



**Haweswater Aqueduct Resilience Programme - Proposed Marl Hill
Section**

Volume 6

Proposed Ribble Crossing

Appendix 16.1: Transport Assessment

June 2021



Haweswater Aqueduct Resilience Programme - Proposed Marl Hill Section

Project No: B27070CT
Document Title: Volume 6 Proposed Ribble Crossing
Appendix 16.1: Transport Assessment
Document Ref.: RVBC-MH-RC-TA-016-001
Revision: 0
Date: June 2021
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Executive Summary

This Transport Assessment (TA) has been prepared in support of a planning application for the Haweswater Aqueduct Resilience Programme (HARP), which will be referred to as the 'Proposed Programme of Works'. United Utilities is proposing to invest in the need for the replacement of the Haweswater Aqueduct that takes raw water from the Haweswater Reservoir in the Lake District National Park along a 16 km section of the aqueduct to Water Treatment Works (WTW) near Kendal for treatment. From the WTW near Kendal the aqueduct conveys treated water to customers in Greater Manchester, Cumbria and Lancashire through service reservoirs and water mains which branch off the main aqueduct. The aqueduct comprises six unpressurised single line tunnels and conduit sections (generally 2.6 m internal diameter) in addition to multi-line sections. The flow of water along the entire length of the aqueduct is achieved under the influence of gravity; there are no energy-consuming pumps involved in supplying the water from north to south. Out of the total 110 km length of the aqueduct, the Proposed Programme of Works on the single line sections accounts for just under half this distance, about 53 km. The Proposed Programme of Works is required to replace part of an ageing asset to secure a water supply and to mitigate potential risks to drinking water quality. A TA has been produced for each section of the Proposed Programme of Works; this TA will focus on the Proposed Marl Hill Section.

This TA is presented as Appendix 16.1 of the Volume 6 Environmental Statement (ES), which supports Chapter 16, Transport Planning. The ES mainly focuses on the assessment of effects over a 12-hour period against stated thresholds, whereas the purpose of this document is to review the potential effects of the Proposed Marl Hill Section from a link capacity perspective during the highway network peaks (August 2024) on a representative day. This TA also provides full details of the technical assumptions and methodology used in undertaking the assessment.

The scope of the assessment, and the TA and its supporting technical assumptions, has been agreed through discussions with the relevant Local Highway Authority Lancashire County Council and Highways England through meetings held between June 2019 and February 2021.

The assessment reviews quantitatively the baseline position without construction activity taking place (2019) and provides a comparison in 2024 with the addition of background growth on the network and stated cumulative schemes with a quantifiable impact. The assessment incorporates construction traffic on the network during a month that represents the highest number of concurrent construction activities within the context of the 2024 construction period. The assumptions account for a highly conservative position that is unlikely to be realised for a sustained period and should therefore be considered within this context.

The assessments show that all of the links operate within 90 % of their theoretical capacity during the construction scenarios, and that the relative change is minimal within the context of background traffic flow. It is acknowledged that there are a number of large construction projects that would place additional loadings on the highway network which have been quantified and taken into account in this TA. It is not considered to be appropriate to prejudge the outcome of their assessments.

In order to mitigate against the potentially negative impacts of cumulative schemes in addition to the Proposed Marl Hill Section, it is recommended that a Highway Stakeholder Engagement group is created to coordinate network management across the schemes and take into account any programmed maintenance works proposed by the Local Highway Authority and Highways England. An Interim Travel Plan for construction workers is also proposed to limit the effects of single occupancy vehicles on the network as well as a Construction Traffic Management Plan (CTMP) which is provided in RVBC-MH-APP-007_01 and RVBC-MH-APP-007_02 within the Planning Documents. The draft CTMP would be developed further by the appointed contractor in accordance with the details of the planning consent for this scheme. Further details of proposed highways improvements are presented in Volume 5.

1. Transport Assessment

1.1 Introduction

- 1) This TA has been prepared by Jacobs on behalf of United Utilities in support of the planning applications for the Haweswater Aqueduct Resilience Programme (HARP) for the Proposed Marl Hill Section. The TA sits alongside the ES and should be read in conjunction with Chapter 16: Transport Planning. HARP is referred to as the 'Proposed Programme of Works' within this TA.
- 2) The Proposed Marl Hill Section is located within the Local Planning Authority area of Ribble Valley Borough Council and within the Local Highway Authority of Lancashire County Council. The Proposed Marl Hill Section is located approximately 4 km north of Clitheroe extending from approximately 1.3 km south of Newton-in-Bowland to 1.3 km north of Waddington. The existing aqueduct between the Hodder multi-line siphon and the Ribblesdale multi-line siphon would be replaced with a single tunnel. The new tunnel would be driven from south to north, with a launch shaft at the Braddup Compound (south) and reception shaft at the Bonstone Compound (north). The purpose of this report is to identify the potential highways and transport impacts associated with the Proposed Marl Hill Section in addition to those raised within the ES.
- 3) This TA includes an assessment of the proposed site access strategy and an assessment of the potential impact of construction and development-related traffic over the immediate local and strategic highway network. This assessment has been undertaken in accordance with:
 - *National Planning Policy Framework (NPPF), February 2019*
 - *Department for Transport Circular 02/2013: The Strategic Road Network and the Delivery of Sustainable Development*
 - *The strategic road network, Planning for the future, A guide to working with Highways England on planning matters, Highways England, September 2015*
 - *Department for Transport: Travel Plans, Transport Assessments and Statements, 2014*
 - *Ribble Valley Core Strategy, December 2014*
 - *Creating Civilised Streets, Policy & Design Guidance, February 2010*
 - *Lancashire County Council: Infrastructure and Planning, September 2017*
 - *Lancashire County Council: Business Services – Business Travel Plans.*
- 4) Reference is also made to the Guidance on Transport Assessment 2007 for the purpose of establishing high level TA principles; however, it is noted that this document was officially withdrawn in 2014.
- 5) An interim mitigation strategy has been identified which will be developed by the contractor(s) alongside the Local Highway Authority when a more detailed programme of works has been agreed. These measures have been identified to mitigate any implications associated with highway capacity or safety including:
 - *Interim Travel Plan*
 - *Construction Traffic Management Plan (RVBC-MH-APP-007_01 and RVBC-MH-APP-007_02 within the Planning Documents)*
 - *Highway Stakeholder Group to discuss route closures and traffic management coordination.*
- 6) This TA includes eight sections, along with this introduction, which are summarised below:
 - *Section 2 – Scoping and Consultations – provides a summary of the pre-application dialogue that has taken place with relevant stakeholders to help identify an appropriate methodology for the assessment of highways and transport impacts associated with the construction of the Proposed Marl Hill Section*

- *Section 3 – Baseline Position – provides a spatial understanding of the Proposed Marl Hill Section within the context of surrounding centres of population and transport networks. This section also provides a baseline summary of the surrounding transport networks across all modes*
- *Section 4 – Proposed Marl Hill Section – provides a detailed description of the Proposed Marl Hill Section, including the construction programme which the traffic generation assumptions are based upon*
- *Section 5 – Assumptions and Key Parameters – provides the fundamental assumptions and key parameters that underpin this TA, including appropriate time periods, committed local development schemes, and assumed periods of construction for assessment purposes, relative to the full construction programme. It also provides a summary of the anticipated traffic levels generated and the distribution and assignment of this traffic over the local and strategic highway networks*
- *Section 6 – Assessment of Impacts – provides an assessment of the anticipated development traffic on key links and junctions on the surrounding local and strategic networks*
- *Section 7 – Proposed Mitigation Strategy – provides the proposed mitigation strategy including reference to the CTMP and Interim Travel Plan*
- *Section 8 – Summary and Recommendation – provides a summary of the report and appropriate recommendations.*

1.2 Scoping and Consultations

1.2.1 Introduction

- 7) During the course of this assessment, detailed scoping and pre-application discussions were undertaken with Lancashire County Council and Highways England during 2019-21 to agree the scope and extent of this TA. This comprised of meetings, teleconferences and workshops which is summarised in Table 16.1. Further detail is provided in the subsequent bullet points.

Table 16.1: Pre-Application Scoping and Consultations

Consultee	Type of Engagement	Date(s)	Discussion Points
Lancashire County Council	Traffic pre-application meeting	2 August 2019	<ul style="list-style-type: none"> ▪ Overview of indicative programme of works and planning strategy affecting Lancashire County Council ▪ EIA scoping discussion including access arrangements, potential traffic routes, passing places, Swept Path Analysis (SPA), conflicts between pedestrians / cyclists / equestrians and construction traffic, accident data coverage, numbers and types of estimated construction trips, Staff Travel Plan and seasonality ▪ Primary interest would be physical practicalities of access arrangements and demonstrate that routes are safe and workable ▪ Scope of accompanying transport documentation should be heavily based on the requirements established for the Cuadrilla fracking sites; however, it was acknowledged that the nature of the proposed development is significantly different from those sites ▪ Discussion regarding surveys to inform transport documents including non-motorised users, pre-survey site walkover and seasonability ▪ Mitigation strategy to include route training, vehicle storage areas and car sharing and / or minibus.

Consultee	Type of Engagement	Date(s)	Discussion Points
Highways England	Traffic pre-application meeting	20 August 2019	<ul style="list-style-type: none"> Overview of indicative programme of works and planning strategy affecting Highways England Delivery / movement strategy to avoid peak hours on the Highways England network to be identified Cumulative impacts were discussed and the potential for detailed assessment / traffic modelling, Environmental Impact Assessment / Transport Assessment standards, capacity and physical manoeuvring implications to be considered, SPA, staff numbers and timings to form part of the assessment and major projects to be considered within the assessment Direct access from the motorway not permitted, new accesses from the Strategic Road Network (SRN) to be avoided.
Lancashire County Council	Bowland and Marl Hill Traffic Route Workshop with Lancashire County Council	23 January 2020	<ul style="list-style-type: none"> Discussion of proposed traffic routes, proposed vehicles, proposed traffic movements through Wray and Clitheroe and mitigation measures such as holding areas.
Lancashire County Council	Haweswater Aqueduct / use of Bradford Bridge email liaison	24 March 2020	<ul style="list-style-type: none"> Concerns raised by West Bradford Parish Council and local residents in relation to proposed traffic routes.
Lancashire County Council	Bowland, Marl Hill, Haslingden and Walmersley Traffic Route Workshop with Lancashire County Council	12 May 2020	<ul style="list-style-type: none"> Update on progress in relation to the Proposed Programme of Works, public engagement, proposed traffic routes and indicative traffic numbers Requirement to consider private equestrian provision and formal / informal cycle routes such as cycle club routes were raised Mitigation measures including lower speed limits to reduce noise and vibration, passing places, parking restrictions, avoiding school hours and satellite compounds Safety audits were discussed.
Lancashire County Council	Bowland and Marl Hill Traffic Route Workshop with Lancashire County Council	10 June 2020	<ul style="list-style-type: none"> Clarification of proposed working hours by activity and type of vehicle, taking into account local restrictions and potential noise issues Discussion of proposed Bowland and Marl Hill traffic routes which included clarification of proposed accesses, traffic volumes, mitigation measures including parking restriction requirements, satellite sites and potential road widening and SPA.
Lancashire County Council	Traffic and Transport Technical Group Central and Southern Sections - Lancashire County Council	19 June 2020	<ul style="list-style-type: none"> Discussion to obtain agreement on traffic routes in the Bowland and Marl Hill Sections to be taken forward for Environmental Impact Assessment and possible mitigation.

Consultee	Type of Engagement	Date(s)	Discussion Points
Highways England	Traffic pre-application meeting update	8 September 2020	<ul style="list-style-type: none"> Discussion of the Proposed Programme of Works including the current proposals and indicative vehicle numbers and access to compounds TA methodology, including the use of a link capacity assessment against the baseline situation was discussed as well as assumptions associated with this.
Lancashire County Council	Bowland and Marl Hill – Traffic and Transport Technical Group	1 October 2020	<ul style="list-style-type: none"> Update on progress in relation to public consultations Discussion about updates for the proposed compounds including proposed haulage routes, site accesses, vehicle movements and highways mitigation proposals Radar speed checks and peak traffic flows should be taken into consideration when proposing mitigation measures Other mitigation measures being considered such as road widening, Park and Ride facilities, by-passes, use of local quarries, restriction on use of routes at certain times or advanced notification systems.
Lancashire County Council	Traffic and Transport Technical Group Central - Lancashire County Council	6 November 2020	<ul style="list-style-type: none"> Introduction to high level route options to be considered as part of feasibility study and high level discussion around possible advantages and disadvantages of each option to be considered for the Proposed River Ribble Crossing.
Highways England	Traffic pre-application meeting update	26 November 2020	<ul style="list-style-type: none"> Discussion of the proposed surplus materials management strategy Discussion that for the purpose of transport modelling, it has been assumed a 40 % north – 80 % south split; based on a reasonable assumption of possible supplier locations Scope of the TA was discussed and the potential requirement of modelling of SRN junctions as well as the inclusion of SPA in reporting.
Lancashire County Council	Traffic and Transport Technical Group Central - Lancashire County Council	6 January 2021	<ul style="list-style-type: none"> Progress update on feasibility study / appraisal of route alignment options for the Proposed River Ribble Crossing. Consultation regarding potential vehicular access and egress points on public highway.
Lancashire County Council	Traffic and Transport Technical Group Central - Lancashire County Council	10 February 2021	<ul style="list-style-type: none"> Discussion around traffic management considerations for the Proposed River Ribble Crossing.
Lancashire County Council	Traffic and Transport Technical Group Central and Southern Sections - Lancashire County Council	17 February 2021	<ul style="list-style-type: none"> Update on progress in relation to the CTMP, discussion of content and further details to be included such as duration of peak traffic movement, daily / hourly HGV limits to help control movements or how weather conditions would be managed

Consultee	Type of Engagement	Date(s)	Discussion Points
			<ul style="list-style-type: none"> Peak traffic diagrams at specific locations on routes where the public would be interested to be included in the CTMP Progress update and discussion around traffic management requirements for the Proposed River Ribble Crossing route.

8) Further detail of the discussion points included, where appropriate, are outlined below. These considerations have been incorporated within our method of approach:

- **Routeing Strategy** – the routeing strategy for the Proposed Marl Hill Section was discussed during the arranged meetings identified in Table 16.1 which noted the use of the proposed traffic routes in Table 16.6. It was not anticipated that these routes would result in an adverse impact on the local environs, however it was acknowledged that the proposed temporary accesses should be investigated further, including conducting visibility splay assessments and the potential impact on the highway network at turning points
- **Construction Programme** – the construction programme for the Proposed Marl Hill Section was also discussed including the proposed average and peaks of traffic based on traffic vehicle movements to date, as well as indicative totals which were based on a 5-day working week. Daily and hourly peaks were identified by compound according to the operating hours avoiding peak commuting and school times
- **Key technical assumptions** – various technical assumptions were discussed with Lancashire County Council including the potential requirement for junction assessments, access design layouts, Traffic Regulation Orders (TROs) to reduce speeds and regulate parking on the approach to the proposed accesses, Origin / Destination via SRN as well as Institute for Environmental Management and Assessment (IEMA) guidelines for the environmental assessment of road traffic.

9) Pre-application dialogue in relation to the EIA scoping exercise with the respective Local Highway Authority is summarised in Section 2.2 of this TA.

1.2.2 Local Planning Authority and Local Highway Authority EIA Scoping Consultation

EIA Scoping Response (Relevant to TA)

10) Before undertaking this assessment, officers at Lancashire County Council were consulted as part of the wider EIA scoping exercise during 2019, followed by a Scoping Addendum in February 2021. A summary of the scoping response (October 2019) is provided in Table 16.2 which has been addressed in both chapter 16 of the ES and this TA.

Table 16.2: Transport Planning EIA Scoping Response

Local Highway Authority/ Local Planning Authority	Scoping Response from Local Highway Authority/ Local Planning Authority	Response
Lancashire County Council	<p><u>Transport Assessment</u></p> <p>It has been acknowledged during the initial pre-application discussions that it is expected that the operational transport impact of the scheme (i.e. following the construction period) will be minimal. The Transport Assessment should be able to demonstrate this. Therefore, the key focus of the assessment should be on potential construction / decommissioning phase impacts.</p>	<p>The operational phase of the Proposed Marl Hill Section has been reviewed in respect of the potential level of vehicle activity which would be required to operate the Proposed Marl Hill Section post construction, with the limited staff who would be employed there. It was</p>

Local Highway Authority/ Local Planning Authority	Scoping Response from Local Highway Authority/ Local Planning Authority	Response
	<p>It is understood that the detail behind the programme of works for the Haweswater Resilience Programme (HARP) in regard to construction is still being developed. Many of the outcomes of this process will heavily influence the nature of the assessment and expected impacts, for example:</p> <ul style="list-style-type: none"> ▪ Programme (Phasing of overall HARP works, cumulative impact of separate HARP application works that may be running in parallel) ▪ Compound locations (indicative Construction Areas are identified in the Scoping Report) ▪ Method of construction ▪ Estimated numbers of HGVs during the construction phase / quantities of materials ▪ Construction working hours ▪ Traffic management arrangements including strategic routeing and diversionary routes. <p>It is also very important that there is a clear understanding of the potential origin / destinations of material supplies and disposal of material off site. This influences the number of traffic movements and routeing which may be diverted off key corridors (i.e. primary routeing to / from the strategic highway network).</p>	<p>considered that the potential additional traffic would be infrequent within a 12-hour period, and due to the limited number, the operational phase would not exceed the levels identified during the construction period. It is therefore considered that a detailed assessment of these effects would not be necessary in this instance</p> <p>TA will be focussed on the potential construction phase impacts and details required will be included in the TA.</p> <p>At this stage it is not possible to fully outline the origins/destinations of material supplies and disposal of material off site until a contractor has been appointed. However key assumptions have been made within the TA.</p>

Local Highway Authority/ Local Planning Authority	Scoping Response from Local Highway Authority/ Local Planning Authority	Response
Lancashire County Council	<p><u>Access Strategy and Highway Network Operational Assessments</u></p> <p>The scale of the proposal will result in impact across the local and wider transport network. Lancashire County Council Highways would expect to be able to agree, as part of pre-application advice, an approach with the developers Transport Consultant that sets out the full scope of the network to be assessed.</p> <p>The EIA Scoping Report for the Proposed Marl Hill indicates 2 No. Construction Areas (Labelled Areas A and B) which will require vehicular access points onto the B6478. As greater details are made available on all matters and in particular on vehicle movements and routes, as set out above, Lancashire County Council Highways would expect to agree the detail of data that will be necessary. This detail will supplement the initial broad approach agreed during the early pre-application discussions.</p>	<p>Consultation has taken place with LCC Highways regarding the proposed routeing strategy to Construction Areas A and B and their associated accesses.</p>
Lancashire County Council	<p><u>Committed and Emerging Development</u></p> <p>The Transport Assessment when completed should establish the full impacts of the overall proposals and therefore the measures and mitigation necessary to deliver development in line with local and national planning policy (NPPF). This should include committed and emerging development as well as planned and development led network changes.</p>	<p>Committed development information and assumptions will be included in the TA and will feed the Highway Network Capacity model.</p>
Lancashire County Council	<p><u>Impact on Equestrians, Pedestrians & Cyclists and existing Public Rights of Way</u></p> <p>The Proposed Marl Hill Section of works is located in general within the rural environment. From a local highway network perspective the Transport Assessment and highway impacts can therefore be expected to focus predominantly on appropriate connections with the local highway network, suitability of rural routes to be used, impacts on safety within the communities that lie along these routes (either to the material disposal sites or the strategic network) and impact on vulnerable road users.</p> <p>It has been agreed that a detailed review of localised potential impacts that would require assessment will be undertaken on a route-by-route basis as the site access and waste</p>	<p>Review of localised potential impacts on Equestrians, Pedestrians and Cyclists and existing Public Rights of Way will be addressed in the Public Access and Recreation Chapter.</p>

Local Highway Authority/ Local Planning Authority	Scoping Response from Local Highway Authority/ Local Planning Authority	Response
	<p>disposal routes are developed. This will need to consider physical practicalities of access arrangements to demonstrate that indicative routes are safe and workable, where necessary mitigation measures will need to be developed to address identified impacts.</p> <p>There are a number of Public Rights of Way (PROW) that run through or adjacent to the proposed development. I would expect to see full assessment of any proposals that impact existing PROW and associated mitigation measures.</p>	
Lancashire County Council	<p><u>Summary</u></p> <p>The key significant issues I have highlighted include the need for an appropriate assessment of impacts within a detailed Transport Assessment, with particular reference to impacts during and throughout the Construction and decommissioning period.</p> <p>The Transport Assessment to be developed must establish the full impacts of the overall proposals and therefore the measures and mitigation necessary to ensure the safe operation of the highway at all times to deliver sustainable development in line with the latest emerging local and national planning policy (NPPF).</p>	<p>The ES chapter and TA will cover impacts related to the construction of the scheme and will propose relevant mitigation measures.</p>

Local Highway Consultation Summary

- 11) In addition to the EIA scoping responses, more detailed discussions were undertaken with Lancashire County Council in relation to the proposed method for the spreadsheet traffic modelling exercise. These discussions helped establish the major parameters, which are identified in greater detail within the review of trip generation in Section 5.2 of this TA.
- 12) It was agreed that a spreadsheet model would be produced to define hourly impacts for the ES chapter and TA which would include:
 - 12-hour classified turning counts obtained from all major junctions within the environs of the Proposed Programme of Works – allowing two-way link flows to be obtained
 - Traffic growth to a suitable construction year (using the National Transport Model adjusted to TEMPro1), based on our understanding of the peaks in the Proposed Programme of Works. The construction period for assessment is August 2024, based on scrutiny of the programme and anticipated concurrencies of activity
 - Addition of committed schemes for cumulative purposes
 - Addition of construction traffic (HGVs and staff) using information provided by United Utilities at a compound level for each section of works. Traffic has been manually assigned to the key highway

¹ Trip End Model Presentation Program (TEMPro) [Online] Available from: <https://www.gov.uk/government/publications/tempro-downloads> [Accessed: July 2020]

corridors (principally the local highway network), based on origins of construction materials / machinery and the destination of waste materials removed. Employment traffic distribution is derived from information relating to local accommodation, and Journey to Work data within the 2011 census

- Traffic volumes off key corridors during periods of construction has been manually distributed using existing traffic turning movements
- Assessment of any operational traffic following completion of the construction process.

13) Table 16.3 demonstrates the scenarios which are included within the transport modelling spreadsheet to build the composite position.

Table 16.3: Assessment Scenarios

Reference	Scenario
0	Baseline Surveys
1	Background (Do-Nothing)
2	Cumulative Schemes
3	Background + Cumulative Schemes
4	Construction
5	Background + Cumulative Schemes + Construction

1.2.3 Highways England EIA Scoping Consultation

14) Before undertaking this assessment, discussion was held with Highways England as part of the wider EIA scoping exercise during 2019 for the Proposed Marl Hill Section. A summary of the scoping response is provided in Table 16.4 which have been addressed in both Chapter 16 of the ES and this TA.

Table 16.4: Highways England Scoping Response

Scoping Response from Highways England	Response
Any Transport Assessment (TA) in relation to this development proposal and its impact on the SRN must be undertaken fully in accordance with the Department for Transport Registered office Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ Highways England Company Limited registered in England and Wales number 09346363 Circular 02/2013 'The Strategic Road Network and the Delivery of Sustainable Development'. Reference should also be made to 'Planning for the future: A guide to working with Highways England on planning matters' and the relevant chapters in the Planning Practice Guidance.	Detailed consultation and discussions with Highways England has been undertaken and further liaison would follow after the Highway Network Capacity model is produced.
Request that the scope for any TA accompanying the proposed development be agreed with Highways England. This will include: <ul style="list-style-type: none"> ▪ The spatial coverage of the TA. Agreeing details of the road network and junctions where the impact of the development will be assessed ▪ The temporal coverage of the TA. Agreeing the days of the week and time periods to be assessed. The opening year for the site will also 	It has been agreed that the TA will include: <ul style="list-style-type: none"> ▪ Baseline data to be used, including traffic flow and collision data ▪ Trip generation and distribution assumptions to be adopted in the TA ▪ Modelling tools necessary to assess the impact of the development ▪ Spatial and temporal coverage will also be included in both ES chapter and TA.

Scoping Response from Highways England	Response
<p>be agreed along with any future year assessment that might be required</p> <ul style="list-style-type: none"> ▪ Baseline data to be used to inform the TA, including traffic flow and collision data ▪ Trip generation and distribution assumptions to be adopted in the TA ▪ Modelling tools necessary to assess the impact of the development. 	
<p>Highways England would expect the TA document to cover the following chapters:</p> <ul style="list-style-type: none"> ▪ Background and Context – setting the scene within which the TA has been developed ▪ Existing Conditions – describing the site within the context of the local and wider highway network (e.g. SRN), including details on local road safety conditions ▪ Planning Policy Context – set out the local, regional and national planning policy context as it relates to transport and access for the site ▪ Trip Generation, Distribution and Assignment – detailing the trip generation estimates produced, and how they have been distributed and assigned to the agreed impact area ▪ Baseline and Forecast Year Traffic Flows, With and Without Development – based on the agreed assessment years and the estimated trip generation from the site opening year, how future flows in the impact area have been identified for the baseline situation and the with development situation. These traffic flows will form the basis of the highway impact assessment ▪ Details of the nature and frequency of abnormal load movements ▪ Highway Impact Assessment – an analysis of the impact of the proposed development traffic on the agreed impact area and if appropriate include suitable mitigation measures developed to counter any adverse impacts. The impact assessment should also examine the performance of the site access ▪ Summary and Conclusions – summarising the key findings and the conclusions. 	<p>It has been agreed that the TA will include:</p> <ul style="list-style-type: none"> ▪ Baseline data to be used, including traffic flow and collision data ▪ Trip generation and distribution assumptions to be adopted in the TA ▪ Modelling tools necessary to assess the impact of the development ▪ Spatial and temporal coverage will also be included in both ES chapter and TA.
<p>Committed development to be factored-into the assessment of the peak hour traffic impacts to M6 Junction 31 needs to be confirmed by the respective Local Planning Authorities where those junctions are to be located, not with Highways England (DfT Circular 02/2013, paragraph 572).</p>	<p>Liaison with the local planning authorities have been undertaken to define the committed developments which will be included into this model and factored into the assessment of the peak hour traffic.</p>

Scoping Response from Highways England	Response
New accesses to the SRN associated with a scheme of this nature are not permitted under the terms of Circular 02/2013 (paragraph 581). Reference to 'maintenance compounds' is within the context of highway maintenance compounds.	No new accesses onto the SRN are planned.
A safety analysis of the SRN junctions affected should be included within the TA considering the record of incidents over the last five years.	The TA will include accident data along the identified routes (including the SRN) as well as proposed mitigation measures if required.
The TA should reflect all vehicle traffic being generated by the proposals during the weekday peak hours and not be presented in percentage impacts.	The TA will include an indication of construction traffic being generated and their impact on the road network. Percentage impacts will be used to identify Local Impacts on specific sensitive locations / affected parties (According to IEMA guidelines " <i>Guidelines for the Environmental Assessment of Road Traffic</i> ").
Highways England will need to review and agree the trip generation and assignment for the proposals in order to consider the traffic impacts upon the SRN. We would recommend that this is based upon close contractor involvement by United Utilities so that the assumptions made are realistic and robust. It may be useful for this to be agreed with Highways England in advance of submission of the planning application itself in order that we can then provide a view as to what an appropriate level of modelling assessment of the SRN junctions may need to be given the number of peak-hour vehicle trips there would be likely involving Junction 31.	Detailed consultation and discussions with Highways England has been undertaken and an estimation of the expected trip generation and distribution across the SRN has been provided and further assessment will be included in the TA.
Depending on the levels of traffic generated, an analysis under the Design Manual for Roads and Bridges standard TD22 for to assess the appropriateness of the slip roads at Junction 31 to accommodate the increase in flows could be necessary.	Detailed consultation and discussions regarding access to the SRN with Highways England has been undertaken and different solutions have been provided and discussed. Further consultation might be required after the TA is produced.

1.3 Baseline Position

1.3.1 Introduction

15) This section provides a summary of the baseline position upon which the assessment of the Proposed Marl Hill Section is based. It covers the policy context which the development is assessed against, demonstrates the spatial context of the Proposed Marl Hill Section and provides commentary on the existing operating conditions of the local and strategic road networks which may be impacted during the construction of the Proposed Marl Hill Section. The local development planning policies mainly relate to sites which have traffic implications for permanent operation, however it is noted that the potential impacts associated with the Proposed Marl Hill Section are predominantly with construction.

1.3.2 Planning Policy and Guidance

16) This section summarises the development plan and associated transport policy and guidance for the area of the Proposed Marl Hill Section. For the avoidance of doubt, this incorporates the NPPF, DfT

Circular 02/2013 and local development plans as well as guidance for Ribble Valley Borough Council and Lancashire County Council.

National

National Planning Policy Framework, Ministry of Housing, Communities & Local Government, February 2019²

- 17) The NPPF seeks to encourage development which accords with the sustainable objectives of minimising the need for travel, particularly road journeys, and promoting the efficient delivery of goods and supplies. It notes that:

'Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

- a) *the potential impacts of development on transport networks can be addressed;*
- b) *opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;*
- c) *opportunities to promote walking, cycling and public transport use are identified and pursued;*
- d) *the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*
- e) *patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places.'* (Paragraph 102)

'In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

- a) *appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
 - b) *safe and suitable access to the site can be achieved for all users; and*
 - c) *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.'* (Paragraph 108)
- 18) Additionally, from a highway perspective, the NPPF works on a presumption in favour of development as it demonstrates that:

'Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.' (Paragraph 109)

- 19) The NPPF notes that if significant amounts of traffic are produced that:

'All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.' (Paragraph 111)

² Ministry of Housing, Communities & Local Government (2019) *National Planning Policy Framework* [Online] Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf [Accessed: May 2020].

Circular 02/2013 The Strategic Road Network and the Delivery of Sustainable Development, Department for Transport (Dft), 2013³

- 20) Circular 02/2013 addresses development proposals on Highways England's SRN for the Proposed Marl Hill Section which relate to the M6. The circular states the following key principles:

'Development proposals are likely to be acceptable if they can be accommodated within the existing capacity of a section (link or junction) of the strategic road network, or they do not increase demand for use of a section that is already operating at over-capacity levels, taking account of any travel plan, traffic management and/or capacity enhancement measures that may be agreed. However, development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.' (Paragraph 9)

'However, even where proposals would not result in capacity issues, the Highways Agency's prime consideration will be the continued safe operation of its network.' (Paragraph 10)

The strategic road network, Planning for the future, A guide to working with Highways England on planning matters, Highways England, September 2015⁴

- 21) *The strategic road network, Planning for the future* guidance identifies the approach undertaken with highways system and the planning system. It discusses what should be included in a planning proposal including:

- *'Demonstrate how the proposals will reduce the need to travel, especially by car;*
- *Demonstrate how the proposals will improve accessibility by all modes of travel and influence travel behaviours;*
- *Assess the likely impact of residual trips (i.e. after measures above have been considered);*
- *Identify appropriate and proportionate mitigation measures and ensure that what is proposed promotes sustainable transport outcomes and avoids unnecessary works to the SRN.'*

- 22) The guidance also identified what Highways England would advise to the Local Planning Authorities including:

'Our advice to local planning authorities will be to refuse or place conditions on developments only where the residual cumulative impacts of development on the capacity of the SRN (once proposed mitigations are taken into account) are still assessed to be severe. For example, if development would lead to operating conditions that significantly erode the safe operation of the SRN.'

- 23) The guidance also notes that 'Transport assessments should generally be carried out in line with prevailing government guidance in agreement with us, through pre-application and scoping.'

- 24) Additionally, the guidance demonstrates that in relation to the mitigation of impacts, the approach should be applied:

- *'Avoidance – the promoter should take all reasonable steps to minimise the level of physical mitigation required, through the use of measures such as Travel Plans, and travel demand management measures, such as development phasing, HGV booking systems and encouraging flexible working and sustainable travel;*

³ Department for Transport (2013) *The Strategic Road Network and the Delivery of Sustainable Development* [Online] Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/237412/dft-circular-strategic-road.pdf [Accessed: May 2020].

⁴ Highways England (2015) *The strategic road network, Planning for the future, A guide to working with Highways England on planning matters* [Online] Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/461023/N150227_-_Highways_England_Planning_Document_FINAL-lo.pdf [Accessed: November 2020].

- *Off-line improvements – before considering to propose changes to the SRN, the promoters of development should assess the potential for alterations to be made to the local road network in the alternative;*
 - *Alterations to the SRN – once all other options have been examined, we will consider the potential for changes to be made to the SRN.'*
- 25) In relation to environmental impacts, Highways England expects measures to be implemented that fully mitigate these, detailing the three aspects of this:
- *'The environmental impacts arising from the temporary construction works;*
 - *The environmental impacts of the permanent transport solution associated with the development; and*
 - *The environmental impact of the road network upon the development itself.'*
- 26) The guidance also provides advice in relation to the assessment of development impact stating that:

'The overall forecast demand on the SRN and surrounding local road network should be assessed and compared to the ability of the existing network to accommodate traffic. For developments which will be brought forward in phases, this assessment should focus on the overall forecast demand of the development as a whole, not just the initial phases(s).

Assessments should be carried out for:

- *the development and construction phase; and*
- *the opening year, assuming full build out and occupation, and*
- *either a date ten years after the date of registration of the associated planning application or the end of the Local Plan period (whichever is the greater).*

The assessment at opening will be used for the determination of impact mitigation needs whilst the latter is necessary to determine the risk which will transfer to us.'

Local Guidance

Creating Civilised Streets, Policy & Design Guidance, February 2010⁵

- 27) This guide provides information in regard to travel plans and Transport Assessments. It details that 'A pre-application meeting with the appropriate planning team should take place. A scoping note summarising expectations of the Transport Assessment and Travel Plan for example should be included'.
- 28) The document refers to residential travel planning, noting that 'Where a travel plan is required it should be based upon national, regional and local policies and reflect issues identified within the Transport Assessment to develop site specific measures'. It also states that 'The travel plan will be effectively monitored, managed and funded. It may be appropriate for the travel plan to be secured through S106 Agreements and be the responsibility of a Neighbourhood Management Board'.

Lancashire County Council, Infrastructure and Planning, September 2017⁶

- 29) This document was produced to identify how Lancashire County Council will engage and inform outcomes of the planning process. In the document it refers to Travel Plans, noting that '*In seeking to*

⁵ Lancashire County Council (2010) *Creating Civilised Streets, Policy & Design Guidance* [Online] Available from: https://www.lancashire.gov.uk/media/81455/creating_civilised_streets.pdf [Accessed: August 2020]

⁶ Lancashire County Council (2017) *Infrastructure and Planning* [Online] Available from: <https://council.lancashire.gov.uk/documents/s121330/Appendix%20A.pdf> [Accessed: August 2020]

make an unacceptable development acceptable, conditions or developer contributions will be used, where appropriate, to deliver the following types of investment, including but not limited to:

- *promoting the use of sustainable transport modes to retain or free up capacity within the highway network, for example through the preparation and implementation of a Travel Plan or by providing for the establishment of a new bus service where there currently is not one;*
- *ensuring safe access and egress;*
- *minimising development-related impacts such as traffic congestion;*
- *providing or contributing towards capacity enhancement measures;*
- *providing for connections or works to Council owned SuDS infrastructure as part of the drainage scheme for the proposed development;*
- *providing and/or enhancing links for cyclists and pedestrians to access local services, education and employment locations; and*
- *providing and/or enhancing street lighting, traffic systems*
- *providing and/or enhancing public rights of way connecting new developments to existing service centres or public transport infrastructure'.*

30) The document also notes that:

'Travel plans may be required through policy in the development plan, and planning permission granted on the condition that one is prepared and implemented. Lancashire County Council can provide assistance with respect to Travel Plan support, promotion, monitoring and evaluation. This can include advice and guidance on travel plan development, assistance with survey design, access to the Lancashire County Council car sharing website, journey planning service, assistance with promoting events, accessibility planning services, provision of leaflets and maps, monitoring and surveys. Funding for this assistance can be delivered through a developer contribution, or through a normal service commissioning process'.

Lancashire County Council, Business Services – Business Travel Plans⁷

31) This webpage discusses business travel plans, development travel plans and the support which Lancashire County Council can provide to help those submitting planning applications. In relation to business travel plans, it states that:

'Travel plans are a long-term management strategy with a package of measures that focus on how we get around. They aim to encourage sustainable travel and reduce reliance on cars, especially single occupancy car use.

Effective travel plans can have a positive impact on air quality, reduce carbon emissions, enhance accessibility, and contribute to our economy by reducing congestion. Business travel plans can have financial benefits by reducing operational costs and creating added value'.

32) Additionally, it provides advice in relation to development and travel plans, stating that as a Local Highway Authority, Lancashire County Council comments on planning applications, as part of this a 'A travel plan is requested for any planning application where the development will generate significant amount of movement. We do this as part of our commitment to support sustainable development, in line with national planning policy. Depending on the scale and type of development proposed, Lancashire County Council may request a travel plan contribution, through a S106 agreement'.

⁷ Lancashire County Council, *Business travel plans and Development and travel plans* [Online] Available from: <https://www.lancashire.gov.uk/business/business-services/business-travel-plans/> [Accessed: August 2020]

Summary

- 33) Based on National and Local policy, there is a presumption in favour of the Proposed Marl Hill Section, subject to impacts being limited through relative mitigation below a level identified as 'severe'.

1.3.3 Existing Highway Network

- 34) This section summarises the local and strategic highway networks associated with the construction of the Proposed Marl Hill Section. It details the spatial context of the trip distribution assumptions identified within Section 5.2 and the assessment of impacts in Section 6 of this TA.
- 35) The local and strategic network is a mixture of rural and urban and is characterised by two main access routes from the M6 motorway network.

Traffic Count Collection Sites

- 36) The initial optioneering process of identifying potential traffic routes reflected the indicative compound areas and geographical scope. Reflecting the proposed traffic routes at that time, a series of traffic survey count locations were identified and conducted during October and November 2019. It is noted that since the indicative compounds were identified, this project has evolved, resulting in minor geographical scope alterations. However, due to the COVID-19 pandemic, additional traffic surveys have not been conducted as the data collected may not reflect a true representation of typical traffic flows, however historical traffic count data has been obtained to complete the baseline position.
- 37) The existing network position has been established using traffic surveys collected by Tracsis during October and November 2019 at six locations on the local highway network within the Proposed Marl Hill Section. Further to this, additional data was also obtained through DfT counts⁸ as well as traffic count information from Lancashire County Council.
- 38) The survey data collected by Tracsis included fully classified turning counts at junctions over a minimum 12-hour daytime period capturing the weekday morning and evening peak hours, this was to obtain the adjacent two-way traffic flows on each adjacent arm approaching the junction. The surveys were captured by video recording equipment, and then independently processed, classifying vehicle movements as pedal cycles, motorcycles, cars / taxis, LGV (Light Goods Vehicle), OGV1 (smaller HGVs up to three axles), OGV2 (larger HGVs above 3 axles), buses, and coaches, disaggregated by 15-minute intervals within each hour.
- 39) The survey data also included Automatic Traffic Count surveys (ATCs) over a 24-hour period, this was to obtain two-way traffic flows and speed data. The surveys were independently processed, classifying vehicle movements as pedal cycles, motorcycles, cars / taxis, LGV (Light Goods Vehicle), OGV1 (smaller HGVs up to three axles), OGV2 (larger HGVs above 3 axles), buses, and coaches, disaggregated by 15 minute intervals within each hour.
- 40) The count sites have been collated into a spreadsheet to provide two-way link flows across the network for each hour of the day and collated 12-hour flows (07:00 to 19:00) across the anticipated operational period of the works.
- 41) The traffic count sites reflect ATCs, Manual Classified Counts (MCCs) DfT traffic counts and Lancashire County Council traffic counts used for the Do-Nothing Scenario and are identified in Table 16.5 and illustrated in Figure 16.1.

Table 16.5: Traffic Count Collection Site Locations

Traffic Count Type/ID	Traffic Count Sites	Easting	Northing
ATC 11	Unnamed road west of Newton-in-Bowland (west)	369205	450083
ATC 12	B6478 Clitheroe Road	372932	443736

⁸ Department for Transport (2020) Road Traffic Statistics [Online] Available from: <https://roadtraffic.dft.gov.uk/downloads> [Accessed: June 2020]

Traffic Count Type/ID	Traffic Count Sites	Easting	Northing
MCC 21	Unnamed road / Back Lane	369569	450364
MCC 22	A671 / Waddington Road / York Street / Waterloo Road	374630	442148
MCC 23	B6478 / Moor Lane / Queensway	374283	441372
MCC 24	A59 / A671	374367	438986
LCC ATC_27278	A671 (Pimlico Link Road)	376094	442613
LCC ATC_27267	B6478 (Slaidburn Road, north)	372662	444020
LCC ATC_27712	A59 (east of Clitheroe) (northern section)	376330	441990
LCC ATC_27310	A59 (east of Pimlico Link Road)	376688	442899
LCC ATC_28935	Crow Trees Brow	375845	443296
LCC ATC_27436	Ribble Lane	376653	444390
LCC ATC_27582	West Bradford Road south of Cement Plant	374718	443553
DfT Manual count 16566	A59 between M6 Junction 31 and A667	360000	430190
DfT Manual count 36608	A59 between A667 and Mellor Brook roundabout	365040	432000
DfT Manual count 6582	A59 between B6245 and A666	370000	434560
DfT Manual count 46603	A59 between A666 and A671 (south)	372000	435940
DfT Manual count 36607	A59 between A671 (south) and A671 (north)	374200	438000
DfT Manual count 941447	West Bradford Road (west)	373226	444056

1.3.4 Proposed Traffic Routes

42) The local and strategic network is a mixture of rural and urban and is characterised by two access routes from the M6 motorway network, with an additional surplus material transfer access route for each compound to the Waddington Fell quarry. For the Bonstone Compound two routes have been proposed:

- *Route for all construction traffic (except surplus material transfer to Waddington Fell Quarry) via the M6 Junction 31, along the A59, then Pimlico Link Road and West Bradford Road to continue via dedicated haulage route / Proposed Ribble Crossing. To then continue along West Bradford Road and along the B6478 Slaidburn Road. This route is approximately 36 km and consists of A-roads and B-roads*
- *Surplus material transfer to Waddington Fell Quarry - B6478 Slaidburn Road (approximately 3 km from the compound to the quarry).*

43) For the Braddup Compound two routes have been proposed:

- *Route for all construction traffic (except surplus material transfer to Waddington Fell Quarry) via the M6 Junction 31, along the A59, then Pimlico Link Road and West Bradford Road to continue via dedicated haulage route / Proposed Ribble Crossing. To then continue along West Bradford Road and along the B6478 Slaidburn Road. This route is approximately 31 km and consists of A-roads and B-roads*
- *Surplus material transfer to Waddington Fell Quarry - B6478 Slaidburn Road (approximately 3 km from the compound to the quarry).*

44) The proposed traffic routes for the Proposed Marl Hill Section are further detailed in Table 16.6 below.

Table 16.6: Existing Highway Network and Proposed Traffic Routes

Proposed Compound	Delivery Routes
Bonstone Compound Route for all construction traffic except surplus material transfer to Waddington Fell Quarry	Inbound M6 from north (40 %) and south (80 %) via Junction 31, A59, Pimlico Link Road, West Bradford Road, Proposed Ribble Crossing, West Bradford Road, then the B6478 Outbound B6478, West Bradford Road, Proposed Ribble Crossing, West Bradford Road, Pimlico Link Road, A59 then M6 to north (40 %) and south (80 %) via Junction 31
Bonstone Compound Surplus material transfer to Waddington Fell Quarry	Inbound B6478 Slaidburn Road Outbound B6478 Slaidburn Road
Braddup Compound Route for all construction traffic except surplus material transfer to Waddington Fell Quarry	Inbound M6 from north (40 %) and south (80 %) via Junction 31, A59, Pimlico Link Road, West Bradford Road, Proposed Ribble Crossing, West Bradford Road, then the B6478 Outbound B6478, West Bradford Road, Proposed Ribble Crossing, West Bradford Road, Pimlico Link Road, A59 then M6 to north (40 %) and south (80 %) via Junction 31
Braddup Compound Surplus material transfer to Waddington Fell Quarry	Inbound B6478 Slaidburn Road Outbound B6478 Slaidburn Road

45) Table 16.7 identifies the location of each compound in relation to the relevant Local Planning Authority and Local Highway Authority.

Table 16.7: Local Planning Authority and Local Highway Authority identification

Compound	Local Planning Authority	Local Highway Authority
Bonstone Compound	Ribble Valley Borough Council	Lancashire County Council
Braddup Compound	Ribble Valley Borough Council	Lancashire County Council

46) The selection of locations, drive strategy and route assumptions for HGVs have been developed to reduce the impact of the scheme on the local road network after consultation with Lancashire County Council. Additionally, the potential for road closures and local diversions necessitated by such activity in the short-term were discussed, however these were not required for the Proposed Marl Hill Section. Further detail of the routeing strategy is provided in the CTMP (RVBC-MH-APP-007_01 and RVBC-MH-APP-007_02 within the Planning Documents).

47) There are a number of settlements which are located along the proposed traffic routes, some of which include residential, agricultural and commercial property frontages which are directly on the local highway network. The population alongside the proposed routes is concentrated, with numerous villages and towns situated nearby the route including Mellor Brook, Copster Green, Clitheroe, West Bradford and Waddington.

Road Safety Review

- 48) Road collisions and safety statistics for a five-year period have been obtained from the Department for Transport (DfT) Road Accidents and Safety Data (2015 – 2019)⁹. This dataset comprises road collision statistics collected from information about personal injury road collisions, and their consequent casualties in Great Britain to a common national standard. To establish a baseline position, a 200 m buffer around the proposed traffic routes within the Proposed Marl Hill Section, including junctions off the SRN, have been analysed.
- 49) The DfT Accidents and Road Safety Data has been used to identify any accidents which have occurred along the proposed routes within the Proposed Marl Hill Section.
- 50) To access the Braddup Compound and Bonstone Compound, the traffic routes would travel along certain sections of the SRN and local road network. Further information is detailed in Table 16.6.
- 51) Analysis of any clustering of collisions has also been undertaken and it is noted that where collision clusters occur around the proposed accesses to the compound sites, further investigation and highways design would be required to ensure that sufficient safety requirements are in place.
- 52) Accident analysis of the 200 m buffered traffic routes, which includes SRN junctions, within the Proposed Marl Hill Section has identified that a total of 400 accidents occurred over the five-year data period. A total of 201 accidents occurred along the route accessing the Bonstone Compound and 199 accidents occurred along the route accessing the Braddup Compound. Three fatal accidents occurred within both buffered routes along the A59 near the junction with the A677, Copster Green and near Langho. A total of 54 serious accidents occurred along both traffic routes. A total of 171 slight accidents occurred along the traffic route to the Bonstone Compound and 169 slight accidents occurred along the traffic route to the Braddup Compound. Of the 201 accidents that occurred along the route to the Bonstone Compound, nine of these accidents involved HGVs and of the 199 accidents which occurred along the route to the Braddup Compound, also nine of these accidents involved HGVs. None of the accidents occurred in close proximity to the compounds; however, two of the nine accidents that occurred along each route were classed as fatal. Table 16.8 shows the number of accidents and severity classification for both traffic routes within the Proposed Marl Hill Section.

Table 16.8: Collisions by Severity on Proposed Traffic Routes

Severity	Bonstone Compound	Braddup Compound
Total number of accidents on the proposed traffic routes	201	199
Fatal	3	3
Serious	27	27
Slight	171	169

- 53) Collision clusters within a 200 m buffer of the proposed traffic routes were also identified, the majority of which occurred at highway junctions, roundabout junctions and motorway slip roads, including:
- A59 / Preston New Road / M6 on slip (northbound)
 - A59 / Preston New Road / M6 on slip (southbound)
 - A59 / Vicarage Lane junction
 - A59 / A677 roundabout

⁹ Department for Transport (2019) *Road Safety Data* [Online] Available from: <https://data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data> [Accessed: November 2020]

- A59 / B6245 / Ribchester Road junction
- A59 / A666 / Whalley Road roundabout
- A59 / A671 roundabout
- A59 / Holm Road roundabout
- A59 / A671 / Whalley Road roundabout
- A59 / Pendle Road roundabout
- A671 / Pimlico Link Road junction
- Chatburn Road / Pimlico Link Road roundabout.

Existing Highway Network Capacity

- 54) To assess the relative change in traffic volume between the baseline and cumulative peak construction period and any resultant change in performance across the local highway network as a result of the Proposed Programme of Works, link capacity assessments were undertaken using established principles from the *COBA 2020 User Manual*. This method allows the identification of 'capacity flags' for each type of road class, although is not an absolute indicator of highway capacity. The guidance states that 'when flows reach a particular level on a link COBA produces an overcapacity report. It is a signal to the user that flows are about the highest levels that could normally be expected on a link of this standard. The levels of the 'capacity flags' (Qc) for each road class are detailed in the following chapters'¹⁰; these classifications are reproduced within Tables 16.9 to Table 16.10 below. The manual states that 'classes 1 to 6 are used for all-purpose roads and motorways that are generally not subject to a local speed limit. Classes 7 and 8 are used for roads in large towns or conurbations subject to 30 mph (48 kph) speed limits only. Class 9 is used in small towns or villages for routes subject to a 30 mph (48 kph) or 40 mph (64 kph) speed limit. Classes 10 and 11 are used for major suburban routes in towns and cities that are generally subject to a 40 mph (64 kph) speed limit'.
- 55) This approach replaces guidance on Link Capacity Assessment as expressed by the two Design Manual for Roads and Bridges guidance documents TA46/97¹¹ and TA 79/99¹² that have been withdrawn¹³ and not replaced.

Table 16.9 – COBA Road Classes

Road Class	Description
1	Rural single carriageway
2	Rural all-purpose dual 2-lane carriageway
3	Rural all-purpose dual 3 or more lane carriageway
4	Motorway, dual 2-lanes
5	Motorway, dual 3-lanes

¹⁰ The COBA 2020 User Manual Part 5 (July 2020) *Speed on Links* [Online] Available from: https://www.tamesoftware.co.uk/manuals/COBA2020_MANUAL/COBA2020%20Part%205.pdf [Accessed: October 2020]

¹¹ Design Manual for Roads and Bridges Volume 5 Section 1 Part 3 (1997) *Traffic Flow Ranges for use in the Assessment of New Rural Roads* [Online] Available from: <https://www.standardsforhighways.co.uk/prod/attachments/f8fa7a85-78b8-462c-a992-a0fc72060590> [Accessed: November 2020]

¹² Design Manual for Roads and Bridges Volume 5 Section 1 Part 3 (1999) *Traffic Capacity of Urban Roads* [Online] Available from: <https://www.standardsforhighways.co.uk/prod/attachments/481c8b2d-f694-44fd-849c-bf95b47a420d> [Accessed: November 2020]

¹³ Design Manual for Roads and Bridges (2020) *Pathfinder Transition document* [Online] Available from: <https://www.standardsforhighways.co.uk/ha/standards/Transition%20document-web.pdf> [Accessed: November 2020]

Road Class	Description
6	Motorway, dual 4 or more lanes
7	Urban, non-central
8	Urban, central
9	Small town
10	Suburban single carriageway
11	Suburban dual carriageway
12-14	User defined all-vehicle relationships
15-20	User defined light / heavy vehicle relationships

Table 16.10 – Capacity (Qc Flag) Formulae by each Road Type

Road Type	Description	Typical Values		Formulae
		Min	Max	
Rural Single Carriageways (Road Class 1)	Capacity flag: defined as the maximum realistic value of Q (vehs / hour / dir)	900	1,600	$Q_c = \frac{2400(CWID - 3.65)}{CWID} \times \frac{(92 - PHV)}{80} \text{ vehicles/hour/dir.}$ <p>It therefore varies by flow group as the proportion of heavy vehicles change. When calculating the capacity flag CWID has a minimum value of 5.5 m.</p>
Rural All-Purpose Dual Carriageways and Motorways (Road Classes 2-6)	Capacity flag: defined as the maximum realistic value of Q (vehs / hour / lane)	1,400	2,250	<p>Q_c, the maximum realistic value of Q, is taken as:</p> <p>2330 / (1 + 0.015 x PHV) for motorways, and</p> <p>2100 / (1 + 0.015 x PHV) for all-purpose dual carriageways.</p>
Urban Roads (Road Classes 7 and 8)	Capacity flag: defined as the maximum realistic value of Q (vehs / hour / 3.65 m lane)	800		The maximum realistic flow (Q_c) at which the COBA capacity flag is triggered is 800 vehicles / hour / 3.65 m lane. For urban links this value is not affected by the proportion of goods vehicles.
Small Town Roads (Road Class 9)	Capacity flag: defined as the maximum realistic value of Q (vehs / hour / 3.65 m lane)	1,200		The maximum realistic flow at which the COBA capacity flag (Q_c) is triggered is 1,200 veh / hour / 3.65 m lane. As with the main urban formula, there is no correction for traffic composition.
Suburban Roads (Road Classes 10 and 11)	Capacity: defined as the maximum realistic value of Q (vehs / hour / 3.65 m lane)	1,350	1,700	<p>The two-way maximum realistic flow (Q_c), the flow at which the COBA capacity flag is triggered, is the same for both single and dual carriageways and is calculated by the relationship:</p> $Q_c = 1500 (92 - PHV) / 80 \text{ veh/hour/3.65m lane.}$

56) This guidance has been used to identify any road traffic stress because of the Proposed Programme of Works on the road network based on the potential level of congestion. When the traffic flow on a link reaches its maximum capacity, it is considered to be at 100 % stress. This means that demand will exceed the peak period capacity on approximately half the days in the year and congestion would occur in the peak periods. Tables 16.11 shows the network stress threshold, which has been used to express the current level of stress on the network, for comparison purposes within the proposed construction scenarios, as identified in Section 5.2 of this TA.

Table 16.11 – Definition of Network Stress Levels

Stress Level	Scenario	Description
Severe Stress	More than 100 %	Level of traffic flow in excess of the theoretical capacity. Most susceptible to flow breakdown.
Mild Stress	90 % - 100 %	Level of traffic flow near to the theoretical capacity. Susceptible to flow breakdown.
No Stress	0 % - 90 %	Level of traffic flow less than 90 % of theoretical capacity. Unlikely to experience flow breakdown.

57) The links considered within the assessment are summarised in Table 16.12 to Table 16.14.

Table 16.12: 2019 Survey – Two-Way Link Flow Capacity – AM Peak Period (08:00 to 09:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
53	A59 (south of Clitheroe)	2,755	7.7 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,534	36.6 %
54	A671 Whalley Road	1,131	4.4 %	Rural single carriageway	7.3	2	2,627	43.0 %
55	A671 Queensway	735	4.4 %	Small town	7.3	2	2,400	30.6 %
56	A671 Chatburn Road	909	7.6 %	Small town	7.3	2	2,400	37.9 %
57	A671 Pimlico Link Road	562	16.7 %	Rural single carriageway	7.3	2	2,258	24.9 %
58	A59 between A671 Whalley Road and Pendle Road	1,722	10.2 %	Rural single carriageway	7.3	2	2,455	70.1 %
59	B6478 Waddington Road	243	4.5 %	Rural single carriageway	6	2	2,056	11.8 %
60	West Bradford Road	207	2.2 %	Rural single carriageway	5.5	2	1,813	11.4 %
61	B6478 Slaidburn Road (north)	167	10.6 %	Rural single carriageway	6	2	1,913	8.7 %
63	B6478 Slaidburn Road (south)	167	10.6 %	Rural single carriageway	6	2	1,913	8.7 %
120	A59 east of Pimlico Link Road	944	14.1 %	Rural single carriageway	7.3	2	2,337	40.4 %
124	Grindleton Road	193	6.2 %	Rural single carriageway	5.5	2	1,732	11.1 %
125	Pimlico Link Road / West Bradford Road	263	6.7 %	Rural single carriageway	7.3	2	2,559	10.3 %
126	West Bradford Road / Clitheroe Road	263	6.7 %	Rural single carriageway	5.5	2	1,721	15.3 %
140	B6478 Slaidburn Road (north)	167	10.6 %	Rural single carriageway	6	2	1,913	8.7 %
143	A59 between M6 Junction 31 and A667	2,731	6.1 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,700	35.5 %
144	A59 between A667 and Mellor Brook roundabout	1,345	8.3 %	Rural single carriageway	7.3	2	2,510	53.6 %
145	A59 between Mellor Brook roundabout and B6245	1,345	8.3 %	Rural single carriageway	7.3	2	2,510	53.6 %
146	A59 between B6245 and A666	1,201	6.5 %	Rural single carriageway	7.3	2	2,564	46.9 %

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
147	A59 between A666 Whalley Road and A671 (south)	1,425	6.3 %	Rural single carriageway	7.3	2	2,572	55.4 %
148	A59 between A671 (south) and A671 (north)	2,782	4.5 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,866	35.4 %
149	A59 between Pendle Road and Pimlico Link Road	1,035	16.2 %	Rural single carriageway	7.3	2	2,275	45.5 %
150	Chatburn Road / Clitheroe Road	256	6.7 %	Rural single carriageway	7.3	2	2,559	10.0 %
151	Waddington Road	207	2.2 %	Rural single carriageway	5.5	2	1,813	11.4 %
152	Clitheroe Road	263	6.7 %	Rural single carriageway	5.5	2	1,721	15.3 %

Table 16.13: 2019 Survey – Two-Way Link Flow Capacity – PM Peak Period (17:00 to 18:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
53	A59 (south of Clitheroe)	2,727	2.6 %	Rural all-purpose dual 2-lane carriageway	14.6	4	8,089	33.7 %
54	A671 Whalley Road	1,196	1.3 %	Rural single carriageway	7.3	2	2,700	44.3 %
55	A671 Queensway	752	0.9 %	Small town	7.3	2	2,400	31.3 %
56	A671 Chatburn Road	965	1.1 %	Small town	7.3	2	2,400	40.2 %
57	A671 Pimlico Link Road	485	8.5 %	Rural single carriageway	7.3	2	2,506	19.4 %
58	A59 between A671 Whalley Road and Pendle Road	1,651	3.5 %	Rural single carriageway	7.3	2	2,656	62.2 %
59	B6478 Waddington Road	236	2.5 %	Rural single carriageway	6	2	2,104	11.2 %
60	West Bradford Road	175	1.3 %	Rural single carriageway	5.5	2	1,816	9.7 %
61	B6478 Slaidburn Road (north)	191	6.3 %	Rural single carriageway	6	2	2,013	9.5 %

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
63	B6478 Slaidburn Road (south)	191	6.3 %	Rural single carriageway	6	2	2,013	9.5 %
120	A59 east of Pimlico Link Road	863	7.4 %	Rural single carriageway	7.3	2	2,539	34.0 %
124	Grindleton Road	185	4.2 %	Rural single carriageway	5.5	2	1,773	10.4 %
125	Pimlico Link Road / West Bradford Road	257	8.7 %	Rural single carriageway	7.3	2	2,499	10.3 %
126	West Bradford Road / Clitheroe Road	257	8.7 %	Rural single carriageway	5.5	2	1,681	15.3 %
140	B6478 Slaidburn Road (north)	191	6.3 %	Rural single carriageway	6	2	2,013	9.5 %
143	A59 between M6 Junction 31 and A667	2,427	2.0 %	Rural all-purpose dual 2-lane carriageway	14.6	4	8,151	29.8 %
144	A59 between A667 and Mellor Brook roundabout	1,208	2.8 %	Rural single carriageway	7.3	2	2,677	45.1 %
145	A59 between Mellor Brook roundabout and B6245	1,208	2.8 %	Rural single carriageway	7.3	2	2,677	45.1 %
146	A59 between B6245 and A666	1,210	3.5 %	Rural single carriageway	7.3	2	2,655	45.6 %
147	A59 between A666 Whalley Road and A671 (south)	1,571	2.9 %	Rural single carriageway	7.3	2	2,673	58.8 %
148	A59 between A671 (south) and A671 (north)	2,936	2.0 %	Rural all-purpose dual 2-lane carriageway	14.6	4	8,155	36.0 %
149	A59 between Pendle Road and Pimlico Link Road	1,232	8.9 %	Rural single carriageway	7.3	2	2,492	49.4 %
150	Chatburn Road / Clitheroe Road	249	8.7 %	Rural single carriageway	7.3	2	2,499	10.0 %
151	Waddington Road	175	1.3 %	Rural single carriageway	5.5	2	1,816	9.7 %
152	Clitheroe Road	257	8.7 %	Rural single carriageway	5.5	2	1,681	15.3 %

Table 16.14: 2019 Survey – Two-Way Link Flow Capacity – 12-hour (07:00 to 19:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes
53	A59 (south of Clitheroe)	27,315	7.0 %	Rural all-purpose dual 2-lane carriageway	14.6	4
54	A671 Whalley Road	12,407	3.5 %	Rural single carriageway	7.3	2
55	A671 Queensway	8,327	3.1 %	Small town	7.3	2
56	A671 Chatburn Road	9,230	3.7 %	Small town	7.3	2
57	A671 Pimlico Link Road	5,140	18.7 %	Rural single carriageway	7.3	2
58	A59 between A671 Whalley Road and Pendle Road	16,268	9.8 %	Rural single carriageway	7.3	2
59	B6478 Waddington Road	2,624	3.6 %	Rural single carriageway	6	2
60	West Bradford Road	1,570	3.3 %	Rural single carriageway	5.5	2
61	B6478 Slaidburn Road (north)	1,831	11.1 %	Rural single carriageway	6	2
63	B6478 Slaidburn Road (south)	1,831	11.1 %	Rural single carriageway	6	2
120	A59 east of Pimlico Link Road	8,749	15.9 %	Rural single carriageway	7.3	2
124	Grindleton Road	1,672	7.2 %	Rural single carriageway	5.5	2
125	Pimlico Link Road / West Bradford Road	2,642	10.7 %	Rural single carriageway	7.3	2
126	West Bradford Road/ Clitheroe Road	2,642	10.7 %	Rural single carriageway	5.5	2
140	B6478 Slaidburn Road (north)	1,831	11.1 %	Rural single carriageway	6	2
143	A59 between M6 Junction 31 and A667	29,183	5.5 %	Rural all-purpose dual 2-lane carriageway	14.6	4
144	A59 between A667 and Mellor Brook roundabout	12,945	7.7 %	Rural single carriageway	7.3	2
145	A59 between Mellor Brook roundabout and B6245	12,945	7.7 %	Rural single carriageway	7.3	2
146	A59 between B6245 and A666	11,575	7.8 %	Rural single carriageway	7.3	2
147	A59 between A666 Whalley Road and A671 (south)	13,418	6.4 %	Rural single carriageway	7.3	2

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes
148	A59 between A671 (south) and A671 (north)	27,030	5.9 %	Rural all-purpose dual 2-lane carriageway	14.6	4
149	A59 between Pendle Road and Pimlico Link Road	11,914	16.7 %	Rural single carriageway	7.3	2
150	Chatburn Road / Clitheroe Road	2,566	10.7 %	Rural single carriageway	7.3	2
151	Waddington Road	1,570	3.3 %	Rural single carriageway	5.5	2
152	Clitheroe Road	2,642	10.7 %	Rural single carriageway	5.5	2

- 58) The analysis presented in Table 16.12 to Table 16.14 demonstrates that the network surrounding the Proposed Marl Hill Section operates within its stated capacity under existing operating conditions (2019 survey baseline). All links are projected to operate under 90 % Network Stress Level during the peak hours of 08:00 to 09:00 and 17:00 to 18:00.
- 59) During the AM peak, the highest vehicular flows were recorded on the A59 between A671 (south) and A671 (north) (Link 148), the A59 (south of Clitheroe) (Link 53) and A59 between M6 Junction 31 and A667 (Link 143), which constitute locally significant sections of the primary local road network and predominant access route for those entering the region from the M6. Within this context, the highest existing levels of HGVs as a proportion of total traffic were recorded on A671 Pimlico Link Road (Link 57) and A59 between Pendle Road and Pimlico Link Road (Link 149) with values of 16.7 % and 16.2 % respectively. Regarding network stress levels, all links are expected to perform a level of traffic flow under 90 % of their theoretical capacity, therefore unlikely to experience flow breakdown.
- 60) During the PM peak, the highest vehicular flows were also recorded on the A59 between A671 (south) and A671 (north) (Link 148), the A59 (south of Clitheroe) (Link 53) and the A59 between M6 Junction 31 and A667 (Link 143). The highest existing level of HGVs as a proportion of total traffic was recorded on A59 between Pendle Road and Pimlico Link Road (Link 149) with a value of 8.9 %. Regarding network stress levels, all links are expected to perform a level of traffic flow under 90 % of their theoretical capacity, therefore unlikely to experience flow breakdown.
- 61) Regarding the 12-hour period, the highest vehicular flows were recorded on the A59 between A671 (south) and A671 (north) (Link 148), the A59 (south of Clitheroe) (Link 53) and the A59 between M6 Junction 31 and A667 (Link 143), and the highest existing levels of HGVs were recorded on A671 Pimlico Link Road (Link 57) and A59 between Pendle Road and Pimlico Link Road (Link 149) with values of 18.7 % and 16.7 % respectively.

1.4 Proposed Marl Hill Section

1.4.1 Introduction

- 62) The Proposed Marl Hill Section is located within Ribble Valley Borough Council, approximately 4 km north of Clitheroe extending from approximately 1.3 km south of Newton-in-Bowland to 1.3 km north of Waddington. The existing aqueduct between the Hodder multi-line siphon and the Ribblesdale multi-line siphon would be replaced with a single tunnel. The new tunnel would be driven from south to north, with a launch shaft at the Braddup Compound (south) and reception shaft at Bonstone Compound (north). It has been determined that a surplus material transfer to Waddington Fell Quarry strategy for the Proposed Marl Hill Section would be to use the Waddington Fell Quarry, located off the B6478 / Slaidburn Road. Further information regarding the surplus material transfer strategy to the Waddington Fell Quarry is discussed in Volume 2 Chapter 12: Materials and Waste.
- 63) The sections of the pipeline identified in this TA are illustrated in Chapter 3 of the ES. Table 16.15 below shows traffic modelling links including inbound and outbound movement across the local highway network and the Local Planning Authority where they are located.

Table 16.15: Road Network Development Components

Link ID	Highway Section	Local Planning Authority
Route to Bonstone Compound - Inbound		
143	A59 between M6 Junction 31 and A667	South Ribble Borough Council
144	A59 between A667 and Mellor Brook roundabout	Ribble Valley Borough Council and South Ribble Borough Council
145	A59 between Mellor Brook roundabout and B6245	Ribble Valley Borough Council
146	A59 between B6245 and A666	Ribble Valley Borough Council

Link ID	Highway Section	Local Planning Authority
147	A59 between A666 and A671 (south)	Ribble Valley Borough Council
148	A59 between A671 (south) and A671 (north)	Ribble Valley Borough Council
53	A59 (south of Clitheroe)	Ribble Valley Borough Council
58	A59 between Whalley Road and Pendle Road	Ribble Valley Borough Council
149	A59 between Pendle Road and Pimlico Link Road	Ribble Valley Borough Council
57	A671 Pimlico Link Road	Ribble Valley Borough Council
125	Pimlico Link Road / West Bradford Road	Ribble Valley Borough Council
126	West Bradford Road / Clitheroe Road	Ribble Valley Borough Council
153	Proposed Ribble Crossing	Ribble Valley Borough Council
60	West Bradford Road	Ribble Valley Borough Council
61	B6478 Slaidburn Road (north)	Ribble Valley Borough Council
63	B6478 Slaidburn Road (south)	Ribble Valley Borough Council
140	B6478 Slaidburn Road (north)	Ribble Valley Borough Council
Routes from Bonstone Compound – Outbound		
140	B6478 Slaidburn Road (north)	Ribble Valley Borough Council
63	B6478 Slaidburn Road (south)	Ribble Valley Borough Council
61	B6478 Slaidburn Road (north)	Ribble Valley Borough Council
60	West Bradford Road	Ribble Valley Borough Council
153	Proposed Ribble Crossing	Ribble Valley Borough Council
126	West Bradford Road / Clitheroe Road	Ribble Valley Borough Council
125	Pimlico Link Road / West Bradford Road	Ribble Valley Borough Council
57	A671 Pimlico Link Road	Ribble Valley Borough Council
149	A59 between Pendle Road and Pimlico Link Road	Ribble Valley Borough Council
58	A59 between Whalley Road and Pendle Road	Ribble Valley Borough Council
53	A59 (south of Clitheroe)	Ribble Valley Borough Council
148	A59 between A671 (south) and A671 (north)	Ribble Valley Borough Council
147	A59 between A666 and A671 (south)	Ribble Valley Borough Council
146	A59 between B6245 and A666	Ribble Valley Borough Council
145	A59 between Mellor Brook roundabout and B6245	Ribble Valley Borough Council
144	A59 between A667 and Mellor Brook roundabout	Ribble Valley Borough Council and South Ribble Borough Council
143	A59 between M6 Junction 31 and A667	South Ribble Borough Council
Surplus material transfer to Waddington Fell Quarry to Bonstone Compound - Inbound		
140	B6478 Slaidburn Road (north)	Ribble Valley Borough Council
Surplus material transfer to Waddington Fell Quarry from Bonstone Compound - Outbound		

Link ID	Highway Section	Local Planning Authority
140	B6478 Slaidburn Road (north)	Ribble Valley Borough Council
Routes to Braddup Compound – Inbound		
143	A59 between M6 Junction 31 and A667	South Ribble Borough Council
144	A59 between A667 and Mellor Brook roundabout	Ribble Valley Borough Council and South Ribble Borough Council
145	A59 between Mellor Brook roundabout and B6245	Ribble Valley Borough Council
146	A59 between B6245 and A666	Ribble Valley Borough Council
147	A59 between A666 and A671 (south)	Ribble Valley Borough Council
148	A59 between A671 (south) and A671 (north)	Ribble Valley Borough Council
53	A59 (south of Clitheroe)	Ribble Valley Borough Council
58	A59 between Whalley Road and Pendle Road	Ribble Valley Borough Council
149	A59 between Pendle Road and Pimlico Link Road	Ribble Valley Borough Council
57	A671 Pimlico Link Road	Ribble Valley Borough Council
125	Pimlico Link Road / West Bradford Road	Ribble Valley Borough Council
126	West Bradford Road / Clitheroe Road	Ribble Valley Borough Council
153	Proposed Ribble Crossing	Ribble Valley Borough Council
60	West Bradford Road	Ribble Valley Borough Council
61	B6478 Slaidburn Road (north)	Ribble Valley Borough Council
Routes from Braddup Compound – Outbound		
61	B6478 Slaidburn Road (north)	Ribble Valley Borough Council
60	West Bradford Road	Ribble Valley Borough Council
153	Proposed Ribble Crossing	Ribble Valley Borough Council
126	West Bradford Road / Clitheroe Road	Ribble Valley Borough Council
125	Pimlico Link Road / West Bradford Road	Ribble Valley Borough Council
57	A671 Pimlico Link Road	Ribble Valley Borough Council
149	A59 between Pendle Road and Pimlico Link Road	Ribble Valley Borough Council
58	A59 between Whalley Road and Pendle Road	Ribble Valley Borough Council
53	A59 (south of Clitheroe)	Ribble Valley Borough Council
148	A59 between A671 (south) and A671 (north)	Ribble Valley Borough Council
147	A59 between A666 and A671 (south)	Ribble Valley Borough Council
146	A59 between B6245 and A666	Ribble Valley Borough Council
145	A59 between Mellor Brook roundabout and B6245	Ribble Valley Borough Council
144	A59 between A667 and Mellor Brook roundabout	Ribble Valley Borough Council and South Ribble Borough Council
143	A59 between M6 Junction 31 and A667	South Ribble Borough Council
Surplus material transfer to Waddington Fell Quarry to Braddup Compound - Inbound		

Link ID	Highway Section	Local Planning Authority
63	B6478 Slaidburn Road (south)	Ribble Valley Borough Council
Surplus material transfer to Waddington Fell Quarry from Braddup Compound - Outbound		
63	B6478 Slaidburn Road (south)	Ribble Valley Borough Council

- 64) The study area is defined by:
- *The location of compound and Park and Ride areas*
 - *The main access routes which would be used to deliver materials to the site, remove waste and transferring workforce.*
- 65) Due to this, the area which this TA covers is wider than the immediate environs of the Proposed Marl Hill Section and covers the wider local highway network. In order to adequately assess all potential impacts associated with HGV and employment traffic accessing the various compound sites from the wider strategic and local highway networks, the coverage of the TA is more extensive, encompassing an assessment of routes that are remote from the compound sites. The scope was agreed during discussions with Highways England and Lancashire County Council. The area of coverage is notably defined by the point of Junction 31, M6 to the south-west, Clitheroe, Chatburn to the north-east and Waddington. The area is illustrated in Figure 16.2.
- 66) A high level construction programme for the Proposed Programme of Works is identified in Chapter 3: Design Evolution and Development Description. It has been used to identify the key parameters for assessment of traffic, based upon the lifetime of the Programme of Works, and the peaks in activity based upon the number of concurrent construction activities taking place around the network, which would generate demand for HGV movement (import and export) and construction workers. This construction programme is based upon United Utilities' current understanding of the Proposed Programme of Works; however, it is noted that it may be subject to change post determination when further detail is available from the construction contractor(s).

1.5 Assumptions and Key Parameters

1.5.1 Introduction

- 67) This section covers the key parameters for the assessment of traffic impact including:
- *Assessment scenarios*
 - *Trip generation assumptions*
 - *Trip distribution assumptions*
 - *Assessment method.*

1.5.2 Assessment Scenarios

2019 Baseline Position

- 68) As detailed in Section 3 of this TA, the 2019 baseline position has been defined by traffic counts obtained over a 24-hour period in October and November 2019. This scenario forms the basis of all subsequent comparative assessment.

2024 Background Position

- 69) During the summer months of 2024, it is anticipated that construction activity would achieve its concurrent peak period regarding workforce, plant and vehicle requirements. For that reason, and in order to produce the most representative scenario, month 16 of construction (August 2024) was chosen as the representative construction peak. Therefore, the background position was identified as 2024, with the highest level of concurrent construction activity occurring across the development area within the

total construction period that would commence in 2023 and conclude in 2030. As detailed above, the baseline traffic counts were obtained in October and November 2019, considered neutral months to undertake representative traffic counts. August 2024 has been used for assessment of construction effects, however, any seasonal differences which occur in the area have been considered to represent the best representative construction scenario.

Background Growth

- 70) Calculation of 'background' traffic estimates has been undertaken using an appropriate growth factor to uplift 2019 background network traffic levels to the 2024 peak time of construction, using appropriate factors from the National Transport Model (NTM), locally adjusted for the Ribble Valley and South Ribble areas, using the TEMPro (V7.2) software. This equates to a circa 4.0 % growth in traffic across the network for the Ribble Valley area and 4.5 % for the South Ribble area.

Cumulative Committed Schemes

- 71) Cumulative committed schemes have been defined in consultation with the Local Planning Authorities. Where possible, this information has been quantified reflecting likely trip generation on the local road network and SRN using publicly available information and applied to the 2024 peak construction period.

- 72) Assessments of baseline network conditions incorporate the consideration of cumulative committed local development schemes, and other major schemes within the planning process that have the potential to coincide with the relevant assessment periods of the Proposed Programme of Works. Trip generation and distribution assumptions have been obtained from documents published on the planning websites of Lancashire County Council¹⁴, Ribble Valley Borough Council¹⁵ and South Ribble Borough Council¹⁶. This process is considered to be highly robust as it quantifies schemes on top of the background growth that is derived from growth rates obtained from TEMPro. Developments under the following classification have been descope:

- *Local Plan allocations already accounted for through TEMPro growth factors*
- *Residential developments of less than 80 dwellings, or Office / Industrial / Retail sites with non-substantial traffic impact in line with the DfT Guidance on Transport Assessment¹⁷*
- *Development already built by 2019, already accounted by 2019 traffic surveys*
- *Duplicate of already considered application or superseded by newer application*
- *Small leisure or recreational sites, with minor traffic impact expected due to the nature of the development*
- *Conversion of existing sites to similar use, with minor traffic impact expected or limited change of traffic impact*
- *Agricultural buildings with limited traffic generation*
- *Development with absence of Transport Assessment, Transport Statement or Traffic Management Plan implying non-material traffic impacts*
- *Developments with planning permission subject to pending decision, considered as uncertain*
- *Developments with planning permission older than two years but no evidence of construction start or completion*

¹⁴ Lancashire County Council Planning Portal (2020) [Online] Available from: <https://www.lancashire.gov.uk/council/planning/> [Accessed: June 2020]

¹⁵ Ribble Valley Borough Council Planning Portal (2020) [Online] Available from: https://www.ribblevalley.gov.uk/info/200361/planning_applications [Accessed: June 2020]

¹⁶ South Ribble Borough Council Planning Portal (2020) [Online] Available from: <https://www.southribble.gov.uk/article/1112/Planning-applications> [Accessed: June 2020]

¹⁷ Department for Transport (2007) *Guidance on Transport Assessment* [Online] Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/263054/guidance-transport-assessment.pdf [Accessed: June 2020]

- *Development with construction traffic before the Proposed Programme of Works commence or no operational traffic*
- *Developments outside of a 25 miles buffer from the proposed access routes or with low traffic assignment onto the proposed access routes.*

73) The following sites identified in Table 16.16 are assumed to be operative or under construction at the 2024 construction peak year, and have been included accordingly.

Table 16.16: Cumulative Committed Schemes

Reference	Description	Type	Local Planning Authority
3/2018/0914	The erection of 188 dwellings including means of access and associated works.	Residential	Ribble Valley Borough Council
LCC/2019/0008	Demolition of existing caretakers house to provide 8 car parking spaces with lighting and bin store area. Demolition of block D building and erection of a single storey building to provide multi-functional activity studio. Erection of a double storey extension to existing block G building to provide 10 classrooms. Resizing of existing multi use games area with erection of 3 m High ball stop fence. Creation of a new pedestrian entrance and widening of existing vehicular entrance on turner street. Erection of 2.4 m high weldmesh fencing along northern boundary and south eastern corner of the school site.	Education	Lancashire County Council

74) Table 16.17 and Table 16.18 summarise the cumulative schemes as expressed on the network during the AM peak and PM peak periods.

Table 16.17: Cumulative Schemes AM Peak Period (08:00 to 09:00)

Link Ref	Local Planning Authority	Link Name	Two-Way Link Flow
53	Ribble Valley Borough Council	A59 (south of Clitheroe)	50
54	Ribble Valley Borough Council	A671 Whalley Road	42
55	Ribble Valley Borough Council	A671 Queensway	52
56	Ribble Valley Borough Council	A671 Chatburn Road	29
57	Ribble Valley Borough Council	A671 Pimlico Link Road	0
58	Ribble Valley Borough Council	A59 between A671 Whalley Road and Pendle Road	0
59	Ribble Valley Borough Council	B6478 Waddington Road	11
60	Ribble Valley Borough Council	West Bradford Road	0
61	Ribble Valley Borough Council	B6478 Slaidburn Road (north)	11
63	Ribble Valley Borough Council	B6478 Slaidburn Road (south)	5
120	Ribble Valley Borough Council	A59 east of Pimlico Link Road	11
124	Ribble Valley Borough Council	Grindleton Road	0

Link Ref	Local Planning Authority	Link Name	Two-Way Link Flow
125	Ribble Valley Borough Council	Pimlico Link Road / West Bradford Road	0
126	Ribble Valley Borough Council	West Bradford Road / Clitheroe Road	0
140	Ribble Valley Borough Council	B6478 Slaidburn Road (north)	11
143	South Ribble Borough Council	A59 between M6 Junction 31 and A667	0
144	South Ribble Borough Council and Ribble Valley Borough Council	A59 between A667 and Mellor Brook roundabout	0
145	Ribble Valley Borough Council	A59 between Mellor Brook roundabout and B6245	0
146	Ribble Valley Borough Council	A59 between B6245 and A666	0
147	Ribble Valley Borough Council	A59 between A666 Whalley Road and A671 (south)	141
148	Ribble Valley Borough Council	A59 between A671 (south) and A671 (north)	50
149	Ribble Valley Borough Council	A59 between Pendle Road and Pimlico Link Road	11
150	Ribble Valley Borough Council	Chatburn Road / Clitheroe Road	0
151	Ribble Valley Borough Council	Waddington Road	0
152	Ribble Valley Borough Council	Clitheroe Road	0

Table 16.18: Cumulative Schemes PM Peak Period (17:00 to 18:00)

Link Ref	Local Planning Authority	Link Name	Two-Way Link Flow
53	Ribble Valley Borough Council	A59 (south of Clitheroe)	39
54	Ribble Valley Borough Council	A671 Whalley Road	29
55	Ribble Valley Borough Council	A671 Queensway	29
56	Ribble Valley Borough Council	A671 Chatburn Road	21
57	Ribble Valley Borough Council	A671 Pimlico Link Road	0
58	Ribble Valley Borough Council	A59 between A671 Whalley Road and Pendle Road	0
59	Ribble Valley Borough Council	B6478 Waddington Road	9
60	Ribble Valley Borough Council	West Bradford Road	0
61	Ribble Valley Borough Council	B6478 Slaidburn Road (north)	9
63	Ribble Valley Borough Council	B6478 Slaidburn Road (south)	7
120	Ribble Valley Borough Council	A59 east of Pimlico Link Road	10
122	Ribble Valley Borough Council	Crow Trees Brow	0
125	Ribble Valley Borough Council	Pimlico Link Road / West Bradford Road	0
126	Ribble Valley Borough Council	West Bradford Road / Clitheroe Road	0
140	Ribble Valley Borough Council	B6478 Slaidburn Road (north)	9

Link Ref	Local Planning Authority	Link Name	Two-Way Link Flow
143	South Ribble Borough Council	A59 between M6 Junction 31 and A667	0
144	South Ribble Borough Council and Ribble Valley Borough Council	A59 between A667 and Mellor Brook roundabout	0
145	Ribble Valley Borough Council	A59 between Mellor Brook roundabout and B6245	0
146	Ribble Valley Borough Council	A59 between B6245 and A666	0
147	Ribble Valley Borough Council	A59 between A666 Whalley Road and A671 (south)	135
148	Ribble Valley Borough Council	A59 between A671 (south) and A671 (north)	39
149	Ribble Valley Borough Council	A59 between Pendle Road and Pimlico Link Road	10
150	Ribble Valley Borough Council	Chatburn Road / Clitheroe Road	0
151	Ribble Valley Borough Council	Waddington Road	0
152	Ribble Valley Borough Council	Clitheroe Road	0

Construction Scenario

2024 Baseline + Development Position (Do Something)

- 75) This scenario involves the operation of the highway network in 2024 including for the baseline position, accounting for background traffic flow, plus traffic associated with the construction of the proposed Marl Hill Section.
- 76) Traffic-related construction movements tend to have variations in peak staffing times and delivery levels. Based on construction programme estimates, the Proposed Marl Hill Section was anticipated to begin in Spring 2023, becoming operational in 2030.
- 77) In order to represent the construction period, discussions have been held with United Utilities as a means to quantify construction related traffic amongst both staff and construction-related HGVs. Based on the current construction programme, the following assumptions have been made.

Working Hours During Construction

- 78) Underground tunnelling and surface works to support tunnelling works would likely be undertaken on a 24/7 basis. The remaining construction activities would be limited to daylight hours Monday to Friday and Saturday mornings (07:00 to 13:00) unless there is a requirement to work longer days using artificial lighting. Exceptions for weekends and bank holidays can be agreed with Local Planning Authorities if required.
- 79) The working hours during construction (haulage operational hours, excluding commuter movements) are assumed to be 07:00 to 19:00. It is not possible at this stage to fully predict the detailed arrival and departure for HGVs at each site, however, liaison with United Utilities and professional judgement has been used to develop a profile of arrivals and departures. This reflects the spread of construction activities across the day, and limited capacity of each compound to accommodate multiple activities at once. Traffic has been spread along the working day as follows:
- *Light and commuter movements: 06:45 to 08:00 and 18:45 to 20:00 (two shifts)*
 - *HGVs and abnormal load movements: 09:00 to 14:45 and 16:00 to 18:45. Traffic would be restricted between 08:00 to 09:00 and 14:45 to 16:00 to avoid traffic impact during school drop-off periods.*

These times would be reviewed and agreed with the relevant LHA near the commencement of construction activities to consider the most up-to-date school schedules.

- 80) For the purpose of the core assessment, all vehicle movements were assumed to take place within the core 12-hour working period from 07:00 to 19:00 which encompasses immediately before and after the operable period.

HGV Trip Generation and Distribution Assumptions

- 81) The assessment of traffic impacts has been resultant of first principles using assumptions provided by United Utilities and ECI, as well as applied professional judgement. These assumptions have been presented to, and agreed with Lancashire County Council and Highways England through scoping discussions, and subsequent consultation exercises.
- 82) In order to quantify the number of HGVs per day during the construction period, a theoretical vehicle movements spreadsheet produced for the drive strategy was used. These movements have been calculated based on construction rates applied to materials and waste figures.
- 83) The application of construction rates against the high level programme enabled an assessment of daily volumes (as HGV loads) associated with materials excavated and removed. The construction rates have also been used to identify where activity would be taking place on a typical day during August 2024, and the associated compounds that would form the origin and destination of HGV trips.
- 84) The current assumption for the origins of imported material, tunnel ring deliveries and other material deliveries (i.e. concrete, aggregates, walls, roofs, structure, pumps, vessels, generators, fencing) is that it will come from or go to the SRN. For the destination of exported material for the Proposed Marl Hill Section, it has been determined that a surplus material transfer strategy would be to use the Waddington Fell Quarry. At this stage it is not possible to identify the exact location of possible suppliers, resources, surplus material sites or sites for reuse. This will only be possible once the construction contractor(s) have been appointed post planning determination. For the purposes of the transport modelling a 40 % north and 80 % south access strategy for the SRN has been agreed based on a reasonable assumption of possible supplier locations, port locations and resources. Every vehicle movement would have either an origin or destination associated with the proposed construction compounds.
- 85) These movements have been calculated within the traffic model and distributed around the network based on the key assumption that they would arrive and depart via the SRN using the nearest junction. If sources are from within the immediate locality then the delivery routes would reflect the identified traffic routes along the local road network.

Surplus Excavated Materials

- 86) Excavated material identified as not suitable for direct reuse (without treatment) or surplus material would be removed from site to Waddington Fell Quarry (aggregate) via the B6478 Slaidburn Road.

Peak Construction Staff Activity

- 87) August 2024 has been used as the busiest construction period. The extent of the area and the long term duration of construction activity in various locations, would serve to make commuting difficult by means other than a private car, and limit the extent to which sustained patterns of travel behaviour can be established. It is assumed that the workforce would arrive by private car / minibus / vans to the proposed Park and Ride facility to the north of Clitheroe (Hanson Cement); then staff would travel to each compound using a shuttle bus service. An Interim Travel Plan has been produced that explores the means to which private car use can be limited through measures to increase vehicle occupancy and coordinate journeys from surrounding localities. The Interim Travel Plan is presented within Section 7.2 of this TA.
- 88) The extent of working hours for the Proposed Programme of Works would be from 07:00 to 19:00; with commuting trips conducted outside of the peak hours; prior to 08:00 for inbound movements, and after 18:45 for outbound movements. Workers would be accommodated in the employee catchment area and travel to the Park and Ride facility by minibus / vans, then use the shuttle bus service to each

compound. The resultant trips were distributed around the network using labour market statistics for the Lancaster, Preston, Blackburn and Darwen, Ribble Valley and South Ribble areas from the 2011 census, obtained from the Nomis website¹⁸.

- 89) The main areas identified as likely to be where workers would live are identified within Table 16.19.

Table 16.19: Employee Catchment

Residential Locality
Lancaster, Preston, Carnforth, Blackburn and Clitheroe

1.5.3 Summary of Construction Traffic

- 90) Table 16.20 to Table 16.22 provide a summary of the total anticipated construction traffic (HGV and staff) of the three peak periods in the morning (07:00 to 08:00, 08:00 to 09:00 and 09:00 to 10:00) and Table 16.23 and Table 16.24 provide a summary of the two peak periods of activity in the evening (17:00 to 18:00 and 18:00 to 19:00).

Table 16.20: Total Construction Traffic AM Peak Period (07:00 to 08:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV
53	A59 (south of Clitheroe)	38	0.0 %
54	A671 Whalley Road	0	0.0 %
55	A671 Queensway	0	0.0 %
56	A671 Chatburn Road	0	0.0 %
57	A671 Pimlico Link Road	43	0.0 %
58	A59 between A671 Whalley Road and Pendle Road	38	0.0 %
59	B6478 Waddington Road	0	0.0 %
60	West Bradford Road	23	0.0 %
61	B6478 Slaidburn Road (north)	32	0.0 %
63	B6478 Slaidburn Road (south)	26	0.0 %
120	A59 east of Pimlico Link Road	5	0.0 %
124	Grindleton Road	0	0.0 %
125	Pimlico Link Road / West Bradford Road	63	0.0 %
126	West Bradford Road / Clitheroe Road	23	0.0 %
140	B6478 Slaidburn Road (north)	26	0.0 %
143	A59 between M6 Junction 31 and A667	0	0.0 %
144	A59 between A667 and Mellor Brook roundabout	0	0.0 %
145	A59 between Mellor Brook roundabout and B6245	0	0.0 %
146	A59 between B6245 and A666	0	0.0 %
147	A59 between A666 Whalley Road and A671 (south)	0	0.0 %
148	A59 between A671 (south) and A671 (north)	0	0.0 %

¹⁸ Nomis – Official labour market statistics [Online] Available from: <https://www.nomisweb.co.uk> [Accessed: July 2020]

Link Ref	Link Name	Two-Way Link Flow	% HGV
149	A59 between Pendle Road and Pimlico Link Road	38	0.0 %
150	Chatburn Road / Clitheroe Road	0	0.0 %
151	Waddington Road	0	0.0 %
152	Clitheroe Road	0	0.0 %

Table 16.21: Total Construction Traffic AM Peak Period (08:00 to 09:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV
53	A59 (south of Clitheroe)	0	0.0 %
54	A671 Whalley Road	0	0.0 %
55	A671 Queensway	0	0.0 %
56	A671 Chatburn Road	0	0.0 %
57	A671 Pimlico Link Road	0	0.0 %
58	A59 between A671 Whalley Road and Pendle Road	0	0.0 %
59	B6478 Waddington Road	0	0.0 %
60	West Bradford Road	0	0.0 %
61	B6478 Slaidburn Road (north)	0	0.0 %
63	B6478 Slaidburn Road (south)	0	0.0 %
120	A59 east of Pimlico Link Road	0	0.0 %
124	Grindleton Road	0	0.0 %
125	Pimlico Link Road / West Bradford Road	0	0.0 %
126	West Bradford Road / Clitheroe Road	0	0.0 %
140	B6478 Slaidburn Road (north)	0	0.0 %
143	A59 between M6 Junction 31 and A667	0	0.0 %
144	A59 between A667 and Mellor Brook roundabout	0	0.0 %
145	A59 between Mellor Brook roundabout and B6245	0	0.0 %
146	A59 between B6245 and A666	0	0.0 %
147	A59 between A666 Whalley Road and A671 (south)	0	0.0 %
148	A59 between A671 (south) and A671 (north)	0	0.0 %
149	A59 between Pendle Road and Pimlico Link Road	0	0.0 %
150	Chatburn Road / Clitheroe Road	0	0.0 %
151	Waddington Road	0	0.0 %
152	Clitheroe Road	0	0.0 %

Table 16.22: Total Construction Traffic AM Post-Peak Period (09:00 to 10:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV
53	A59 (south of Clitheroe)	17	100.0 %
54	A671 Whalley Road	0	0.0 %
55	A671 Queensway	0	0.0 %
56	A671 Chatburn Road	0	0.0 %
57	A671 Pimlico Link Road	17	100.0 %
58	A59 between A671 Whalley Road and Pendle Road	17	100.0 %
59	B6478 Waddington Road	0	0.0 %
60	West Bradford Road	17	100.0 %
61	B6478 Slaidburn Road (north)	17	100.0 %
63	B6478 Slaidburn Road (south)	13	100.0 %
120	A59 east of Pimlico Link Road	0	0.0 %
124	Grindleton Road	0	0.0 %
125	Pimlico Link Road / West Bradford Road	17	100.0 %
126	West Bradford Road / Clitheroe Road	17	100.0 %
140	B6478 Slaidburn Road (north)	28	100.0 %
143	A59 between M6 Junction 31 and A667	17	100.0 %
144	A59 between A667 and Mellor Brook roundabout	17	100.0 %
145	A59 between Mellor Brook roundabout and B6245	17	100.0 %
146	A59 between B6245 and A666	17	100.0 %
147	A59 between A666 Whalley Road and A671 (south)	17	100.0 %
148	A59 between A671 (south) and A671 (north)	17	100.0 %
149	A59 between Pendle Road and Pimlico Link Road	17	100.0 %
150	Chatburn Road / Clitheroe Road	0	0.0 %
151	Waddington Road	0	0.0 %
152	Clitheroe Road	0	0.0 %

Table 16.23: Total Construction Traffic PM Peak Period (17:00 to 18:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV
53	A59 (south of Clitheroe)	17	100.0 %
54	A671 Whalley Road	0	0.0 %
55	A671 Queensway	0	0.0 %
56	A671 Chatburn Road	0	0.0 %
57	A671 Pimlico Link Road	17	100.0 %

Link Ref	Link Name	Two-Way Link Flow	% HGV
58	A59 between A671 Whalley Road and Pendle Road	17	100.0 %
59	B6478 Waddington Road	0	0.0 %
60	West Bradford Road	17	100.0 %
61	B6478 Slaidburn Road (north)	17	100.0 %
63	B6478 Slaidburn Road (south)	13	100.0 %
120	A59 east of Pimlico Link Road	0	0.0 %
124	Grindleton Road	0	0.0 %
125	Pimlico Link Road / West Bradford Road	17	100.0 %
126	West Bradford Road / Clitheroe Road	17	100.0 %
140	B6478 Slaidburn Road (north)	28	100.0 %
143	A59 between M6 Junction 31 and A667	17	100.0 %
144	A59 between A667 and Mellor Brook roundabout	17	100.0 %
145	A59 between Mellor Brook roundabout and B6245	17	100.0 %
146	A59 between B6245 and A666	17	100.0 %
147	A59 between A666 Whalley Road and A671 (south)	17	100.0 %
148	A59 between A671 (south) and A671 (north)	17	100.0 %
149	A59 between Pendle Road and Pimlico Link Road	17	100.0 %
150	Chatburn Road / Clitheroe Road	0	0.0 %
151	Waddington Road	0	0.0 %
152	Clitheroe Road	0	0.0 %

Table 16.24: Total Construction Traffic PM Peak Period (18:00 to 19:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV
53	A59 (south of Clitheroe)	22	56.8 %
54	A671 Whalley Road	0	0.0 %
55	A671 Queensway	0	0.0 %
56	A671 Chatburn Road	0	0.0 %
57	A671 Pimlico Link Road	23	53.5 %
58	A59 between A671 Whalley Road and Pendle Road	22	56.8 %
59	B6478 Waddington Road	0	0.0 %
60	West Bradford Road	18	68.7 %
61	B6478 Slaidburn Road (north)	20	61.1 %
63	B6478 Slaidburn Road (south)	16	59.8 %
120	A59 east of Pimlico Link Road	1	0.0 %

Link Ref	Link Name	Two-Way Link Flow	% HGV
124	Grindleton Road	0	0.0 %
125	Pimlico Link Road / West Bradford Road	28	44.2 %
126	West Bradford Road / Clitheroe Road	17	72.1 %
140	B6478 Slaidburn Road (north)	28	76.4 %
143	A59 between M6 Junction 31 and A667	12	100.0 %
144	A59 between A667 and Mellor Brook roundabout	12	100.0 %
145	A59 between Mellor Brook roundabout and B6245	12	100.0 %
146	A59 between B6245 and A666	12	100.0 %
147	A59 between A666 Whalley Road and A671 (south)	12	100.0 %
148	A59 between A671 (south) and A671 (north)	12	100.0 %
149	A59 between Pendle Road and Pimlico Link Road	22	56.8 %
150	Chatburn Road / Clitheroe Road	0	0.0 %
151	Waddington Road	0	0.0 %
152	Clitheroe Road	0	0.0 %

91) It is noted that the trip generation figures are significantly greater for the hour 07:00 to 08:00 preceding and the hour (09:00 to 10:00) following the morning peak on the wider transport network, and the hour 18:00 to 19:00 following the evening peak; however, the overall composite flow is higher within the traditional peaks, and has therefore been assessed within the 08:00 to 09:00 and 17:00 to 18:00 hours in order to get a more representative understanding of network performance against higher background flows. However, for the Proposed Marl Hill Section traffic will be restricted between 08:00 to 09:00 and 14:45 to 16:00, therefore the hour following the traditional morning peak (09:00 to 10:00) has also been considered.

1.6 Assessment of Impacts

92) This section summarises the assessment of impacts by link capacity for the following scenarios:

- 2024 Background Position – Table 16.25 to Table 16.28
- 2024 Background + Cumulative – Table 16.29 to Table 16.32
- 2024 Background + Cumulative + Construction Traffic – Table 16.33 to Table 16.36

Table 16.25: 2024 Background – Two-Way Link Flow Capacity - AM Peak Period (08:00 to 09:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
53	A59 (south of Clitheroe)	2,862	7.7 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,534	38.0 %
54	A671 Whalley Road	1,175	4.4 %	Rural single carriageway	7.3	2	2,627	44.7 %
55	A671 Queensway	764	4.4 %	Small town	7.3	2	2,400	31.8 %
56	A671 Chatburn Road	944	7.6 %	Small town	7.3	2	2,400	39.4 %
57	A671 Pimlico Link Road	584	16.7 %	Rural single carriageway	7.3	2	2,258	25.9 %
58	A59 between A671 Whalley Road and Pendle Road	1,789	10.2 %	Rural single carriageway	7.3	2	2,455	72.9 %
59	B6478 Waddington Road	253	4.5 %	Rural single carriageway	6	2	2,056	12.3 %
60	West Bradford Road	215	2.2 %	Rural single carriageway	5.5	2	1,813	11.9 %
61	B6478 Slaidburn Road (north)	174	10.6 %	Rural single carriageway	6	2	1,913	9.1 %
63	B6478 Slaidburn Road (south)	174	10.6 %	Rural single carriageway	6	2	1,913	9.1 %
120	A59 east of Pimlico Link Road	981	14.1 %	Rural single carriageway	7.3	2	2,337	42.0 %
124	Grindleton Road	200	6.2 %	Rural single carriageway	5.5	2	1,732	11.6 %
125	Pimlico Link Road / West Bradford Road	273	6.7 %	Rural single carriageway	7.3	2	2,559	10.7 %
126	West Bradford Road / Clitheroe Road	273	6.7 %	Rural single carriageway	5.5	2	1,721	15.9 %
140	B6478 Slaidburn Road (north)	174	10.6 %	Rural single carriageway	6	2	1,913	9.1 %
143	A59 between M6 Junction 31 and A667	2,837	6.1 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,700	36.8 %
144	A59 between A667 and Mellor Brook roundabout	1,397	8.3 %	Rural single carriageway	7.3	2	2,510	55.6 %
145	A59 between Mellor Brook roundabout and B6245	1,397	8.3 %	Rural single carriageway	7.3	2	2,510	55.6 %
146	A59 between B6245 and A666	1,248	6.5 %	Rural single carriageway	7.3	2	2,564	48.7 %

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
147	A59 between A666 Whalley Road and A671 (south)	1,481	6.3 %	Rural single carriageway	7.3	2	2,572	57.6 %
148	A59 between A671 (south) and A671 (north)	2,891	4.5 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,866	36.7 %
149	A59 between Pendle Road and Pimlico Link Road	1,076	16.2 %	Rural single carriageway	7.3	2	2,275	47.3 %
150	Chatburn Road / Clitheroe Road	266	6.7 %	Rural single carriageway	7.3	2	2,559	10.4 %
151	Waddington Road	215	2.2 %	Rural single carriageway	5.5	2	1,813	11.9 %
152	Clitheroe Road	273	6.7 %	Rural single carriageway	5.5	2	1,721	15.9 %

Table 16.26: 2024 Background – Two-Way Link Flow Capacity - AM Post-Peak Period (09:00 to 10:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
53	A59 (south of Clitheroe)	2,144	9.0 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,404	29.0 %
54	A671 Whalley Road	1,002	4.8 %	Rural single carriageway	7.3	2	2,617	38.3 %
55	A671 Queensway	702	5.0 %	Small town	7.3	2	2,400	29.3 %
56	A671 Chatburn Road	737	4.8 %	Small town	7.3	2	2,400	30.7 %
57	A671 Pimlico Link Road	437	23.1 %	Rural single carriageway	7.3	2	2,067	21.1 %
58	A59 between A671 Whalley Road and Pendle Road	1,238	12.3 %	Rural single carriageway	7.3	2	2,390	51.8 %
59	B6478 Waddington Road	215	3.2 %	Rural single carriageway	6	2	2,087	10.3 %
60	West Bradford Road	120	5.8 %	Rural single carriageway	5.5	2	1,740	6.9 %
61	B6478 Slaidburn Road (north)	138	15.4 %	Rural single carriageway	6	2	1,801	7.7 %

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
63	B6478 Slaidburn Road (south)	138	15.4 %	Rural single carriageway	6	2	1,801	7.7 %
120	A59 east of Pimlico Link Road	731	18.7 %	Rural single carriageway	7.3	2	2,200	33.2 %
124	Grindleton Road	146	11.3 %	Rural single carriageway	5.5	2	1,630	8.9 %
125	Pimlico Link Road / West Bradford Road	255	10.9 %	Rural single carriageway	7.3	2	2,432	10.5 %
126	West Bradford Road / Clitheroe Road	255	10.9 %	Rural single carriageway	5.5	2	1,636	15.6 %
140	B6478 Slaidburn Road (north)	138	15.4 %	Rural single carriageway	6	2	1,801	7.7 %
143	A59 between M6 Junction 31 and A667	2,528	6.1 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,697	32.8 %
144	A59 between A667 and Mellor Brook roundabout	869	11.2 %	Rural single carriageway	7.3	2	2,424	35.8 %
145	A59 between Mellor Brook roundabout and B6245	869	11.2 %	Rural single carriageway	7.3	2	2,424	35.8 %
146	A59 between B6245 and A666	929	10.5 %	Rural single carriageway	7.3	2	2,445	38.0 %
147	A59 between A666 Whalley Road and A671 (south)	1,027	7.0 %	Rural single carriageway	7.3	2	2,550	40.3 %
148	A59 between A671 (south) and A671 (north)	2,212	9.7 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,330	30.2 %
149	A59 between Pendle Road and Pimlico Link Road	905	23.8 %	Rural single carriageway	7.3	2	2,047	44.2 %
150	Chatburn Road / Clitheroe Road	249	10.9 %	Rural single carriageway	7.3	2	2,432	10.2 %
151	Waddington Road	120	5.8 %	Rural single carriageway	5.5	2	1,740	6.9 %
152	Clitheroe Road	255	10.9 %	Rural single carriageway	5.5	2	1,636	15.6 %

Table 16.27: 2024 Background – Two-Way Link Flow Capacity - PM Peak Period (17:00 to 18:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
53	A59 (south of Clitheroe)	2,827	2.6 %	Rural all-purpose dual 2-lane carriageway	14.6	4	8,089	34.9 %
54	A671 Whalley Road	1,240	1.3 %	Rural single carriageway	7.3	2	2,700	45.9 %
55	A671 Queensway	779	0.9 %	Small town	7.3	2	2,400	32.5 %
56	A671 Chatburn Road	1,000	1.1 %	Small town	7.3	2	2,400	41.7 %
57	A671 Pimlico Link Road	503	8.5 %	Rural single carriageway	7.3	2	2,506	20.1 %
58	A59 between A671 Whalley Road and Pendle Road	1,711	3.5 %	Rural single carriageway	7.3	2	2,656	64.4 %
59	B6478 Waddington Road	245	2.5 %	Rural single carriageway	6	2	2,104	11.6 %
60	West Bradford Road	182	1.3 %	Rural single carriageway	5.5	2	1,816	10.0 %
61	B6478 Slaidburn Road (north)	198	6.3 %	Rural single carriageway	6	2	2,013	9.8 %
63	B6478 Slaidburn Road (south)	198	6.3 %	Rural single carriageway	6	2	2,013	9.8 %
120	A59 east of Pimlico Link Road	894	7.4 %	Rural single carriageway	7.3	2	2,539	35.2 %
124	Grindleton Road	192	4.2 %	Rural single carriageway	5.5	2	1,773	10.8 %
125	Pimlico Link Road / West Bradford Road	266	8.7 %	Rural single carriageway	7.3	2	2,499	10.6 %
126	West Bradford Road / Clitheroe Road	266	8.7 %	Rural single carriageway	5.5	2	1,681	15.8 %
140	B6478 Slaidburn Road (north)	198	6.3 %	Rural single carriageway	6	2	2,013	9.8 %
143	A59 between M6 Junction 31 and A667	2,516	2.0 %	Rural all-purpose dual 2-lane carriageway	14.6	4	8,151	30.9 %
144	A59 between A667 and Mellor Brook roundabout	1,252	2.8 %	Rural single carriageway	7.3	2	2,677	46.8 %
145	A59 between Mellor Brook roundabout and B6245	1,252	2.8 %	Rural single carriageway	7.3	2	2,677	46.8 %
146	A59 between B6245 and A666	1,255	3.5 %	Rural single carriageway	7.3	2	2,655	47.3 %

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
147	A59 between A666 Whalley Road and A671 (south)	1,629	2.9 %	Rural single carriageway	7.3	2	2,673	60.9 %
148	A59 between A671 (south) and A671 (north)	3,043	2.0 %	Rural all-purpose dual 2-lane carriageway	14.6	4	8,155	37.3 %
149	A59 between Pendle Road and Pimlico Link Road	1,277	8.9 %	Rural single carriageway	7.3	2	2,492	51.3 %
150	Chatburn Road / Clitheroe Road	258	8.7 %	Rural single carriageway	7.3	2	2,499	10.3 %
151	Waddington Road	182	1.3 %	Rural single carriageway	5.5	2	1,816	10.0 %
152	Clitheroe Road	266	8.7 %	Rural single carriageway	5.5	2	1,681	15.8 %

Table 16.28: 2024 Background – Two-Way Link Flow Capacity – 12-Hour Period (07:00 to 19:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes
53	A59 (south of Clitheroe)	28,354	7.0 %	Rural all-purpose dual 2-lane carriageway	14.6	4
54	A671 Whalley Road	12,879	3.5 %	Rural single carriageway	7.3	2
55	A671 Queensway	8,644	3.1 %	Small town	7.3	2
56	A671 Chatburn Road	9,581	3.8 %	Small town	7.3	2
57	A671 Pimlico Link Road	5,336	18.7 %	Rural single carriageway	7.3	2
58	A59 between A671 Whalley Road and Pendle Road	16,887	9.8 %	Rural single carriageway	7.3	2
59	B6478 Waddington Road	2,723	3.6 %	Rural single carriageway	6	2
60	West Bradford Road	1,629	3.3 %	Rural single carriageway	5.5	2
61	B6478 Slaidburn Road (north)	1,899	11.1 %	Rural single carriageway	6	2
63	B6478 Slaidburn Road (south)	1,899	11.1 %	Rural single carriageway	6	2
120	A59 east of Pimlico Link Road	9,082	15.9 %	Rural single carriageway	7.3	2

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes
124	Grindleton Road	1,735	7.2 %	Rural single carriageway	5.5	2
125	Pimlico Link Road / West Bradford Road	2,741	10.7 %	Rural single carriageway	7.3	2
126	West Bradford Road / Clitheroe Road	2,741	10.7 %	Rural single carriageway	5.5	2
140	B6478 Slaidburn Road (north)	1,899	11.1 %	Rural single carriageway	6	2
143	A59 between M6 Junction 31 and A667	30,294	5.5 %	Rural all-purpose dual 2-lane carriageway	14.6	4
144	A59 between A667 and Mellor Brook roundabout	13,438	7.7 %	Rural single carriageway	7.3	2
145	A59 between Mellor Brook roundabout and B6245	13,438	7.7 %	Rural single carriageway	7.3	2
146	A59 between B6245 and A666	12,015	7.8 %	Rural single carriageway	7.3	2
147	A59 between A666 Whalley Road and A671 (south)	13,928	6.4 %	Rural single carriageway	7.3	2
148	A59 between A671 (south) and A671 (north)	28,057	5.9 %	Rural all-purpose dual 2-lane carriageway	14.6	4
149	A59 between Pendle Road and Pimlico Link Road	12,366	16.7 %	Rural single carriageway	7.3	2
150	Chatburn Road / Clitheroe Road	2,663	10.7 %	Rural single carriageway	7.3	2
151	Waddington Road	1,629	3.3 %	Rural single carriageway	5.5	2
152	Clitheroe Road	2,741	10.7 %	Rural single carriageway	5.5	2

- 93) The analysis presented in Table 16.25 to Table 16.28 demonstrates that the network surrounding the Proposed Marl Hill Section operates within its stated capacity under existing operating conditions (2024 Background baseline). All links are projected to operate under 90 % Network Stress Level during the peak hours of 08:00 to 09:00 and 17:00 to 18:00.
- 94) During the traditional AM peak, the highest vehicular flows were estimated on the A59 between A671 (south) and A671 (north) (Link 148), A59 (south of Clitheroe) (Link 53) and the A59 between M6 Junction 31 and A667 (Link 143), which constitute locally significant sections of the primary local road network and predominant access route for those entering the region from the M6. Within this context, the highest existing levels of HGVs as a proportion of total traffic were estimated on A671 Pimlico Link Road (Link 57) and A59 between Pendle Road and Pimlico Link Road (Link 149) with values of 16.7 % and 16.2 % respectively. Regarding network stress levels, all links are expected to perform a level of traffic flow under 90 % of their theoretical capacity, therefore unlikely to experience flow breakdown.
- 95) During the hour following the traditional AM peak (09:00 to 10:00), the highest vehicular flows were estimated on the same links, the A59 between M6 Junction 31 and A667 (Link 143), the A59 between A671 (south) and A671 (north) (Link 148) and A59 (south of Clitheroe) (Link 53). Within this context, the highest existing levels of HGVs as a proportion of total traffic were estimated on A59 between Pendle Road and Pimlico Link Road (Link 149) and A671 Pimlico Link Road (Link 57) with values of 23.8 % and 23.1 % respectively. Regarding network stress levels, all links are expected to perform a level of traffic flow under 90 % of their theoretical capacity, therefore unlikely to experience flow breakdown.
- 96) During the PM peak, the highest vehicular flows were also estimated on the A59 between A671 (south) and A671 (north) (Link 148), A59 (south of Clitheroe) (Link 53) and the A59 between M6 Junction 31 and A667 (Link 143). The highest existing level of HGVs as a proportion of total traffic was estimated on A59 between Pendle Road and Pimlico Link Road (Link 149) with a value of 8.9 %. Regarding network stress levels, all links are expected to perform a level of traffic flow under 90 % of their theoretical capacity, therefore unlikely to experience flow breakdown.

Table 16.29: 2024 Background+ Cumulative Schemes – Two-Way Link Flow Capacity - AM Peak Period (08:00 to 09:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
53	A59 (south of Clitheroe)	2,913	7.6 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,541	38.6 %
54	A671 Whalley Road	1,217	4.4 %	Rural single carriageway	7.3	2	2,628	46.3 %
55	A671 Queensway	815	4.3 %	Small town	7.3	2	2,400	34.0 %
56	A671 Chatburn Road	973	7.5 %	Small town	7.3	2	2,400	40.6 %
57	A671 Pimlico Link Road	584	16.7 %	Rural single carriageway	7.3	2	2,258	25.9 %
58	A59 between A671 Whalley Road and Pendle Road	1,789	10.2 %	Rural single carriageway	7.3	2	2,455	72.9 %
59	B6478 Waddington Road	264	4.5 %	Rural single carriageway	6	2	2,057	12.8 %
60	West Bradford Road	215	2.2 %	Rural single carriageway	5.5	2	1,813	11.9 %
61	B6478 Slaidburn Road (north)	184	10.2 %	Rural single carriageway	6	2	1,923	9.6 %
63	B6478 Slaidburn Road (south)	179	10.4 %	Rural single carriageway	6	2	1,918	9.3 %
120	A59 east of Pimlico Link Road	991	14.0 %	Rural single carriageway	7.3	2	2,340	42.4 %
124	Grindleton Road	200	6.2 %	Rural single carriageway	5.5	2	1,732	11.6 %
125	Pimlico Link Road / West Bradford Road	273	6.7 %	Rural single carriageway	7.3	2	2,559	10.7 %
126	West Bradford Road/ Clitheroe Road	273	6.7 %	Rural single carriageway	5.5	2	1,721	15.9 %
140	B6478 Slaidburn Road (north)	184	10.2 %	Rural single carriageway	6	2	1,923	9.6 %
143	A59 between M6 Junction 31 and A667	2,837	6.1 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,700	36.8 %
144	A59 between A667 and Mellor Brook roundabout	1,397	8.3 %	Rural single carriageway	7.3	2	2,510	55.6 %
145	A59 between Mellor Brook roundabout and B6245	1,397	8.3 %	Rural single carriageway	7.3	2	2,510	55.6 %
146	A59 between B6245 and A666	1,248	6.5 %	Rural single carriageway	7.3	2	2,564	48.7 %

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
147	A59 between A666 Whalley Road and A671 (south)	1,621	6.2 %	Rural single carriageway	7.3	2	2,575	63.0%
148	A59 between A671 (south) and A671 (north)	2,941	4.5 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,867	37.4%
149	A59 between Pendle Road and Pimlico Link Road	1,086	16.0 %	Rural single carriageway	7.3	2	2,279	47.7%
150	Chatburn Road / Clitheroe Road	266	6.7 %	Rural single carriageway	7.3	2	2,559	10.4%
151	Waddington Road	215	2.2 %	Rural single carriageway	5.5	2	1,813	11.9 %
152	Clitheroe Road	273	6.7 %	Rural single carriageway	5.5	2	1,721	15.9 %

Table 16.30: 2024 Background+ Cumulative Schemes – Two-Way Link Flow Capacity - AM Post-Peak Period (09:00 to 10:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
53	A59 (south of Clitheroe)	2,169	8.9 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,409	29.3 %
54	A671 Whalley Road	1,020	4.8 %	Rural single carriageway	7.3	2	2,617	39.0 %
55	A671 Queensway	721	5.0 %	Small town	7.3	2	2,400	30.0 %
56	A671 Chatburn Road	750	4.8 %	Small town	7.3	2	2,400	31.3 %
57	A671 Pimlico Link Road	437	23.1 %	Rural single carriageway	7.3	2	2,067	21.1 %
58	A59 between A671 Whalley Road and Pendle Road	1,238	12.3 %	Rural single carriageway	7.3	2	2,390	51.8 %
59	B6478 Waddington Road	220	3.2 %	Rural single carriageway	6	2	2,086	10.5 %
60	West Bradford Road	120	5.8 %	Rural single carriageway	5.5	2	1,740	6.9 %
61	B6478 Slaidburn Road (north)	143	15.0 %	Rural single carriageway	6	2	1,809	7.9 %

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
63	B6478 Slaidburn Road (south)	141	15.2 %	Rural single carriageway	6	2	1,806	7.8 %
120	A59 east of Pimlico Link Road	737	18.6 %	Rural single carriageway	7.3	2	2,203	33.5 %
124	Grindleton Road	146	11.3 %	Rural single carriageway	5.5	2	1,630	8.9 %
125	Pimlico Link Road / West Bradford Road	255	10.9 %	Rural single carriageway	7.3	2	2,432	10.5 %
126	West Bradford Road / Clitheroe Road	255	10.9 %	Rural single carriageway	5.5	2	1,636	15.6 %
140	B6478 Slaidburn Road (north)	143	15.0 %	Rural single carriageway	6	2	1,809	7.9 %
143	A59 between M6 Junction 31 and A667	2,528	6.1 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,697	32.8 %
144	A59 between A667 and Mellor Brook roundabout	869	11.2 %	Rural single carriageway	7.3	2	2,424	35.8 %
145	A59 between Mellor Brook roundabout and B6245	869	11.2 %	Rural single carriageway	7.3	2	2,424	35.8 %
146	A59 between B6245 and A666	929	10.5 %	Rural single carriageway	7.3	2	2,445	38.0 %
147	A59 between A666 Whalley Road and A671 (south)	1,113	6.8 %	Rural single carriageway	7.3	2	2,555	43.6 %
148	A59 between A671 (south) and A671 (north)	2,237	9.7 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,335	30.5 %
149	A59 between Pendle Road and Pimlico Link Road	911	23.6 %	Rural single carriageway	7.3	2	2,051	44.4 %
150	Chatburn Road / Clitheroe Road	249	10.9 %	Rural single carriageway	7.3	2	2,432	10.2 %
151	Waddington Road	120	5.8 %	Rural single carriageway	5.5	2	1,740	6.9 %
152	Clitheroe Road	255	10.9 %	Rural single carriageway	5.5	2	1,636	15.6 %

Table 16.31: 2024 Background+ Cumulative Schemes – Two-Way Link Flow Capacity - PM Peak Period (17:00 to 18:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
53	A59 (south of Clitheroe)	2,866	2.6 %	Rural all-purpose dual 2-lane carriageway	14.6	4	8,084	35.4 %
54	A671 Whalley Road	1,269	1.3 %	Rural single carriageway	7.3	2	2,700	47.0 %
55	A671 Queensway	809	1.1 %	Small town	7.3	2	2,400	33.7 %
56	A671 Chatburn Road	1,021	1.2 %	Small town	7.3	2	2,400	42.5 %
57	A671 Pimlico Link Road	503	8.5 %	Rural single carriageway	7.3	2	2,506	20.1 %
58	A59 between A671 Whalley Road and Pendle Road	1,711	3.5 %	Rural single carriageway	7.3	2	2,656	64.4 %
59	B6478 Waddington Road	253	2.5 %	Rural single carriageway	6	2	2,102	12.1 %
60	West Bradford Road	182	1.3 %	Rural single carriageway	5.5	2	1,816	10.0 %
61	B6478 Slaidburn Road (north)	206	6.3 %	Rural single carriageway	6	2	2,015	10.2 %
63	B6478 Slaidburn Road (south)	205	6.3 %	Rural single carriageway	6	2	2,014	10.2 %
120	A59 east of Pimlico Link Road	904	7.3 %	Rural single carriageway	7.3	2	2,540	35.6 %
124	Grindleton Road	192	4.2 %	Rural single carriageway	5.5	2	1,773	10.8 %
125	Pimlico Link Road / West Bradford Road	266	8.7 %	Rural single carriageway	7.3	2	2,499	10.6 %
126	West Bradford Road / Clitheroe Road	266	8.7 %	Rural single carriageway	5.5	2	1,681	15.8 %
140	B6478 Slaidburn Road (north)	206	6.3 %	Rural single carriageway	6	2	2,015	10.2 %
143	A59 between M6 Junction 31 and A667	2,516	2.0 %	Rural all-purpose dual 2-lane carriageway	14.6	4	8,151	30.9 %
144	A59 between A667 and Mellor Brook roundabout	1,252	2.8 %	Rural single carriageway	7.3	2	2,677	46.8 %
145	A59 between Mellor Brook roundabout and B6245	1,252	2.8 %	Rural single carriageway	7.3	2	2,677	46.8 %
146	A59 between B6245 and A666	1,255	3.5 %	Rural single carriageway	7.3	2	2,655	47.3 %

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
147	A59 between A666 Whalley Road and A671 (south)	1,764	3.1 %	Rural single carriageway	7.3	2	2,668	66.1 %
148	A59 between A671 (south) and A671 (north)	3,082	2.0 %	Rural all-purpose dual 2-lane carriageway	14.6	4	8,150	37.8 %
149	A59 between Pendle Road and Pimlico Link Road	1,287	8.9 %	Rural single carriageway	7.3	2	2,493	51.6 %
150	Chatburn Road / Clitheroe Road	258	8.7 %	Rural single carriageway	7.3	2	2,499	10.3 %
151	Waddington Road	182	1.3 %	Rural single carriageway	5.5	2	1,816	10.0 %
152	Clitheroe Road	266	8.7 %	Rural single carriageway	5.5	2	1,681	15.8 %

Table 16.32: 2024 Background+ Cumulative Schemes – Two-Way Link Flow Capacity – 12-Hour Period (07:00 to 19:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes
53	A59 (south of Clitheroe)	28,722	7.0 %	Rural all-purpose dual 2-lane carriageway	14.6	4
54	A671 Whalley Road	13,163	3.6 %	Rural single carriageway	7.3	2
55	A671 Queensway	8,950	3.2 %	Small town	7.3	2
56	A671 Chatburn Road	9,783	3.8 %	Small town	7.3	2
57	A671 Pimlico Link Road	5,336	18.7 %	Rural single carriageway	7.3	2
58	A59 between A671 Whalley Road and Pendle Road	16,887	9.8 %	Rural single carriageway	7.3	2
59	B6478 Waddington Road	2,801	3.6 %	Rural single carriageway	6	2
60	West Bradford Road	1,629	3.3 %	Rural single carriageway	5.5	2
61	B6478 Slaidburn Road (north)	1,978	10.8 %	Rural single carriageway	6	2
63	B6478 Slaidburn Road (south)	1,948	10.9 %	Rural single carriageway	6	2
120	A59 east of Pimlico Link Road	9,169	15.8 %	Rural single carriageway	7.3	2

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes
124	Grindleton Road	1,735	7.2 %	Rural single carriageway	5.5	2
125	Pimlico Link Road / West Bradford Road	2,741	10.7 %	Rural single carriageway	7.3	2
126	West Bradford Road / Clitheroe Road	2,741	10.7 %	Rural single carriageway	5.5	2
140	B6478 Slaidburn Road (north)	1,978	10.8 %	Rural single carriageway	6	2
143	A59 between M6 Junction 31 and A667	30,294	5.5 %	Rural all-purpose dual 2-lane carriageway	14.6	4
144	A59 between A667 and Mellor Brook roundabout	13,438	7.7 %	Rural single carriageway	7.3	2
145	A59 between Mellor Brook roundabout and B6245	13,438	7.7 %	Rural single carriageway	7.3	2
146	A59 between B6245 and A666	12,015	7.8 %	Rural single carriageway	7.3	2
147	A59 between A666 Whalley Road and A671 (south)	15,127	6.3 %	Rural single carriageway	7.3	2
148	A59 between A671 (south) and A671 (north)	28,425	5.9 %	Rural all-purpose dual 2-lane carriageway	14.6	4
149	A59 between Pendle Road and Pimlico Link Road	12,453	16.6 %	Rural single carriageway	7.3	2
150	Chatburn Road / Clitheroe Road	2,663	10.7 %	Rural single carriageway	7.3	2
151	Waddington Road	1,629	3.3 %	Rural single carriageway	5.5	2
152	Clitheroe Road	2,741	10.7 %	Rural single carriageway	5.5	2

- 97) The analysis presented in Table 16.29 to Table 16.32 demonstrates that the network surrounding the Proposed Marl Hill Section operates within its stated capacity under existing operating conditions (2024 Background baseline + Cumulative Schemes scenario). All links are projected to operate under 90 % Network Stress Level during the peak hours of 08:00 to 09:00 and 17:00 to 18:00.
- 98) During the traditional AM peak, the highest vehicular flows were estimated on the A59 between A671 (south) and A671 (north) (Link 148), A59 (south of Clitheroe) (Link 53) and the A59 between M6 Junction 31 and A667 (Link 143), which constitute locally significant sections of the primary local road network and predominant access route for those entering the region from the M6. Within this context, the highest existing levels of HGVs as a proportion of total traffic were estimated on A671 Pimlico Link Road (Link 57) and A59 between Pendle Road and Pimlico Link Road (Link 149) with values of 16.7 % and 16.0 % respectively. Regarding network stress levels, all links are expected to perform a level of traffic flow under 90 % of their theoretical capacity, therefore unlikely to experience flow breakdown.
- 99) During the hour following the traditional AM peak (09:00 to 10:00), the highest vehicular flows were estimated on the same links, the A59 between M6 Junction 31 and A667 (Link 143), the A59 between A671 (south) and A671 (north) (Link 148) and A59 (south of Clitheroe) (Link 53). Within this context, the highest existing levels of HGVs as a proportion of total traffic were also estimated on A59 between Pendle Road and Pimlico Link Road (Link 149) and A671 Pimlico Link Road (Link 57) with values of 23.6 % and 23.1 % respectively. Regarding network stress levels, all links are expected to perform a level of traffic flow under 90 % of their theoretical capacity, therefore unlikely to experience flow breakdown.
- 100) During the PM peak, the highest vehicular flows were also estimated on the A59 between A671 (south) and A671 (north) (Link 148), A59 (south of Clitheroe) (Link 53) and the A59 between M6 Junction 31 and A667 (Link 143). The highest existing level of HGVs as a proportion of total traffic was estimated on A59 between Pendle Road and Pimlico Link Road (Link 149) with a value of 8.9 % and Pimlico Link Road, West Bradford Road and Clitheroe Road (Links 125, 126, 150 and 152) with a value of 8.7 %. Regarding network stress levels, all links are expected to perform a level of traffic flow under 90 % of their theoretical capacity, therefore unlikely to experience flow breakdown.

Table 16.33: 2024 Background + Cumulative Schemes + Construction – Two-Way Link Flow Capacity - AM Peak Period (08:00 to 09:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
53	A59 (south of Clitheroe)	2,913	7.6 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,541	38.6 %
54	A671 Whalley Road	1,217	4.4 %	Rural single carriageway	7.3	2	2,628	46.3 %
55	A671 Queensway	815	4.3 %	Small town	7.3	2	2,400	34.0 %
56	A671 Chatburn Road	973	7.5 %	Small town	7.3	2	2,400	40.6 %
57	A671 Pimlico Link Road	584	16.7 %	Rural single carriageway	7.3	2	2,258	25.9 %
58	A59 between A671 Whalley Road and Pendle Road	1,789	10.2 %	Rural single carriageway	7.3	2	2,455	72.9 %
59	B6478 Waddington Road	264	4.5 %	Rural single carriageway	6	2	2,057	12.8 %
60	West Bradford Road	215	2.2 %	Rural single carriageway	5.5	2	1,813	11.9 %
61	B6478 Slaidburn Road (north)	184	10.2 %	Rural single carriageway	6	2	1,923	9.6 %
63	B6478 Slaidburn Road (south)	179	10.4 %	Rural single carriageway	6	2	1,918	9.3 %
120	A59 east of Pimlico Link Road	991	14.0 %	Rural single carriageway	7.3	2	2,340	42.4 %
124	Grindleton Road	200	6.2 %	Rural single carriageway	5.5	2	1,732	11.6 %
125	Pimlico Link Road / West Bradford Road	273	6.7 %	Rural single carriageway	7.3	2	2,559	10.7 %
126	West Bradford Road / Clitheroe Road	273	6.7 %	Rural single carriageway	5.5	2	1,721	15.9 %
140	B6478 Slaidburn Road (north)	184	10.2 %	Rural single carriageway	6	2	1,923	9.6 %
143	A59 between M6 Junction 31 and A667	2,837	6.1 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,700	36.8 %
144	A59 between A667 and Mellor Brook roundabout	1,397	8.3 %	Rural single carriageway	7.3	2	2,510	55.6 %
145	A59 between Mellor Brook roundabout and B6245	1,397	8.3 %	Rural single carriageway	7.3	2	2,510	55.6 %
146	A59 between B6245 and A666	1,248	6.5 %	Rural single carriageway	7.3	2	2,564	48.7 %

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
147	A59 between A666 Whalley Road and A671 (south)	1,621	6.2 %	Rural single carriageway	7.3	2	2,575	63.0 %
148	A59 between A671 (south) and A671 (north)	2,941	4.5 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,867	37.4 %
149	A59 between Pendle Road and Pimlico Link Road	1,086	16.0 %	Rural single carriageway	7.3	2	2,279	47.7 %
150	Chatburn Road / Clitheroe Road	266	6.7 %	Rural single carriageway	7.3	2	2,559	10.4 %
151	Waddington Road	215	2.2 %	Rural single carriageway	5.5	2	1,813	11.9 %
152	Clitheroe Road	273	6.7 %	Rural single carriageway	5.5	2	1,721	15.9 %

Table 16.34: 2024 Background + Cumulative Schemes + Construction – Two-Way Link Flow Capacity - AM Post-Peak Period (09:00 to 10:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
53	A59 (south of Clitheroe)	2,186	9.6 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,342	29.8 %
54	A671 Whalley Road	1,020	4.8 %	Rural single carriageway	7.3	2	2,617	39.0 %
55	A671 Queensway	721	5.0 %	Small town	7.3	2	2,400	30.0 %
56	A671 Chatburn Road	750	4.8 %	Small town	7.3	2	2,400	31.3 %
57	A671 Pimlico Link Road	453	25.9 %	Rural single carriageway	7.3	2	1,982	22.9 %
58	A59 between A671 Whalley Road and Pendle Road	1,255	13.5 %	Rural single carriageway	7.3	2	2,355	53.3 %
59	B6478 Waddington Road	220	3.2 %	Rural single carriageway	6	2	2,086	10.5 %
60	West Bradford Road	137	17.2 %	Rural single carriageway	5.5	2	1,510	9.1 %
61	B6478 Slaidburn Road (north)	160	23.8 %	Rural single carriageway	6	2	1,602	10.0 %

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
63	B6478 Slaidburn Road (south)	154	22.4 %	Rural single carriageway	6	2	1,637	9.4 %
120	A59 east of Pimlico Link Road	737	18.6 %	Rural single carriageway	7.3	2	2,203	33.5 %
124	Grindleton Road	146	11.3 %	Rural single carriageway	5.5	2	1,630	8.9 %
125	Pimlico Link Road / West Bradford Road	271	16.4 %	Rural single carriageway	7.3	2	2,269	12.0 %
126	West Bradford Road / Clitheroe Road	271	16.6 %	Rural single carriageway	5.5	2	1,522	17.8 %
140	B6478 Slaidburn Road (north)	172	29.1 %	Rural single carriageway	6	2	1,478	11.6 %
143	A59 between M6 Junction 31 and A667	2,545	6.7 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,632	33.3 %
144	A59 between A667 and Mellor Brook roundabout	885	12.9 %	Rural single carriageway	7.3	2	2,374	37.3 %
145	A59 between Mellor Brook roundabout and B6245	885	12.9 %	Rural single carriageway	7.3	2	2,374	37.3 %
146	A59 between B6245 and A666	945	12.1 %	Rural single carriageway	7.3	2	2,398	39.4 %
147	A59 between A666 Whalley Road and A671 (south)	1,129	8.2 %	Rural single carriageway	7.3	2	2,514	44.9 %
148	A59 between A671 (south) and A671 (north)	2,253	10.3 %	Rural all-purpose dual 2-lane carriageway	14.6	4	7,271	31.0 %
149	A59 between Pendle Road and Pimlico Link Road	928	25.0 %	Rural single carriageway	7.3	2	2,010	46.2 %
150	Chatburn Road / Clitheroe Road	249	10.9 %	Rural single carriageway	7.3	2	2,432	10.2 %
151	Waddington Road	120	5.8 %	Rural single carriageway	5.5	2	1,740	6.9 %
152	Clitheroe Road	255	10.9 %	Rural single carriageway	5.5	2	1,636	15.6 %

Table 16.35: 2024 Background + Cumulative Schemes + Construction – Two-Way Link Flow Capacity - PM Peak Period (17:00 to 18:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
53	A59 (south of Clitheroe)	2,882	3.2 %	Rural all-purpose dual 2-lane carriageway	14.6	4	8,020	35.9 %
54	A671 Whalley Road	1,269	1.3 %	Rural single carriageway	7.3	2	2,700	47.0 %
55	A671 Queensway	809	1.1 %	Small town	7.3	2	2,400	33.7 %
56	A671 Chatburn Road	1,021	1.2 %	Small town	7.3	2	2,400	42.5 %
57	A671 Pimlico Link Road	519	11.4 %	Rural single carriageway	7.3	2	2,418	21.5 %
58	A59 between A671 Whalley Road and Pendle Road	1,728	4.4 %	Rural single carriageway	7.3	2	2,629	65.7 %
59	B6478 Waddington Road	253	2.5 %	Rural single carriageway	6	2	2,102	12.1 %
60	West Bradford Road	198	9.5 %	Rural single carriageway	5.5	2	1,664	11.9 %
61	B6478 Slaidburn Road (north)	223	13.2 %	Rural single carriageway	6	2	1,851	12.1 %
63	B6478 Slaidburn Road (south)	218	11.9 %	Rural single carriageway	6	2	1,882	11.6 %
120	A59 east of Pimlico Link Road	904	7.3 %	Rural single carriageway	7.3	2	2,540	35.6 %
124	Grindleton Road	192	4.2 %	Rural single carriageway	5.5	2	1,773	10.8 %
125	Pimlico Link Road / West Bradford Road	282	14.1 %	Rural single carriageway	7.3	2	2,338	12.1 %
126	West Bradford Road / Clitheroe Road	282	14.1 %	Rural single carriageway	5.5	2	1,573	18.0 %
140	B6478 Slaidburn Road (north)	235	17.6 %	Rural single carriageway	6	2	1,748	13.4 %
143	A59 between M6 Junction 31 and A667	2,533	2.7 %	Rural all-purpose dual 2-lane carriageway	14.6	4	8,076	31.4 %
144	A59 between A667 and Mellor Brook roundabout	1,269	4.0 %	Rural single carriageway	7.3	2	2,639	48.1 %
145	A59 between Mellor Brook roundabout and B6245	1,269	4.0 %	Rural single carriageway	7.3	2	2,639	48.1 %
146	A59 between B6245 and A666	1,271	4.8 %	Rural single carriageway	7.3	2	2,617	48.6 %

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes	Calculated Link Capacity	Stress (%)
147	A59 between A666 Whalley Road and A671 (south)	1,780	4.0 %	Rural single carriageway	7.3	2	2,640	67.4 %
148	A59 between A671 (south) and A671 (north)	3,099	2.6 %	Rural all-purpose dual 2-lane carriageway	14.6	4	8,088	38.3 %
149	A59 between Pendle Road and Pimlico Link Road	1,304	10.1 %	Rural single carriageway	7.3	2	2,458	53.0 %
150	Chatburn Road / Clitheroe Road	258	8.7 %	Rural single carriageway	7.3	2	2,499	10.3 %
151	Waddington Road	182	1.3 %	Rural single carriageway	5.5	2	1,816	10.0 %
152	Clitheroe Road	266	8.7 %	Rural single carriageway	5.5	2	1,681	15.8 %

Table 16.36: 2024 Background + Cumulative Schemes + Construction – Two-Way Link Flow Capacity – 12-Hour Period (07:00 to 19:00)

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes
53	A59 (south of Clitheroe)	28,910	7.4 %	Rural all-purpose dual 2-lane carriageway	14.6	4
54	A671 Whalley Road	13,163	3.6 %	Rural single carriageway	7.3	2
55	A671 Queensway	8,950	3.2 %	Small town	7.3	2
56	A671 Chatburn Road	9,783	3.8 %	Small town	7.3	2
57	A671 Pimlico Link Road	5,531	20.6 %	Rural single carriageway	7.3	2
58	A59 between A671 Whalley Road and Pendle Road	17,075	10.5 %	Rural single carriageway	7.3	2
59	B6478 Waddington Road	2,801	3.6 %	Rural single carriageway	6	2
60	West Bradford Road	1,799	10.9 %	Rural single carriageway	5.5	2
61	B6478 Slaidburn Road (north)	2,158	16.5 %	Rural single carriageway	6	2
63	B6478 Slaidburn Road (south)	2,092	15.5 %	Rural single carriageway	6	2
120	A59 east of Pimlico Link Road	9,176	15.8 %	Rural single carriageway	7.3	2

Link Ref	Link Name	Two-Way Link Flow	% HGV	Road Class	Carriageway Width (m)	Number of Lanes
124	Grindleton Road	1,735	7.2 %	Rural single carriageway	5.5	2
125	Pimlico Link Road / West Bradford Road	2,961	14.7 %	Rural single carriageway	7.3	2
126	West Bradford Road / Clitheroe Road	2,910	14.9 %	Rural single carriageway	5.5	2
140	B6478 Slaidburn Road (north)	2,253	20.3 %	Rural single carriageway	6	2
143	A59 between M6 Junction 31 and A667	30,435	6.0 %	Rural all-purpose dual 2-lane carriageway	14.6	4
144	A59 between A667 and Mellor Brook roundabout	13,579	8.7 %	Rural single carriageway	7.3	2
145	A59 between Mellor Brook roundabout and B6245	13,579	8.7 %	Rural single carriageway	7.3	2
146	A59 between B6245 and A666	12,156	8.9 %	Rural single carriageway	7.3	2
147	A59 between A666 Whalley Road and A671 (south)	15,268	7.2 %	Rural single carriageway	7.3	2
148	A59 between A671 (south) and A671 (north)	28,566	6.3 %	Rural all-purpose dual 2-lane carriageway	14.6	4
149	A59 between Pendle Road and Pimlico Link Road	12,642	17.5 %	Rural single carriageway	7.3	2
150	Chatburn Road / Clitheroe Road	2,663	10.7 %	Rural single carriageway	7.3	2
151	Waddington Road	1,629	3.3 %	Rural single carriageway	5.5	2
152	Clitheroe Road	2,741	10.7 %	Rural single carriageway	5.5	2

- 101) The analysis presented in Table 16.33 to Table 16.36 demonstrates that the network surrounding the Proposed Marl Hill Section operates within its stated capacity under existing operating conditions (2024 Background baseline + Cumulative Schemes + Construction scenario). All links are projected to operate under 90 % Network Stress Level during the peak hours of 08:00 to 09:00 and 17:00 to 18:00.
- 102) During the traditional AM peak, the highest vehicular flows were estimated on the A59 between A671 (south) and A671 (north) (Link 148), A59 (south of Clitheroe) (Link 53) and the A59 between M6 Junction 31 and A667 (Link 143), which constitute locally significant sections of the primary local road network and predominant access route for those entering the region from the M6. Within this context, the highest existing levels of HGVs as a proportion of total traffic were estimated on the A671 Pimlico Link Road (Link 57) with a value of 16.7 %. Regarding network stress levels, all links are expected to perform a level of traffic flow under 90 % of their theoretical capacity, therefore unlikely to experience flow breakdown.
- 103) During the hour following the traditional AM peak (09:00 to 10:00), the highest vehicular flows were estimated on the same links, the A59 between M6 Junction 31 and A667 (Link 143), the A59 between A671 (south) and A671 (north) (Link 148) and A59 (south of Clitheroe) (Link 53). Within this context, the highest existing levels of HGVs as a proportion of total traffic were estimated on B6478 Slaidburn Road (north) (Link 140) and A671 Pimlico Link Road (Link 57) with values of 29.1 % and 25.9 % respectively. Regarding network stress levels, all links are expected to perform a level of traffic flow under 90 % of their theoretical capacity, therefore unlikely to experience flow breakdown.
- 104) During the PM peak, the highest vehicular flows were also estimated on the A59 between A671 (south) and A671 (north) (Link 148), A59 (south of Clitheroe) (Link 53) and the A59 between M6 Junction 31 and A667 (Link 143). The highest existing level of HGVs as a proportion of total traffic were estimated on B6478 Slaidburn Road (north) (Link 140) with a value of 17.6 %. Regarding network stress levels, all links are expected to perform a level of traffic flow under 90 % of their theoretical capacity, therefore unlikely to experience flow breakdown.

1.7 Proposed Mitigation Strategy

1.7.1 Introduction

105) This section summarises the proposed mitigation strategy to be implemented during the construction phase to limit the potential effects of additional employee and construction traffic, concentrating on a proposed Interim Travel Plan. The mitigation does not cover the operational phase of the Proposed Programme of Works as it is considered that the effects of additional traffic would be imperceptible against that of background levels and detail of the CTMP is provided in RVBC-MH-APP-007_01 and RVBC-MH-APP-007_02 within the Planning Documents.

1.7.2 Interim Travel Plan

106) The text within this section constitutes an Interim Travel Plan for the Proposed Marl Hill Section.

Introduction

107) This Interim Travel Plan has been prepared by Jacobs on behalf of United Utilities to support the Proposed Marl Hill Section. It includes key parameters to be taken forward by the Local Highway Authority with the site contractor(s) in the event of planning consent. As the requirements for staff travel are most apparent during the construction phase between 2023 and 2030, this phase has been prioritised. Staff travel within the operation phase is likely to be negligible and similar to existing levels.

108) The Interim Travel Plan represents a framework for the development, implementation and operation of travel planning initiatives to encourage / maximise travel by alternative travel modes to the private car and where practical minimise private car journeys. As identified in the NPPF (Paragraph 111) 'All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of *the proposal can be assessed*'¹⁹.

General Travel Plan Objectives and Guidelines

109) Travel planning is a general term associated with the development of a package of measures and initiatives aimed at promoting more sustainable travel choices and reducing reliance on the private car. Travel Plans are tailored to the requirements of individual sites and involve the development of a set of targets and mechanisms that enable organisations to reduce the impact of their travel and transport on the local environment. A Travel Plan is designed to be flexible and dynamic, enabling it to change in line with the needs of the company, its staff and business circumstances. As stated in the NPPF, a Travel Plan is 'A long-term management strategy for an organisation or site that seeks to deliver sustainable transport objectives and is regularly reviewed'.

110) DfT guidance also notes that Travel Plans are 'long-term management strategies'²⁰ to help integrate proposals for sustainable travel into the planning process. It suggests that a Travel Plan should help identify opportunities to promote sustainable transport initiatives which would help reduce less sustainable travel mode demand. It also notes that Travel Plans should be proportionate to the size and scope of the proposed development and tailored to particular local circumstances.

111) The construction compounds associated with the Proposed Marl Hill Section would be dispersed and temporary. Further information in regard to bus services is provided in the CTMP (RVBC-MH-APP-007_01 and RVBC-MH-APP-007_02 within the Planning Documents).

¹⁹ Ministry of Housing, Communities & Local Government (2019) *National Planning Policy Framework* [Online] Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf [Accessed: May 2020]

²⁰ Department for Transport (2014) *Travel Plans, Transport Assessments and Statements* [Online] Available from: <https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements> [Accessed: July 2020]

Objectives and Outcomes

- 112) The following objectives have been identified to counter the potential impacts of staff travel:
- *Employees travelling in groups by car / van / crew bus share to the compound location to help reduce the number of private car usage related to the Proposed Programme of Works*
 - *Manage car parking demand at the compound location to ensure that it is not negatively impacting upon construction operations or surrounding residential areas.*

Implementation of the Interim Travel Plan – Key Action Framework

- 113) The key actions for the Interim Travel Plan are identified below, noting the limitations around space and amenities within the compound areas, and their temporary nature.
- 114) It would be the responsibility of the contractor(s) and as such, the following measures are proposed as a means to limit the impacts:
- *Encouraging staff involvement in a car-sharing scheme. Employees would be encouraged to car-share with other staff members, this could be by a staff matching scheme operated on recruitment or via external car-sharing options such as car-share websites like Liftshare.com*
 - *Management and utilisation of Park and Ride facilities to reduce the use of private car and local parking does not become problematic within surrounding residential areas. Where demand exceeds supply, steps would be taken to ensure that staff travel in multi-occupancy vehicles*
 - *No living accommodation would be provided within any construction working areas. It is anticipated that workers would be accommodated in the local area*
 - *Welfare facilities would be provided within the working area to minimise the need for off-site trips by staff during the working day*
 - *Implementation of the Proposed Ribble Crossing to minimise impacts on populated settlements.*

1.7.3 Construction Traffic Management Plan

Introduction

- 115) A CTMP is necessary to minimise the likely effects of HGV traffic during the construction of the Proposed Marl Hill Section. Further detail of the CTMP is provided in RVBC-MH-APP-007_01 and RVBC-MH-APP-007_02 within the Planning Documents. It provides the framework for the management of construction traffic to the proposed compounds. It outlines mitigation embedded in the design of the Proposed Marl Hill Section and details additional mitigation measures prescribed in the ES for each section covering the following aspects:
- *Proposed vehicle routeing*
 - *Proposed peak traffic flows*
 - *Other road users*
 - *Traffic management.*
- 116) Additionally, further details of proposed highways improvements are presented in Volume 5. The CTMP will be updated by the contractor and agreed with the Local Highway Authority and Highways England.

1.7.4 Highway Stakeholder Group

- 117) A stakeholder liaison group would be convened between the construction contractor(s) and the following groups on a bi-monthly basis or as agreed by the group more frequently depending on the progress of the work:
- *Lancashire County Council*
 - *Highways England*

- *Other developers progressing major schemes within the area including the listed above in the cumulative committed schemes in Section 5.2 of this TA as required.*

118) A stakeholder liaison group is critical to the successful operation of both the local and strategic highway networks during the construction period, particularly in regard to the following:

- *Understanding the coincidence of other construction programmes*
- *Understanding the potential for coincidence of construction works in the highway associated with the Proposed Marl Hill Section and other construction projects e.g. any requirements for closure*
- *Understanding the planned maintenance programmes of the Local Highway Authority, Highways England and other undertakers that may have a bearing on the Proposed Marl Hill Section construction programme.*

1.7.5 Highway Improvements

119) Transport routes to and from the proposed compounds have been identified, and highway improvements will be required to improve safety for general road users along these routes. Further detail is provided in Volume 5. These comprise:

- *Construction of new passing places classed as temporary and to be reinstated on completion of the works*
- *Road widening within highways limits of deviation which would be retained following completion of the works. All road widening works which encroach onto third party land would be reinstated back to pre-works alignment and condition on completion of the Proposed Programme of Works.*

120) Following the completion of the Proposed Programme of Works, some reinstatement works will be carried out. However, discussions between United Utilities, the Local Highways Authority and landowners is on-going to confirm reinstatement requirements.

1.8 Summary and Recommendation

1.8.1 Summary

121) This TA has assessed the comparative change in the operation of the highway network across 25 links as a result of the Proposed Marl Hill Section. It has been produced in support of the main ES, for which Transport Planning has addressed in Chapter 16.

122) The following scenarios have been considered on a composite basis:

- *2019 Baseline Survey*
- *2024 Background Position*
- *2024 Background + Cumulative*
- *2024 Background + Cumulative + Construction Traffic.*

123) The assessments show that all links continue to operate within 90 % of their theoretical capacity, based upon thresholds identified within the COBA 2020 User Manual. The parameters of the assessment are considered to be highly robust, and have been agreed with Lancashire County Council, Highways England and their managing agents. It is considered that the identified construction scenario would not be maintained for a sustained period.

124) The comparative change in link stress as a percentage of theoretical capacity across key links is summarised in Table 16.37 to Table 16.39 for the morning and evening peaks.

Table 16.37: Comparative Change between 2024 Background + Cumulative (DM) and Construction Scenario – AM Peak Period (08:00 to 09:00)

Link Ref	Link Name	2019 Base	2024 Background + Cumulative (DM)	2024 Background + Cumulative + Construction (DS)	% change against DM
53	A59 (south of Clitheroe)	36.6 %	38.6 %	38.6 %	0.0 %
54	A671 Whalley Road	43.0 %	46.3 %	46.3 %	0.0 %
55	A671 Queensway	30.6 %	34.0 %	34.0 %	0.0 %
56	A671 Chatburn Road	37.9 %	40.6 %	40.6 %	0.0 %
57	A671 Pimlico Link Road	24.9 %	25.9 %	25.9 %	0.0 %
58	A59 between A671 Whalley Road and Pendle Road	70.1 %	72.9 %	72.9 %	0.0 %
59	B6478 Waddington Road	11.8 %	12.8 %	12.8 %	0.0 %
60	West Bradford Road	11.4 %	11.9 %	11.9 %	0.0 %
61	B6478 Slaidburn Road (north)	8.7 %	9.6 %	9.6 %	0.0 %
63	B6478 Slaidburn Road (south)	8.7 %	9.3 %	9.3 %	0.0 %
120	A59 east of Pimlico Link Road	40.4 %	42.4 %	42.4 %	0.0 %
124	Grindleton Road	11.1 %	11.6 %	11.6 %	0.0 %
125	Pimlico Link Road / West Bradford Road	10.3 %	10.7 %	10.7 %	0.0 %
126	West Bradford Road / Clitheroe Road	15.3 %	15.9 %	15.9 %	0.0 %
140	B6478 Slaidburn Road (north)	8.7 %	9.6 %	9.6 %	0.0 %
143	A59 between M6 Junction 31 and A667	35.5 %	36.8 %	36.8 %	0.0 %
144	A59 between A667 and Mellor Brook roundabout	53.6 %	55.6 %	55.6 %	0.0 %
145	A59 between Mellor Brook roundabout and B6245	53.6 %	55.6 %	55.6 %	0.0 %
146	A59 between B6245 and A666	46.9 %	48.7 %	48.7 %	0.0 %
147	A59 between A666 Whalley Road and A671 (south)	55.4 %	63.0 %	63.0 %	0.0 %
148	A59 between A671 (south) and A671 (north)	35.4 %	37.4 %	37.4 %	0.0 %
149	A59 between Pendle Road and Pimlico Link Road	45.5 %	47.7 %	47.7 %	0.0 %
150	Chatburn Road / Clitheroe Road	10.0 %	10.4 %	10.4 %	0.0 %
151	Waddington Road	11.4 %	11.9 %	11.9 %	0.0 %
152	Clitheroe Road	15.3 %	15.9 %	15.9 %	0.0 %

Table 16.38: Comparative Change between 2024 Background + Cumulative (DM) and Construction Scenario – AM Post-Peak Period (09:00 to 10:00)

Link Ref	Link Name	2019 Base	2024 Background + Cumulative (DM)	2024 Background + Cumulative + Construction (DS)	% change against DM
53	A59 (south of Clitheroe)	27.9 %	29.3 %	29.8 %	0.5 %
54	A671 Whalley Road	36.8 %	39.0 %	39.0 %	0.0 %
55	A671 Queensway	28.2 %	30.0 %	30.0 %	0.0 %
56	A671 Chatburn Road	29.5 %	31.3 %	31.3 %	0.0 %
57	A671 Pimlico Link Road	20.3 %	21.1 %	22.9 %	1.8 %
58	A59 between A671 Whalley Road and Pendle Road	49.9 %	51.8 %	53.3 %	1.5 %
59	B6478 Waddington Road	9.9 %	10.5 %	10.5 %	0.0 %
60	West Bradford Road	6.7 %	6.9 %	9.1 %	2.2 %
61	B6478 Slaidburn Road (north)	7.4 %	7.9 %	10.0 %	2.1 %
63	B6478 Slaidburn Road (south)	7.4 %	7.8 %	9.4 %	1.6 %
120	A59 east of Pimlico Link Road	32.0 %	33.5 %	33.5 %	0.0 %
124	Grindleton Road	8.6 %	8.9 %	8.9 %	0.0 %
125	Pimlico Link Road / West Bradford Road	10.1 %	10.5 %	12.0 %	1.5 %
126	West Bradford Road / Clitheroe Road	15.0 %	15.6 %	17.8 %	2.2 %
140	B6478 Slaidburn Road (north)	7.4 %	7.9 %	11.6 %	3.7 %
143	A59 between M6 Junction 31 and A667	31.6 %	32.8 %	33.3 %	0.5 %
144	A59 between A667 and Mellor Brook roundabout	34.5 %	35.8 %	37.3 %	1.5 %
145	A59 between Mellor Brook roundabout and B6245	34.5 %	35.8 %	37.3 %	1.5 %
146	A59 between B6245 and A666	36.6 %	38.0 %	39.4 %	1.4 %
147	A59 between A666 Whalley Road and A671 (south)	38.8 %	43.6 %	44.9 %	1.3 %
148	A59 between A671 (south) and A671 (north)	29.0 %	30.5 %	31.0 %	0.5 %
149	A59 between Pendle Road and Pimlico Link Road	42.6 %	44.4 %	46.2 %	1.8 %
150	Chatburn Road / Clitheroe Road	9.8 %	10.2 %	10.2 %	0.0 %
151	Waddington Road	4.5 %	6.9 %	6.9 %	0.0 %
152	Clitheroe Road	10.1 %	15.6 %	15.6 %	0.0 %

Table 16.39: Comparative Change between 2024 Background + Cumulative (DM) and Construction Scenario – PM Peak Period (17:00 to 18:00)

Link Ref	Link Name	2019 Base	2024 Background + Cumulative (DM)	2024 Background + Cumulative + Construction (DS)	% change against DM
53	A59 (south of Clitheroe)	33.7 %	35.4 %	35.9 %	0.5 %
54	A671 Whalley Road	44.3 %	47.0 %	47.0 %	0.0 %
55	A671 Queensway	31.3 %	33.7 %	33.7 %	0.0 %
56	A671 Chatburn Road	40.2 %	42.5 %	42.5 %	0.0 %
57	A671 Pimlico Link Road	19.4 %	20.1 %	21.5 %	1.4 %
58	A59 between A671 Whalley Road and Pendle Road	62.2 %	64.4 %	65.7 %	1.3 %
59	B6478 Waddington Road	11.2 %	12.1 %	12.1 %	0.0 %
60	West Bradford Road	9.7 %	10.0 %	11.9 %	1.9 %
61	B6478 Slaidburn Road (north)	9.5 %	10.2 %	12.1 %	1.8 %
63	B6478 Slaidburn Road (south)	9.5 %	10.2 %	11.6 %	1.4 %
120	A59 east of Pimlico Link Road	34.0 %	35.6 %	35.6 %	0.0 %
124	Grindleton Road	10.4 %	10.8 %	10.8 %	0.0 %
125	Pimlico Link Road / West Bradford Road	10.3 %	10.6 %	12.1 %	1.5 %
126	West Bradford Road / Clitheroe Road	15.3 %	15.8 %	18.0 %	2.1 %
140	B6478 Slaidburn Road (north)	9.5 %	10.2 %	13.4 %	3.2 %
143	A59 between M6 Junction 31 and A667	29.8 %	30.9 %	31.4 %	0.5 %
144	A59 between A667 and Mellor Brook roundabout	45.1 %	46.8 %	48.1 %	1.3 %
145	A59 between Mellor Brook roundabout and B6245	45.1 %	46.8 %	48.1 %	1.3 %
146	A59 between B6245 and A666	45.6 %	47.3 %	48.6 %	1.3 %
147	A59 between A666 Whalley Road and A671 (south)	58.8 %	66.1 %	67.4 %	1.3 %
148	A59 between A671 (south) and A671 (north)	36.0 %	37.8 %	38.3 %	0.5 %
149	A59 between Pendle Road and Pimlico Link Road	49.4 %	51.6 %	53.0 %	1.4 %
150	Chatburn Road / Clitheroe Road	10.0 %	10.3 %	10.3 %	0.0 %
151	Waddington Road	9.7 %	10.0 %	10.0 %	0.0 %
152	Clitheroe Road	15.3 %	15.8 %	15.8 %	0.0 %

- 125) The results show that the comparative change between the 2024 Background + Cumulative and the 2024 Background + Cumulative + Construction scenario is typically 0.3-2.2 %, with the exception of B6478 Slaidburn Road (north) (Link 140), where the change is 3.7 % for the hour following the traditional AM peak (09:00 to 10:00). For the AM peak, vehicle movements are restricted between 08:00 and 09:00 to avoid any impacts during the traditional AM peak, therefore no change from the 2024 Background + Cumulative scenario is expected. Overall, the changes are relatively slight and considered as not significant within the context of the background flows and are unlikely to have a significant bearing on the operation of the network for the periods at which this level of construction traffic would occur. It is considered that there are no permanent physical measures (such as a capacity enhancement) required to mitigate against this change during the temporary construction period across the existing road network.
- 126) In order to mitigate against the potentially negative impacts of cumulative schemes on top of the Proposed Marl Hill Section, and the potential imposition associated with road closures / diversions during periods of construction at other sites, it is recommended that a Highway Stakeholder Group is set up to coordinate network management across schemes, and to take into account any programmed maintenance works proposed by either Lancashire County Council or Highways England.

1.8.2 Recommendation

- 127) In view of the assessments undertaken and the proposed mitigation measures above, it is considered that the potential impacts of additional traffic associated with the construction of the Proposed Marl Hill Section would not be considered as "severe" within the context of the National Planning Policy Guidance. It is therefore recommended that planning consent is not withheld on Traffic and Transport Grounds.