
- Whilst it is unlikely to have a significant impact on the model results, all streams have been coded with a cruise speed of 30mph, however some of the approaches/exit arms (such as the off slips) are not signed as 30mph roads.
- The Traffic Model types used in the model are generally suitable, with the exception of traffic stream 2.1. PDM has been used on this stream, however it should use either 'Flare (CTM)' and 'CTM' in order to capture queues blocking back through the nearside lane of the Rochdale Road approach.
- It is suggested that the Max Queue Storage values are included on any links that have a limited storage before they would block back into an upstream link. For example, the circulatory links, flares and some approach lanes.
- The signals in the model match the controller specification in terms of stages and intergreens. The model runs a 60 second cycle time which matches the AM and PM cycle times specified

in the controller specifications. The green splits and offsets have been optimised within the model for each scenario and appear reasonable. However, the following has been noted:

- At the Rochdale Road/Wash Lane junction, the phase delay from the signal controller specification of 3s for Phase 3 from Stage 1 to 2 is missing from the model.
- At the same junction, Stage 3 for the Access Road is not called. It is assumed that this is because it is called infrequently in reality, however this should be confirmed.
- Spot checking has been undertaken to ensure that traffic is not driving over the top of the queues as a result of signal timings and offsets. In the 2039 DM AM scenario, traffic coming from the offside lane for the SB off slip was observed to be driving over the queues that build up on the downstream circulatory. Timings and offsets should be revised to prevent this occurring, and all scenarios should be manually checked and adjusted where required.
- The base flows within the modelling appear to have been taken from the NGTM. However, as there is survey data available to reflect the base year, it would be expected that the data would be used directly to inform the base modelling.

Results

- No base model validation, such as a comparison of modelled and observed queue lengths, has been presented to show that the models can be considered fit for purpose. As no validation has been presented, there is no certainty that the base model reflects the base conditions, which raises concerns regarding the forecast modelling undertaken.
- In the absence of base model validation being presented, WSP have undertaken a high-level sense check against Google Traffic (noting that the base model reflects a 2022 scenario, and therefore conditions may have changed). The base models generally don't reflect the level of delay that is shown in Google Traffic.
- It should be ensured that reported queue lengths and delays include any links which queues have been passed back upstream due to the use of the CTM/Flare Traffic Model.

For the junction modelling, the comments raised as part of this TA review should be addressed before any reruns of the modelling is undertaken. Following this, the results can be interpreted to assess the development impacts.

13.9 Merge/Diverge Assessments

13.9.1. Based on the results of the merge/diverge assessment, Tetra Tech conclude the following:

- In the 2039 Policy On tests (Run 21), without the M62 Access solution, all merge/diverge arrangements are adequate. This is with the exception of the M66 Junction 2 northbound and southbound diverges, which are close to the threshold of acceptability.
- In the 2039 Policy Off tests (Runs 13 and 14), both with and without the M62 Access solution, all merge/diverge arrangements are adequate. This is with the exception of the

M66 Junction 2 northbound and southbound diverges, which are close to the threshold of acceptability. The M66 Junction 2 northbound merge would also require intervention.

13.9.2. The TA concludes that changes may not be required to accommodate the 2039 Policy On full NG development, it is considered that there should be no requirement to alter merge/diverge arrangements to accommodate just the Proposed Development.

WSP Comment	Comment 13-13
The comments made in this section should be read in conjunction with the comments raised in Section 12.6 of this report. A review of the merge/diverge analysis has been completed in Appendix E, with the key comments summarised below highlighting where the layout would be insufficient to accommodate the forecast flows in certain scenarios: • M62 J18 Westbound Merge- the results of Run 8 and Run 21 highlight that a Layout F would be required. The westbound merge has a sufficient number of lanes to accommodate the forecast flows and therefore a departure from standards would be required (in the absence of the DCO scheme). • M62 J18 Eastbound Diverge- With the existing layout the number of lanes required upstream would be insufficient. • M62 J18 Westbound Diverge- the existing layout would be insufficient based upon the forecast flows in the TA. • M62 J19 Eastbound Merge- A higher standard of layout would be required; however the merge has a sufficient number of lanes and therefore a departure from standards would be required. • M62 J19 Westbound Merge- In forecast scenarios a higher standard of layout would be required, however there is a sufficient number of lanes and therefore a departure from standards would be required. • M62 J19 Eastbound Diverge- In forecast scenarios a higher standard of layout would be required, however there is a sufficient number of lanes and therefore a departure from standards would be required. • M62 J19 Westbound Diverge- In forecast scenarios a higher standard of layout would be required, however there is a sufficient number of lanes and therefore a departure from standards would be required. • M66 J2 Northbound Merge- the current layout is not sufficient to accommodate forecast traffic flows in certain scenarios. • M66 J2 Southbound Merge- the layout requirements for the southbound merge should be investigated further. • M66 J2 Northbound Diverge- In most forecast scenarios the existing layout would be insufficient based upon the forecast flows in the TA. • M66 J2 Southbound Diverge- In the AM peak forecast scenarios, the existing layout would be insufficient based upon the forecast flows in the TA.	

- **M66 Junction 3 Northbound Merge-** In forecast scenarios a higher standard of layout would be required, however there is a sufficient number of lanes and therefore a departure from standards would be required.
- **M66 Junction 3 Southbound Merge-** In forecast scenarios a higher standard of layout would be required, however there is a sufficient number of lanes and therefore a departure from standards would be required.
- **M66 Junction 3 Northbound Diverge-** In forecast scenarios a higher standard of layout would be required, however there is a sufficient number of lanes and therefore a departure from standards would be required.
- **M66 Junction 3 Southbound Diverge-** In forecast scenarios a higher standard of layout would be required, however there is a sufficient number of lanes and therefore a departure from standards would be required.
- The TA states that there are no requirements to alter merges/diverges in the 2039 Policy On (Run 21), however the analysis suggests further investigation is required at the M66 Junction 2 southbound merge. Also, the results highlight that the M66 Junction 2 northbound diverge is not adequate. Therefore, further analysis is required relating to M66 Junction 2.
- The analysis undertaken highlights upgrades are required with the Policy Off scenarios, and therefore this should be taken into consideration within the TA.
- It is recommended that the merge/diverge analysis, and corresponding conclusions, are updated based upon the comments raised as part of this review.

14 Phasing

14.1 Overview

- 14.1.1. The TA states that infrastructure in the Common Highways Mitigation Package and the on-site road layouts and accesses is to be provided in all assessments which deliver developments.
- 14.1.2. Paragraph 14.1.2 states that the Policy On assessments demonstrate no need for further off-site highways improvements for the Proposed development. It also states that for the cumulative development a new M62 access (or M62 J19 improvement to be determined through PCF) will be required and mitigation at M66 J2 is likely to be required. It is acknowledged in the TA that an alternative mitigation at M62 J19 to avoid the need for a new M62 may be possible, and that work will be undertaken to establish if that performance could be improved by configuring lane markings to better manage lane usage.
- 14.1.3. The Policy On assessments acknowledge public transport and active transport strategies. The Policy Off tests show significantly over capacity results across the network even with a new M62 Access. The local road network has been shown to perform worse if Whittle Lane is closed to car traffic completely and the South Heywood Link has been found to offer no material traffic relieving effect. It would however deliver more choice of routing for bus and active travel and vehicles.

WSP Comment	Comment 14-01
- As summarised in Section 13.4, the results presented in the TA suggest that in Run 22.3, the M62 J19 and M66 J2 operate over capacity and therefore would require further off-site improvements. It is noted that there is a discrepancy between the results in the TA, and appendices, and therefore clarification is sought regarding the results to be used for Run 22.3. - The results highlight that in 2032 the Policy On methodology is not applied, and the results from 2032 suggest that M62 J19 is over capacity. However, in the 2039 Policy On scenarios the TA suggests that M62 J19 is not over capacity. Therefore, further detail is required relating to how this would be managed. - It is not clear from the TA who is expected to fund/deliver the Common Highways Mitigation Package and on-site road layouts/accesses. These interventions are not committed at this time and there is a risk that they may not be delivered. - The mitigation (identification and funding) for the development on the Strategic Road Network should not rely on National Highways, the PCF Process and RIS. At this time, National Highways have undertaken PCF 0 Study work, but there is no certainty at this time of this progressing. - The TA should determine what mitigation is required on the SRN and when. This includes any interventions at M62 J19, which the TA states will be dealt with through the PCF process. - The Policy Off scenarios suggest that SRN junctions are predicted to operate over capacity, and therefore mitigation is required.	

14.2 Development Phasing and Infrastructure Alongside Development

14.2.1. The following underlying principles of mitigation provision have been outlined in Section 14.2 of the TA:

- The assessments have been undertaken on the basis that the Common Highways Mitigation Package will be delivered in all scenarios which feature development and will be in place by 2032.
- The on-site highway, sustainable and active travel infrastructure will be rolled out as the site developed and will accompany each stage as it comes forwards. The facilities will have to be in place before first occupation of each stage.
- A Travel Plan will be present from the first occupation of the proposed development, promoting travel by sustainable modes.
- The Public Transport and Active Travel Strategy elements identified by TfGM sufficient to support Scenario 2, will be funded proportional to the development impact and needs, as the development progresses.
- Funding for the Public Transport and Active Travel elements identified by TfGM towards achieving the GMCA 2040 strategy will be made subject to variability and proportional to development impacts. It should be recognised that such future initiatives should attract contributions from all other PfE and windfall development too and other city region funding aimed at achieving the 2040 GM strategy.
- NH will play a key role in determining whether SRN mitigations are required and, in the timing, and designing of those.

14.2.2. In terms of funding, it is noted that there could be a tension between funding the measures in the NG TFD towards the Vision-Led objectives, and funding traditional highways improvements on the SRN or local road network. The TA states that the Planning Inspector for the PfE allocated the sites on the basis that they would be acceptable and deliverable, within the scope of the financial viability evidence. Wherever funding is directed, it must be contained to within those limits.

14.2.3. The TA recognises that it is appropriate for the Proposed Scheme to contribute to future active travel, public transport or even road building works, however, it must be recognised that such works will also serve the wider GMCA and SRN networks and that TfGM, NH and the Highway Authorities will seek funding from other developers and other sources to assist in delivering those mitigations too. Where the provision of mitigation is deemed to be necessary to enable the Proposed Scheme, but would also be attributable to the wider Northern Gateway (or other sites), a proportional cost share mechanism should be established to ensure that other parties who benefit from the mitigation also contribute to its provision.

14.2.4. The envisaged phasing of mitigation is set out as follows in the TA:

- Phase 1: 395,000 sqm (JPA1.1) & 473 dwellings (JPA1.2) 2032.

- The Policy off assessments suggest that 4 junctions will be overloaded, with and without development.
 - The Policy On assessment of just the Proposed Scheme in 2039 (600,000sqm) suggests that junctions should be operating adequately with a potential need to reduce delay at M66 J2.
 - On that finding, it is considered that the 395,000sqm Phase 1 to 2032 should not require mitigation other than that set out in the points previously.
- Phase 2: 600,000 sqm (JPA1.1) in 2039.
 - The Policy on assessments for full cumulative development of JPA 1.1 and 1.2 by 2039 show that no additional mitigation is required other than a potential need to improve delay at M66 J2.
 - Phase 3: full allocation in 2039.
 - The Policy On assessments for full cumulative development by 2039 show that with the mitigation identified to support Scenario 2, only J19 and M66 J2 are likely to become overloaded. If a new M62 Access is provided that would resolve the issue at J19.

14.2.5. The applicant will provide a draft Heads of Terms (for a S106 Agreement) setting out a strategy to capture the mitigation phasing. This is likely to describe how a series of potential highway mitigation measures have been identified, including infrastructure already delivered, new onsite highways infrastructure, offsite highway mitigation, active travel measures, public transport improvements and travel plans.

14.2.6. The TA states that the scope of mitigation, funding mechanisms, phasing and responsibility for delivery will be agreed with relevant stakeholders during the course of determination of the Application.

14.2.7. The TA states that a substantial upfront financial investment will be required to pump-prime and deliver the scale of development proposed, including the wider mitigation measures identified in policy and through technical assessment work. It states that the Proposed Scheme represents an early phase of delivery of the wider JPA1.1 Allocation Site and that the consequent growth benefits which derive from development may not be realised if the early phases of the Proposed Scheme were required to deliver or fund all section 106 requirements and infrastructure asks. As such, a proportionate contribution towards section 106 requirements should be applied.

WSP Comment	Comment 14-02
• At this time the interventions assessed within the TA, such as the active travel/public transport and the Common Highway Intervention Package are not committed and there is a risk that they will not be delivered. • From National Highways' perspective, there needs to be greater certainty now over the mitigation requirements to deliver the full Northern Gateway allocation so that an appropriate funding and delivery strategy can be agreed, including the apportioning of appropriate	

developer contributions. As stated above, there is no commitment from National Highways to provide further investment into the SRN over and above the committed Simister Island scheme and as such, this cannot be relied upon as strategy for mitigation.

- Whilst the TA states that the Proposed Scheme represents an early phase of delivery of the wider JPA1.1 Allocation Site, it is important to highlight that the proposed development in conjunction with the consented South Heywood Masterplan Area comprise the majority of the development which is allocated on site JPA1.1, with the remainder of the JPA1.1 allocation comprising around 425,000sqm of employment floorspace and around 200 dwellings, which is expected to come forward as a separate planning application in the future. This future planning application cannot be relied upon to identify and deliver the mitigation required to support the totality of development on the site allocation JPA1.1.
- National Highways support a Vision of a sustainable site; however the appropriate evidence has to be provided that shows that the mitigation will prevent the detrimental and unsafe operation of the SRN.
- National Highways would welcome a copy of the draft Heads of Terms (for a S106 Agreement) as soon as it becomes available.
- The analysis presented for Phase 2 references the full development (JPA1.1 and 1.2) however Run 22.2 and 22.3 appears to reflect this scenario.
- Given the uncertainty regarding the mitigation, the phasing conclusions in the TA should also be cognisant of the Policy Off results and not rely solely on the Policy On analysis.

15 Summary and Conclusions

- 15.1.1. A review has been undertaken by WSP and AECOM of the provided Transport Assessment and associated information on behalf of National Highways. Based upon the comments provided in this TA, the TA does not provide enough detail to allow National Highways to understand the forecast impact of the development on the SRN, what mitigation may be required, and when it may be required. As highlighted within the Executive Summary, there are some fundamental comments raised as part of this review, which require addressing before this stage can be reached.
- 15.1.2. A collective list of comments, actions and recommendations is being prepared by the various highway and transport consultees. However, from National Highways' perspective, that should be read in conjunction with the comments captured in this Transport Assessment review, which provide further detail and context.

Appendix A

Assessment Peak Hour

WSP

The assessments for the proposed Northern Gateway development have been undertaken for a morning peak hour of 08:00-09:00, and an evening peak hour of 17:00-18:00. In the Northern Gateway Traffic Model (NGTM) Local Model Validation Report (LMVR) section 2.5 highlights that the peak hours have been selected to be consistent with TfGM's 2019 Greater Manchester SATURN Model (GSM). The section also highlights that WebTRIS analysis which has been completed summarised that the peak hours were 07:00-08:00 and 16:00-17:00 for the morning and evening peak respectively.

Given the discrepancy between the modelled peak hours, and the identified peak hours within the LMVR, WSP have undertaken their own analysis to understand the peak hours relating to the SRN.

Manual Classified Count Analysis

Manual Classified Counts (MCCs) at M66 Junction 2, M66 Junction 3, and M62 Junction 19 have been processed to understand the peak hour on the dates of the survey, which were undertaken in November 2022. It is acknowledged that the MCCs were undertaken on a single day, and therefore patterns may change across longer periods, and therefore further analysis is provided in the following subsections using Automatic Traffic Count (ATC) data and WebTRIS data.

Figure 15-1 provides an overview of the rolling hourly number of total vehicles through each junction from 07:00-18:00, with red crosses indicating the morning and evening peak hour at each junction.

Figure 15-1 - MCC Peak Hour Analysis- Rolling Hour Total Vehicles



The figure highlights that the peak hour for total flow through each junction on the survey date was 07:45-08:45 in the morning peak and 16:30-17:30 in the evening peak. Table 15-1

provides a comparison of the total number of vehicles through the junction in the assessment peak hours (08:00-09:00 and 17:00-18:00) against the peak hours identified from Figure 15-1 to show the level of difference between the two time periods.

Table 15-1 – Peak Hour Flow Comparison (Total Vehicles)

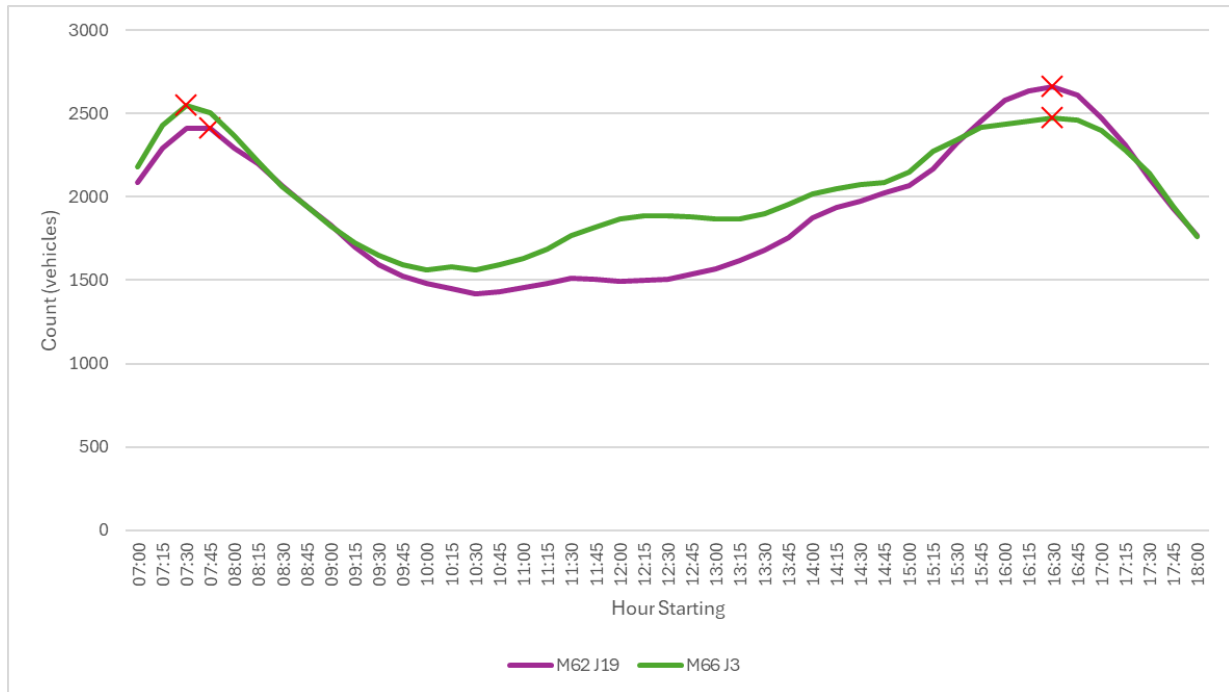
Junction	07:45-08:45	08:00-09:00	Difference	% Difference
Morning Peak				
M66 Junction 2	5516	5464	-52	-1%
M66 Junction 3	2609	2546	-63	-2%
M62 Junction 19	2866	2741	-125	-4%
Evening Peak				
Junction	16:30-17:30	17:00-18:00	Difference	% Difference
M66 Junction 2	5617	5349	-268	-5%
M66 Junction 3	2515	2426	-89	-4%
M62 Junction 19	2866	2623	-243	-8%

The table highlights that there are a minimum of 50 fewer total vehicles through the junction in the assessed hours, compared to the identified peak hours, with a larger difference in the evening peak compared to the morning peak. In the evening peak there are differences over 200 vehicles, and up to 8% less traffic through the junction.

Automatic Traffic Count Analysis

ATC survey data (collected in November 2022) has been processed for the approaches to M62 Junction 19 and M66 Junction 3, with the exception of Queen Elizabeth II Way. The approach totals have been summed to calculate a junction total, with rolling hourly counts produced, and summarised in Figure 15-2.

Figure 15-2 - ATC Peak Hour Analysis- Rolling Hour Total Vehicles



The figure shows that the peak hour for the M62 Junction 19 was 07:45-08:45 and 16:30-17:30 for the morning and evening peak respectively, whilst the peak hours for M66 Junction 3 were 07:30-08:30 and 16:30-17:30.

WebTRIS Analysis

WebTRIS data has been obtained for November 2022 (month of the survey), September-November 2023 and September-November 2024, reflecting an average Tuesday to Thursday on neutral days (i.e. excluding School Holidays). A range of data has been extracted to understand the peak hours at the time of the survey, in addition to understand whether the peak has changed in the previous two Autumn time periods. The WebTRIS data has been obtained for slip roads on the SRN and mainline where available. The data for the M62 has been taken from the east of Junction 19, due to existing delays on the M62 possibly impacting counts.

The data has been processed for the following locations:

- M62 Junction 19 westbound off-slip: M62/1614L.
- M62 Junction 19 eastbound off-slip: M62/1607J.
- M62 Junction 19 westbound on-slip: M62/1609M.
- M62 Junction 19 eastbound on-slip: M62/1613K.
- M62 Westbound: M62/1619B.
- M62 Eastbound: M62/1619A.
- M66 Northbound: M66/4123B.
- M66 Southbound: M66/4128A.

Rolling average hourly values have been processed for the morning peak period of 07:00-10:00, and evening peak period of 16:00-19:00. The analysis for the M62 Junction 19 is provided in Table 15-2 and Table 15-3 for the morning peak and evening peak periods respectively. The peak hour flows have been highlighted in bold, with empty cells indicating a lack of data.

Table 15-2 – WebTRIS Flow Analysis (M62 J19)- Rolling Hourly Count (Total Vehicles): Morning Peak

Slip Road	Year	07:00	07:15	07:30	07:45	08:00	08:15	08:30	08:45	09:00
Westbound off-slip	2022	489	595	643	660	656	604	550	490	427
	2023	589	695	723	706	661	601	533	465	392
	2024	744	832	851	828	783	721	648	576	501
Eastbound off-slip	2022									
	2023	442	465	451	432	405	398	401	400	397
	2024	477	492	475	452	414	401	400	396	391
Westbound on-slip	2022	514	449	409	386	362	346	333	331	341
	2023									
	2024	479	453	438	417	391	361	347	348	352
Eastbound on-slip	2022	439	462	480	476	454	415	373	326	288
	2023	484	523	551	543	506	455	397	336	298
	2024	493	539	575	563	547	500	441	374	317

Table 15-3 – WebTRIS Flow Analysis (M62 J19)- Rolling Hourly Count (Total Vehicles): Evening Peak

Slip Road	Year	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00
Westbound off-slip	2022	546	609	658	646	598	518	431	355	302
	2023	476	500	512	511	488	448	398	346	304
	2024	669	701	723	708	667	607	528	457	406
	2022									418

Eastbound off-slip	2023	556	565	571	571	569	564	547	522	491
	2024	561	570	587	594	593	575	550	522	493
Westbound on-slip	2022	441	397	373	356	334	325	321	314	319
	2023									
	2024	495	470	447	420	394	376	360	349	345
Eastbound on-slip	2022	583	586	596	574	523	451	382	302	259
	2023	601	608	602	577	527	456	398	335	302
	2024	716	720	696	658	605	526	455	376	323

Table 15-4 – WebTRIS Flow Analysis (Mainline)- Rolling Hourly Count (Total Vehicles): Morning Peak

Slip Road	Year	07:00	07:15	07:30	07:45	08:00	08:15	08:30	08:45	09:00
M62 Westbound	2022	4526	4356	4200	4106	4051	3947	3922	4041	4109
	2023	4882	4714	4585	4507	4407	4350	4332	4354	4360
	2024	4591	4372	4151	4007	3882	3845	3906	3949	4058
M62 Eastbound	2022	5421	5348	5190	5032	4920	4874	4908	4950	4942
	2023	5500	5520	5485	5437	5368	5290	5227	5155	5087
	2024	5190	5158	5100	5024	4995	4950	4930	4888	4845
M66 Northbound	2022	3501	3721	3852	3815	3645	3456	3226	3043	2914
	2023	3511	3748	3859	3846	3707	3562	3348	3142	2997
	2024									
M66 Southbound	2022	4958	4902	4722	4504	4284	4075	3884	3711	3523
	2023	4976	4933	4783	4550	4328	4125	3934	3769	3603
	2024	4757	4693	4557	4352	4158	3983	3840	3713	3559

Table 15-5 – WebTRIS Flow Analysis (Mainline)- Rolling Hourly Count (Total Vehicles): Evening Peak

Slip Road	Year	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00
M62 Westbound	2022	5374	5143	4993	4805	4572	4371	4144	3938	3691
	2023	5492	5303	5115	4966	4816	4594	4369	4089	3817
	2024	5399	5117	4895	4694	4502	4385	4204	4044	3878
M62 Eastbound	2022	5460	5345	5274	5262	5201	5080	4900	4608	4282
	2023	5572	5504	5457	5402	5268	5148	4988	4755	4523
	2024	5395	5340	5296	5234	5145	5069	4942	4783	4578
M66 Northbound	2022	4245	4253	4229	4217	4108	3947	3832	3656	3405
	2023	4452	4478	4460	4444	4387	4305	4206	4003	3723
	2024									
M66 Southbound	2022	3780	3828	3834	3753	3623	3409	3122	2863	2548
	2023	3900	3908	3891	3853	3722	3553	3277	2946	2623
	2024	3819	3837	3827	3725	3595	3414	3199	2936	2663

The slip road analysis highlights that the peak varies by year and slip road, however, the peak flow on the slip roads is always before 17:00-18:00 for all slip roads. The mainlines exhibit early peaks with the M62 mainline generally experiencing peaks of 07:00-08:00 and 16:00-17:00. The M66 mainline experiences peaks of 07:30-08:30 northbound and 07:00-08:00 southbound in the morning peak, and 16:15-17:15 northbound and the latest peak of 16:30-17:30 southbound in the evening peak.

Northern Gateway Trip Generation Analysis

Tetra Tech provided a Technical Note (TTN10), responding to comments made by National Highways. Within Appendix TTN10-1, 12-hour trip rates and traffic generation has been provided for early delivery, application quantum and the remainder of the application. As the application is 600,000sqm, this information has been used for analysis by WSP. The trip generation from this appendix has been replicated in

Table 15-6, noting that the provided data is in hourly periods and not 30-minutes.

Table 15-6 – Vehicle Trip Rates and Traffic Generation Policy Off (600,000sqm)- from Appendix TTN10-1 of TTN10

Hour Period	Total Vehicles		
	Arrive	Depart	Total
07:00-08:00	1062	325	1387
08:00-09:00	1050	291	1341
09:00-10:00	739	382	1121
10:00-11:00	523	442	965
11:00-12:00	440	521	961
12:00-13:00	506	675	1181
13:00-14:00	706	769	1475
14:00-15:00	493	769	1253
15:00-16:00	426	778	1204
16:00-17:00	339	872	1211
17:00-18:00	198	860	1058
18:00-19:00	145	449	594

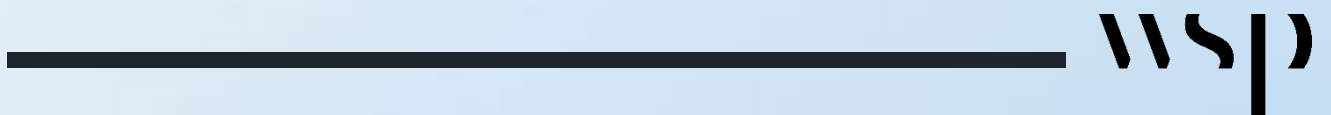
As highlighted within the table, the peak hours in terms of traffic generation within TTN10 are 07:00-08:00 and 16:00-17:00.

Summary of Assessment Time Periods

The analysis completed in this section highlights that the network peak hours relating to the SRN, and the development peak hours (from the generation of development) have not been assessed as part of the TA. The TA assesses the morning peak hour of 08:00-09:00 and an evening peak hour of 17:00-18:00. However, the analysis from a range of sources highlights that the network peak and development peak differs when compared to the assessed time periods.

Appendix B

B8 Trip Rates - May 2025



WSP Queen Street Manchester

Licence No: 100323

Filtering Summary

Land Use	02/F	EMPLOYMENT/WAREHOUSING (COMMERCIAL)
Selected Trip Rate Calculation Parameter Range	10000-105335 sqm GFA	
Actual Trip Rate Calculation Parameter Range	10446-105335 sqm GFA	
Date Range	Minimum: 01/01/16	Maximum: 19/10/25
Parking Spaces Range	All Surveys Included	
Days of the week selected	Wednesday	2
	Thursday	3
	Friday	1
Main Location Types selected	Suburban Area (PPS6 Out of Centre)	1
	Edge of Town	5
Inclusion of Servicing Vehicles Counts	Servicing vehicles Included	2 - Selected
	Servicing vehicles Excluded	5 - Selected
Population within 500m	All Surveys Included	
Population <1 Mile ranges selected	1,000 or Less	1
	1,001 to 5,000	1
	10,001 to 15,000	1
	15,001 to 20,000	2
	20,001 to 25,000	1
Population <5 Mile ranges selected	25,001 to 50,000	1
	50,001 to 75,000	1
	125,001 to 250,000	3
	250,001 to 500,000	1
Car Ownership <5 Mile ranges selected	0.6 to 1.0	2
	1.1 to 1.5	4
PTAL Rating	No PTAL Present	6
Filter by Site Operations Breakdown	All Surveys Included	

Calculation Reference: AUDIT-100323-250502-0559

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : F - WAREHOUSING (COMMERCIAL)
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	HC HAMPSHIRE	1 days
	MW MEDWAY	1 days
03	SOUTH WEST	
	GS GLOUCESTERSHIRE	1 days
05	EAST MIDLANDS	
	NN NORTH NORTHAMPTONSHIRE	1 days
	NT NOTTINGHAMSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	BD BRADFORD	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 10446 to 105335 (units: sqm)
Range Selected by User: 10000 to 105335 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/16 to 19/10/25

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:
Wednesday 2 days
Thursday 3 days
Friday 1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:
Manual count 6 days
Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:
Suburban Area (PPS6 Out of Centre) 1
Edge of Town 5

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:
Industrial Zone 3
Commercial Zone 2
Development Zone 1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:
Servicing vehicles Included 2 days - Selected
Servicing vehicles Excluded 5 days - Selected

Secondary Filtering selection:

Use Class:
B8 6 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

WSP Queen Street Manchester

Licence No: 100323

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	1 days
10,001 to 15,000	1 days
15,001 to 20,000	2 days
20,001 to 25,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	1 days
50,001 to 75,000	1 days
125,001 to 250,000	3 days
250,001 to 500,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	4 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	5 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	6 days
-----------------	--------

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

Site(1):	BD-02-F-01	Gross floor area:	10446 sqm
Development Name:	DISTRIBUTION COMPANY		
Location:	BRADFORD	Parking spaces:	215
Postcode:	BD6 1DW	No of Employees:	260
Main Location Type:	Edge of Town	Survey Date:	14/03/19
Sub-Location Type:	Industrial Zone	Survey Day:	Thursday
PTAL:	n/a		
Site(2):	GS-02-F-01	Gross floor area:	24500 sqm
Development Name:	LOGISTICS WAREHOUSE		
Location:	NEAR GLOUCESTER	Parking spaces:	318
Postcode:	GL3 4AJ	No of Employees:	250
Main Location Type:	Edge of Town	Survey Date:	03/05/23
Sub-Location Type:	Commercial Zone	Survey Day:	Wednesday
PTAL:	n/a		
Site(3):	HC-02-F-02	Gross floor area:	13200 sqm
Development Name:	LOGISTICS		
Location:	BASINGSTOKE	Parking spaces:	140
Postcode:	RG24 8PD	No of Employees:	70
Main Location Type:	Suburban Area (PPS6 Out of Centre)	Survey Date:	16/06/16
Sub-Location Type:	Commercial Zone	Survey Day:	Thursday
PTAL:	n/a		
Site(4):	MW-02-F-02	Gross floor area:	11200 sqm
Development Name:	COMMERCIAL WAREHOUSING		
Location:	AYLESFORD	Parking spaces:	70
Postcode:	ME20 7NB	No of Employees:	131
Main Location Type:	Edge of Town	Survey Date:	22/09/17
Sub-Location Type:	Industrial Zone	Survey Day:	Friday
PTAL:	n/a		
Site(5):	NN-02-F-01	Gross floor area:	18790 sqm
Development Name:	WAREHOUSING & DISTRIBUTION CENTRE		
Location:	CORBY	Parking spaces:	190
Postcode:	NN17 5AN	No of Employees:	687
Main Location Type:	Edge of Town	Survey Date:	19/10/23
Sub-Location Type:	Industrial Zone	Survey Day:	Thursday
PTAL:	n/a		
Site(6):	NT-02-F-01	Gross floor area:	105335 sqm
Development Name:	LOGISTICS WAREHOUSING PARK		
Location:	NEAR WORKSOP	Parking spaces:	1192
Postcode:	S81 8GN	No of Employees:	70
Main Location Type:	Edge of Town	Survey Date:	18/10/23
Sub-Location Type:	Development Zone	Survey Day:	Wednesday
PTAL:	n/a		

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
DR-02-F-01	Covid

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
 TOTAL VEHICLES
 Calculation factor: 100 sqm
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	4	39768	0.023	4	39768	0.016	4	39768	0.039
05:30 - 06:00	4	39768	0.036	4	39768	0.024	4	39768	0.060
06:00 - 06:30	4	39768	0.025	4	39768	0.022	4	39768	0.047
06:30 - 07:00	4	39768	0.045	4	39768	0.014	4	39768	0.059
07:00 - 07:30	6	30579	0.052	6	30579	0.031	6	30579	0.083
07:30 - 08:00	6	30579	0.072	6	30579	0.038	6	30579	0.110
08:00 - 08:30	6	30579	0.044	6	30579	0.036	6	30579	0.080
08:30 - 09:00	6	30579	0.039	6	30579	0.026	6	30579	0.065
09:00 - 09:30	6	30579	0.030	6	30579	0.024	6	30579	0.054
09:30 - 10:00	6	30579	0.036	6	30579	0.027	6	30579	0.063
10:00 - 10:30	6	30579	0.022	6	30579	0.021	6	30579	0.043
10:30 - 11:00	6	30579	0.026	6	30579	0.025	6	30579	0.051
11:00 - 11:30	6	30579	0.021	6	30579	0.023	6	30579	0.044
11:30 - 12:00	6	30579	0.026	6	30579	0.028	6	30579	0.054
12:00 - 12:30	6	30579	0.021	6	30579	0.021	6	30579	0.042
12:30 - 13:00	6	30579	0.026	6	30579	0.022	6	30579	0.048
13:00 - 13:30	6	30579	0.031	6	30579	0.026	6	30579	0.057
13:30 - 14:00	6	30579	0.041	6	30579	0.045	6	30579	0.086
14:00 - 14:30	6	30579	0.022	6	30579	0.040	6	30579	0.062
14:30 - 15:00	6	30579	0.026	6	30579	0.039	6	30579	0.065
15:00 - 15:30	6	30579	0.023	6	30579	0.040	6	30579	0.063
15:30 - 16:00	6	30579	0.025	6	30579	0.029	6	30579	0.054
16:00 - 16:30	6	30579	0.029	6	30579	0.051	6	30579	0.080
16:30 - 17:00	6	30579	0.029	6	30579	0.045	6	30579	0.074
17:00 - 17:30	6	30579	0.034	6	30579	0.051	6	30579	0.085
17:30 - 18:00	6	30579	0.030	6	30579	0.038	6	30579	0.068
18:00 - 18:30	6	30579	0.017	6	30579	0.029	6	30579	0.046
18:30 - 19:00	6	30579	0.014	6	30579	0.021	6	30579	0.035
19:00 - 19:30	4	39768	0.014	4	39768	0.021	4	39768	0.035
19:30 - 20:00	4	39768	0.008	4	39768	0.012	4	39768	0.020
20:00 - 20:30	4	39768	0.006	4	39768	0.008	4	39768	0.014
20:30 - 21:00	4	39768	0.010	4	39768	0.009	4	39768	0.019
21:00 - 21:30	1	18790	0.016	1	18790	0.032	1	18790	0.048
21:30 - 22:00	1	18790	0.000	1	18790	0.027	1	18790	0.027
22:00 - 22:30	1	18790	0.005	1	18790	0.032	1	18790	0.037
22:30 - 23:00	1	18790	0.000	1	18790	0.011	1	18790	0.011
23:00 - 23:30	1	18790	0.005	1	18790	0.005	1	18790	0.010
23:30 - 24:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
Total Rates:			0.929			1.009			1.938

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	10446 - 105335 (units: sqm)
Survey date range:	01/01/16 - 19/10/25
Number of weekdays (Monday-Friday):	6
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	1

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
 TAXIS
 Calculation factor: 100 sqm
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	4	39768	0.000	4	39768	0.000	4	39768	0.000
05:30 - 06:00	4	39768	0.000	4	39768	0.000	4	39768	0.000
06:00 - 06:30	4	39768	0.001	4	39768	0.001	4	39768	0.002
06:30 - 07:00	4	39768	0.001	4	39768	0.001	4	39768	0.002
07:00 - 07:30	6	30579	0.002	6	30579	0.001	6	30579	0.003
07:30 - 08:00	6	30579	0.001	6	30579	0.002	6	30579	0.003
08:00 - 08:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
08:30 - 09:00	6	30579	0.001	6	30579	0.001	6	30579	0.002
09:00 - 09:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
09:30 - 10:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
10:00 - 10:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
10:30 - 11:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
11:00 - 11:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
11:30 - 12:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
12:00 - 12:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
12:30 - 13:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
13:00 - 13:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
13:30 - 14:00	6	30579	0.001	6	30579	0.001	6	30579	0.002
14:00 - 14:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
14:30 - 15:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
15:00 - 15:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
15:30 - 16:00	6	30579	0.001	6	30579	0.000	6	30579	0.001
16:00 - 16:30	6	30579	0.001	6	30579	0.002	6	30579	0.003
16:30 - 17:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
17:00 - 17:30	6	30579	0.001	6	30579	0.001	6	30579	0.002
17:30 - 18:00	6	30579	0.001	6	30579	0.001	6	30579	0.002
18:00 - 18:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
18:30 - 19:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
19:00 - 19:30	4	39768	0.001	4	39768	0.001	4	39768	0.002
19:30 - 20:00	4	39768	0.000	4	39768	0.000	4	39768	0.000
20:00 - 20:30	4	39768	0.000	4	39768	0.000	4	39768	0.000
20:30 - 21:00	4	39768	0.000	4	39768	0.000	4	39768	0.000
21:00 - 21:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
21:30 - 22:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
22:00 - 22:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
22:30 - 23:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
23:00 - 23:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
23:30 - 24:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
Total Rates:			0.012			0.012			0.024

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

OGVS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	4	39768	0.004	4	39768	0.009	4	39768	0.013
05:30 - 06:00	4	39768	0.005	4	39768	0.010	4	39768	0.015
06:00 - 06:30	4	39768	0.005	4	39768	0.009	4	39768	0.014
06:30 - 07:00	4	39768	0.008	4	39768	0.008	4	39768	0.016
07:00 - 07:30	6	30579	0.014	6	30579	0.017	6	30579	0.031
07:30 - 08:00	6	30579	0.008	6	30579	0.018	6	30579	0.026
08:00 - 08:30	6	30579	0.007	6	30579	0.020	6	30579	0.027
08:30 - 09:00	6	30579	0.008	6	30579	0.015	6	30579	0.023
09:00 - 09:30	6	30579	0.010	6	30579	0.014	6	30579	0.024
09:30 - 10:00	6	30579	0.010	6	30579	0.010	6	30579	0.020
10:00 - 10:30	6	30579	0.012	6	30579	0.008	6	30579	0.020
10:30 - 11:00	6	30579	0.013	6	30579	0.008	6	30579	0.021
11:00 - 11:30	6	30579	0.013	6	30579	0.011	6	30579	0.024
11:30 - 12:00	6	30579	0.009	6	30579	0.010	6	30579	0.019
12:00 - 12:30	6	30579	0.012	6	30579	0.008	6	30579	0.020
12:30 - 13:00	6	30579	0.009	6	30579	0.007	6	30579	0.016
13:00 - 13:30	6	30579	0.008	6	30579	0.009	6	30579	0.017
13:30 - 14:00	6	30579	0.010	6	30579	0.016	6	30579	0.026
14:00 - 14:30	6	30579	0.011	6	30579	0.010	6	30579	0.021
14:30 - 15:00	6	30579	0.011	6	30579	0.013	6	30579	0.024
15:00 - 15:30	6	30579	0.010	6	30579	0.011	6	30579	0.021
15:30 - 16:00	6	30579	0.011	6	30579	0.009	6	30579	0.020
16:00 - 16:30	6	30579	0.016	6	30579	0.010	6	30579	0.026
16:30 - 17:00	6	30579	0.016	6	30579	0.008	6	30579	0.024
17:00 - 17:30	6	30579	0.019	6	30579	0.004	6	30579	0.023
17:30 - 18:00	6	30579	0.018	6	30579	0.008	6	30579	0.026
18:00 - 18:30	6	30579	0.009	6	30579	0.008	6	30579	0.017
18:30 - 19:00	6	30579	0.009	6	30579	0.003	6	30579	0.012
19:00 - 19:30	4	39768	0.004	4	39768	0.005	4	39768	0.009
19:30 - 20:00	4	39768	0.001	4	39768	0.004	4	39768	0.005
20:00 - 20:30	4	39768	0.003	4	39768	0.004	4	39768	0.007
20:30 - 21:00	4	39768	0.001	4	39768	0.001	4	39768	0.002
21:00 - 21:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
21:30 - 22:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
22:00 - 22:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
22:30 - 23:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
23:00 - 23:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
23:30 - 24:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
Total Rates:			0.304			0.305			0.609

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

WSP Queen Street Manchester

Licence No: 100323

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

CYCLISTS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	4	39768	0.003	4	39768	0.000	4	39768	0.003
05:30 - 06:00	4	39768	0.006	4	39768	0.002	4	39768	0.008
06:00 - 06:30	4	39768	0.001	4	39768	0.000	4	39768	0.001
06:30 - 07:00	4	39768	0.001	4	39768	0.000	4	39768	0.001
07:00 - 07:30	6	30579	0.001	6	30579	0.000	6	30579	0.001
07:30 - 08:00	6	30579	0.001	6	30579	0.000	6	30579	0.001
08:00 - 08:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
08:30 - 09:00	6	30579	0.003	6	30579	0.000	6	30579	0.003
09:00 - 09:30	6	30579	0.001	6	30579	0.001	6	30579	0.002
09:30 - 10:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
10:00 - 10:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
10:30 - 11:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
11:00 - 11:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
11:30 - 12:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
12:00 - 12:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
12:30 - 13:00	6	30579	0.001	6	30579	0.000	6	30579	0.001
13:00 - 13:30	6	30579	0.001	6	30579	0.000	6	30579	0.001
13:30 - 14:00	6	30579	0.001	6	30579	0.002	6	30579	0.003
14:00 - 14:30	6	30579	0.000	6	30579	0.004	6	30579	0.004
14:30 - 15:00	6	30579	0.000	6	30579	0.001	6	30579	0.001
15:00 - 15:30	6	30579	0.000	6	30579	0.001	6	30579	0.001
15:30 - 16:00	6	30579	0.000	6	30579	0.001	6	30579	0.001
16:00 - 16:30	6	30579	0.000	6	30579	0.001	6	30579	0.001
16:30 - 17:00	6	30579	0.000	6	30579	0.001	6	30579	0.001
17:00 - 17:30	6	30579	0.000	6	30579	0.002	6	30579	0.002
17:30 - 18:00	6	30579	0.000	6	30579	0.002	6	30579	0.002
18:00 - 18:30	6	30579	0.000	6	30579	0.001	6	30579	0.001
18:30 - 19:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
19:00 - 19:30	4	39768	0.001	4	39768	0.000	4	39768	0.001
19:30 - 20:00	4	39768	0.000	4	39768	0.000	4	39768	0.000
20:00 - 20:30	4	39768	0.000	4	39768	0.000	4	39768	0.000
20:30 - 21:00	4	39768	0.000	4	39768	0.000	4	39768	0.000
21:00 - 21:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
21:30 - 22:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
22:00 - 22:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
22:30 - 23:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
23:00 - 23:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
23:30 - 24:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
Total Rates:			0.021			0.019			0.040

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
 CARS
 Calculation factor: 100 sqm
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	4	39768	0.018	4	39768	0.006	4	39768	0.024
05:30 - 06:00	4	39768	0.028	4	39768	0.014	4	39768	0.042
06:00 - 06:30	4	39768	0.016	4	39768	0.009	4	39768	0.025
06:30 - 07:00	4	39768	0.035	4	39768	0.005	4	39768	0.040
07:00 - 07:30	6	30579	0.028	6	30579	0.007	6	30579	0.035
07:30 - 08:00	6	30579	0.056	6	30579	0.009	6	30579	0.065
08:00 - 08:30	6	30579	0.031	6	30579	0.007	6	30579	0.038
08:30 - 09:00	6	30579	0.025	6	30579	0.007	6	30579	0.032
09:00 - 09:30	6	30579	0.015	6	30579	0.007	6	30579	0.022
09:30 - 10:00	6	30579	0.017	6	30579	0.008	6	30579	0.025
10:00 - 10:30	6	30579	0.006	6	30579	0.007	6	30579	0.013
10:30 - 11:00	6	30579	0.008	6	30579	0.010	6	30579	0.018
11:00 - 11:30	6	30579	0.005	6	30579	0.009	6	30579	0.014
11:30 - 12:00	6	30579	0.009	6	30579	0.012	6	30579	0.021
12:00 - 12:30	6	30579	0.004	6	30579	0.009	6	30579	0.013
12:30 - 13:00	6	30579	0.011	6	30579	0.007	6	30579	0.018
13:00 - 13:30	6	30579	0.016	6	30579	0.013	6	30579	0.029
13:30 - 14:00	6	30579	0.025	6	30579	0.023	6	30579	0.048
14:00 - 14:30	6	30579	0.007	6	30579	0.022	6	30579	0.029
14:30 - 15:00	6	30579	0.010	6	30579	0.024	6	30579	0.034
15:00 - 15:30	6	30579	0.006	6	30579	0.023	6	30579	0.029
15:30 - 16:00	6	30579	0.011	6	30579	0.016	6	30579	0.027
16:00 - 16:30	6	30579	0.007	6	30579	0.035	6	30579	0.042
16:30 - 17:00	6	30579	0.011	6	30579	0.034	6	30579	0.045
17:00 - 17:30	6	30579	0.010	6	30579	0.040	6	30579	0.050
17:30 - 18:00	6	30579	0.009	6	30579	0.027	6	30579	0.036
18:00 - 18:30	6	30579	0.008	6	30579	0.020	6	30579	0.028
18:30 - 19:00	6	30579	0.004	6	30579	0.017	6	30579	0.021
19:00 - 19:30	4	39768	0.010	4	39768	0.014	4	39768	0.024
19:30 - 20:00	4	39768	0.006	4	39768	0.008	4	39768	0.014
20:00 - 20:30	4	39768	0.003	4	39768	0.004	4	39768	0.007
20:30 - 21:00	4	39768	0.008	4	39768	0.007	4	39768	0.015
21:00 - 21:30	1	18790	0.016	1	18790	0.032	1	18790	0.048
21:30 - 22:00	1	18790	0.000	1	18790	0.027	1	18790	0.027
22:00 - 22:30	1	18790	0.005	1	18790	0.032	1	18790	0.037
22:30 - 23:00	1	18790	0.000	1	18790	0.011	1	18790	0.011
23:00 - 23:30	1	18790	0.005	1	18790	0.005	1	18790	0.010
23:30 - 24:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
Total Rates:			0.489			0.567			1.056

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
 LGVS
 Calculation factor: 100 sqm
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	4	39768	0.001	4	39768	0.001	4	39768	0.002
05:30 - 06:00	4	39768	0.002	4	39768	0.000	4	39768	0.002
06:00 - 06:30	4	39768	0.002	4	39768	0.003	4	39768	0.005
06:30 - 07:00	4	39768	0.003	4	39768	0.001	4	39768	0.004
07:00 - 07:30	6	30579	0.008	6	30579	0.006	6	30579	0.014
07:30 - 08:00	6	30579	0.007	6	30579	0.010	6	30579	0.017
08:00 - 08:30	6	30579	0.005	6	30579	0.009	6	30579	0.014
08:30 - 09:00	6	30579	0.006	6	30579	0.003	6	30579	0.009
09:00 - 09:30	6	30579	0.005	6	30579	0.003	6	30579	0.008
09:30 - 10:00	6	30579	0.009	6	30579	0.009	6	30579	0.018
10:00 - 10:30	6	30579	0.004	6	30579	0.007	6	30579	0.011
10:30 - 11:00	6	30579	0.005	6	30579	0.008	6	30579	0.013
11:00 - 11:30	6	30579	0.003	6	30579	0.003	6	30579	0.006
11:30 - 12:00	6	30579	0.007	6	30579	0.006	6	30579	0.013
12:00 - 12:30	6	30579	0.005	6	30579	0.004	6	30579	0.009
12:30 - 13:00	6	30579	0.005	6	30579	0.009	6	30579	0.014
13:00 - 13:30	6	30579	0.006	6	30579	0.004	6	30579	0.010
13:30 - 14:00	6	30579	0.005	6	30579	0.005	6	30579	0.010
14:00 - 14:30	6	30579	0.004	6	30579	0.007	6	30579	0.011
14:30 - 15:00	6	30579	0.004	6	30579	0.001	6	30579	0.005
15:00 - 15:30	6	30579	0.007	6	30579	0.005	6	30579	0.012
15:30 - 16:00	6	30579	0.002	6	30579	0.004	6	30579	0.006
16:00 - 16:30	6	30579	0.005	6	30579	0.004	6	30579	0.009
16:30 - 17:00	6	30579	0.002	6	30579	0.003	6	30579	0.005
17:00 - 17:30	6	30579	0.005	6	30579	0.005	6	30579	0.010
17:30 - 18:00	6	30579	0.003	6	30579	0.003	6	30579	0.006
18:00 - 18:30	6	30579	0.001	6	30579	0.001	6	30579	0.002
18:30 - 19:00	6	30579	0.001	6	30579	0.001	6	30579	0.002
19:00 - 19:30	4	39768	0.000	4	39768	0.001	4	39768	0.001
19:30 - 20:00	4	39768	0.001	4	39768	0.001	4	39768	0.002
20:00 - 20:30	4	39768	0.000	4	39768	0.000	4	39768	0.000
20:30 - 21:00	4	39768	0.001	4	39768	0.001	4	39768	0.002
21:00 - 21:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
21:30 - 22:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
22:00 - 22:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
22:30 - 23:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
23:00 - 23:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
23:30 - 24:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
Total Rates:			0.124			0.128			0.252

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
MOTOR CYCLES
 Calculation factor: 100 sqm
 BOLD print indicates peak (busiest) period

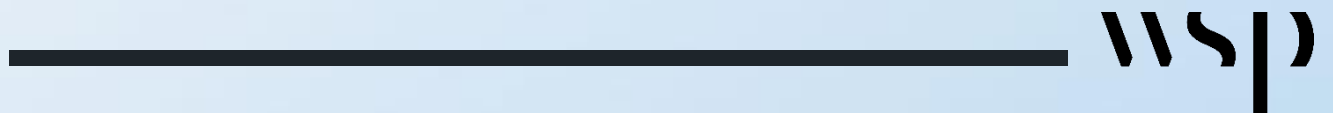
Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	4	39768	0.001	4	39768	0.000	4	39768	0.001
05:30 - 06:00	4	39768	0.001	4	39768	0.000	4	39768	0.001
06:00 - 06:30	4	39768	0.001	4	39768	0.001	4	39768	0.002
06:30 - 07:00	4	39768	0.000	4	39768	0.000	4	39768	0.000
07:00 - 07:30	6	30579	0.001	6	30579	0.000	6	30579	0.001
07:30 - 08:00	6	30579	0.001	6	30579	0.000	6	30579	0.001
08:00 - 08:30	6	30579	0.001	6	30579	0.000	6	30579	0.001
08:30 - 09:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
09:00 - 09:30	6	30579	0.001	6	30579	0.000	6	30579	0.001
09:30 - 10:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
10:00 - 10:30	6	30579	0.000	6	30579	0.001	6	30579	0.001
10:30 - 11:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
11:00 - 11:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
11:30 - 12:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
12:00 - 12:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
12:30 - 13:00	6	30579	0.001	6	30579	0.000	6	30579	0.001
13:00 - 13:30	6	30579	0.000	6	30579	0.001	6	30579	0.001
13:30 - 14:00	6	30579	0.001	6	30579	0.000	6	30579	0.001
14:00 - 14:30	6	30579	0.000	6	30579	0.002	6	30579	0.002
14:30 - 15:00	6	30579	0.000	6	30579	0.001	6	30579	0.001
15:00 - 15:30	6	30579	0.000	6	30579	0.001	6	30579	0.001
15:30 - 16:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
16:00 - 16:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
16:30 - 17:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
17:00 - 17:30	6	30579	0.000	6	30579	0.002	6	30579	0.002
17:30 - 18:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
18:00 - 18:30	6	30579	0.000	6	30579	0.000	6	30579	0.000
18:30 - 19:00	6	30579	0.000	6	30579	0.000	6	30579	0.000
19:00 - 19:30	4	39768	0.000	4	39768	0.000	4	39768	0.000
19:30 - 20:00	4	39768	0.000	4	39768	0.000	4	39768	0.000
20:00 - 20:30	4	39768	0.001	4	39768	0.000	4	39768	0.001
20:30 - 21:00	4	39768	0.000	4	39768	0.000	4	39768	0.000
21:00 - 21:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
21:30 - 22:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
22:00 - 22:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
22:30 - 23:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
23:00 - 23:30	1	18790	0.000	1	18790	0.000	1	18790	0.000
23:30 - 24:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
Total Rates:			0.010			0.009			0.019

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

Appendix C

NGTM Base Review- AECOM



Northern Gateway Traffic Model Review

Technical Note 01

National Highways / WSP

Project number: 60659693

12 June 2025

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Revision	Revision date	Details	Authorized	Name	Position
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1. Introduction

- 1.1 AECOM have been commissioned by National Highways to undertake a review of the Northern Gateway Traffic Model which was developed in support of a planning application for Northern Gateway. This review (TN01) focuses on the suitability of the base model. The two documents reviewed are:
- Model Specification Report (MSR) [*Northern Gateway Traffic Model - Model Specification Report, WSP, January 2023*]; and
 - Local Model Validation Report (LMVR) [*Northern Gateway Traffic Model – Local Model Validation Report, WSP, September 2024*].
- 1.2 Any items requiring further clarification have been classified into one of three levels:
- **MINOR** – Observations that have a minimal impact on modelling results;
 - **MEDIUM** – Observations that have a medium impact on modelling results; and
 - **SIGNIFICANT** – Observations that raise substantial concerns and are likely to materially affect the modelling outcomes.

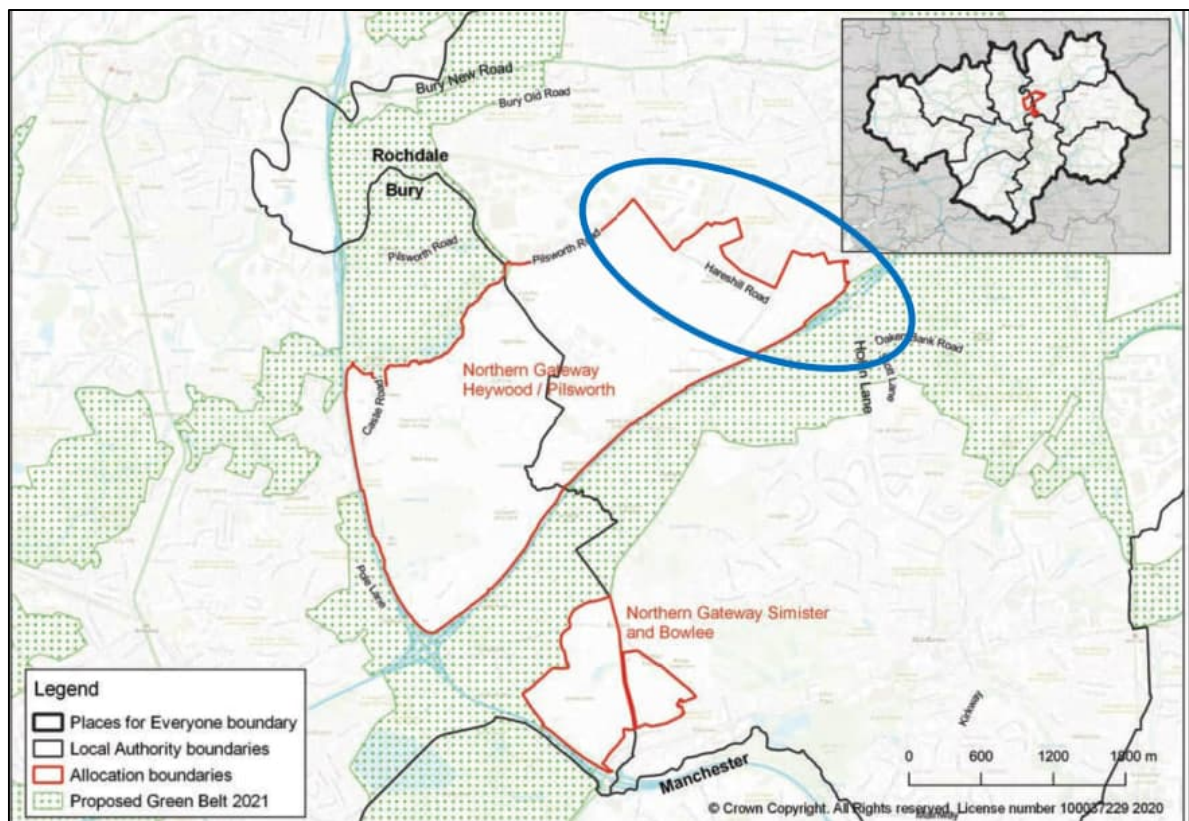
National Highways

- 1.3 National Highways is responsible for operating, maintaining, and improving the Strategic Road Network (SRN) in England, in accordance with the License issued by the Secretary of State for Transport (April 2015) and Government policies and objectives.
- 1.4 This review will therefore only comment on any issues relating to the impact on the SRN. National Highways' approach to planning applications is guided by the Department for Transport's Circular 01/22: *The Strategic Road Network and the Delivery of Sustainable Development* (the Circular). This review has been prepared in the context of National Highways' statutory responsibilities, taking into account relevant government policy and regulation, and informed by the National Planning Policy Framework (NPPF).

Background

- 1.5 The Northern Gateway is a major regeneration project located around Junction 18 of the M60 motorway extending east to Junction 19 of the M62 and north to Junction 3 of the M66. **Figure 1** shows the location of the Northern Gateway development.

Figure 1 Northern Gateway Development



(Source: Figure 1-1, Model Specification Report, WSP, January 2023)

(Note: The already consented South Heywood Development Area is indicated by the area circled in blue)

1.6 The Northern Gateway development comprises two sites.

- JPA 1.1 - Heywood / Pilsworth: mixed use, predominately employment-based development, identified within the submission draft 'Places for Everyone' (PfE) as suitable for up to 1,200,000sqm of industrial and warehousing space (up to 700,000sqm being delivered during the plan period up to 2040), and 200 new homes. This development is in addition to the 135,000sqm of employment development, 1,000 homes and local centre & primary school, proposed to the east of the allocation area at the South Heywood Development Area (SHDA).
- JPA 1.2 - Simister and Bowlee: predominantly residential development of up to 1,550 homes, plus a local centre, and a new primary school.

Review Structure

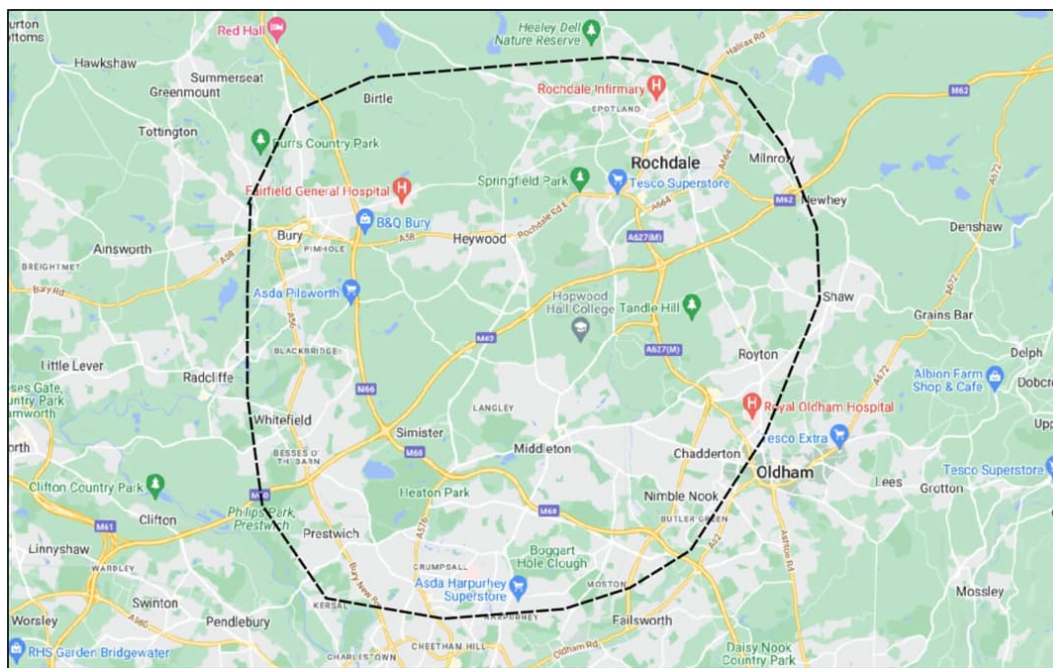
1.7 The review comprises the following structure:

- Section 2 – review of the Model Specification Report (MSR);
- Section 3 – review of the Local Model Validation Report (LMVR);
- Section 4 – review of the initial comments from National Highways;
- Section 5 – review of responses from the developer's consultant; and
- Section 5 – summary of the findings.

2. MSR Review

- 2.1 The purpose of reviewing the MSR is to understand the initial specifications, agreed limitations, and methodology.
- 2.2 The MSR states that the Northern Gateway Traffic Model (NGTM) 2022 base year model has been developed using Transport for Greater Manchester (TfGM)'s 2019 Greater Manchester SATURN Model (GSM) as a starting point. As a result, some of the key assumptions such as model peak hour, origin-destination, and user class have been retained for the NGTM for consistency between the models. The model peak hours adopted from the GSM 2019 model are:
- AM peak – 08:00-09:00.
 - Average inter peak (IP) – 10:00-16:00 and
 - PM peak – 17:00-18:00.
- 2.3 The user classes and trip purposes adopted from the GSM 2019 base model are:
- UC1 - Car Commute;
 - UC2 - Car Employers Business;
 - UC3 - Car Other;
 - UC4 - Light Goods Vehicles; and
 - UC5 – Other Goods Vehicles.
- 2.4 The 2019 GSM network model was refined for the NGTM by infilling additional details within the study area. The refinement includes additional network coverage and zonal disaggregation so that the 2022 NGTM represents the network and zones with greater granularity within the study area (as shown in **Figure 2**).

Figure 2 NGTM Study Area



(Source: Figure 2-1, Model Specification Report, WSP, January 2023)

- 2.5 The MSR reported that the 2019 base year matrices shared by TfGM in April 2023 were used as starting point to produce the 2022 NGTM base matrix.
- 2.6 A comprehensive set of ATC and MCC surveys across the study area were undertaken in mid / late - November 2022, over a three-week period, to assist calibration/validation of the new NGTM 2022 base year model along with additional journey time information (Tom-Tom data).
- 2.7 In addition, the MSR stated that the NGTM 2022 base model would be validated against the guidelines set out in TAG Unit M3-1 which states that comparisons should be carried out in three areas:
- Assigned flows and counts totalled for each screenline or cordon as a check on the quality of the trip matrices;
 - Modelled and observed journey times along routes as a check on the quality of the assignment; and,
 - Assigned flows and counts on individual links and turning movements at junctions as a check on the quality of the network and the assignment.
- 2.8 AECOM notes that the MSR successfully summarises in principle the methodology and specification against which the new NGTM baseline and forecast models are to be developed. What is detailed and set out in the MSR matches what has ultimately been delivered for the base model. However, the specification set out in the MSR and ultimately the delivered base model is subject to a number of concerns raised as detailed within the subsequent chapters of this report. For this reason, what is set out in the MSR is subject of a **SIGNIFICANT** concern.

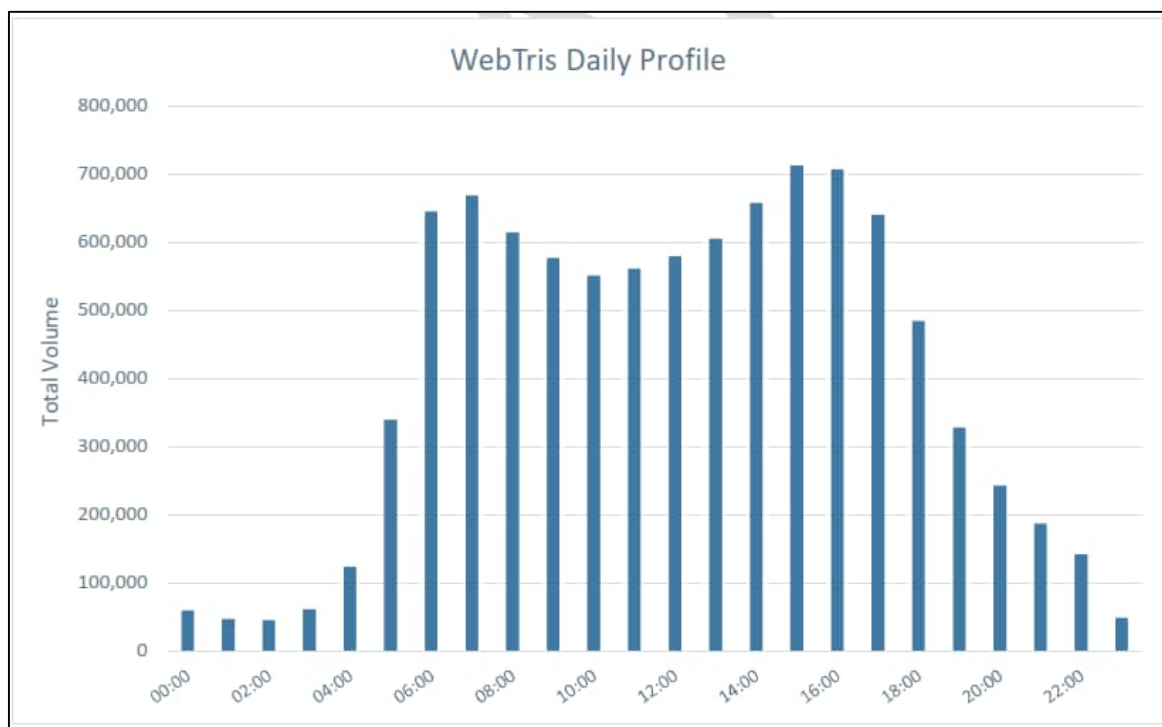
3. LMVR Review

- 3.1 The purpose of this review is to examine the high-level model calibration and validation (and convergence), and to delve into the details of the calibration and validation for the proposed development area, including flow calibration / validation for surrounding junctions and links, and journey times, which are crucial for understanding the model performance and assessing its suitability for forecasting and evaluating the impact of proposals.

Modelled Time Periods

- 3.2 According to the LMVR, the WEBTRIS daily flow profile clearly indicated that the peak hour for the SRN was identified as 07:00 to 08:00 for the AM peak and 16:00 to 17:00 for PM peak as shown in **Figure 3**; **Figure 3** presents a an amalgamation of multi WebTRIS sites across the study area. However, the NGTM model has adopted the GSM SM peak hours (08:00–09:00 and 17:00–18:00) to be consistent with the GSM SM. This is considered **SIGNIFICANT** as this would ultimately have an impact on the robustness of the capacity assessment within the transport assessment.
- 3.3 AECOM notes that this might have an impact on the model results and its suitability for forecast assessment. Therefore, it is recommended to undertake a detailed analysis to explain the appropriateness of the proposed modelled peak hours.

Figure 3 WebTRIS Daily Flow Profile



(Source: Figure 2-2, LMVR, WSP, September 2024)

Matrix Calibration

- 3.4 The LMVR reported on the detailed process of matrix development for the NGTM 2022 base year model. The prior matrices were developed by:
- Updating the model zone system using 2011 and 2021 census data and 2022 observed traffic data to disaggregate existing GSM SM zones into smaller zones for better representation;

- b) Adopting a gravity model and furnishing process to ensure that no major changes were made to the origin / destination patterns of the study area;
 - c) Ensuring that HGV distribution within Heywood as well as trips to / from Birch services are correct due to the nature of the industrial developments within Heywood. This is done by controlling HGV trips to these areas using available select link analysis of the existing model, as well as HGV distributions predicted from local MCC counts; and
 - d) Applying NTEM 8.1 and NRTP22 growth factors to convert the 2019 GSM matrices to 2022 levels.
- 3.5 The prior matrices were run through a matrix estimation process to get the final base year matrix. The impact of matrix estimation was assessed in detail against trip length distributions, zonal cell values, zonal trip ends and sector-to-sector movements. The trip matrices were calibrated against the TAG criteria for screenlines and cordons.
- 3.6 AECOM considers the overall matrix process to be appropriate.

Convergence Results

- 3.7 The LMVR states that the NGTM 2022 base model assignments achieve the criteria equivalent to, or exceeding, TAG M3.1 in all time periods. The final convergence loop was 37, 32 and 38 in the AM peak, Inter peak and PM peak models respectively. The convergence statistics are reproduced in **Table 1**.

Table 1 Calibrated Assignment Convergence Statistics

Time Period	Loop	Proximity indicator: Delta (δ) / (Gap (%))	Stability Indicator: % Flow (Link Flows Differing by < 1% Between Assignment & Simulation)	Stability Indicator: % Delays (Turn Delays Differing by < 1% Between Assignment & Simulation)
AM	34	0.036	98.5	99.3
	35	0.032	98.6	99.3
	36	0.047	98.6	99.2
	37	0.025	98.5	99.3
IP	29	0.021	98.5	99.7
	30	0.016	98.2	99.7
	31	0.014	98.5	99.7
	32	0.027	98.7	99.7
PM	35	0.053	98.2	99.0
	36	0.046	98.1	99.1
	37	0.050	98.5	99.1
	38	0.040	98.2	99.2

Source: Reproduced from LMVR, WSP, September 2024

- 3.8 AECOM note that the convergence results are appropriate.

Flow Calibration & Validation Results

- 3.9 As per TAG Unit M3.1 Table 2, the validation criteria and guidelines for link flows and turning movements are as defined in

3.10

3.11

3.12 Table 2.

Table 2 Link Flow and Turning Movement Validation Criteria and Guidelines

Criteria	Description	Acceptability Guideline
1	Individual flows within 100 veh/hr of counts for flows less than 700 veh/hr	> 85% of cases
	Individual flows within 15% of counts for flows from 700 veh/hr to 2,700 veh/hr	> 85% of cases
	Individual flows within 400 veh/hr of counts for flows more than 2,700 veh/hr	> 85% of cases
2	GEH < 5 for individual flows	> 85% of cases

3.13 The LMVR reported that the overall link flow calibration and validation statistics achieve TAG criteria in all time periods.

3.14 Given the proximity of the proposed development to the motorways, the performance of the link flows on all the mainline motorway lanes i.e. on M62, M60, M66 and A627(M) were reported separately in the LMVR and these are reproduced in **Table 3** to

3.15 **Table 6.**

Table 3 Mainline Motorway Link Performance Summary - M62

Measure (29 counts)	All Vehicles			Cars		
	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak
Pass Criteria 1 (flow)	97%	90%	93%	90%	100%	93%
Pass Criteria 2 (GEH)	97%	90%	93%	90%	90%	90%
Pass TAG	97%	90%	90%	90%	100%	93%

Table 4 Mainline Motorway Link Performance Summary - M60

Measure (16 counts)	All Vehicles			Cars		
	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak
Pass Criteria 1 (flow)	88%	88%	75%	88%	88%	69%
Pass Criteria 2 (GEH)	88%	94%	75%	88%	88%	69%
Pass TAG	88%	88%	75%	88%	88%	69%

Table 5 Mainline Motorway Link Performance Summary - M66

Measure (10 counts)	All Vehicles			Cars		
	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak
Pass Criteria 1 (flow)	100%	100%	100%	100%	100%	100%
Pass Criteria 2 (GEH)	100%	100%	100%	100%	100%	100%
Pass TAG	100%	100%	100%	100%	100%	100%

Table 6 Motorway Performance Summary – A627(M)

Measure (8 link counts)	All Vehicles			Cars		
	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak
Pass Criteria 1 (flow)	100%	100%	100%	100%	100%	100%
Pass Criteria 2 (GEH)	100%	100%	100%	100%	100%	100%
Pass TAG	100%	100%	100%	100%	100%	100%

- 3.16 The results show that, overall, almost all main line motorway links achieve a strong performance against the TAG criteria for all time periods. However, during the PM peak the M60 mainline motorway links do not meet the TAG criteria. No explanation is given as to why this is. Not fully meeting the TAG criteria for validation and not explaining as to why not is considered **SIGNIFICANT** as this could ultimately have an impact on the robustness of the capacity assessment within the transport assessment.
- 3.17 Turn flows for the SRN junctions were examined in detail and the LMVR states that the turn flows are validated as per TAG criteria.
- 3.18 AECOM note that the turn flows are validated as per TAG criteria for most of the SRN junctions except for M60 J19 AM Peak where the overall junction turn flows fail to meet the TAG criteria, i.e. not achieving the 85% threshold. The turn flow validation results for the SRN junctions are reproduced in **Table 7** to **Table 14**.

Table 7 M62 J19 – AM Peak - Turn Flow Validation

Road Name From	Road Name To	Turn	Flow Validation - All vehicles				GEH	WebTAG		
			Observed	Modelled	Diff	%Diff		Flow	GEH	WebTAG
Middleton Road A6046	M62 East	A to B	201	243	42	21%	2.8	✓	✓	✓
Middleton Road A6046	A6046 Hollin Lane	A to C	371	269	-102	-27%	5.7	x	x	x
Middleton Road A6046	M62 West	A to D	169	396	227	134%	13.5	x	x	x
Middleton Road A6046	A6184 Queen Elizabeth Way	A to E	23	8	-15	-65%	3.8	✓	✓	✓
M62 East	M62 Road A6046	B to A	135	196	61	45%	4.7	✓	✓	✓
M62 East	A6046 Hollin Lane	B to C	237	111	-126	-53%	9.6	x	x	x
M62 East	M62 West	B to D	50	0	-50	-100%	10.0	✓	x	✓
M62 East	A6184 Queen Elizabeth Way	B to E	321	333	12	4%	0.7	✓	✓	✓
A6046 Hollin Lane	Middleton Road A6046	C to A	294	236	-58	-20%	3.6	✓	✓	✓
A6046 Hollin Lane	M62 East	C to B	126	91	-35	-28%	3.3	✓	✓	✓
A6046 Hollin Lane	M62 West	C to D	81	179	98	122%	8.6	✓	x	✓
A6046 Hollin Lane	A6184 Queen Elizabeth Way	C to E	55	67	12	22%	1.6	✓	✓	✓
M62 West	Middleton Road A6046	D to A	164	214	50	30%	3.6	✓	✓	✓
M62 West	M62 East	D to B	0	0	0	0%	0.0	✓	✓	✓
M62 West	A6046 Hollin Lane	D to C	111	78	-33	-30%	3.4	✓	✓	✓
M62 West	A6184 Queen Elizabeth Way	D to E	70	70	0	0%	0.0	✓	✓	✓
A6184 Queen Elizabeth Way	Middleton Road A6046	E to A	10	2	-8	-79%	3.2	✓	✓	✓
A6184 Queen Elizabeth Way	M62 East	E to B	121	162	41	34%	3.4	✓	✓	✓
A6184 Queen Elizabeth Way	A6046 Hollin Lane	E to C	42	46	4	9%	0.6	✓	✓	✓
A6184 Queen Elizabeth Way	M62 West	E to D	16	18	2	10%	0.4	✓	✓	✓
							Pass Criteria	17	15	17
							% Pass	85%	75%	85%

Source: Reproduced from 'Appendix C – SRN Junction ModelledvsObserved' spreadsheet, WSP, August 2024

Table 8 M62 J19 – PM Peak - Turn Flow Validation

Road Name From	Road Name To	Turn	Flow Validation - All vehicles				GEH	WebTAG		
			Observed	Modelled	Diff	%Diff		Flow	GEH	WebTAG
Middleton Road A6046	M62 East	A to B	171	241	70	41%	4.9	✓	✓	✓
Middleton Road A6046	A6046 Hollin Lane	A to C	281	232	-49	-17%	3.1	✓	✓	✓
Middleton Road A6046	M62 West	A to D	207	273	66	32%	4.3	✓	✓	✓
Middleton Road A6046	A6184 Queen Elizabeth Way	A to E	14	0	-14	-100%	5.3	✓	x	✓
M62 East	Middleton Road A6046	B to A	113	169	56	50%	4.7	✓	✓	✓
M62 East	A6046 Hollin Lane	B to C	146	192	46	32%	3.5	✓	✓	✓
M62 East	M62 West	B to D	9	0	-9	-100%	4.2	✓	✓	✓
M62 East	A6184 Queen Elizabeth Way	B to E	174	233	59	34%	4.1	✓	✓	✓
A6046 Hollin Lane	Middleton Road A6046	C to A	447	286	-161	-36%	8.4	✓	x	✓
A6046 Hollin Lane	M62 East	C to B	67	94	27	40%	3.0	✓	✓	✓
A6046 Hollin Lane	M62 West	C to D	100	165	65	65%	5.6	✓	x	✓
A6046 Hollin Lane	A6184 Queen Elizabeth Way	C to E	20	57	37	185%	6.0	✓	x	✓
M62 West	Middleton Road A6046	D to A	288	288	0	0%	0.0	✓	✓	✓
M62 West	M62 East	D to B	0	0	0	0%	0.0	✓	✓	✓
M62 West	A6046 Hollin Lane	D to C	202	121	-81	-40%	6.4	✓	x	✓
M62 West	A6184 Queen Elizabeth Way	D to E	62	49	-13	-21%	1.7	✓	✓	✓
A6184 Queen Elizabeth Way	Middleton Road A6046	E to A	36	22	-14	-39%	2.6	✓	✓	✓
A6184 Queen Elizabeth Way	M62 East	E to B	183	182	-1	-1%	0.1	✓	✓	✓
A6184 Queen Elizabeth Way	A6046 Hollin Lane	E to C	39	60	21	54%	3.0	✓	✓	✓
A6184 Queen Elizabeth Way	M62 West	E to D	11	9	-2	-18%	0.6	✓	✓	✓
							Pass Criteria	20	15	20
							% Pass	100%	75%	100%

Source: Reproduced from 'Appendix C – SRN Junction ModelledvsObserved' spreadsheet, WSP, August 2024

Table 9 M66 J3 – AM Peak - Turn Flow Validation

Road Name From	Road Name To	Turn	Flow Validation - All vehicles				WebTAG		
			Observed	Modelled	Diff	GEH	Flow	GEH	WebTAG
Pilsworth Road/M66 Intra	M66 NB On Slip	B to A	60	116	56	5.9	✓	x	✓
Pilsworth Road/M66 Intra	Pilsworth Road West	B to D	785	779	-6	0.2	✓	✓	✓
M66 NB Off Slip	Pilsworth Road/M66 Intra	C to B	198	184	-14	1.0	✓	✓	✓
M66 NB Off Slip	Pilsworth Road West	C to D	539	499	-40	1.7	✓	✓	✓
Pilsworth Road West	M66 NB On Slip	D to A	306	301	-5	0.3	✓	✓	✓
Pilsworth Road West	Pilsworth Road/M66 Intra	D to B	454	444	-10	0.5	✓	✓	✓
M66 SB Off Slip	Pilsworth Road East	A to B	64	41	-23	3.1	✓	✓	✓
M66 SB Off Slip	Pilsworth Road/M66 Intra	A to D	441	431	-10	0.5	✓	✓	✓
Pilsworth Road East	M66 SB On Slip	B to C	116	154	38	3.3	✓	✓	✓
Pilsworth Road East	Pilsworth Road/M66 Intra	B to D	404	464	60	2.9	✓	✓	✓
Pilsworth Road/M66 Intra	Pilsworth Road East	D to B	349	347	-2	0.1	✓	✓	✓
Pilsworth Road/M66 Intra	M66 SB On Slip	D to C	303	280	-23	1.3	✓	✓	✓
Pass Criteria							12	11	12
% Pass							100%	92%	100%

Source: Reproduced from 'Appendix C – SRN Junction ModelledvsObserved' spreadsheet, WSP, August 2024

Table 10 M66 J3 – PM Peak - Turn Flow Validation

Road Name From	Road Name To	Turn	Flow Validation - All vehicles				GEH	WebTAG		
			Observed	Modelled	Diff	%Diff		Flow	GEH	WebTAG
Pilsworth Road/M66 Intra	M66 NB On Slip	B to A	82	91	9	10%	0.9	✓	✓	✓
Pilsworth Road/M66 Intra	Pilsworth Road West	B to D	550	529	-21	-4%	0.9	✓	✓	✓
M66 NB Off Slip	Pilsworth Road/M66 Intra	C to B	158	140	-18	-12%	1.5	✓	✓	✓
M66 NB Off Slip	Pilsworth Road West	C to D	409	386	-23	-6%	1.1	✓	✓	✓
Pilsworth Road West	M66 NB On Slip	D to A	347	340	-7	-2%	0.4	✓	✓	✓
Pilsworth Road West	Pilsworth Road/M66 Intra	D to B	683	670	-13	-2%	0.5	✓	✓	✓
M66 SB Off Slip	Pilsworth Road East	A to B	31	33	2	5%	0.3	✓	✓	✓
M66 SB Off Slip	Pilsworth Road/M66 Intra	A to D	313	295	-18	-6%	1.0	✓	✓	✓
Pilsworth Road East	M66 SB On Slip	B to C	140	141	1	1%	0.1	✓	✓	✓
Pilsworth Road East	Pilsworth Road/M66 Intra	B to D	319	324	5	2%	0.3	✓	✓	✓
Pilsworth Road/M66 Intra	Pilsworth Road East	D to B	371	385	14	4%	0.7	✓	✓	✓
Pilsworth Road/M66 Intra	M66 SB On Slip	D to C	470	423	-47	-10%	2.2	✓	✓	✓
							Pass Criteria	12	12	12
							% Pass	100%	100%	100%

Source: Reproduced from 'Appendix C – SRN Junction ModelledvsObserved' spreadsheet, WSP, August 2024

Table 11 M66 J2 – AM Peak - Turn Flow Validation

Road Name From	Road Name To	Turn	Flow Validation - All vehicles			GEH	WebTAG		
			Observed	Modelled	Diff		Flow	GEH	WebTAG
M66 SB Off	Bury New Road	A to B	26	21	-5	0.9	✓	✓	✓
M66 SB Off	Bury New Road	A to C	197	304	107	6.7	x	x	x
M66 SB Off	M66 NB Off	A to D	23	0	-23	6.8	✓	x	✓
M66 SB Off	Waterfold	A to E	21	26	5	1.0	✓	✓	✓
M66 SB Off	Rochdale Road EB	A to F	367	204	-163	9.7	x	x	x
Bury New Road	M66 SB Off	B to A	0	3	3	2.4	✓	✓	✓
Bury New Road	Bury New Road	B to C	0	7	7	3.7	✓	✓	✓
Bury New Road	M66 NB Off	B to D	0	15	15	5.5	✓	x	✓
Bury New Road	Waterfold	B to E	0	0	0	0.0	✓	✓	✓
Bury New Road	Rochdale Road EB	B to F	0	47	47	9.7	✓	x	✓
Bury New Road	M66 SB Off	C to A	186	212	26	1.8	✓	✓	✓
Bury New Road	Bury New Road	C to B	30	22	-8	1.6	✓	✓	✓
Bury New Road	M66 NB Off	C to D	257	194	-63	4.2	✓	✓	✓
Bury New Road	Waterfold	C to E	32	43	11	1.8	✓	✓	✓
Bury New Road	Rochdale Road EB	C to F	550	569	19	0.8	✓	✓	✓
M66 NB Off	M66 SB Off	D to A	0	0	0	0.0	✓	✓	✓
M66 NB Off	Bury New Road	D to B	26	51	25	4.1	✓	✓	✓
M66 NB Off	Bury New Road	D to C	167	111	-56	4.8	✓	✓	✓
M66 NB Off	Waterfold	D to E	84	79	-5	0.6	✓	✓	✓
M66 NB Off	Rochdale Road EB	D to F	1,160	1,224	64	1.9	✓	✓	✓
Waterfold	M66 SB Off	E to A	13	3	-10	3.5	✓	✓	✓
Waterfold	Bury New Road	E to B	5	1	-4	2.5	✓	✓	✓
Waterfold	Bury New Road	E to C	23	24	1	0.2	✓	✓	✓
Waterfold	M66 NB Off	E to D	1	17	16	5.4	✓	x	✓
Waterfold	Rochdale Road EB	E to F	30	27	-3	0.6	✓	✓	✓
Rochdale Road EB	M66 SB Off	F to A	164	119	-45	3.8	✓	✓	✓
Rochdale Road EB	Bury New Road	F to B	84	78	-6	0.7	✓	✓	✓
Rochdale Road EB	Bury New Road	F to C	281	307	26	1.5	✓	✓	✓
Rochdale Road EB	M66 NB Off	F to D	1,048	1,075	27	0.8	✓	✓	✓
Rochdale Road EB	Waterfold	F to E	58	44	-14	1.9	✓	✓	✓
						Pass Criteria	28	24	28
						% Pass	93%	80%	93%

Source: Reproduced from 'Appendix C – SRN Junction ModelledvsObserved' spreadsheet, WSP, August 2024

Table 12 M66 J2 – PM Peak - Turn Flow Validation

Road Name From	Road Name To	Turn	Flow Validation - All vehicles				GEH	WebTAG	
			Observed	Modelled	Diff	%Diff		Flow	GEH
M66 SB Off	Bury New Road	A to B	16	5	-11	-68%	3.3	✓	✓
M66 SB Off	Bury New Road	A to C	196	181	-15	-8%	1.1	✓	✓
M66 SB Off	M66 NB Off	A to D	41	0	-41	-100%	9.1	✓	x
M66 SB Off	Waterfold	A to E	13	12	-1	-7%	0.2	✓	✓
M66 SB Off	Rochdale Road EB	A to F	272	226	-46	-17%	2.9	✓	✓
Bury New Road	M66 SB Off	B to A	0	11	11	0%	4.7	✓	✓
Bury New Road	Bury New Road	B to C	0	22	22	0%	6.6	✓	x
Bury New Road	M66 NB Off	B to D	0	38	38	0%	8.7	✓	x
Bury New Road	Waterfold	B to E	0	1	1	0%	1.4	✓	✓
Bury New Road	Rochdale Road EB	B to F	0	45	45	0%	9.5	✓	x
Bury New Road	M66 SB Off	C to A	189	175	-14	-7%	1.0	✓	✓
Bury New Road	Bury New Road	C to B	35	10	-25	-71%	5.3	✓	x
Bury New Road	M66 NB Off	C to D	167	188	21	12%	1.5	✓	✓
Bury New Road	Waterfold	C to E	25	58	33	134%	5.2	✓	x
Bury New Road	Rochdale Road EB	C to F	427	482	55	13%	2.6	✓	✓
M66 NB Off	M66 SB Off	D to A	0	0	0	0%	0.0	✓	✓
M66 NB Off	Bury New Road	D to B	21	15	-6	-29%	1.4	✓	✓
M66 NB Off	Bury New Road	D to C	183	143	-40	-22%	3.1	✓	✓
M66 NB Off	Waterfold	D to E	55	32	-23	-42%	3.5	✓	✓
M66 NB Off	Rochdale Road EB	D to F	1,143	1,130	-13	-1%	0.4	✓	✓
Waterfold	M66 SB Off	E to A	17	12	-5	-28%	1.2	✓	✓
Waterfold	Bury New Road	E to B	2	0	-2	-100%	1.9	✓	✓
Waterfold	Bury New Road	E to C	17	50	33	202%	5.8	✓	x
Waterfold	M66 NB Off	E to D	81	76	-5	-6%	0.6	✓	✓
Waterfold	Rochdale Road EB	E to F	60	34	-26	-43%	3.8	✓	✓
Rochdale Road EB	M66 SB Off	F to A	209	212	3	2%	0.2	✓	✓
Rochdale Road EB	Bury New Road	F to B	70	27	-43	-61%	6.2	✓	x
Rochdale Road EB	Bury New Road	F to C	389	448	59	15%	2.9	✓	✓
Rochdale Road EB	M66 NB Off	F to D	1,015	992	-23	-2%	0.7	✓	✓
Rochdale Road EB	Waterfold	F to E	42	32	-10	-24%	1.7	✓	✓
						Pass Criteria	30	22	30
						% Pass	100%	73%	100%

Source: Reproduced from 'Appendix C – SRN Junction ModelledvsObserved' spreadsheet, WSP, August 2024

Table 13 M60 J19 – AM Peak - Turn Flow Validation

Road Name From	Road Name To	Turn	Flow Validation - All vehicles				GEH	WebTAG		
			Observed	Modelled	Diff	%Diff		Flow	GEH	WebTAG
A576 WB	M60 NB	A to B	476	267	-209	-44%	10.8	x	x	✓
A576 WB	A576 EB	A to C	435	432	-3	-1%	0.1	✓	✓	✓
A576 WB	M60 SB	A to D	224	246	22	10%	1.4	✓	✓	✓
M60 NB	A576 WB	B to A	165	183	18	11%	1.4	✓	✓	✓
M60 NB	A576 EB	B to C	425	447	22	5%	1.1	✓	✓	✓
M60 NB	M60 SB	B to D	1	0	-1	-100%	1.4	✓	✓	✓
A576 EB	A576 WB	C to A	272	179	-93	-34%	6.2	✓	x	✓
A576 EB	M60 NB	C to B	466	549	83	18%	3.7	✓	✓	✓
A576 EB	M60 SB	C to D	512	532	20	4%	0.9	✓	✓	✓
M60 SB	A576 WB	D to A	195	328	133	68%	8.2	x	x	x
M60 SB	M60 NB	D to B	5	0	-5	-100%	3.2	✓	✓	✓
M60 SB	A576 EB	D to C	798	756	-42	-5%	1.5	✓	✓	✓
							Pass Criteria	10	9	10
							% Pass	83%	75%	83%

Source: Reproduced from 'Appendix C – SRN Junction ModelledvsObserved' spreadsheet, WSP, August 2024

Table 14 M60 J19 – PM Peak - Turn Flow Validation

Road Name From	Road Name To	Turn	Flow Validation - All vehicles				GEH	WebTAG		
			Observed	Modelled	Diff	%Diff		Flow	GEH	WebTAG
A576 WB	M60 NB	A to B	232	160	-72	-31%	5.1	✓	x	✓
A576 WB	A576 EB	A to C	414	462	48	12%	2.3	✓	✓	✓
A576 WB	M60 SB	A to D	200	210	10	5%	0.7	✓	✓	✓
M60 NB	A576 WB	B to A	503	438	-65	-13%	3.0	✓	✓	✓
M60 NB	A576 EB	B to C	445	459	14	3%	0.7	✓	✓	✓
M60 NB	M60 SB	B to D	1	61	60	6000%	10.8	✓	x	✓
A576 EB	A576 WB	C to A	733	699	-34	-5%	1.3	✓	✓	✓
A576 EB	M60 NB	C to B	616	652	36	6%	1.4	✓	✓	✓
A576 EB	M60 SB	C to D	954	920	-34	-4%	1.1	✓	✓	✓
M60 SB	A576 WB	D to A	214	189	-25	-12%	1.8	✓	✓	✓
M60 SB	M60 NB	D to B	3	0	-3	-100%	2.4	✓	✓	✓
M60 SB	A576 EB	D to C	597	698	101	17%	4.0	x	✓	✓
							Pass Criteria	11	10	12
							% Pass	92%	83%	100%

Source: Reproduced from 'Appendix C – SRN Junction ModelledvsObserved' spreadsheet, WSP, August 2024

- 3.19 **Table 13** indicates that the overall M60 J19 AM Peak turn flows fail to meet TAG criteria with only 83% of turn flows validating. Further review of the supporting materials for the models identified that during the AM Peak the junction shows large differences for the movements between M60 north to A576 eastern arm, and vice versa. The model is overestimating demand for this movement. This is considered **SIGNIFICANT**.
- 3.20 Considering the nature of the strategic model, it is appreciated that the NGTM 2022 base model calibrates and validates for the majority of link and turn flows against TAG criteria.
- 3.21 While the junctions overall validate against observed turns in most cases, there are individual turns which show large differences compared with observed turns, therefore there are potential risks associated with using the junction turn flows directly when assessing the junctions in the forecast scenarios.
- 3.22 The LMVR does not provide the turn flow calibration / validation details of M62 J18. This is considered **MEDIUM**. AECOM requests the turn flow comparison results for J18. This junction is considered crucial for routing as it connects the M60, M66 and M62.

Journey Time Validation Results

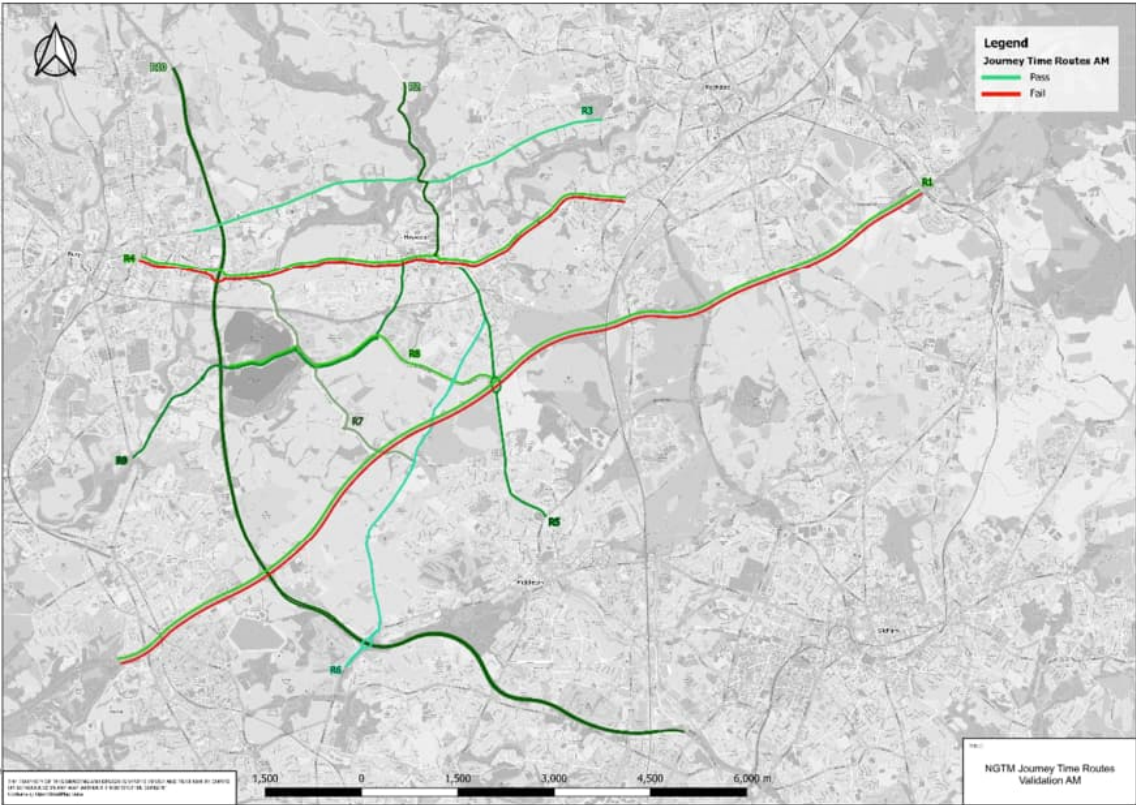
- 3.23 The LMVR reported a total of ten bi-directional journey time routes that have been assessed which cover all the key routes within the study area. The journey time validation results are reproduced in **Table 15** and **Figure 4** for the AM Peak, and the PM Peak results are shown in **Table 16** and **Figure 5**. The Validation rating column in **Table 15** and **Table 16** indicate a colour coding i.e. “G” represents “Green Validation” satisfying TAG criteria, “R” represents “Red Validation” not meeting TAG criteria and “A” represents “Amber/Yellow Validation” nearly passing TAG criteria (i.e. within 20%).

Table 15 Journey Time Validation Summary by Route: AM Peak

Route ID	Obs.	Mod.	Diff.	%Diff	Pass TAG	Val. Rating
J1 EB	630	699	69	11%	Yes	G
J1 WB	1339	684	-655	-49%	No	R
J2 SB	331	379	48	15%	Yes	G
J2 NB	416	421	6	1%	Yes	G
J3 EB	791	696	-95	-12%	Yes	G
J3 WB	1141	1134	-7	-1%	Yes	G
J4 EB	1031	950	-81	-8%	Yes	G
J4 WB	1263	1057	-206	-16%	No	A
J5 SB	575	537	-38	-7%	Yes	G
J5 NB	557	600	43	8%	Yes	G
J6 SB	827	769	-58	-7%	Yes	G
J6 NB	611	593	-18	-3%	Yes	G
J7 WB	503	505	2	0%	Yes	G
J7 EB	376	398	22	6%	Yes	G
J8 EB	418	475	58	14%	Yes	G
J8 WB	554	474	-80	-15%	Yes	G
J9 EB	708	720	11	2%	Yes	G
J9 WB	929	930	0	0%	Yes	G
J10 SB	481	524	43	9%	Yes	G
J10 NB	512	498	-14	-3%	Yes	G

Source: Reproduced from LMVR, WSP, September 2024

Figure 4 Journey Time Route Validation Summary Map: AM Peak

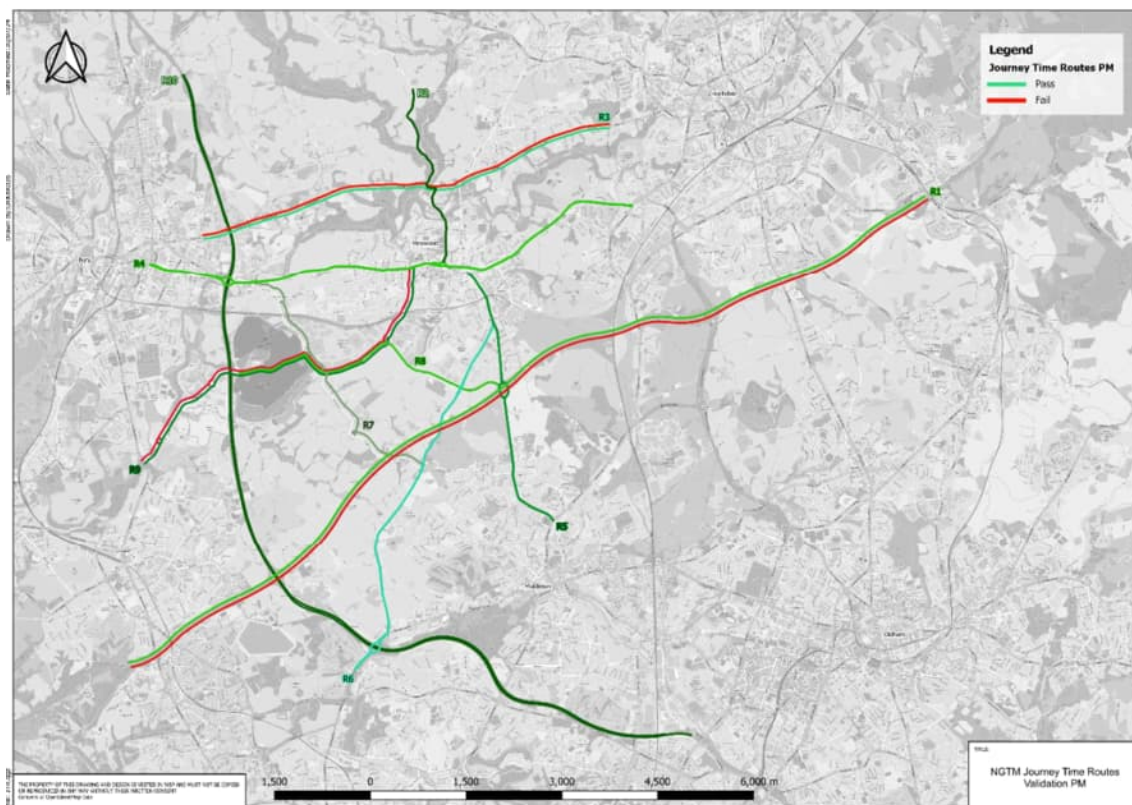


Source: Reproduced from LMVR, WSP, September 2024

Table 16 Journey Time Validation Summary by Route: PM Peak

Route ID	Obs.	Mod.	Diff.	%Diff	Pass TAG	Val. Rating
J1 EB	641	694	53	8%	Yes	G
J1 WB	917	685	-232	-25%	No	R
J2 SB	377	373	-4	-1%	Yes	G
J2 NB	358	352	-6	-2%	Yes	G
J3 EB	694	1054	360	52%	No	R
J3 WB	778	777	-2	0%	Yes	G
J4 EB	1114	985	-130	-12%	Yes	G
J4 WB	1158	1030	-129	-11%	Yes	G
J5 SB	506	521	15	3%	Yes	G
J5 NB	538	609	72	13%	Yes	G
J6 SB	639	637	-2	0%	Yes	G
J6 NB	638	719	81	13%	Yes	G
J7 WB	458	442	-16	-3%	Yes	G
J7 EB	390	398	8	2%	Yes	G
J8 EB	453	455	2	1%	Yes	G
J8 WB	421	426	5	1%	Yes	G
J9 EB	1122	728	-394	-35%	No	R
J9 WB	853	804	-49	-6%	Yes	G
J10 SB	474	496	22	5%	Yes	G
J10 NB	788	810	22	3%	Yes	G

Source: Reproduced from LMVR, WSP, September 2024

Figure 5 Journey Time Route Validation Summary Map: PM Peak

Source: Reproduced from LMVR, WSP, September 2024

- 3.24 In AM Peak, the M62 westbound route fails to meet the TAG validation criteria, with the model approximately 11 minutes quicker compared with the observed data. Also, the A58 westbound is failing with the model being quicker than the observed data by more than 3 minutes.
- 3.25 During the PM Peak, the M62 westbound route is failing to meet the TAG validation criteria, and the model is quicker than the observed data by around 4 minutes. Also, the B6222 eastbound and Pilsworth Road eastbound routes are failing by being 6 minutes slower and 6 minutes faster respectively. As shown in **Table 17** the model validates with the TAG requirements across all time periods when considering all the journey time routes.

Table 17 Journey Time Validation: All Routes

Performance Measure (20 routes)	AM Peak	Inter Peak	PM Peak
Routes within 15% or 1 min of Observed Times ('Green' validation)	90%	95%	85%
Within 20% - Near Pass ('Yellow' validation)	95%	95%	85%

Source: Reproduced from LMVR, WSP, September 2024

- 3.26 It is appreciated that, overall, the model journey time routes satisfy the TAG criteria. However, AECOM notes that the M62 westbound does not validate and is a significant limitation of the base model.
- 3.27 Given that the M62 motorway is a key SRN route and one of two which the development will likely generates trips to and from, the lack of validation is considered **SIGNIFICANT**. As the modelled journey time is significantly quicker than observed, the model currently would perceive the M62 as a more attractive option due to not being able to represent the level of

observed congestion, which would potentially bias the traffic routing from other SRN routes such as the M66.

- 3.28 AECOM recommends the developer proposes a method to mitigate and address this limitation, such as a re-validation exercise, or to propose an alternative method to deal with this issue during the development proposal assessment. This could be addressed by conducting sensitivity testing in the forecasts, limiting the speed on the M62 westbound to understand the impact on routing.

4. Review of initial comments from National Highways

4.1 As per the *Technical Note – NH Comments 1, WSP, 21 February 2025*, National Highways provided comments on the LMVR requesting additional details which are summarised below:

- Evidence to demonstrate the agreement of elements considered in LMVR;
- 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;
- Confirmation regarding the dates used from the TomTom dataset;
- Evidence to demonstrate the location of Link Calibration/Validation count locations;
- Providing a full set of results for Turn Flow verification;
- GIS files to allow for a detailed review of the SRN Junctions calibration/validation;
- Provide evidence of considering the miscalibration of flows while forecasting;
- Provide an explanation on consideration of routes that do not meet the validation criteria during forecasting; and
- Provide sub-sectional journey time information to provide further background to the forecast outputs.

4.2 The AECOM review identifies significant issues related to the NGTM 2022 base model that are listed below:

- **Peak hour discrepancy:** The study area peak hour was found to be 07:00 to 08:00 for the AM peak and 16:00 to 17:00 for the PM peak based on the WEBTRIS daily flow profile whereas the modelled peak hours are 08:00 to 09:00 for the AM peak and 17:00 to 18:00 for the PM peak.
- **Journey Time Validation:** Although enough of the journey times validation to meet the TAG criteria to consider the model validated in all time periods, the M62 WB route fails with a significant faster journey times in both the AM and PM peaks. The journey time route is a key SRN route in the study area.
- **Turn Flow Validation:** While TAG guidelines indicate that it might be difficult to achieve the flow validation criteria for turning movements in a strategic model, it is noted that certain turn movements at M60 J19 (a key SRN junction located very close the development) are failing with a considerable difference. Given this junction forms a key entry and exit point to the SRN where the development could be forecast to increase trips, it is vital these flows match.

4.3 National Highways' comments align with AECOM's model audit. Given the nature of the comments it is recommended that these points are addressed, and their impact is eliminated or reduced during the proposals assessment, and to increase the robustness of the base model.

5. Review of responses from the developer's consultant

- 5.1 Based on the *Technical Note – NH Comments 2, WSP, 08 May 2025*, the developer's consultant responded to National Highways initial comments on the LMVR. AECOM notes that most of the responses are not unreasonable given that it is a strategic model. This section highlights the response to the modelled peak hour discrepancy.

Appropriateness of the proposed peak hours

- 5.2 A detailed analysis was carried out by the developer's consultant to address the National Highways comment on the discrepancy in the proposed peak hours. The analysis compares the 2022 observed traffic flow at each junction for the AM peak period hours of 07:00 – 08:00 and 08:00 – 09:00, as well as for the PM peak hours of 16:00 – 17:00 and 17:00 – 18:00. The results of the comparison are reproduced in **Table 18** and **Table 19**.

Table 18 Comparison of Observed Hourly Traffic Flows for Junctions Within the TA

TT Ref:	Jct. Name	AM peak period				PM peak period			
		0700-0800	0800-0900	Diff	% Diff	1600-1700	1700-1800	Diff	% Diff
1	M62 J19	2626	2888	262	9%	2868	2681	-187	-7%
2	A6045 Manchester Road / Queen Elizabeth II Way (QEII Way)	1369	1671	302	18%	1613	1515	-99	-7%
3	QEII Way / Hareshill Road / SH residential & local centre								
4	Hareshills Road / Hill Top Road	734	981	247	25%	865	821	-44	-5%
5	Hareshill Road / Pilsworth Road	1012	1287	276	21%	1210	1123	-87	-8%
6	A58 Bury St / Pilsworth Road	1534	1868	334	18%	1908	1795	-113	-6%
7	Pilsworth Road / Heywood Distribution Centre	912	1218	306	25%	1110	1034	-76	-7%
8	Pilsworth Road / JPA1.1 & SHDA employment								
9	3 Arrows (Pilsworth Road / Moss Hall Road - South)	1156	1384	229	17%	1346	1219	-128	-10%
10	Fowler Welch (Pilsworth Road / Moss Hall Road - North)	1248	1501	253	17%	1453	1332	-121	-9%
11	M66 J3	2252	2709	456	17%	2568	2510	-58	-2%
12	M66 J2	4750	5558	808	15%	5258	5186	-71	-1%
13	Whittle Lane / A6045 Heywood Old Road	1334	1549	215	14%	1571	1512	-60	-4%
14	A6045 Heywood Old Road / Langley Lane	1339	1593	254	16%	1554	1499	-55	-4%
15	Langley Lane / A6046 Hollin Lane								
16	A6045 Manchester Road / Coronation Avenue	1297	1337	41	3%	1364	1390	26	2%
17	Hollins Brow / Hollins Lane								
18	Hollins Brow / A56 Manchester Road								
19	M60 J18								
20	M62 J20								
21	M60 J19	4566	4120	-445	-11%	5140	4987	-154	-3%
22	A576 Middleton Road / A6045 Heywood Old Road	2080	1982	-98	-5%	2464	2520	56	2%
23	A58 Rochdale Road / B6221 Wash Lane traffic signals	3633	4258	626	15%	4141	4032	-109	-3%
	Strategic Junctions - Total	14194	15274	1080	7%	15834	15364	-470	-3%

Source: Reproduced from 'Technical Note – NH Comments 2', WSP, May 2025

Table 19 Comparison of Observed Hourly Traffic Flows for Junctions not Included Within the TA

TT Ref:	Jct. Name	AM peak period				PM peak period			
		0700-0800	0800-0900	Diff	% Diff	1600-1700	1700-1800	Diff	% Diff
A1	A58 Bury New Road / Heap Brow	1666	2018	352	17%	1773	1839	66	4%
A2	A58 Bury Street / Bury Old Road / Bury New Road	1253	1540	288	19%	1417	1375	-43	-3%
A3	A58 York Street / A6046 Market Place / hind Hill Street / Taylor Street	851	1144	293	26%	1170	1130	-40	-4%
A4	A58 Rochdale Road / Green Lane	1542	1732	190	11%	1751	1709	-42	-2%
A5	A58 Rochdale Road / York Street	1206	1446	241	17%	1521	1519	-2	0%
A6	Rochdale Road / Manchester Street / Church Street	1381	1757	376	21%	1803	1778	-25	-1%
A7	Pilsworth Road / Egerton Street / Argyle Street	829	1258	429	34%	1173	1157	-16	-1%
A8	Heap Brow / Bury Old Road / Moss Hall Road	730	1029	300	29%	922	859	-63	-7%
A9	Pilsworth / Car Park / Site Access	1513	1875	361	19%	1621	1536	-84	-5%
A10	Pilsworth / Roach Bank Road	2021	2454	433	18%	2477	2426	-51	-2%
A11	Car Park / Moss Hall Road	446	536	90	17%	564	495	-69	-14%
A12	NE Pilsworth / SW Pilsworth	612	752	140	19%	747	730	-17	-2%
A13	Manchester Road / Green Lane	1909	1936	27	1%	2180	2105	-75	-4%
A14	A6046 Manchester Road / A6046 Middleton Road	1878	1884	6	0%	2145	2076	-70	-3%
A15	A6046 Middleton Road / Coronation Avenue	1556	1600	44	3%	1680	1610	-70	-4%

Source: Reproduced from 'Technical Note – NH Comments 2', WSP, May 2025

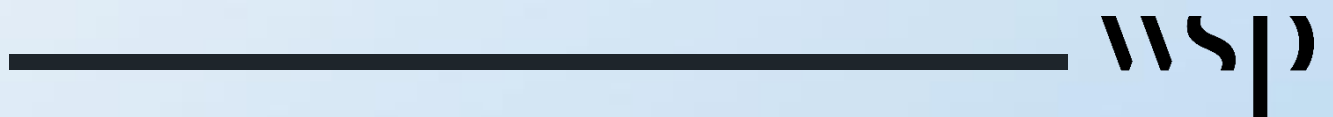
- 5.3 From the above analysis, it was concluded that, during the AM peak period, the hour which has been modelled 08:00 – 09:00, is representative of the AM peak hour (i.e, the hour with the highest traffic flow). For the PM peak period, **Table 18** and **Table 19** indicate that the volume of traffic on the network is slightly higher between 16:00 – 17:00, than in the modelled peak hour of 17:00 – 18:00 Whilst the traffic flow is slightly lower in the assessed hour when looked at in totality over the selected locations, the magnitude of the difference on some individual junctions is higher. This is considered **SIGNIFICANT**.
- 5.4 AECOM therefore recommends assessing the individual SRN junction models for both AM and PM peak hour by uplifting the demand for the junctions that shows lower demands.
- 5.5 This is recommended to be based on the percentage differences for each junction, calculated locally rather than applying a global factor for all the SRN junctions, while undertaking the assessment. This will ensure a more robust assessment and would increase the confidence in subsequent capacity assessments.

6. Summary and Recommendations

- 6.1 Based on the review of the MSR, developer's responses to National Highways and the LMVR, AECOM notes that, overall, the NGTM 2022 base model is presented by the developer's consultant as calibrating and validating to the required TAG guidelines. TAG guidance makes clear that determining appropriateness of the model is based on the model providing a realistic response to forecast scenarios. Whilst model validation provides one indication of this, adherence to benchmark criteria does not guarantee suitability. Equally, the narrow missing of the target criteria does not mean that a model cannot be considered appropriate.
- 6.2 AECOM's audit has identified **MEDIUM** and **SIGNIFICANT** concerns with base model, these are summarised below:
- **SIGNIFICANT, Model Specification Report Update:** The MSR sets out the overall specification for the traffic modelling. Given the issues raised, this report should be updated to reflect an amended methodology required to address the points raised.
 - **MEDIUM, Missing Turn Flow data:** The LMVR does not provide details of turning flows at M62 J18, which is a crucial junction for routing as it connects M60/M66 and M62. AECOM requests the turn flow details of this junction given its proximity to the development site.
 - **SIGNIFICANT, Modelled Peak Hours:** Although the modelled peak hours do not match with the study area peak hours, it was noted that, based on the detailed analysis carried out by the developer's consultant, the modelled AM peak hour is representative of the observed AM peak (based on 2022 observed traffic flows at each junction). However, the modelled PM peak flows are slightly lower than the observed data with a significant difference at some individual junctions. AECOM recommends assessing the individual junctions by uplifting the junctions with a local factor rather than a global factor to ensure robustness of the model.
 - **SIGNIFICANT, Journey Time Validation:** The LMVR reported that the journey time is not validating for the M62 WB route in both the AM and PM peak, even though the overall journey time routes are meeting TAG criteria. Considering that the M62 WB route is a key strategic route in the study area, AECOM recommends mitigation is identified and this limitation is addressed during the development proposal assessment.
 - **SIGNIFICANT, Turn Flow Validation:** Noting that TAG guidelines clearly indicate that it might be difficult to achieve the flow validation criteria for turning movements in a strategic model, there are a number of turns at key SRN junctions (M60 J19 in particular) where a significant difference is observed. Therefore, AECOM advises that there are potential risks using the turn flows from the model directly in the assessment of the junctions in the forecast scenarios.
- 6.3 AECOM recommend that the above concerns should be addressed before any forecast works are completed using the NGTM 2022 base model.

Appendix D

NGTM Forecast Review- AECOM



Northern Gateway Traffic Model Forecasting Review

Technical Note 02

National Highways / WSP

Project number: 60659693

02 July 2025

Quality information

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1. Introduction

1.1 AECOM have been commissioned by National Highways to undertake a review of the suite of models developed in support of planning application for Northern Gateway Development. The review reported in this Technical Note (TN02) focuses on the forecasting assumptions, methodology and outcomes of the development test undertaken. The documents reviewed are:

- Transport Forecasting Report (TFR) [*Northern Gateway Traffic Model - Transport Forecasting Report, WSP, March 2025*]

1.2 Any items requiring clarification have been classified into three levels:

- **MINOR** – Observations that could have a minimal impact on modelling results;
- **MEDIUM** – Observations that could have a medium impact on modelling results; and
- **SIGNIFICANT** – Observations that raise substantial concern and are likely to materially affect the modelling outcomes.

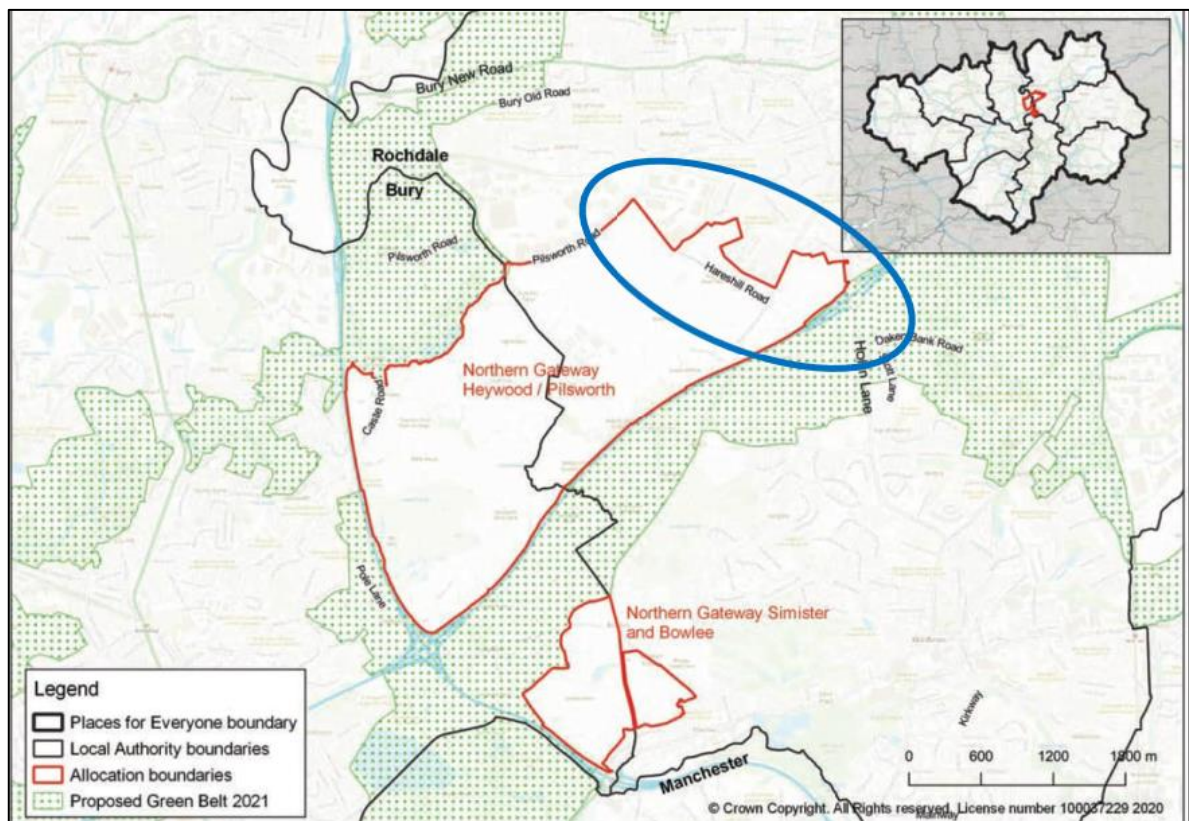
National Highways

1.3 National Highways have been appointed by the Secretary of State as a strategic highway company under the provisions of the Infrastructure Act 2015. National Highways is responsible for operating, maintaining, and improving the Strategic Road Network (SRN) in England, in accordance with the License issued by the Secretary of State for Transport (April 2015) and Government policies and objectives.

1.4 This review will therefore only comment on any issues relating to the impact on the SRN. National Highways' approach to planning applications is guided by the Department for Transport's Circular 01/22: *The Strategic Road Network and the Delivery of Sustainable Development* (the Circular). This review has been prepared in the context of National Highways' statutory responsibilities, considering relevant government policy and regulation, and informed by the National Planning Policy Framework (NPPF).

Background

1.5 The Northern Gateway is a major regeneration project located around Junction 18 of the M60 motorway extending east to Junction 19 of the M62 and north to Junction 3 of the M66. **Figure 1** shows the location of the Northern Gateway development.

Figure 1 Northern Gate Development

(Source: Figure 1-1, Model Specification Report, WSP, January 2023)

(Note: The already consented South Heywood Development Area is indicated by the area circled in blue)

1.6 The Northern Gateway development comprises two key sites.

- JPA 1.1 - Heywood / Pilsworth: mixed use, predominately employment-based development, identified within the submission draft Places for Everyone (PfE) as suitable for up to 1,200,000sqm of industrial and warehousing space (up to 700,000sqm being delivered during the plan period up to 2040), and 200 new homes. This development to be in addition to the 135,000sqm of employment development, 1,000 homes and local centre & primary school, to the east of the allocation area at the South Heywood Development Area (SHDA).
- JPA 1.2 - Simister and Bowlee: predominantly residential development of up to 1,550 homes, plus local centre, including new primary school.

Development Application

1.7 The development which is subject of the current Planning Application (Ref: 25/00418/OUT¹) is proposed for up to 600,000sqm of employment floorspace with up to 5,000sqm of supporting uses as part of JPA 1.1 allocation site.

1.8 The Planning Application summarises the proposal as

“Application for outline planning permission (all matters reserved) for a national-scale employment development, comprising Storage & Distribution (Use Class B8) and Industrial (Use Classes B2, E(g)(ii) and E (g)(iii)) uses (including, but not limited to, Logistics, Manufacturing Processes and Data Centres), with supporting ancillary uses including Hotel (Use Class C1), Commercial, Business & Service (Uses Class E (a-g)), Education (Use Class F1(a)), Local Community (Use Class F2(a-c) uses, Sui Generis uses (in accordance with the Uses Schedule), and associated demolition works, landscaping, drainage,

¹ <https://publicaccess.rochdale.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=SV44U7NB00500>

ecological enhancements, highway works, cycleway and footpath linkages and other ancillary infrastructure” which does not include any residential elements.

- 1.9 AECOM will review the modelling in the next chapters to understand if it aligns with the Planning Application.

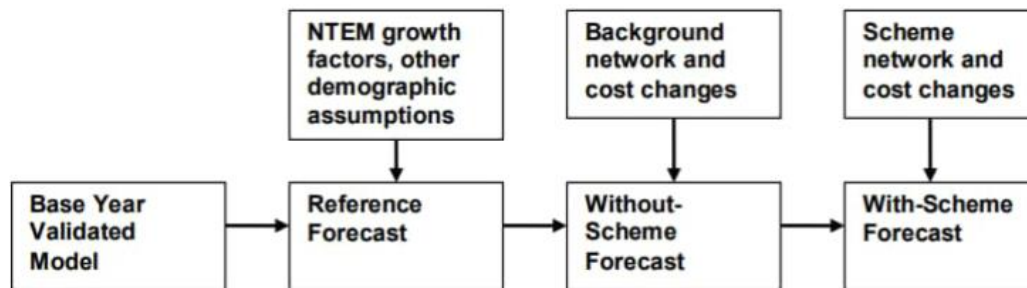
Review Structure

- 1.10 The review will comprise the following structure:
- Section 2 – review of Forecasting Methodology;
 - Section 3 – review of Northern Gateway Demand Development;
 - Section 4 – review of Modelled scenarios;
 - Section 5 – review of forecast networks and assignment results; and
 - Section 6 – summary of the findings.

2. Review of Forecasting Methodology

- 2.1 This will include the review of the forecast growth assumptions, and the methods to develop future year demands.
- 2.2 The Traffic Forecasting Report (TFR) states that the Northern Gateway Traffic Model (NGTM) model adopted the standard approach to forecasting based on TAG M4. This process of forecasting is reproduced in **Figure 2**.

Figure 2 Approach to Forecasting



(Source: Figure 4-1, Traffic Forecasting Report, WSP, March 2025)

Forecast Years

- 2.3 The NGTM was developed for various forecast years using a combination of varying development yields and changes to associate infrastructure. The core forecast years modelled are:
- 2032 – Opening Year – partial development; and
 - 2039 – Full development with additional sensitivity tests.
- 2.4 In addition to these, additional forecast years of 2024 and 2047 along with additional sensitivity tests were also produced to assist the environmental assessment undertaken as part of the transport assessment. However, the TFR currently reports only 2032 and 2039 forecast years which is appropriate considering that 2039 is the full development opening year which aligns with National Highways circular 01/22.

Uncertainty Log

- 2.5 This review will focus on future major developments and infrastructure assumptions within the vicinity of the scheme area, i.e. what is included subject to data availability.
- 2.6 The TFR identifies Transport for Greater Manchester's (TfGM's) 2019 Uncertainty Log was used as a starting point. The model study area is spread over two council areas, namely, Rochdale Borough Council and Bury Council. A list of developments (employment, residential and infrastructure) within Rochdale and Bury were provided by both authorities which were incorporated into the Uncertainty Log.
- 2.7 AECOM notes that the TFR identified developments forecast to generate less than 30 two-way trips were not included within the Uncertainty Log. Strategically important sites like draft PfE allocations and any associated highway network improvements were included within the TfGM uncertainty log. Given the scale of the model, this approach is considered reasonable.
- 2.8 The TFR reports that all developments provided in the Uncertainty Log were explicitly modelled in the Do-Minimum (DM) scenario (i.e. 'Without-Scheme'), with the Northern Gateway Development modelled in the Do-Something (DS) scenario (i.e. 'With-Scheme'). The Uncertainty Log has been updated to reflect the latest assumptions relating to future

developments and highway network improvements, as of November 2024 when the forecasting work was undertaken. This review considers this approach to be acceptable.

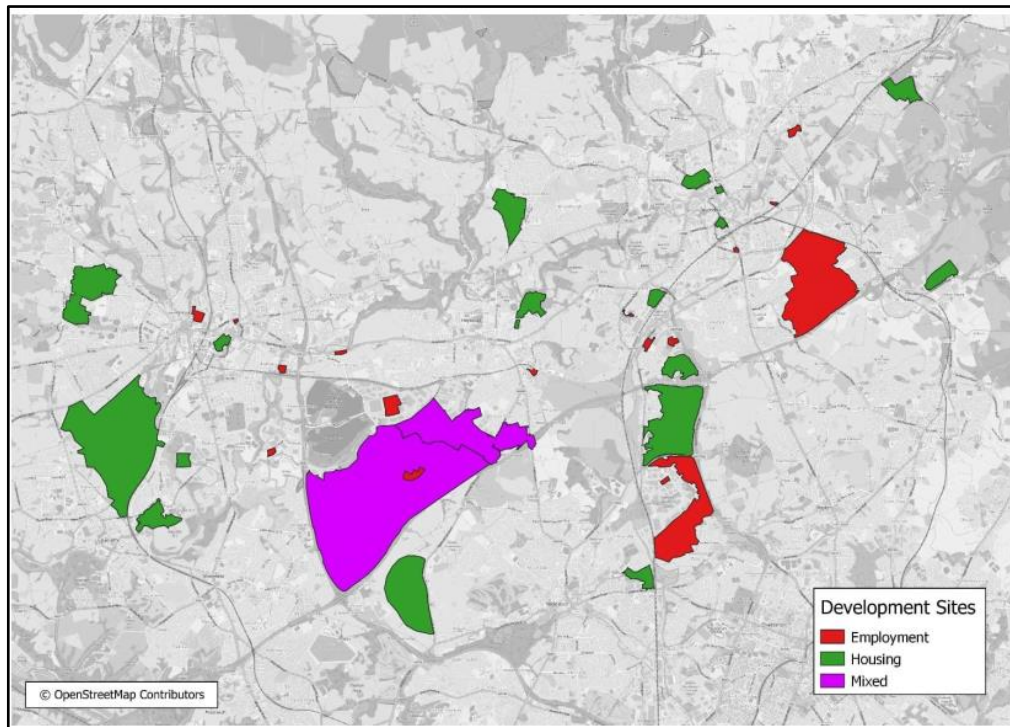
2.9 The location of the key residential and employment developments considered in the DM and DS scenarios in the study area is reproduced in

2.10 **Figure 3** and the location of Northern Gateway Development sites are clearly indicated in

2.11

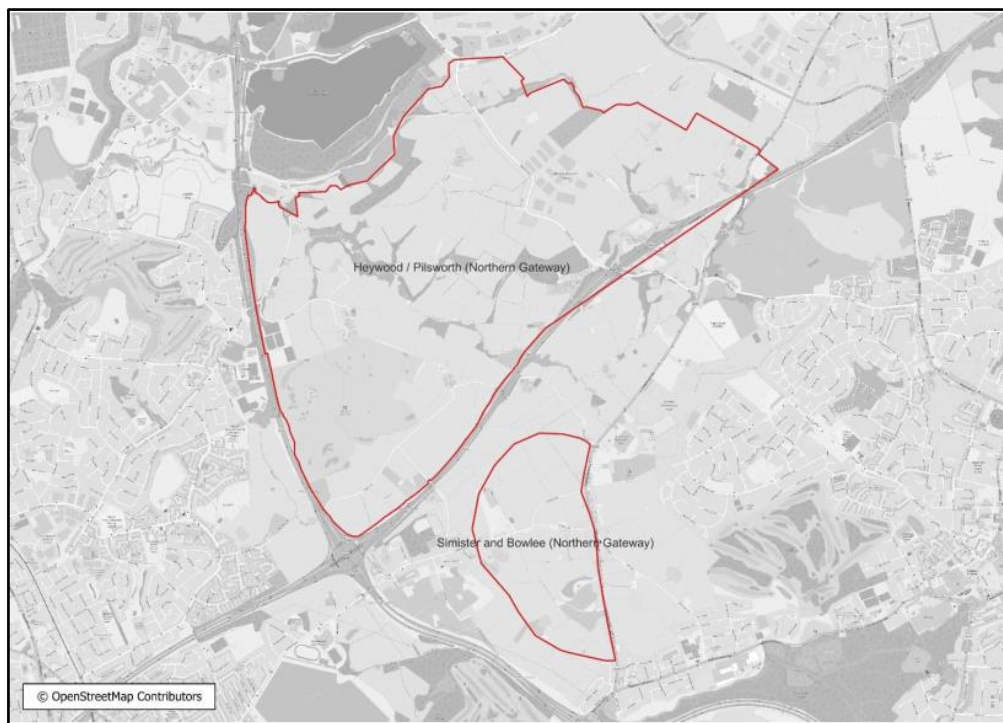
2.12 **Figure 4.**

Figure 3 Locations of Key Residential and Employment Development within the Study Area



(Source: Figure 5-2, Traffic Forecasting Report, WSP, March 2025)

Figure 4 Northern Gateway Development Site Locations



(Source: Figure 3-1, Traffic Forecasting Report, WSP, March 2025)

- 2.13 In addition to development sites, the TFR identifies the Uncertainty Log details supply assumptions (infrastructure schemes). It is stated that following discussion and agreement with National Highways during Transport Strategy Group (TSG) meetings, the Simister Island (M60 Junction 18) highway improvement scheme was the only infrastructure scheme coded into the DM 2032 and 2039 scenarios.
- 2.14 Whilst it is stated that the Uncertainty Log of transport improvements schemes was agreed with the TSG, AECOM could not confirm this as no evidence to support this position has been provided to this review to support the statement. This is considered **MINOR**.

Background Growth

Cars

- 2.15 The TFR states that background demand changes are accounted for by applying data from the DfT's National Trip End Model (NTEM) dataset as per TAG guidance.
- 2.16 Growth factors were extracted from the NTEM version 8.1 for each demand segment. The growth factors were applied at Middle Layer Super Output Areas (MSOA) level for zones within the Fully Modelled Area and aggregated to higher geographies corresponding to the zone definitions in the external areas. The summary of factors for Bury and Rochdale districts overall are reproduced in **Table 1**.

Table 1 Summary of NTEM Growth Factors - Unadjusted

Year	District	AM Peak		Inter Peak		PM Peak	
		O	D	O	D	O	D
2022-2024	Bury	1.0146	1.0168	1.0167	1.0168	1.0163	1.0149
	Rochdale	1.0215	1.0183	1.0206	1.0206	1.0185	1.0207
2022-2032	Bury	1.0562	1.0663	1.0679	1.0677	1.0642	1.0577
	Rochdale	1.0887	1.0713	1.0836	1.0844	1.0742	1.0859
2022-2039	Bury	1.0811	1.0956	1.0978	1.0974	1.0917	1.0821
	Rochdale	1.131	1.1024	1.1231	1.1245	1.1071	1.1261
2022-2047	Bury	1.1004	1.1202	1.1289	1.1279	1.115	1.1018
	Rochdale	1.1656	1.128	1.1619	1.1635	1.1347	1.1596

Source: Reproduced from Table 6-1, TFR, WSP, March 2025

- 2.17 The TFR explains that alternative assumptions were applied in NTEM 8.1 to adjust background growth and avoid double counting of trips. Overall growth was controlled to NTEM values at district level in line with TAG M4 guidance.
- 2.18 This review has found it challenging to follow the growth forecasting methodology and thus be able to determine its appropriateness or robustness of the approach for National Highways. Overall, the lack of clarity in the identified methodology for how traffic growth is forecast is considered **SIGNIFICANT**. The concerns around clarity centre on the following:
- The reporting of the methodology is not sufficiently detailed;
 - It is not clear how the adjusted growth factors were estimated and then applied;
 - No information about how the committed developments (from the Uncertainty Log) were treated and added to the demands; and
 - Why the overall growth within the boroughs of Bury and Rochdale was constrained, considering this is a development assessment rather than a TAG compliant business case.
- 2.19 In order to provide a full review for the forecasting approach and methodology and to be able to ensure it is appropriate towards National Highways requirements. AECOM recommend further information and reporting are provided.

LGV and HGV

- 2.20 LGV and HGV background growth has been derived from the National Road Traffic Projections (N RTP) 2022 which are produced by the Department for Transport (DfT) from the National Transport Model (NTM), for the Northwest region. The factors were applied at Government Region level as shown in **Table 2**.

Table 2 Summary of NTM Growth Factors, LGV and HGV

Year	LGVs	HGVs
2022-2024	1.0410	1.0095
2022-2032	1.0851	1.0501
2022-2039	1.1844	1.0822
2022-2047	1.2922	1.1130

Source: Reproduced from Table 6-2, TFR, WSP, March 2025

- 2.21 The approach adopted towards growth of LGV and HGV trips detailed within the TFR is considered appropriate.

3. Review of Northern Gateway Demand Development

Development Trip Generation

- 3.1 TRICS database was used to derive the trip rates for each of the land uses. AECOM notes that the trip rates have been provided by Northern Gateway Development Vehicle (NGDV) and agreed with TSG as mentioned in the TFR. No evidence has been provided to support the trip rates are agreed. This is considered **MINOR**.
- 3.2 Two versions of person trip rates have been presented to support the proposals. These are:
- “Policy Off” - trip rates that are not discounted to reflect the drive towards active travel; and
 - “Policy On” - trip rates that assume 60% of person trips as vehicles.
- 3.3 It is not clear what percentage of person trips are assumed as Vehicles in the “Policy Off” trip rates, compared with the assumed 60% in the “Policy on”. This should be clarified by the consultants and is considered a **MEDIUM** level of impact.
- 3.4 The “Policy Off” trip rates for each time period are reproduced in **Table 3** to **Table 5**.

Table 3 AM Peak Trip Rates, “Policy Off”

		AM (08:00-09:00)					
		Car		LGV		OGV	
Land Use	Trip Rate Type	Arr	Dep	Arr	Dep	Arr	Dep
Apartments/TC	avg trip rate per dwelling	0.025	0.068	0.006	0.011	0.001	0.002
Houses/TC	avg trip rate per dwelling	0.095	0.179	0.023	0.028	0.005	0.006
B1c/B2/B8/TC	avg per 100sqm GFA	0.232	0.065	0.031	0.052	0.034	0.050
B1a/TC	avg per 100sqm GFA	0.351	0.027	0.056	0.029	0.035	0.011
B1c/B8/TC	avg per 100sqm GFA	0.109	0.018	0.015	0.014	0.016	0.015
B8/TC	avg per 100sqm GFA	0.029	0.006	0.003	0.003	0.006	0.008
B1c/TC	avg per 100sqm GFA	0.192	0.030	0.031	0.032	0.019	0.012
B2/B8/TC	avg per 100sqm GFA	0.245	0.076	0.030	0.051	0.042	0.073
B2/TC	avg per 100sqm GFA	0.357	0.117	0.048	0.099	0.050	0.068
B1c/B2/TC	avg per 100sqm GFA	0.110	0.019	0.016	0.018	0.013	0.009
Apartments/NonTC	avg trip rate per unit	0.044	0.155	0.011	0.025	0.003	0.005
Houses/NonTC	avg trip rate per unit	0.091	0.245	0.022	0.039	0.005	0.008
B1c/B2/B8/NonTC	avg per 100sqm GFA	0.232	0.065	0.031	0.052	0.034	0.050
B1a/NonTC	avg per 100sqm GFA	0.835	0.116	0.134	0.124	0.084	0.047
B1c/B8/NonTC	avg per 100sqm GFA	0.109	0.018	0.015	0.014	0.016	0.015
B8/NonTC	avg per 100sqm GFA	0.029	0.006	0.003	0.003	0.006	0.008
B1c/NonTC	avg per 100sqm GFA	0.192	0.030	0.031	0.032	0.019	0.012
B2/B8/NonTC	avg per 100sqm GFA	0.245	0.076	0.030	0.051	0.042	0.073
B2/NonTC	avg per 100sqm GFA	0.357	0.117	0.048	0.099	0.050	0.068
B1c/B2/NonTC	avg per 100sqm GFA	0.110	0.019	0.016	0.018	0.013	0.009
Tetra Tech Residential	avg trip rate per dwelling	0.134	0.419	0.016	0.030	0.001	0.000
Tetra Tech AMan	avg per 100sqm GFA	0.399	0.039	0.034	0.007	0.023	0.002
Tetra Tech B1c	avg per 100sqm GFA	0.294	0.067	0.089	0.102	0.022	0.028
Tetra Tech B8	avg per 100sqm GFA	0.055	0.014	0.014	0.009	0.023	0.018
Tetra Tech B2	avg per 100sqm GFA	0.185	0.003	0.047	0.027	0.027	0.029

Source: Reproduced from Table 6-3, TFR, WSP, March 2025

Table 4 Inter Peak Trip Rates, “Policy Off”

		IP (10:00-16:00)					
		Car		LGV		OGV	
Land Use	Trip Rate Type	Arr	Dep	Arr	Dep	Arr	Dep
Apartments/TC	avg trip rate per dwelling	0.035	0.035	0.009	0.008	0.002	0.001
Houses/TC	avg trip rate per dwelling	0.116	0.108	0.029	0.023	0.005	0.004
B1c/B2/B8/TC	avg per 100sqm GFA	0.123	0.139	0.044	0.043	0.044	0.036
B1a/TC	avg per 100sqm GFA	0.076	0.074	0.022	0.020	0.010	0.007
B1c/B8/TC	avg per 100sqm GFA	0.046	0.053	0.014	0.015	0.016	0.013
B8/TC	avg per 100sqm GFA	0.016	0.020	0.006	0.006	0.010	0.009
B1c/TC	avg per 100sqm GFA	0.080	0.090	0.023	0.025	0.011	0.008
B2/B8/TC	avg per 100sqm GFA	0.129	0.151	0.052	0.049	0.067	0.055
B2/TC	avg per 100sqm GFA	0.190	0.218	0.086	0.078	0.074	0.064
B1c/B2/TC	avg per 100sqm GFA	0.046	0.053	0.017	0.017	0.011	0.010
Apartments/NonTC	avg trip rate per unit	0.069	0.074	0.017	0.016	0.003	0.003
Houses/NonTC	avg trip rate per unit	0.131	0.127	0.033	0.027	0.006	0.005
B1c/B2/B8/NonTC	avg per 100sqm GFA	0.123	0.139	0.044	0.043	0.044	0.036
B1a/NonTC	avg per 100sqm GFA	0.292	0.302	0.084	0.083	0.039	0.028
B1c/B8/NonTC	avg per 100sqm GFA	0.046	0.053	0.014	0.015	0.016	0.013
B8/NonTC	avg per 100sqm GFA	0.016	0.020	0.006	0.006	0.010	0.009
B1c/NonTC	avg per 100sqm GFA	0.080	0.090	0.023	0.025	0.011	0.008
B2/B8/NonTC	avg per 100sqm GFA	0.129	0.151	0.052	0.049	0.067	0.055
B2/NonTC	avg per 100sqm GFA	0.190	0.218	0.086	0.078	0.074	0.064
B1c/B2/NonTC	avg per 100sqm GFA	0.046	0.053	0.017	0.017	0.011	0.010
Tetra Tech Residential	avg trip rate per dwelling	0.133	0.125	0.017	0.017	0.001	0.001
Tetra Tech AMan	avg per 100sqm GFA	0.109	0.215	0.022	0.026	0.007	0.013
Tetra Tech B1c	avg per 100sqm GFA	0.070	0.081	0.039	0.038	0.010	0.009
Tetra Tech B8	avg per 100sqm GFA	0.028	0.032	0.017	0.019	0.020	0.022
Tetra Tech B2	avg per 100sqm GFA	0.038	0.055	0.040	0.040	0.027	0.022

Source: Reproduced from Table 6-4, TFR, WSP, March 2025

Table 5 PM Peak Trip Rates, “Policy Off”

		PM (17:00-18:00)					
		Car		LGV		OGV	
Land Use	Trip Rate Type	Arr	Dep	Arr	Dep	Arr	Dep
Apartments/TC	avg trip rate per dwelling	0.070	0.046	0.010	0.007	0.001	0.001
Houses/TC	avg trip rate per dwelling	0.203	0.168	0.028	0.027	0.004	0.003
B1c/B2/B8/TC	avg per 100sqm GFA	0.063	0.216	0.020	0.010	0.024	0.012
B1a/TC	avg per 100sqm GFA	0.032	0.392	0.014	0.012	0.006	0.013
B1c/B8/TC	avg per 100sqm GFA	0.022	0.116	0.006	0.006	0.007	0.007
B8/TC	avg per 100sqm GFA	0.011	0.028	0.001	0.002	0.005	0.002
B1c/TC	avg per 100sqm GFA	0.032	0.208	0.014	0.007	0.006	0.007
B2/B8/TC	avg per 100sqm GFA	0.074	0.217	0.019	0.011	0.035	0.015
B2/TC	avg per 100sqm GFA	0.094	0.317	0.041	0.012	0.049	0.017
B1c/B2/TC	avg per 100sqm GFA	0.020	0.119	0.009	0.004	0.007	0.005
Apartments/NonTC	avg trip rate per unit	0.192	0.120	0.026	0.019	0.004	0.002
Houses/NonTC	avg trip rate per unit	0.279	0.189	0.038	0.030	0.005	0.003
B1c/B2/B8/NonTC	avg per 100sqm GFA	0.063	0.216	0.020	0.010	0.024	0.012
B1a/NonTC	avg per 100sqm GFA	0.145	0.872	0.065	0.028	0.028	0.028
B1c/B8/NonTC	avg per 100sqm GFA	0.022	0.116	0.006	0.006	0.007	0.007
B8/NonTC	avg per 100sqm GFA	0.011	0.028	0.001	0.002	0.005	0.002
B1c/NonTC	avg per 100sqm GFA	0.032	0.208	0.014	0.007	0.006	0.007
B2/B8/NonTC	avg per 100sqm GFA	0.074	0.217	0.019	0.011	0.035	0.015
B2/NonTC	avg per 100sqm GFA	0.094	0.317	0.041	0.012	0.049	0.017
B1c/B2/NonTC	avg per 100sqm GFA	0.020	0.119	0.009	0.004	0.007	0.005
Tetra Tech Residential	avg trip rate per dwelling	0.364	0.145	0.034	0.012	0.000	0.001
Tetra Tech AMan	avg per 100sqm GFA	0.020	0.175	0.003	0.004	0.001	0.009
Tetra Tech B1c	avg per 100sqm GFA	0.138	0.351	0.025	0.051	0.006	0.011
Tetra Tech B8	avg per 100sqm GFA	0.012	0.065	0.003	0.007	0.012	0.013
Tetra Tech B2	avg per 100sqm GFA	0.034	0.323	0.006	0.023	0.008	0.012

Source: Reproduced from Table 6-5, TFR, WSP, March 2025

- 3.5 “Policy On” Trips rates are reproduced in **Table 6**. Given that “Policy On” trip rates are discounted to account for shift to active travel, it is assumed that “Policy On” trip rates might be lower than the “Policy Off” trip rates. However, AECOM notes that the Tetra Tech “Policy On” trip rates for car total are slightly higher than the Tetra Tech “Policy Off” trip rates for residential land use. The difference in rates is considered counter intuitive and requirement of a **MEDIUM** clarification due to the level of impact it could potentially have on forecasts.

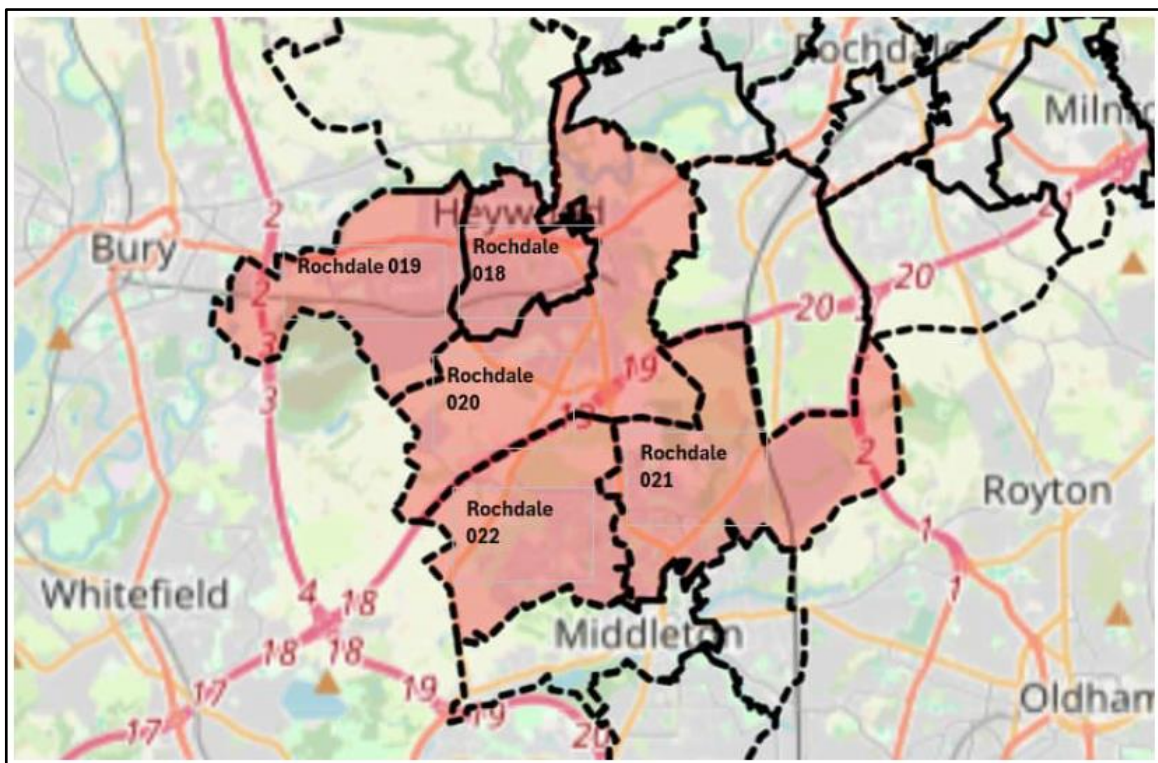
Table 6 “Policy On” Trip rates

		AM (08:00-09:00)					
		Car		LGV		OGV	
Land Use	Trip Rate Type	Arr	Dep	Arr	Dep	Arr	Dep
Tetra Tech Residential	avg trip rate per dwelling	0.110	0.488	0.016	0.030	0.001	0.000
Tetra Tech AMan	avg per 100sqm GFA	0.312	0.030	0.034	0.007	0.023	0.002
Tetra Tech B1c	avg per 100sqm GFA	0.217	0.029	0.089	0.102	0.022	0.028
Tetra Tech B8	avg per 100sqm GFA	0.027	0.002	0.014	0.009	0.023	0.018
Tetra Tech B2	avg per 100sqm GFA	0.122	0.000	0.047	0.027	0.027	0.029
		IP (10:00-16:00)					
		Car		LGV		OGV	
Land Use	Trip Rate Type	Arr	Dep	Arr	Dep	Arr	Dep
Tetra Tech Residential	avg trip rate per dwelling	0.136	0.106	0.017	0.017	0.001	0.001
Tetra Tech AMan	avg per 100sqm GFA	0.086	0.171	0.022	0.026	0.007	0.013
Tetra Tech B1c	avg per 100sqm GFA	0.050	0.059	0.039	0.038	0.010	0.009
Tetra Tech B8	avg per 100sqm GFA	0.006	0.007	0.017	0.019	0.020	0.022
Tetra Tech B2	avg per 100sqm GFA	0.022	0.037	0.040	0.040	0.027	0.022
		PM (17:00-18:00)					
		Car		LGV		OGV	
Land Use	Trip Rate Type	Arr	Dep	Arr	Dep	Arr	Dep
Tetra Tech Residential	avg trip rate per dwelling	0.320	0.143	0.034	0.012	0.000	0.001
Tetra Tech AMan	avg per 100sqm GFA	0.018	0.158	0.003	0.004	0.001	0.009
Tetra Tech B1c	avg per 100sqm GFA	0.122	0.313	0.025	0.051	0.006	0.011
Tetra Tech B8	avg per 100sqm GFA	0.004	0.040	0.003	0.007	0.012	0.013
Tetra Tech B2	avg per 100sqm GFA	0.030	0.294	0.006	0.023	0.008	0.012

Source: Reproduced from Table 6-6, TFR, WSP, March 2025

Development Trip Distribution

- 3.6 The TFR reported that development trips in DM forecast year models have been distributed using a set of donor zones from the model which have a similar land use type. However, it was reported agreed that the Northern Gateway development trips will be distributed based on Census Journey to Work data (2011) during discussions between planning consultants TetraTech and National Highways.
- 3.7 In order for this review to be satisfied that the correct approach has been followed towards trip distribution, evidence should be provided of differences in the application of different distributions between the background traffic and the Northern Gateway development trips. The evidence could be the comparison of the differences between the distributions; without this evidence it is considered a **MEDIUM** clarification.
- 3.8 Workplace and residential MSOAs in the study area that best represent the Northern Gateway sites were chosen as destinations in the Census Journey to Work data as reproduced in **Figure 5**.

Figure 5 Selected MSOA Area for Northern Gateway Development Sites

(Source: Figure 6-1, Traffic Forecasting Report, WSP, March 2025)

- 3.9 A list of origin areas with trips to these MSOA destinations were assigned to model zones and a proportion was calculated. These proportions were then applied to the business and commuting trips for the Northern Gateway sites.
- 3.10 With the scope of this review around modelling, AECOM assumes that the development trips distribution calculations were reviewed as a part of the transport assessment overall review. Moreover, within Appendix E of the TFR (Development Trip Distribution). It is noted that the provided plots represent assignments and do not provide appropriate information regarding the overall distribution on Origin-Distribution level.
- 3.11 Census to work does not provide information for LGVs and HGVs, these trips were distributed using the donor zone method. However, the TFR did not provide further information about the donor zones characteristics, and therefore AECOM would require information on which zones and their characteristics to be provided to determine their appropriateness. Considering this will have a sole impact on goods vehicles, this is considered a **MEDIUM** clarification.

Development Coding

- 3.12 Without having access to the model files, AECOM could not provide a review of how the development and overall masterplan has been coded within the model in terms of zoning system, internal road network, and overall demand loading and routing. The layout of the development could be provided by screenshots of the SATURN network, with annotation to identify the development within the model.
- 3.13 AECOM recommends that it would be preferable to acquire the UFS files for higher accessibility and efficiency in checking. Without the model files or annotated plots AECOM considers this to be a **SIGNIFICANT** clarification.

4. Review of Modelled Scenarios

Scenario Definitions

- 4.1 Each NGTM forecast year has two key scenarios, which will be referred to herein as Do-Minimum (DM) and Do-Something (DS). The core DM and DS scenario are defined as:
 - Do-Minimum – Inclusion of developments and infrastructure schemes that are considered committed to happen based on information provided in the Uncertainty Log ('Without-Scheme'); and
 - Do-Something – Inclusion of the Northern Gateway Development and supporting infrastructure schemes, which sits on top of the Do-Minimum ('With-Scheme').
- 4.2 The TFR reports that a total of eight highway schemes were identified in the immediate vicinity of the site. These are listed in **Table 7**.
- 4.3 AECOM notes that there is one scheme which is considered “committed” and included in the DM scenario and DS Scenario, the M60 Simister Island junction upgrade.
- 4.4 One internal Northern Gateway scheme, two external “committed” schemes and 1 “non-committed” external schemes are identified to be included within the DS scenarios but not the DM.
- 4.5 There are three other schemes titled as “non-committed” included within alternative scenarios.
- 4.6 Only the M60 Simister Island junction upgrade could, based upon the TAG Uncertainty Log criteria set out in TAG Unit M4, be considered a committed scheme. Notwithstanding which scenarios the other schemes are included within, they would not be considered “committed”. This review has checked and none of the schemes have active planning permissions or full agreed funding allocation.
- 4.7 Unless the development has direct control over the delivery of the schemes and they are included within the red line boundary of the planning application these schemes should not be classified as “committed”. This is considered **SIGNIFICANT** as it has a direct impact upon what schemes should correctly be included within the model scenarios used to inform the Transport Assessment. Ultimately, National Highways need to be provided with the right modelled scenario that includes the correct committed highway schemes to inform the forecast impacts of the development proposals.

Table 7 Northern Gateway Highway Infrastructure Schemes and Service

Name	Description	Uncertainty	Scenario included in	Design provided by
M62 J18 Simister Island Upgrade	Upgrading Simister Island Junction layout for capacity and new links	Modelled as Committed (based on information provide NH) with opening year of 2032	Included in DM	National Highways
Northern Gateway 1 (NG1)	Including upgrades for the Northern gateway developments with internal NG link.	NG Development related	Included in DS	Northern Gateway
Upgrades to Fowler Welch junction	These upgrades are anticipated to the taken forward by the council, and to be built along with the NG development, hence included in the in the "with scheme" scenario	Committed with scheme	Included in DS	Bury Council/ Rochdale Council
Upgrades to Three Arrows junction	These upgrades are anticipated to the taken forward by the council, and to be built along with the NG development, hence included in the in the "with scheme" scenario	Committed with scheme	Included in DS	Bury Council/ Rochdale Council
Birch Motorway Services	Including Birch Motorway Services between M62 J18 and J19	Non-Committed	Included in in alternate DS	Northern Gateway
M66 J3 Upgrades	Upgrading M66 J3 junction layout for capacity and slip lanes	Non-Committed	Included in in DS	Bury Council/ Rochdale Council
M62 J19 Upgrade	Upgrading M62 J19 junction layout for capacity and slip lanes	Non-Committed	Included in in alternate DS	Northern Gateway
Whittle Lane capacity reduction	Introduce signals on the motorway overbridge and reduce capacity	Non-Committed	Included in in alternate DS	Northern Gateway

Source: Reproduced from Table 3-1, TFR, WSP, March 2025

4.8 The list of the various scenarios modelled for the study detailed in the TFR are reproduced in **Table 8**.

Table 8 Consolidated List of Modelling Scenarios

Model Run Count	Year	Scenario Name	Key Matrix assumption	Trip Rates	Simister Improvements	Whittle Lane	3 Arrows and Folmer Walsh Improvements	M66 Jct 3 works	M62 Re-modelled Solution (Birch)	further J19 works	South Heywood Link
0	2022	2022 Baseline		Policy Off	Not Built	Open	Not Built	Not Built	Not Built	Existing	Not Built
1	2024	2024 Baseline	development TEMPRO	Policy Off	Not Built	Open	Not Built	Not Built	Not Built	Existing	Not Built
2		2024 DS1a	Full JPA1.1 (No JPA1.2)	Policy Off	Built	Open - Capacity Limited	Built	Built	Built	Modified by M62 Remodelling	Not Built
3		2024 DS1b	Full JPA1.1 (No JPA1.2)	Policy Off	Built	Open - Capacity Limited	Built	Built	Not Built	Existing	Not Built
4		2024 DS3	Full JPA1.1 + Full JPA1.2	Policy Off	Built	Open - Capacity Limited	Built	Built	Built	Modified by M62 Remodelling	Not Built
5	2032	2032 DM	development TEMPRO	Policy Off	Built	Open	Not Built	Not Built	Not Built	Existing	Not Built
6		2032 DS1a - Run 1	Full complete JPA1.1 (No JPA1.2)	Policy Off	Built	Open - Capacity Limited	Built	Built	Not Built	Existing	Not Built
7		2032 DS1b - Run 2	Full complete JPA1.1 (No JPA1.2)	Policy Off	Built	Open - Capacity Limited	Built	Built	Built	Modified by M62 Remodelling	Not Built
8		2032 DS3a - Run 1	Full complete JPA1.1 + JPA1.2	Policy Off	Built	Open - Capacity Limited	Built	Built	Not Built	Existing	Not Built
9		2032 DS3b - Run 2	Full complete JPA1.1 + JPA1.2	Policy Off	Built	Open - Capacity Limited	Built	Built	Built	Modified by M62 Remodelling	Not Built
10	2039	2039 DM	development TEMPRO	Policy Off	Built	Open	Not Built	Not Built	Not Built	Existing	Not Built
11		2039 DS1a - Run 1	Full complete JPA1.1 (No JPA1.2)	Policy Off	Built	Open - Capacity Limited	Built	Built	Not Built	Existing	Not Built
12		2039 DS1b - Run 2	Full complete JPA1.1 (No JPA1.2)	Policy Off	Built	Open - Capacity Limited	Built	Built	Built	Modified by M62 Remodelling	Not Built
13		2039 DS3a - Run 1	Full complete JPA1.1 + JPA1.2	Policy Off	Built	Open - Capacity Limited	Built	Built	Not Built	Existing	Not Built
14		2039 DS3b - Run 2	Full complete JPA1.1 + JPA1.2	Policy Off	Built	Open - Capacity Limited	Built	Built	Built	Modified by M62 Remodelling	Not Built
15	2047	2047 DM	development TEMPRO	Policy Off	Built	Open - Capacity Limited	Not Built	Not Built	Not Built	Existing	Not Built
16		2047 DS3b	Full JPA1.1 + Full JPA1.2	Policy Off	Built	Open - Capacity Limited	Built	Built	Built	Modified by M62 Remodelling	Not Built
Original Sensitivity Tests											
17		2039 DS3a - \$1	Whittle Lane - Sensitivity, Full complete JPA1.1 + JPA1.2	Policy Off	Built	Closed - Public Transport Only	Built	Built	Not Built	Existing	Not Built
18		2039 DS1b - \$2.1	South Heywood Link - Sensitivity, Full JPA1.1 (No JPA1.2)	Policy Off	Built	Open - Capacity Limited	Built	Built	Built	Modified by M62 Remodelling	Built
19		2039 DS3b - \$2.2	South Heywood Link - Sensitivity, Full complete JPA1.1 + JPA1.2	Policy Off	Built	Open - Capacity Limited	Built	Built	Built	Modified by M62 Remodelling	Built
20		2039 DS3b - \$3.1 (2022 Baseline)	Policy On (60%) - With Birch, Full complete JPA1.1 + JPA1.2	Policy On (60% of people trips as vehicles)	Built	Open - Capacity Limited	Built	Built	Built	Modified by M62 Remodelling	Not Built
Additional Sensitivity Tests											
21		2039 DS3a - \$3.2 (2022 Baseline)	Policy On (60%) - With Birch, Full complete JPA1.1 + JPA1.2	Policy On (60% of people trips as vehicles)	Built	Open - Capacity Limited	Built	Built	Not Built	Not Built	Not Built
22.1		2039 DS1b - \$4.1 - Excluding JPA1.2	Application Quantum, JPA1.1 only	Policy Off	Built	Open - Capacity Limited	Built	Built	Built	Modified by M62 Remodelling	Not Built
22.2		2039 DS1a - \$4.2 - Excluding JPA1.2	Application Quantum, JPA1.1 only	Policy Off	Built	Open - Capacity Limited	Built	Built	Not Built	Not Built	Not Built
22.3		2039 DS1a - \$4.3 - Excluding JPA1.2	Application Quantum, JPA1.1 only	Policy On (60% of people trips as vehicles)	Built	Open - Capacity Limited	Built	Built	Not Built	Not Built	Not Built
25		2039 DS3b - \$6 (2022 Baseline)	SH Open with Whittle Lane Closed, Policy On (60%) - With Birch, Full complete JPA1.1 + JPA1.2	Policy On (60% of people trips as vehicles)	Built	Closed - Public Transport Only	Built	Built	Built	Modified by M62 Remodelling	Built

Source: Reproduced from Figure 5-1, TFR, WSP, March 2025

4.9 It is noted that there are four DS scenarios modelled namely DS1a, DS1b, DS3a and DS3b. The fundamental difference between various DS scenarios is:

- DS1a - With JPA1.1 development + NO JPA1.2 developments with respective quantum of developments as per the forecast year;
- DS1b (alternate DS1) - With JPA1.1 development + NO JPA1.2 developments with respective quantum of developments as per the forecast year + Birch Junction + M62 Junction 19 works;
- DS3a - With JPA1.1 development + With JPA1.2 developments with respective quantum of developments as per the forecast year; and
- DS3b (alternate DS3) - With JPA1.1 development + With JPA1.2 developments with respective quantum of developments as per the forecast year + Birch Junction + M62 Junction 19 works.

4.10 After having reviewed **Table 8** above, AECOM notes that the scenarios modelled do not align with the Planning Application (Ref: 25/00418/OUT) which proposes only JPA 1.1 employment allocation site without any residential land use.

4.11 Whilst a number of scenarios have been assessed as part of the works, as identified in Paragraph 4.7, the schemes and various variations summarised in Paragraph 4.9 do not currently provide this audit with the ability to advise National Highways that the scenarios tested could provide a clear understanding of the forecast impact of the development proposals based upon the current planning permissions or scheme development. The scenarios currently modelled are considered variations on the theoretical DS situation rather than “likely” DS situation. This is considered a **SIGNIFICANT** concern.

4.12 In order to provide National Highways and the impacted local authorities a scenario where the proposed development and directly deliverable schemes by the developer and their development proposals are incorporated into the future year DM network. This scenario would provide National Highways and the impacted local authorities a starting point for seeking to understand the forecast impact of the development proposals. This recommended scenario would help identify if the “committed” and “non-committed” schemes are actually required.

Sensitivity Tests

4.13 A number of sensitivity tests using the “Policy On” and “Policy Off” trip rates, with and without Whittle lane closure and South Heywood Link schemes have been ran. Additional tests were undertaken for Planning Application Quantum with different yields by year. **Table 9** summarises the sensitivity tests undertaken in the TFR.

Table 9 Sensitivity Tests - 2039

Scenarios	Schemes										Trip Rates
	JPA1.1 (Heywood site)	JPA1.2 (Simister site)	M62 J18 Simister Island Upgrade	M62 J19 works (Non-Committed)	Birch junction (Non-Committed)	Whittle Lane capacity reduction (Non-Committed)	M66 J3 Upgrades (Non-Committed)	Upgrades to Fowler Welch junction (Committed)	Upgrades to Three Arrows junction (Committed)	South Heywood Link	
2039 DS3a - S1	✓	✓	✓			Closed - Public Transport Only	✓	✓	✓		Policy Off
2039 DS1b - S2.1	✓		✓	✓	✓	✓	✓	✓	✓		Policy Off
2039 DS3b - S2.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Policy Off
2039 DS3b - S3.1	✓	✓	✓	✓	✓	✓	✓	✓	✓		Policy On
2039 DS3a - S3.2	✓	✓	✓			✓	✓	✓	✓		Policy On
2039 DS1b - S4.1	✓		✓	✓	✓	✓	✓	✓	✓		Policy Off
2039 DS1a - S4.2	✓		✓			✓	✓	✓	✓		Policy Off
2039 DS1a - S4.3	✓		✓			✓	✓	✓	✓		Policy On
2039 DS3b - S6	✓	✓	✓	✓	✓	Closed - Public Transport Only	✓	✓	✓	✓	Policy On

4.14 Similar to the core scenarios AECOM notes that none of the scenarios assess the impact of the development solely on the “likely” future year highway network. This is considered **SIGNIFICANT**.

4.15 Whilst it is not the purpose of this review to comment on trip rates as they have been taken as supplied. The application of the Policy On and Policy Off trips should be considered in

more detail before the trip rates are introduced into to any particular scenario. To reduce the number of scenario and confusion, an evidence base should be provided to demonstrate the how realistic the Policy On trip rates would be for the site. Given a Vision led approach to the site a set of trip rates should be presented and modelled which the developers' consultants feel are realistic and achievable, even if they are considered stretched targets.

Recommend Scenarios

- 4.16 AECOM recommends that, in conjunction with addressing the other concerns raised as part of this review, to inform the Transport Assessment and thus provide National Highways with a robust understanding of the likely impact of the development scenarios, the following scenarios are recommended to be assessed using the NGTM:
- Full Development “Opening year” (2039) Baseline / Reference case;
 - Full Development “Opening year” (2039) Baseline / Reference case + Development Proposals (develops quantum and supporting infrastructure directly achievable by the developer);
 - Full Development “Opening year” (2039) Baseline / Reference case + Full Development Proposals + Identified Mitigation;
 - An interim year (2032) baseline / Reference case;
 - Interim Year Baseline / Reference case + Development Proposals (develops quantum and supporting infrastructure directly achievable by the developer); and
 - Interim Year Baseline + Development Proposals + Identified Mitigation.
- 4.17 The first three scenarios will align with the DfT Circular 1/22² of assessing the full development opening year, whereas the phased development will be used to identify trigger points for any identified mitigation.
- 4.18 It is recognised that variations upon the mitigation scheme models may be required, but ultimately the incremental form of the scenarios should be maintained.

² <https://www.gov.uk/government/publications/strategic-road-network-and-the-delivery-of-sustainable-development/strategic-road-network-and-the-delivery-of-sustainable-development>

5. Review of Forecast Networks and Assignment Results

Scheme Coding

- 5.1 The TFR reports that the DM network coding was based on the validated NGTM 2022 base year networks with the addition of key committed schemes identified within the Uncertainty Log and the DS network coding was based on the DM network with the addition of development sites and associated highway network changes.
- 5.2 AECOM notes that scheme coding principles in SATURN were adopted from the base year networks to provide consistency in coding values and parameters across the network such as saturation flows and speed flow curves.

Future Year Generalised Cost Parameters

- 5.3 According to the TFR, the generalised cost parameters for forecast year have been derived from DfT's TAG Databook for Nov 2023 (v1.22). Although the latest TAG Databook was issued at the end of November 2024, TAG Databook Nov 2023 was used for consistency with the version used for the generalised costs in the base year models. This seems to be reasonable.
- 5.4 The generalised cost parameters are reproduced in **Table 10** and they are considered to be appropriate.

Table 10 Highway Assignment Generalised Cost Parameters (2022-2047)

Year	User Class	AM Peak		Inter Peak		PM Peak	
		PPM	PPK	PPM	PPK	PPM	PPK
2022	Car Commuting	20.69	9.35	21.03	8.43	20.76	9.32
	Car Business	30.85	16.50	31.61	14.80	31.30	16.44
	Car Other	14.27	9.35	15.21	8.43	14.95	9.32
	LGV	22.94	16.96	22.94	15.70	22.94	16.92
	HGV	55.12	57.81	55.12	50.79	55.12	57.56
2024	Car Commuting	20.64	8.53	20.98	7.73	20.71	8.50
	Car Business	30.78	15.64	31.54	14.04	31.22	15.58
	Car Other	14.24	8.53	15.17	7.73	14.91	8.50
	LGV	22.89	16.11	22.89	14.94	22.89	16.07
	HGV	54.99	54.68	54.99	48.03	54.99	54.44
2032	Car Commuting	23.19	6.43	23.56	5.88	23.27	6.41
	Car Business	34.57	12.70	35.43	11.32	35.07	12.65
	Car Other	16.00	6.43	17.04	5.88	16.75	6.41
	LGV	25.71	14.71	25.71	13.68	25.71	14.68
	HGV	61.77	50.63	61.77	44.48	61.77	50.42
2039	Car Commuting	25.82	5.41	26.24	5.01	25.91	5.40
	Car Business	38.50	11.26	39.45	9.99	39.06	11.21
	Car Other	17.81	5.41	18.98	5.01	18.65	5.40
	LGV	28.63	12.01	28.63	12.01	28.63	12.85
	HGV	68.78	47.95	68.78	42.11	68.78	47.74
2047	Car Commuting	28.84	4.91	29.31	4.56	28.94	4.90
	Car Business	43.01	10.61	44.07	9.39	43.63	10.57
	Car Other	19.90	4.91	21.20	4.56	20.84	4.90
	LGV	31.98	11.43	31.98	10.74	31.98	11.41
	HGV	76.84	44.97	76.84	39.49	76.84	44.77

Source: Reproduced from Table 7-1, TFR, WSP, March 2025

Convergence Statistics

- 5.5 As per the TFR, the DM fixed assignments are highly converged i.e., achieving TAG criteria for all forecast years across all time periods. The convergence statistics are reproduced in **Table 11**.

Table 11 DM Fixed Scenario Highway Assignment Convergence Statistics

Year	Time Period	Loop	Proximity indicator:	Stability Indicator:	Stability Indicator:
			Delta (d) / (Gap (%))	% Flow	% Delays
2032 DM - Model run 5	AM	42	0.049	98.2	99.1
		43	0.039	98.0	99.1
		44	0.042	98.6	99.1
		45	0.034	98.3	99.2
	IP	39	0.036	98.5	99.6
		40	0.019	98.1	99.6
		41	0.017	98.6	99.7
		42	0.020	98.7	99.6
	PM	38	0.056	98.2	98.9
		39	0.058	98.4	98.9
		40	0.054	98.1	99.0
		41	0.054	98.5	99.0
	AM	44	0.049	98.3	98.9
		45	0.049	98.3	98.9
		46	0.043	98.5	98.9
		47	0.055	98.6	99.0
2039 DM – Model run 10	IP	41	0.036	98.3	99.4
		42	0.026	98.0	99.5
		43	0.032	98.4	99.4
		44	0.023	98.1	99.5
	PM	53	0.061	97.8	99.1
		54	0.075	98.6	99.1
		55	0.062	98.0	99.2
		56	0.079	98.8	99.1

Source: Reproduced from Table 8-1, TFR, WSP, March 2025

- 5.6 AECOM notes that 2032 DM and 2039 DM models are converged as per the TAG criteria across all time periods.
- 5.7 All the fixed demand assignments for DS scenarios i.e. DS1a, DS1b, DS3a and DS3b achieve TAG criteria for all forecast years across all time periods. The convergence statistics are reproduced in **Table 12** to **Table 15**.

Table 12 DS1a Highway Assignment Convergence Statistics

Year	Time Period	Loop	Proximity indicator:	Stability Indicator:	Stability Indicator:
			Delta (d) / (Gap (%))	% Flow	% Delays
2032 DS1a: run 6	AM	41	0.049	98.3	99.1
		42	0.046	98.3	99.0
		43	0.040	98.3	99.1
		44	0.042	98.5	99.2
	IP	42	0.018	98.5	99.7
		43	0.020	98.5	99.6
		44	0.015	98.2	99.6
		45	0.016	98.5	99.7
	PM	48	0.063	98.5	99.2
		49	0.068	98.4	99.0
		50	0.054	98.1	99.1
		51	0.051	98.7	99.1
2039 DS1a: run 11	AM	44	0.051	98.1	98.8
		45	0.058	98.2	98.9
		46	0.053	98.2	98.8
		47	0.046	98.2	98.9
	IP	43	0.032	98.8	99.5
		44	0.027	98.2	99.5
		45	0.032	98.8	99.5
		46	0.023	98.2	99.5
	PM	63	0.045	97.9	99.1
		64	0.057	98.8	99.3
		65	0.051	98.1	99.2
		66	0.040	98.4	99.2

Source: Reproduced from Table 8-4, TFR, WSP, March 2025

Table 13 DS1b Highway Assignment Convergence Statistics

Year	Time Period	Loop	Proximity indicator:	Stability Indicator:	Stability Indicator:
			Delta (d) / (Gap (%))	% Flow	% Delays
2032 DS1b: run 7	AM	38	0.042	98.1	99.1
		39	0.042	98.2	99.1
		40	0.042	98.4	99.1
		41	0.046	98.4	99.1
	IP	39	0.021	98.2	99.6
		40	0.022	98.4	99.6
		41	0.015	98.3	99.6
		42	0.016	98.7	99.7
	PM	42	0.068	98.4	99.2
		43	0.061	98.1	99.1
		44	0.069	98.5	99.2
		45	0.059	98.1	99.2
2039 DS1b: run 12	AM	45	0.046	98.2	98.9
		46	0.047	98.3	98.9
		47	0.049	98.3	98.9
		48	0.045	98.5	98.9
	IP	46	0.035	98.6	99.5
		47	0.021	98.3	99.5
		48	0.024	99.0	99.6
		49	0.024	98.6	99.7
	PM	55	0.064	98.8	99.2
		56	0.051	98.1	99.2
		57	0.055	98.8	99.2
		58	0.067	98.3	99.1

Source: Reproduced from Table 8-5, TFR, WSP, March 2025

Table 14 DS3a Highway Assignment Convergence Statistics

Year	Time Period	Loop	Proximity indicator:	Stability Indicator:	Stability Indicator:
			Delta (d) / (Gap (%))	% Flow	% Delays
2032 DS3a: run 8	AM	39	0.044	98.2	99.0
		40	0.049	98.3	99.1
		41	0.038	98.1	99.1
		42	0.042	98.5	99.1
	IP	42	0.020	98.5	99.6
		43	0.033	98.8	99.6
		44	0.016	98.1	99.6
		45	0.017	98.8	99.7
	PM	43	0.073	98.3	99.1
		44	0.074	98.1	99.1
		45	0.070	98.2	98.9
		46	0.079	98.2	98.8
2039 DS3a: run 13	AM	47	0.056	98.2	98.8
		48	0.047	98.0	99.0
		49	0.033	98.5	99.1
		50	0.038	98.8	99.2
	IP	42	0.030	98.5	99.5
		43	0.021	98.1	99.5
		44	0.024	98.9	99.6
		45	0.021	98.5	99.6
	PM	55	0.063	98.6	99.1
		56	0.049	98.0	99.2
		57	0.052	98.8	99.2
		58	0.059	98.1	99.1

Source: Reproduced from Table 8-6, TFR, WSP, March 2025

Table 15 DS3b Highway Assignment Convergence Statistics

Year	Time Period	Loop	Proximity indicator:	Stability Indicator:	Stability Indicator:
			Delta (d) / (Gap (%))	% Flow	% Delays
2032 DS3b: run 9	AM	39	0.043	98.1	99.0
		40	0.042	98.1	99.1
		41	0.046	98.4	99.1
		42	0.038	98.2	99.1
	IP	34	0.023	98.5	99.6
		35	0.024	98.4	99.5
		36	0.017	98.2	99.6
		37	0.019	98.8	99.6
	PM	43	0.063	98.4	99.1
		44	0.067	98.3	99.1
		45	0.067	98.0	99.1
		46	0.070	98.4	99.1
2039 DS3b: run 14	AM	42	0.054	98.4	98.9
		43	0.050	98.0	99.0
		44	0.045	98.4	98.9
		45	0.040	98.7	98.9
	IP	41	0.030	98.6	99.4
		42	0.022	98.1	99.5
		43	0.028	98.8	99.6
		44	0.030	98.6	99.5
	PM	57	0.059	97.8	99.1
		58	0.067	98.6	99.1
		59	0.051	98.2	99.1
		60	0.059	98.8	99.1

Source: Reproduced from Table 8-7, TFR, WSP, March 2025

- 5.8 AECOM notes that all the DS scenarios for the forecast years 2032 and 2039 are converged by achieving TAG criteria across all time periods.

Network Statistics

- 5.9 The TFR reports a comparison of the Highway Assignment Network Statistics (HANS) between the base year model and DM models for all time periods as shown in **Table 16** and **Table 17**.

Table 16 2032 DM HANS

Simulation Area	AM Peak			Inter Peak			PM Peak		
	2022	2032 DM	% change	2022	2032 DM	% change	2022	2032 DM	% change
Transient Queues (pcu-hrs)	27888	31304	12.2%	19142	21254	11.0%	30474	33979	11.5%
Overcapacity Queues (pcu-hrs)	4798	6217	29.6%	1185	1635	38.0%	8379	10560	26.0%
Link Cruise Time (pcu-hrs)	75230	81107	7.8%	49318	53409	8.3%	72098	77430	7.4%
Total Travel Time (pcu-hrs)	107916	118628	9.9%	69644	76298	9.6%	110951	121970	9.9%
Travel Distance (pcu-kms)	3685309	3965883	7.6%	3139654	3387958	7.9%	3808740	4081283	7.2%
Average Journey Speed (kph)	34	33	-2.1%	45	44	-1.6%	34	34	-2.3%
Total Assigned Trips (pcus)	414159	445231	7.5%	343322	369699	7.7%	416238	447402	7.5%

Source: Reproduced from Table 8-2, TFR, WSP, March 2025

- 5.10 AECOM notes that the forecast increase in trips as a result of the development proposals results in all indicators except the average speed are forecast to increase in 2032 DM scenarios when compared to the base model given the increase in travel demand. Forecast average speeds decreases slightly in 2032 DM model due to an increase in congestion as a result of the development trips.

Table 17 2039 DM HANS

Simulation Area	AM Peak			Inter Peak			PM Peak		
	2022	2039 DM	% change	2022	2039 DM	% change	2022	2039 DM	% change
Transient Queues (pcu-hrs)	27888	33612	20.5%	19142	22763	18.9%	30474	35973	18.0%
Overcapacity Queues (pcu-hrs)	4798	7626	58.9%	1185	1997	68.6%	8379	12250	46.2%
Link Cruise Time (pcu-hrs)	75230	84197	11.9%	49318	55845	13.2%	72098	80101	11.1%
Total Travel Time (pcu-hrs)	107916	125435	16.2%	69644	80605	15.7%	110951	128324	15.7%
Travel Distance (pcu-kms)	3685309	4106401	11.4%	3139654	3535804	12.6%	3808740	4214046	10.6%
Average Journey Speed (kph)	34	33	-4.1%	45	44	-2.7%	34	33	-4.4%
Total Assigned Trips (pcus)	414159	462714	11.7%	343322	385260	12.2%	416238	463808	11.4%

Source: Reproduced from Table 8-3, TFR, WSP, March 2025

- 5.11 AECOM notes that the forecast increase in trips as a result of the development proposals results in all indicators except the average speed are forecast to increase in 2039 DM

scenarios when compared to the base model given the increase in travel demand. Forecast average speeds decreases slightly in 2039 DM model due to an increase in congestion as a result of the development trips.

- 5.12 A comparison of the HANS between the DM and DS scenarios for 2032 are reproduced in **Table 18** to **Table 21** by time period.

Table 18 2032 DS1a HANS

Simulation Area	AM Peak			Inter Peak			PM Peak		
	2032 DM	2032 DS1a	% change	2032 DM	2032 DS1a	% change	2032 DM	2032 DS1a	% change
Transient Queues (pcu-hrs)	31304	31512	0.7%	21254	21410	0.7%	33979	34122	0.4%
Overcapacity Queues (pcu-hrs)	6217	6276	1.0%	1635	1658	1.4%	10560	10646	0.8%
Link Cruise Time (pcu-hrs)	81107	81391	0.4%	53409	53625	0.4%	77430	77632	0.3%
Total Travel Time (pcu-hrs)	118628	119179	0.5%	76298	76693	0.5%	121970	122401	0.4%
Travel Distance (pcu-kms)	3965883	3979050	0.3%	3387958	3399832	0.4%	4081283	4090943	0.2%
Average Journey Speed (kph)	33	33	0.0%	44	44	-0.2%	34	33	-0.3%
Total Assigned Trips (pcus)	445231	446244	0.2%	369699	370614	0.2%	447402	448159	0.2%

Source: Reproduced from Table 8-9, TFR, WSP, March 2025

Table 19 2032 DS1b HANS

Simulation Area	AM Peak			Inter Peak			PM Peak		
	2032 DM	2032 DS1b	% change	2032 DM	2032 DS1b	% change	2032 DM	2032 DS1b	% change
Transient Queues (pcu-hrs)	31304	31474	0.5%	21254	21394	0.7%	33979	34105	0.4%
Overcapacity Queues (pcu-hrs)	6217	6274	0.9%	1635	1657	1.4%	10560	10664	1.0%
Link Cruise Time (pcu-hrs)	81107	81374	0.3%	53409	53617	0.4%	77430	77613	0.2%
Total Travel Time (pcu-hrs)	118628	119121	0.4%	76298	76668	0.5%	121970	122382	0.3%
Travel Distance (pcu-kms)	3965883	3979488	0.3%	3387958	3399201	0.3%	4081283	4089954	0.2%
Average Journey Speed (kph)	33	33	0.0%	44	44	-0.2%	34	33	-0.3%
Total Assigned Trips (pcus)	445231	446244	0.2%	369699	370614	0.2%	447402	448159	0.2%

Source: Reproduced from Table 8-10, TFR, WSP, March 2025

Table 20 2032 DS3a HANS

Simulation Area	AM Peak			Inter Peak			PM Peak		
	2032 DM	2032 DS3a	% change	2032 DM	2032 DS3a	% change	2032 DM	2032 DS3a	% change
Transient Queues (pcu-hrs)	31304	31523	0.7%	21254	21431	0.8%	33979	34142	0.5%
Overcapacity Queues (pcu-hrs)	6217	6296	1.3%	1635	1663	1.7%	10560	10673	1.1%
Link Cruise Time (pcu-hrs)	81107	81448	0.4%	53409	53650	0.5%	77430	77686	0.3%
Total Travel Time (pcu-hrs)	118628	119267	0.5%	76298	76744	0.6%	121970	122500	0.4%
Travel Distance (pcu-kms)	3965883	3981962	0.4%	3387958	3401281	0.4%	4081283	4093763	0.3%
Average Journey Speed (kph)	33	33	0.0%	44	44	-0.2%	34	33	-0.3%
Total Assigned Trips (pcus)	445231	446529	0.3%	369699	370753	0.3%	447402	448423	0.2%

Source: Reproduced from Table 8-11, TFR, WSP, March 2025

Table 21 2032 DS3b HANS

Simulation Area	AM Peak			Inter Peak			PM Peak		
	2032 DM	2032 DS3b	% change	2032 DM	2032DS3b	% change	2032 DM	2032 DS3b	% change
Transient Queues (pcu-hrs)	31304	31524	0.7%	21254	21405	0.7%	33979	34127	0.4%
Overcapacity Queues (pcu-hrs)	6217	6280	1.0%	1635	1654	1.2%	10560	10694	1.3%
Link Cruise Time (pcu-hrs)	81107	81438	0.4%	53409	53645	0.4%	77430	77661	0.3%
Total Travel Time (pcu-hrs)	118628	119242	0.5%	76298	76703	0.5%	121970	122482	0.4%
Travel Distance (pcu-kms)	3965883	3982491	0.4%	3387958	3400838	0.4%	4081283	4092357	0.3%
Average Journey Speed (kph)	33	33	0.0%	44	44	-0.2%	34	33	-0.3%
Total Assigned Trips (pcus)	445231	446529	0.3%	369699	370753	0.3%	447402	448423	0.2%

Source: Reproduced from Table 8-12, TFR, WSP, March 2025

- 5.13 It is observed that the scale of change between DM and DS scenarios is similar to the change between DM and alternate DS for both DS1 and DS3 scenarios in all time periods.
- 5.14 AECOM notes that there is not a significant forecast change in average speed between the DS and DM scenarios indicating that the development proposals are forecast not to have a significant impact across the overall wider model area which does not necessarily represent the local impacts of the proposed development.
- 5.15 A comparison of the HANS between the DM and DS scenarios for 2039 are reproduced in **Table 22** to **Table 25** by time period.

Table 22 2039 DS1a HANS

Simulation Area	AM Peak			Inter Peak			PM Peak		
	2039 DM	2039 DS1a	% change	2039 DM	2039 DS1a	% change	2039 DM	2039 DS1a	% change
Transient Queues (pcu-hrs)	33612	34288	2.0%	22763	23182	1.8%	35973	36363	1.1%
Overcapacity Queues (pcu-hrs)	7626	8206	7.6%	1997	2088	4.5%	12250	12542	2.4%
Link Cruise Time (pcu-hrs)	84197	84924	0.9%	55845	56446	1.1%	80101	80607	0.6%
Total Travel Time (pcu-hrs)	125435	127418	1.6%	80605	81716	1.4%	128324	129513	0.9%
Travel Distance (pcu-kms)	4106401	4136377	0.7%	3535804	3565821	0.8%	4214046	4235927	0.5%
Average Journey Speed (kph)	33	33	-0.6%	44	44	-0.7%	33	33	-0.3%
Total Assigned Trips (pcus)	462714	465752	0.7%	385260	387858	0.7%	463808	466065	0.5%

Source: Reproduced from Table 8-13, TFR, WSP, March 2025

Table 23 2039 DS1b HANS

Simulation Area	AM Peak			Inter Peak			PM Peak		
	2039 DM	2039 DS1b	% change	2039 DM	2039 DS1b	% change	2039 DM	2039 DS1b	% change
Transient Queues (pcu-hrs)	33612	34159	1.6%	22763	23124	1.6%	35973	36245	0.8%
Overcapacity Queues (pcu-hrs)	7626	7876	3.3%	1997	2086	4.4%	12250	12537	2.3%
Link Cruise Time (pcu-hrs)	84197	84875	0.8%	55845	56368	0.9%	80101	80534	0.5%
Total Travel Time (pcu-hrs)	125435	126911	1.2%	80605	81577	1.2%	128324	129316	0.8%
Travel Distance (pcu-kms)	4106401	4137293	0.8%	3535804	3563672	0.8%	4214046	4234070	0.5%
Average Journey Speed (kph)	33	33	-0.3%	44	44	-0.5%	33	33	-0.3%
Total Assigned Trips (pcus)	462714	465752	0.7%	385260	387858	0.7%	463808	466065	0.5%

Source: Reproduced from Table 8-14, TFR, WSP, March 2025

Table 24 2039 DS3a HANS

Simulation Area	AM Peak			Inter Peak			PM Peak		
	2039 DM	2039 DS3a	% change	2039 DM	2039 DS3a	% change	2039 DM	2039 DS3a	% change
Transient Queues (pcu-hrs)	33612	34373	2.3%	22763	23265	2.2%	35973	36449	1.3%
Overcapacity Queues (pcu-hrs)	7626	8346	9.4%	1997	2099	5.1%	12250	12708	3.7%
Link Cruise Time (pcu-hrs)	84197	85058	1.0%	55845	56516	1.2%	80101	80705	0.8%
Total Travel Time (pcu-hrs)	125435	127776	1.9%	80605	81880	1.6%	128324	129862	1.2%
Travel Distance (pcu-kms)	4106401	4142245	0.9%	3535804	3569731	1.0%	4214046	4241025	0.6%
Average Journey Speed (kph)	33	32	-0.9%	44	44	-0.7%	33	33	-0.3%
Total Assigned Trips (pcus)	462714	466534	0.8%	385260	388241	0.8%	463808	466790	0.6%

Source: Reproduced from Table 8-15, TFR, WSP, March 2025

Table 25 2039 DS3b HANS

Simulation Area	AM Peak			Inter Peak			PM Peak		
	2039 DM	2039 DS3b	% change	2039 DM	2039 DS3b	% change	2039 DM	2039 DS3b	% change
Transient Queues (pcu-hrs)	33612	34274	2.0%	22763	23177	1.8%	35973	36374	1.1%
Overcapacity Queues (pcu-hrs)	7626	8047	5.5%	1997	2096	4.9%	12250	12642	3.2%
Link Cruise Time (pcu-hrs)	84197	85006	1.0%	55845	56442	1.1%	80101	80661	0.7%
Total Travel Time (pcu-hrs)	125435	127327	1.5%	80605	81715	1.4%	128324	129678	1.1%
Travel Distance (pcu-kms)	4106401	4142600	0.9%	3535804	3567702	0.9%	4214046	4240528	0.6%
Average Journey Speed (kph)	33	33	-0.6%	44	44	-0.5%	33	33	-0.3%
Total Assigned Trips (pcus)	462714	466534	0.8%	385260	388241	0.8%	463808	466790	0.6%

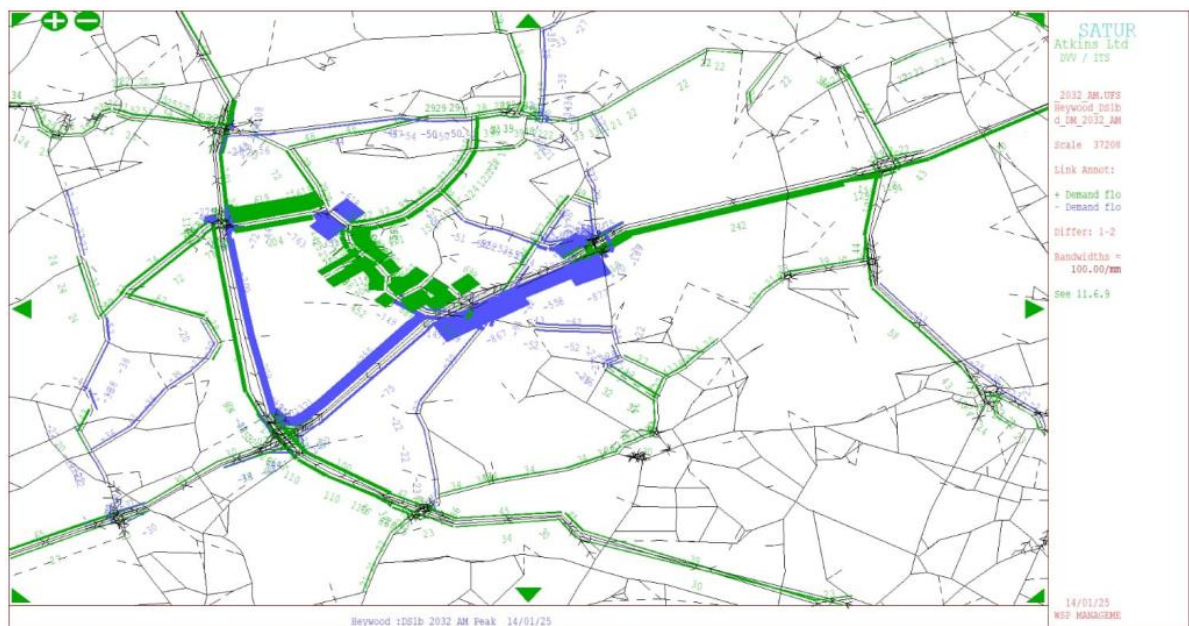
Source: Reproduced from Table 8-16, TFR, WSP, March 2025

- 5.16 It is observed that the scale of change between the DM and DS scenarios is similar to the change between DM and alternate DS for both DS1 and DS3 scenarios in all time periods.
- 5.17 AECOM notes that there is no forecast change in average speed in DS models when compared to DM indicating that the development proposals are not forecast to impact average speeds across the wide model area.
- 5.18 AECOM welcomes the comparison of the HANS. However, given the model coverage the use of the HANS to indicate the level of impact of the development proposals is not recommended. The impact of the development proposals at a local and even district level will be masked by the scale of the model at a regional and northern level. The use of HANS to draw conclusions the impact of the development proposals should be replaced with analysis of impact on links close to the development site reviewing Speed, Capacity, Queues as a minimum. The use of HANS on its own is a limitation in the overall analysis of impact.

Flow Difference Plots

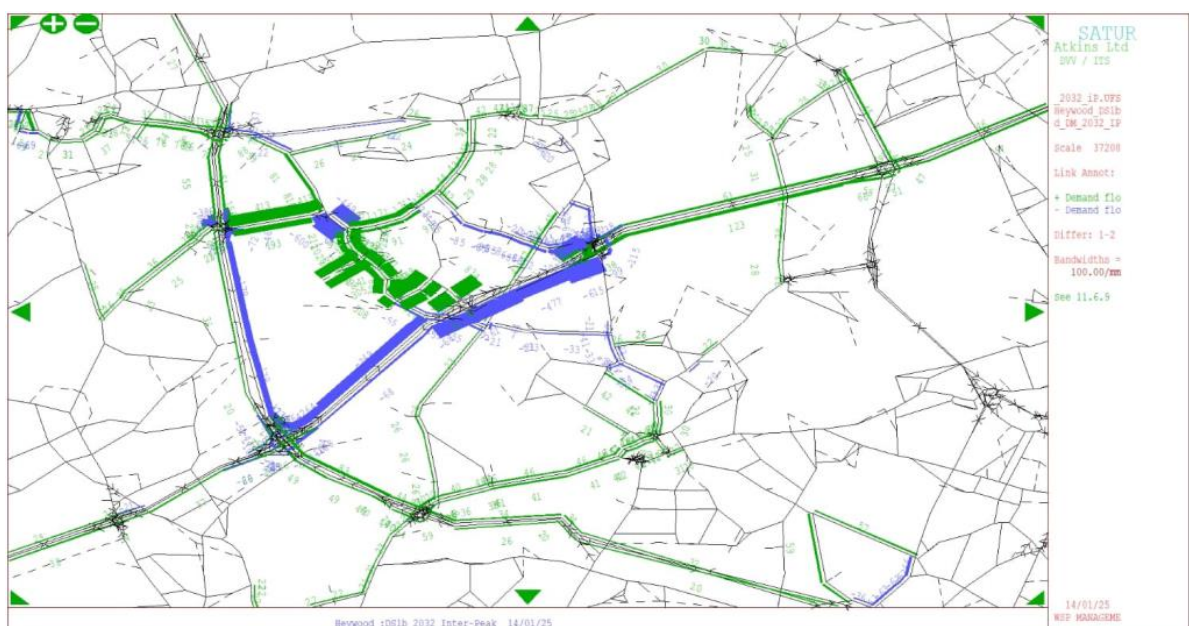
- 5.19 The TFR presents the demand flow difference plots for the DM versus DS scenarios for 2032 and 2039 for all time periods. The flow difference plots for DS1a versus DM and DS3a versus DM in both 2032 and 2039 are as expected with the majority of traffic forecast to access the development site via M62 Junction 19 and M66 Junction 3 thereby reducing the flow on the links between M6 Junction 19 and M62 Junction 18 across all time periods.
- 5.20 AECOM note that the traffic flow difference plots for DS1b versus DM and DS3b versus DM in 2032 forecast a significant reduction of traffic on the M62 westbound link between M62 Junction 19 and Birch Junction and on M62 eastbound between Birch junction and M62 Junction 18. The plots are reproduced in **Figure 6** to **Figure 11**.

Figure 6 Demand Flow Difference 2032 DS1b Run 7 – 2032DM (AM)



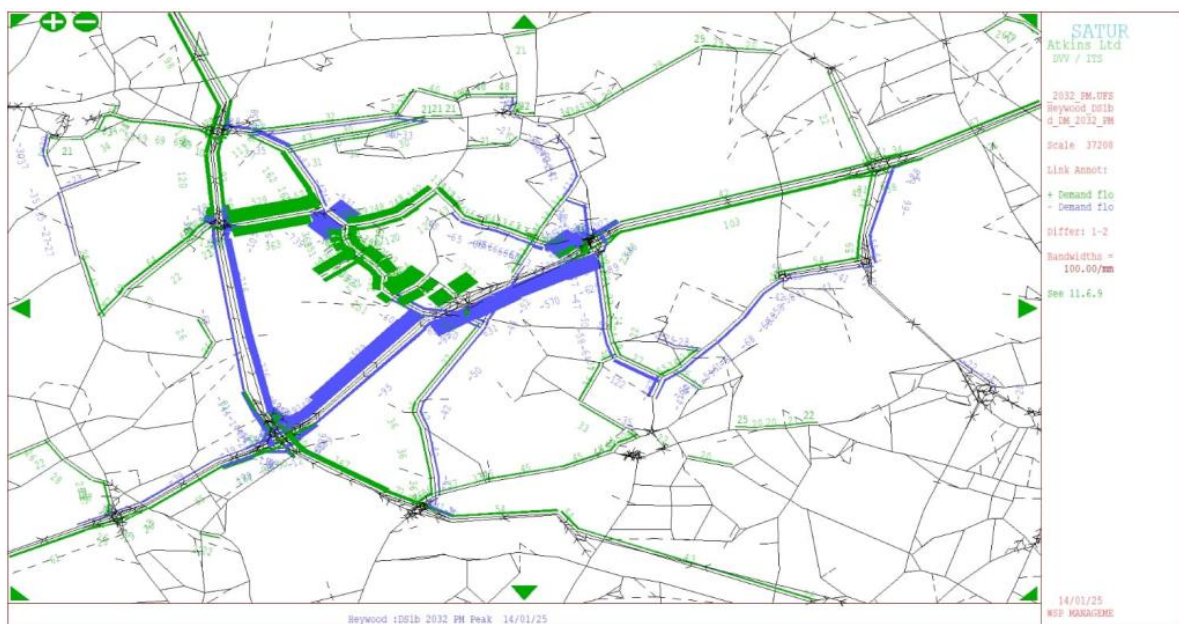
(Source: Figure 8-4, Traffic Forecasting Report, WSP, March 2025)

Figure 7 Demand Flow Difference 2032 DS1b Run 7 – 2032DM (IP)



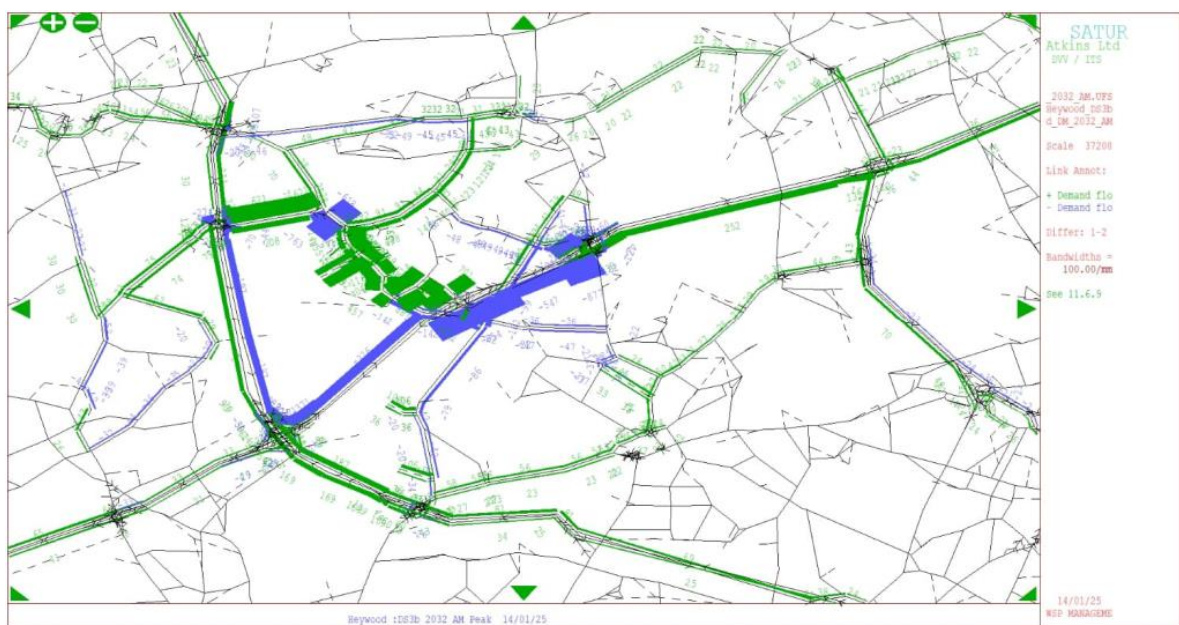
(Source: Figure 8-5, Traffic Forecasting Report, WSP, March 2025)

Figure 8 Demand Flow Difference 2032 DS1b Run 7 – 2032DM (PM)



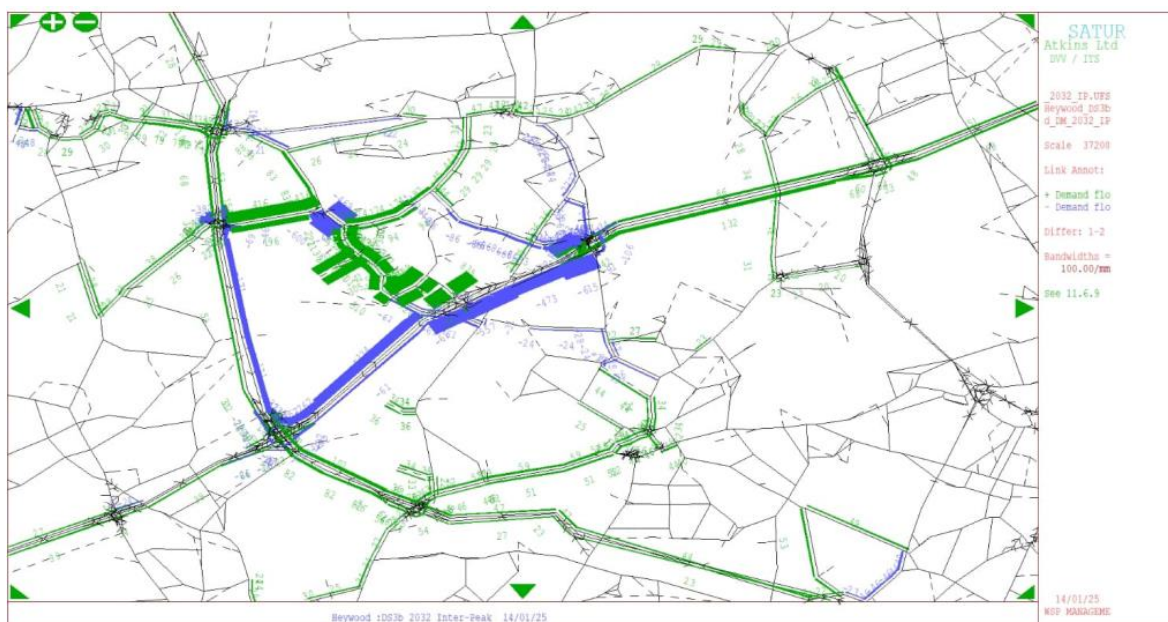
(Source: Figure 8-6, Traffic Forecasting Report, WSP, March 2025)

Figure 9 Demand Flow Difference 2032 DS3b Run 9 – 2032DM (AM)



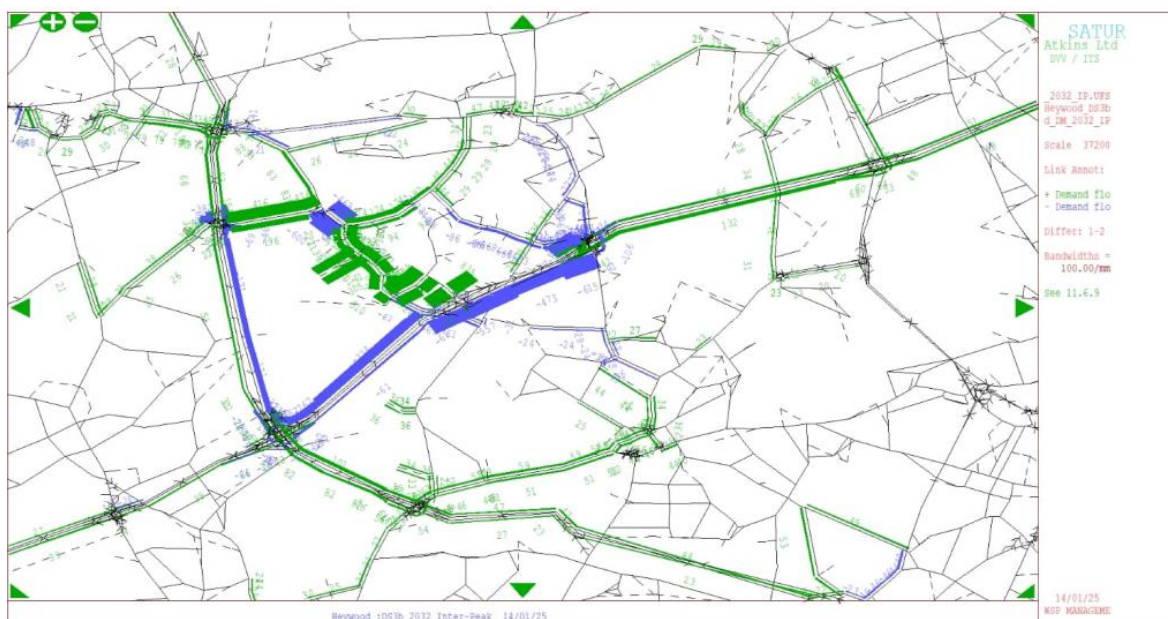
(Source: Figure 8-10, Traffic Forecasting Report, WSP, March 2025)

Figure 10 Demand Flow Difference 2032 DS3b Run 9 – 2032DM (IP)



(Source: Figure 8-11, Traffic Forecasting Report, WSP, March 2025)

Figure 11 Demand Flow Difference 2032 DS3b Run 9 – 2032DM (PM)



(Source: Figure 8-12, Traffic Forecasting Report, WSP, March 2025)

- 5.21 It is not clear in the plots if this reduction is due to new links being added in the DS scenario or a re-routing impact of the additional traffic from the development proposals. This is important to understand given that the M62 is a key SRN route in the study area. The trend of forecast flow changes is similar in 2039 DS1b versus 2039 DM and 2039 DS3b versus 2039 DM. The differences are subject of a **SIGNIFICANT** clarification.
- 5.22 AECOM recommends providing zoomed-in plots focusing on these locations and conducting Select Link Analysis (SLA) for the M62 links in order to explain the reason for a significant reduction in flows.
- 5.23 The demand flow difference plots for all the sensitivity tests are presented in the Appendix F of the TFR. AECOM notes that these levels of outputs are light. It is difficult to assess the

impact of these sensitivity tests on the local network and the SRN routes within the study area.

5.24 Considering the scale of the development, and its location, AECOM consider the level of outputs within the TFR do not provide sufficient detail in order to inform National Highways of the forecast level of impact of the development proposals. This is considered **SIGNIFICANT**.

5.25 Without access to model files and the ability to further assess the impact of the various modelled scenarios, AECOM recommends the following additional outputs are provided:

- Clear zoomed-in traffic flow difference plots;
- Select Link Analysis (SLA);
- Journey time impacts;
- Junction Delays;
- Link Capacity; and
- Queues.

6. Summary and Recommendations

Summary

- 6.1 Based on the review of the TFR, AECOM notes that, overall, the NGTM forecasting presented by the developer's consultant has been developed in line with the principles and guidance provided in TAG and is also based on the methodology summarised in the MSR (Feb 2022), the Modelling assumptions note (April 2024) which were discussed with National Highways, TfGM and local planning authorities. However, AECOM's review has identified **MINOR**, **MEDIUM** and **SIGNIFICANT** concerns with the forecasting. **MEDIUM** and **SIGNIFICANT** points only are summarised below:
- **SIGNIFICANT, Reference Demand Forecasting:** AECOM have a number of concerns towards the methodology of estimating the background demand growth. AECOM recommend further information is provided to address the lack of clarity.
 - **MEDIUM, Trip rates:** While it is noted that "Policy On" trip rates assume 60% of person trips as vehicles, AECOM observed that there is no clear explanation about "Policy Off" trip rates which are used in the development trip generation.
 - **MEDIUM, Trip rates:** The difference between the "Policy On" and "Policy Off" is counter intuitive, "Policy On" are identified as being higher, given the level of impact it could potentially have on forecasts this should be clarified.
 - **MEDIUM, Development Trip Distribution:** Evidence should be provided to demonstrate the differences in the application of different distributions methodologies (donor zone vs Census data) for the DM and Northern Gateway Development trips.
 - **MEDIUM, LGV & HGV Trip Distribution:** As Census to work does not provide information for LGVs and HGVs, these trips were distributed using the donor zone method. However, the TFR did not provide further information about the donor zones characteristics, and therefore AECOM require that zonal information to be provided to determine their appropriateness, considering this will have a sole impact on goods vehicles.
 - **SIGNIFICANT, Scheme Coding:** With the absence of information about how the development was coded within the model, in terms of zone system, internal road network and overall demand loading and routing, AECOM could not verify the appropriateness of the development coding and representation within the model. It is recommended that UFS files for each of the models is provided.
 - **SIGNIFICANT, Future Highway Schemes:** The TFR reported eight highway schemes titled as Committed and Non-Committed in the immediate vicinity of the development site. Only one scheme, the M60 Simister Island junction upgrade, would be considered committed. The other schemes which are all included in the DS scenarios are not considered committed. It is recommended these schemes are included within the redline boundary of the development proposals or the classifications are updated.
 - **SIGNIFICANT, Scenarios Testing:** While it is appreciated that an extensive set of DS scenarios have been assessed in the TFR. The scenarios currently modelled are considered variations on the theoretical DS situation rather than "likely" DS situation. AECOM recommends that a simple, standard set of scenarios where developments and schemes align with TAG Unit M4 are modelled, and more importantly to align with the DfT Circular 1/22.

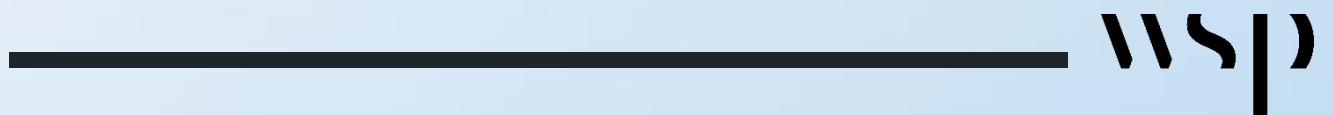
- **SIGNIFICANT, Outputs:** The TFR presents a high level of flow difference plots. AECOM notes that it is difficult to assess the outputs from these plots and recommends providing clear zoomed-in traffic flow difference plots for the study area, Select Link Analysis SLA plots, Journey Time Impacts, Junction Delays for the key SRN junctions, Link Capacity and Queues for the DM and DS scenarios.

Overall Recommendation

- 6.2 AECOM recommend that the above concerns should be address once the concerns reported in *Technical Note 01 (Northern Gateway Traffic Model Review, 12 June 2025)* have been addressed before the works can be considered fit for the purpose of informing the forecast impact of the development proposals.

Appendix E

Merge/Diverge Review



M62 Junction 18

M62 Junction 18 Eastbound Merge

The current layout is a lane gain with ghost island offside merge (Layout E), with three lanes upstream and four lanes downstream. The results show that the existing layout would be sufficient in all forecast scenarios.

M62 Junction 18 Northbound Merge

The current layout is a lane gain with ghost island offside merge (Layout E), with two lanes upstream and three lanes downstream. The results show that the existing layout would be sufficient in all forecast scenarios.

M62 Junction 18 Southbound Merge

The current layout is non-standard, comprising a double lane gain without ghost island, with two lanes upstream and four lanes downstream. Whilst the current layout is non-standard, the forecast merge/diverge assessment suggests that the layout and number of lanes would be sufficient.

The DCO scheme would change this layout so that it is similar to Layout H (two lane gain and ghost island merge), with four lanes upstream and six lanes downstream. The merge/diverge analysis shows that the forecast flows would also be acceptable with this layout.

M62 Junction 18 Westbound Merge

The current layout is a lane gain with ghost island nearside merge (Layout E), with three lanes upstream and four lanes downstream. The results show that in Run 8 AM peak and Run 21 AM peak, a two-lane gain with ghost island (Layout F) with two lanes upstream and four lanes downstream would be required. Although a higher standard of layout (F compared to E) would be required, the westbound merge already has a sufficient number of lanes to accommodate the forecast traffic flows. Therefore, a departure from standards would be required in this instance.

The DCO scheme would change this layout to a Layout H (two lane gain and ghost island merge), with four lanes upstream and six lanes downstream, and with one lane gain being dropped at M60 Junction 17. The merge/diverge analysis shows that the forecast flows would also be acceptable with this layout.

M62 Junction 18 Eastbound Diverge

The current layout is a lane drop with ghost island diverge (Layout F), with four lanes upstream and three lanes downstream on the mainline. In Run 8, 10, 13 and 14 PM peak

scenarios, the results show that a two lane drop with five lanes upstream and three lanes downstream would be required, and therefore the existing layout would be insufficient.

The DCO scheme changes the layout to a two lane drop and ghost island merge (Layout G), but with an auxiliary lane for the first lane drop, with six lanes upstream and four lanes downstream. This would accommodate the forecast flows.

M62 Junction 18 Northbound Diverge

The current layout is a two lane drop (Layout E), with four lanes upstream and two lanes downstream on the mainline. The results show that this is sufficient to accommodate the forecast flows.

The DCO scheme changes this to a non-standard layout, similar to a Layout G with three lanes diverging and two lanes continuing through the junction. This would also accommodate forecast flows.

M62 Junction 18 Southbound Diverge

The current layout is a two lane drop (Layout E), with four lanes upstream and two lanes downstream on the mainline. The results show that this is sufficient to accommodate the forecast flows.

M62 Junction 18 Westbound Diverge

The current layout is a lane drop (Layout C), with four lanes upstream and three lanes downstream on the mainline. In Run 10 (2039 DM) and 13 (2039 DS 3a) AM peaks, the results show that a ghost island lane drop (Layout D) with four lanes upstream and three lanes downstream would be required, and therefore the existing layout would be insufficient. The DCO scheme does not change the layout of this diverge.

M62 Junction 19

M62 Junction 19 Eastbound Merge

The current layout is a taper merge (Layout A), with four lanes upstream and downstream on the mainline. The results show that in most forecast scenarios, a lane gain (Layout D) with three lanes upstream and four lanes downstream would be required. Although a higher standard of layout (D compared to A) would be required, the eastbound merge already has a sufficient number of lanes to accommodate the forecast traffic flows. Therefore, a departure from standards would be required in this instance.

M62 Junction 19 Westbound Merge

The current layout is a taper merge (Layout A), with four lanes upstream and downstream on the mainline. The results show that in some forecast scenarios, a lane gain (Layout D) with three lanes upstream and four lanes downstream would be required. In other forecast scenarios, a parallel merge (Layout B) would be required with three lanes upstream and downstream. Although a higher standard of layout (D or B compared to A) would be required, the westbound merge already has a sufficient number of lanes to accommodate the forecast traffic flows. Therefore, a departure from standards would be required in this instance.

M62 Junction 19 Eastbound Diverge

The current layout is a taper diverge (Layout A), with four lanes upstream and downstream on the mainline. In some forecast scenarios, the results show that a lane drop (Layout C) would be required with four lanes upstream and three lanes downstream. Although a higher standard of layout (C compared to A) would be required, the eastbound diverge already has a sufficient number of lanes to accommodate the forecast traffic flows. Therefore, a departure from standards would be required in this instance.

M62 Junction 19 Westbound Diverge

The current layout is a taper diverge (Layout A), with four lanes upstream and downstream on the mainline. In some forecast scenarios, the results show that a lane drop (Layout C) would be required with four lanes upstream and three lanes downstream. Although a higher standard of layout (C compared to A) would be required, the westbound diverge already has a sufficient number of lanes to accommodate the forecast traffic flows. Therefore, a departure from standards would be required in this instance.

M66 Junction 2

M66 Junction 2 Northbound Merge

The current layout is a taper merge (Layout A), with two lanes upstream and downstream on the mainline. The results show that in the PM peak for Runs 10 (2039 DM), 13 (2039 DS 3a) and 14 (2039 DS 3b), a lane gain (Layout D) with two lanes upstream and three lanes downstream would be required. This suggests that the current layout is not sufficient to accommodate forecast traffic flows in these scenarios.

M66 Junction 2 Southbound Merge

The current layout is similar to a lane gain (Layout D), with two lanes upstream and three lanes downstream on the mainline. However, there are currently two lanes on the on slip which merge to one lane just before the lane gain. The current layout is therefore likely to represent something in between Layout D and Layout E.

The results show that in the AM and PM scenarios, a Layout E (lane gain with ghost island merge) would be required, with two lanes upstream and three lanes downstream. As the current layout is non-standard, and lies somewhere between a Layout D and E, the forecast flows may not be accommodated with the current layout. It is noted, however, that in DMRB CD122 E/1.3 (Modifying Existing Motorways) that Layout D can be used instead of Layout E. This should be investigated further and a departure from standards may be required.

M66 Junction 2 Northbound Diverge

The current layout is a lane drop (Layout C), with three lanes upstream and two lanes downstream on the mainline. The results show that in most forecast scenarios, Layout D (ghost island lane drop, or auxiliary lane drop) would be required, with three lanes upstream and two lanes downstream, and therefore the existing layout would be insufficient.

M66 Junction 2 Southbound Diverge

The current layout is a taper diverge (Layout A), with two lanes upstream and downstream on the mainline. In the AM peak forecast scenarios, the results show that a lane drop (Layout C) would be required, with three lanes upstream and two lanes downstream, and therefore the existing layout would be insufficient.

M66 Junction 3

M66 Junction 3 Northbound Merge

The current layout is a taper merge (Layout A), with three lanes upstream and downstream on the mainline. The results show that in the AM and IP forecast scenarios, a lane gain (Layout D) with two lanes upstream and three lanes downstream would be required. Although a higher standard of layout (D compared to A) would be required, the northbound merge already has a sufficient number of lanes to accommodate the forecast traffic flows. Therefore, a departure from standards would be required in this instance.

M66 Junction 3 Southbound Merge

The current layout is a taper merge (Layout A), with three lanes upstream and downstream on the mainline. The results show that in Run 21 PM peak, a lane gain (Layout D) with two lanes upstream and three lanes downstream would be required. Although a higher standard of layout (D compared to A) would be required, the southbound merge already has a sufficient number of lanes to accommodate the forecast traffic flows. Therefore, a departure from standards would be required in this instance.

M66 Junction 3 Northbound Diverge

The current layout is a taper diverge (Layout A), with three lanes upstream and downstream on the mainline. In the AM peak forecast scenarios, a lane drop (Layout C) would be required with three lanes upstream and two lanes downstream. Although a higher standard of layout (C compared to A) would be required, the northbound diverge already has a sufficient number of lanes to accommodate the forecast traffic flows. Therefore, a departure from standards would be required in this instance.

M66 Junction 3 Southbound Diverge

The current layout is a taper diverge (Layout A), with three lanes upstream and downstream on the mainline. In Run 21 PM peak, a lane drop (Layout C) would be required with three lanes upstream and two lanes downstream. Although a higher standard of layout (C compared to A) would be required, the northbound diverge already has a sufficient number of lanes to accommodate the forecast traffic flows. Therefore, a departure from standards would be required in this instance.



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