

# A57 Link Roads TR010034 7.4 Transport Assessment Report

APFP Regulation 5 (2)(q)

Planning Act 2008 Infrastructure Planning (Applications: Prescribed  
Forms and Procedure) Regulations 2009



# Infrastructure Planning Planning Act 2008

## The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

### A57 Link Roads Scheme

Development Consent Order 202[x]

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#### 7.4 TRANSPORT ASSESSMENT REPORT

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## Executive Summary

This Transport Assessment Report (TAR) sets out the development of the A57 Link Roads Scheme in a single, stand-alone report for general consumption. It identifies how the Scheme will operate when opened and includes a comparison of the situations with ('Do-Something') and without ('Do-Minimum') the Scheme.

The Scheme includes the following components:

- A new offline bypass of 1.12 miles (1.8km) of dual carriageway road connecting the M67 Junction 4 to A57(T) Mottram Moor Junction.
- A new offline bypass of 0.81 miles (1.3km) of single carriageway connecting the A57(T) Mottram Moor to the A57 Woolley Bridge.
- Creation of two new junctions, Mottram Moor Junction and Woolley Bridge Junction and improvement works to the existing M67 Junction 4.
- Creation of five new structures (Old Hall Farm Underpass, Roe Cross Road Overbridge, Mottram Underpass, Carrhouse Lane Underpass, River Etherow Bridge and Roe Cross Road overbridge).
- One main temporary construction compound area, located on agricultural land to the east of the M67 Junction 4.
- Detrunking, including safety measures from the M67 Junction 4 to the Mottram Back Moor Junction, to be agreed with Tameside MBC.
- Safety measures and improvements to the A57 from the Mottram Moor Junction to the Gun Inn Junction and from the Gun Inn Junction to the Woolley Lane Junction, to be agreed with Tameside MBC.

The proposed link roads will direct traffic around the village of Mottram to re-join the A57 at Woolley Bridge. The new junction at Mottram will also provide links to the A628, the A6018 and local destinations.

The purpose of the Scheme, together with other TPU works being advanced separately to this Development Consent Order (DCO), is to address longstanding issues of connectivity and congestion of the strategic Trans-Pennine route between the M67 at Mottram and M1 Junction 36 and Junction 35A North of Sheffield. The A57 Mottram Moor currently experiences slow-moving traffic and congestion in the AM peak, Interpeak and PM peak periods on a typical weekday.

This TAR identifies that the Scheme would provide time saving benefits and relieve congestion through Mottram, Hattersley and Woolley Bridge, improving journey times for trips on the Strategic Road Network (SRN) between Manchester and Sheffield, as well as for trips using the local road network in this area. The Scheme would also relieve congestion on the de-trunked section of the A57, improving connectivity for local traffic.

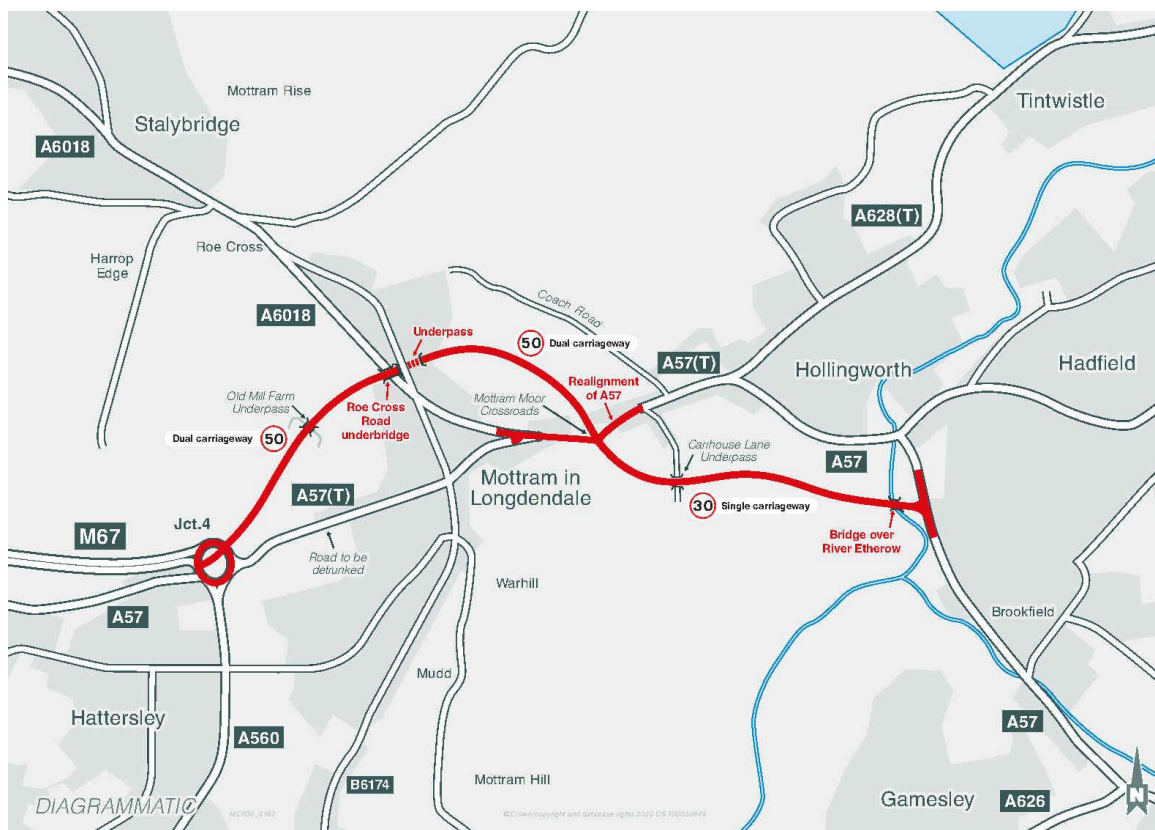
Despite reduced safety risks within the built up area, overall collision rates on existing trans Pennine routes are expected to be adversely impacted by the Scheme, with motorcyclists and young males identified as being most at risk.

# 1. Introduction

## 1.1 Overview

- 1.1.1 The A57 and A628 between Manchester and Sheffield currently suffer from heavy congestion, creating unreliable journeys, which limits journey time reliability. This restricts economic growth due to the delays experienced by commuters and business users alike. The congestion also results in rat running through smaller towns and villages, as vehicles attempt to reduce queuing times.
- 1.1.2 The Scheme has been developed to improve journeys between Manchester and Sheffield, and has evolved over more than 50 years, as different improvements have been explored. The current A57 around Mottram in Longdendale suffers from congestion which limits journey time reliability. This restricts economic growth due to the delays experienced by commuters and business users alike. This has a negative effect on local businesses and employment opportunities. Much of the heavy traffic travels along local roads, which disrupts the lives of communities, and makes it difficult and potentially unsafe for pedestrians to cross the roads. It is likely that these issues would get worse with time, if significant improvements are not made.
- 1.1.3 The A57 Link Roads project ('the Scheme') includes the following components:
- A new 50mph offline bypass of 1.12 miles (1.8km) of dual carriageway road connecting the M67 Junction 4 to A57(T) Mottram Moor Junction
  - A new 30mph offline bypass of 0.81 miles (1.3km) of single carriageway connecting the A57(T) Mottram Moor to the A57 Woolley Bridge
  - Creation of two new junctions, Mottram Moor Junction and Woolley Bridge Junction and improvement works to the existing M67 Junction 4
  - Creation of five new structures (Old Hall Farm Underpass, Roe Cross Road Overbridge, Mottram Underpass, Carrhouse Lane Underpass, River Etherow Bridge and Roe Cross Road overbridge)
  - One main temporary construction compound area, located on agricultural land to the east of the M67 Junction 4
  - Detrunking, including safety measures from the M67 Junction 4 to the Mottram Back Moor Junction, to be agreed with Tameside MBC.
  - Safety measures and improvements to the A57 from the Mottram Moor Junction to the Gun Inn Junction and from the Gun Inn Junction to the Woolley Lane Junction, to be agreed with Tameside MBC.
- 1.1.4 This TAR will refer to the proposals as 'The Scheme' throughout the report. Figure 1.1 shows the extent of the Scheme.

Figure 1.1: A57 Link Roads Scheme Overview



## 1.2 Scheme overview and objectives

1.2.1 The primary objectives of the Scheme are:

- Connectivity – by reducing congestion and improve the reliability of people’s journeys between the Manchester and Sheffield city regions.
- Environmental – improving air quality and reducing noise levels in certain areas, through reduced congestion and removal of traffic from residential areas. The scheme is also being designed to avoid unacceptable impacts on the natural environment and landscape in the Peak District National Park.
- Societal – by re-connecting local communities along the Trans-Pennine route.
- Capacity – by reducing delays and queues that occur during busy periods and improving the performance of junctions on the route.

## 1.3 Project sponsors and stakeholders

1.3.1 The Scheme is a National Significant Infrastructure Project (NSIP) as set out by the requirements within Sections 14 (1)(h) and 22 (1) of the Planning Act 2008 (the Act). A DCO is therefore required to allow the construction and operation of the Scheme.

1.3.2 Highways England is the applicant for the Scheme. The Local Highway Authorities are Tameside Metropolitan Borough Council (TMBC), Derbyshire County Council (DCC) and Transport for Greater Manchester (TfGM).

1.3.3 Highways England is the highway authority for the SRN. Highways England is a government-owned company with the responsibility for the operation and

management of the motorways and trunk roads in England and is responsible to the Department for Transport (DfT).

## 1.4 Selection of preferred scheme

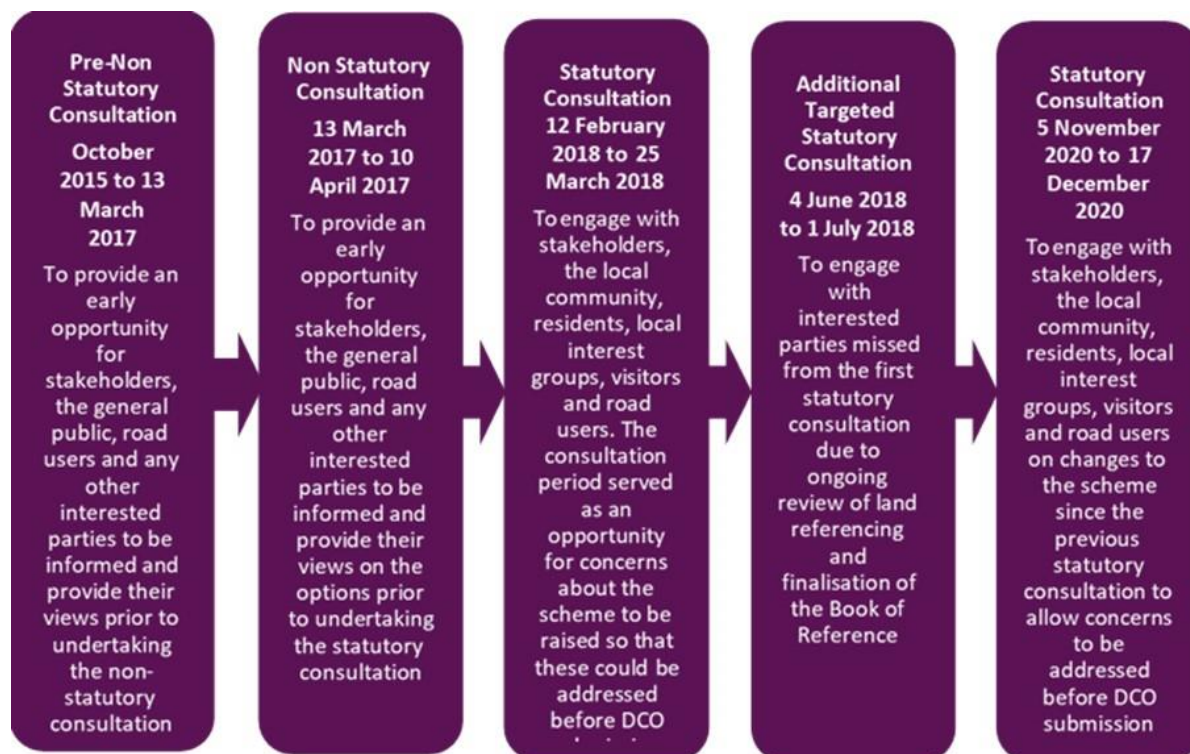
- 1.4.1 This section provides a brief overview of the options sifting process undertaken for the Scheme and sets out the justification for the chosen option (the Scheme within this Case for the Scheme). Chapter 3 of the ES [TR010034/APP/6.3] outlines in detail the alternative options for the Scheme that Highways England and its predecessor have considered.
- 1.4.2 During the complex history of work in this area, numerous options have been considered and discarded to address the longstanding connectivity and congestion issues identified.
- 1.4.3 Whilst the Scheme presented within this TAR is considered a separate scheme to the previous proposals, it has been informed by learning from historic options studies. For example, options generally considered to be less preferable were not reconsidered as part of the alternatives assessed for this Scheme, and design development has been informed by historic study information, where applicable.

### Scheme History, Timeline and Future Milestones

- 1.4.4 The main Trans-Pennine route between the Manchester and Sheffield city regions is the trunk road route consisting of the A57, A628, A616 and A61. It connects the M67 at Mottram in the south east of the Manchester City Region with the M1 in the north west of the Sheffield City Region. Current journey times and reliability of the connecting routes compare unfavourably with links between other cities a similar distance apart.
- 1.4.5 Historically numerous proposals have been considered to address longstanding connectivity and congestion issues in the local area and beyond. The development of the Scheme has been considered alongside wider plans to improve Trans-Pennine connectivity.
- 1.4.6 The Applicant has undertaken five rounds of consultation, as set out in Figure 1.2 below.



Figure 1.2: Overview of Construction Timeline



1.4.7 A summary of the Scheme history and key future milestones is presented in Chapter 3 of the Environmental Statement [TR010034/APP/6.3] and Case for the Scheme [TR010034/APP/7.1].

## 1.5 Policy and Strategy Context

### National Level

#### National Policy Statement for National Networks (December 2014)

- 1.5.1 The National Policy Statement for National Networks (NPSNN) sets out the need for, and Government policies to deliver, development of NSIPs on the national road and rail networks in England.
- 1.5.2 Section two of the document sets out the Governments' vision and strategic objectives for the national networks:

*“The Government will deliver national networks that meet the country’s long-term needs; supporting a prosperous and competitive economy and improving overall quality of life, as part of a wider transport system.”*

*Paragraph 2.2 identifies that “there is a critical need to improve the national networks to address road congestion and crowding on the railways to provide safe, expeditious and resilient networks that better support social and economic activity; and to provide a transport network that is capable of stimulating and supporting economic growth. Improvements may also be required to address the impact of the national networks on quality of life and environmental factors.”*

*Paragraphs 2.13 and 2.14 summarise that a “well-functioning Strategic Road Network is critical in enabling safe and reliable journeys and the movement of goods in support of the national and regional economies...The Strategic Road Network, although only making up 2% of roads in England, carries a third of all road traffic and two-thirds of freight traffic.”*

*Paragraph 3.17 stresses the importance of accommodating pedestrians and cyclists, noting that “there is a direct role for the national road network to play in helping pedestrians and cyclists. The Government expects applicants to use reasonable endeavours to address the needs of cyclists and pedestrians in the design of new schemes. The Government also expects applicants to identify opportunities to invest in infrastructure in locations where the national road network severs communities and acts as a barrier to cycling and walking, by correcting historic problems, retrofitting the latest solutions and ensuring that it is easy and safe for cyclists to use junctions.”*

#### Road Investment Strategy (RIS): for the 2015/16 - 2019/20 Road Period (March 2015)

- 1.5.3 Sitting alongside the NPSNN are the investment programmes for the road and rail networks and the business plans (delivery plans) prepared by the relevant delivery body. These provide detailed articulation of the Government's funding strategy and the investment priorities for the road and rail networks over forthcoming periods.
- 1.5.4 The A57 Link Roads scheme is included within Highways England's first Road Investment Strategy: 2015/16 – 2019/20 Road Period document. The 'Trans-Pennine routes' section includes the following:

- Mottram Moor link road – improvements to the existing M67 junction 4, a new dual carriageway from this roundabout to a new junction on A57(T) Mottram Moor and a new single carriageway connecting to the A6018 Roe Cross Road.
- A57(T) to A57 link road – a new single carriageway link from the A57(T) at Mottram Moor to a new junction on the A57 on Woolley Bridge.

1.5.5 The two A57 Link Road schemes are listed in the first RIS as B10 and B11 and are placed in the category ‘Committed – new’.

Road Investment Strategy 2 (RIS 2): for the 2020/21 - 2024/25 Road Period (March 2020)

1.5.6 A second Road Investment Strategy (RIS 2) for the second Road Period (RP2) covering the financial years 2020/21 to 2024/25 was prepared in March 2020. The ‘Mottram Moor Link Road & A57 Link Road’ are listed as N31 in RIS2 and are placed in the category ‘Committed for RP2.’, and are described as follows:

- Mottram Moor Link Road & A57 Link Road – providing a dual carriageway bypass around the town of Mottram near Manchester. This will also serve as an alternative route for traffic heading north-south on the A57.

National Planning Policy Framework (February 2019)

1.5.7 The National Planning Policy Framework (NPPF), first published in March 2012 and updated in February 2019, introduced a presumption in favour of sustainable development, as summarised in paragraphs 10 and 11 of the document.

1.5.8 Paragraph 102 of the document states 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.

DfT Circular 02/2013 – The Strategic Road Network and the Delivery of Sustainable Development

- 1.5.9 This document provides details of how Highways England will engage with communities and the development industry to deliver sustainable development and economic growth, whilst safeguarding the primary function and purpose of the strategic road network.
- 1.5.10 In terms of schemes proposing capacity enhancements, paragraph 19 of the document states that “where a potential capacity need is identified, this will be considered and weighed alongside environmental and deliverability considerations. Additional capacity may be considered in the context of the Highways Agency’s forward programme of works, balancing the needs of motorists and other road users with wider impact on the environment and the local/regional community.”

Regional Level

Transport for the North – Strategic Transport Plan (2019)

- 1.5.11 Within the ‘Road Demand’ section (p.67) of the Transport for the North (TfN) Strategic Transport Plan, it is recognised that “East-West connectivity is a significant barrier for future growth in the North, and a key constraint to agglomeration and transforming the North’s economy. Currently the M62 is the only motorway standard East-West road link across the Pennines between Derby in the Midlands and Edinburgh in the North. Other major arteries, including the M1, M6 and M56 corridors, are also already heavily congested and are acting as major barriers to transforming the North’s economy. Therefore, there needs to be resilient alternative road routes, for example other important East-West routes, such as the A66, A69, A628 and A59.”

Transport for the North – Investment Programme (February 2019)

- 1.5.12 Within Table 1 ‘Previously Announced Interventions’ (p.12-13) of the TfN Investment Programme report, the Transpennine Upgrade Programme is described as an intervention required to improve connectivity within the Southern Pennines corridor. The proposed package of measures includes the following:
- Mottram Moor link road
  - A57(T) to A57 link road
  - Safety and technology improvements
  - A616/A61 Westwood roundabout.
- 1.5.13 The report describes the development stage for the measures above as ‘PCF Stage 1’, with Highways England as the delivery partner and a delivery timeframe of 2020-23.

## Local Level

### High Peak Local Plan Transport Study (2014)

- 1.5.14 The High Peak Local Plan was prepared to serve and shape the future development of the Borough outside the Peak District National Park up to the year 2031, with two key purposes in mind:
- Identify the cumulative transport impact of development proposals in the Local Plan and Chapel-en-le-Frith Neighbourhood Plan; and
  - Recommend an appropriate mitigation strategy for High Peak taking into account the likely deliverability of identified measures and sources of funding.
- 1.5.15 In section 1.4 this document states that “The Borough of High Peak sits between two important national corridors; the M1 and M6. However, key issues within the study area are the congestion along the length of the A6 route, the trans-Pennine routes and routes into Manchester.”
- 1.5.16 In section 5.8, the study lists the transport schemes that have been identified which include:
- Longdendale Integrated Transport Strategy;
  - A57 Link Road (Glossop Spur);
  - Gamesley Railway Station;
  - Fairfield Link Road;
  - A6 Corridor Study; and
  - The Strategic Road Network.
- 1.5.17 The report discusses the Longdendale Integrated Transport Strategy which would include the following highway options:
- “A new dual-carriageway from the M67 terminal roundabout passing beneath Roe Cross Road through a tunnel then linked to a new junction at Mottram Moor; and
  - A new single carriageway link from the A57 (T) Mottram Moor to a new junction on the A57 Brookfield.”
- 1.5.18 In section 5.8.22, it states “...The A628 trunk road provides a key cross Pennine route...The link suffers from congestion and delays, particularly at the A628/A57 junction...”
- 1.5.19 The report goes on in section 5.8.23 to state that these issues of “...trans-Pennine connectivity have been considered in some detail in previous work undertaken...previous studies have concluded that the performance of the links between Manchester and Sheffield is poor in comparison with links between Sheffield and Leeds and between Leeds and Manchester.”



### Derbyshire Local Transport Plan (2011-2026)

- 1.5.20 The local plan has been designed as a basis for transport policy and a long-term transport strategy for Derbyshire County Council's administrative areas up to 2026. The Local Plan aims to create a more sustainable and healthy transport system to support the local and sub-regional economy, with consideration of economic, environmental and social concerns.
- 1.5.21 The Local Plan lists five key transport priorities and investment priorities for 2011 to 2026, which are:
- Well maintained roads and rights of way;
  - Effective transport network management;
  - Improving local accessibility and achieving healthier travel habits;
  - Better safety and security; and
  - A considered approach to new infrastructure.
- 1.5.22 Derbyshire County Council ensures that effective cross-boundary working arrangements are in place and part of the interaction with adjoining cities (Derby, Sheffield, Manchester and Nottingham).
- 1.5.23 In section 7.1 Traffic Management Act, the report states "the priorities for network management incorporate those provided by the Traffic Management Act 2004. These include co-ordination of street works, reducing congestion and delays for all road users, incident management and emergency responses, and travel information."

## **1.6 Purpose and Structure of Report**

- 1.6.1 This report forms the TAR supporting the DCO application for the Scheme. The 'Guidance on Transport Assessment' (GTA, DfT, 2007) states that "a TA is a comprehensive and systematic process that sets out transport issues relating to a proposed development. It identifies what measures will be taken to deal with the anticipated transport impacts of the scheme and to improve accessibility and safety for all modes of travel."
- 1.6.2 Although now withdrawn, the GTA continues to form the de facto standard for writing a TA (albeit that it is mainly focussed on land-use developments such as housing or employment sites, rather than highway infrastructure schemes).
- 1.6.3 The main purpose of this report is to summarise the development of the Scheme in a single, stand-alone report for general consumption. It identifies how the Scheme will operate when opened. Construction phases are also considered.
- 1.6.4 The report is structured in the following way:
- Section 2: Method of Assessment
  - Section 3: Baseline Conditions
  - Section 4: Future Baseline (Do Minimum)
  - Section 5: Option Development
  - Section 6: Preferred Scheme
  - Section 7: Scheme Impacts

- Section 8: Mitigation
- Section 9: Strategy for dealing with the uncertain outcomes arising from COVID-19
- Section 10: Summary and Conclusions.

## 2. Method of Assessment

2.1.1 For the proposed Scheme, several methods of assessment have been employed, which are summarised below:



## 2.2 Traffic Modelling

### Model Software

2.2.1 The scheme is assessed by the PCF Stage 3 model prepared by Balfour Beatty Atkins (BBA), which superseded the initial model produced by Arcadis in 2018. The TPU Stage 3 model consists of a SATURN Highway Assignment Model combined with a DIADEM Variable Demand Model. SATURN is an industry-standard traffic assignment and simulation software package that allows for the modelling of delays on links and the vehicle interactions at junctions. DIADEM is a software tool that enables users to easily set-up variable demand models in accordance with unit M2.1 of the Department for Transport's Transport Analysis Guidance (TAG). Variable demand modelling (VDM) is the process used to predict and quantify changes in travel demand resulting from a change in the transport system.

### Model Area and Model Development

2.2.2 The base model at PCF Stage 2 of the TPU scheme was developed from the 2015 Trans-Pennine South Regional Transport Model (TPS RTM). The validated base model developed during PCF Stage 2 has been used as a starting point for the development of the PCF Stage 3 TPU strategic model. The 2015 Base model has been retained as it is considered disproportionate to update it given that the model base is still compliant with DfT Guidance, also because any new 2020/21 data would be atypical because of the pandemic.

2.2.3 The Model Simulation Boundary has been carried over from the Trans-Pennine South Regional Transport Model (TPS RTM), which was used for the development of the base model at PCF Stage 2. However, the focus of the TPU Model is concentrated on the Area of Detailed Modelling (ADM), shown in Figure 2.1.

**Figure 2.1: ADM Cordon and Simulation Boundary**



2.2.4 The TPU base model year is 2015, with models representing the average hour of each of the following time periods (AM peak: 07:00-10:00, Interpeak (IP): 10:00-16:00 and PM peak: 16:00-19:00). Improvements to the highway network coding around Mottram and Glossop have been made during 2019. These include increasing the level of detail, ensuring coding consistency and adherence to best practice.

2.2.5 To provide a more accurate reflection of base year network performance in the local area, the following network detail has been included in the Stage 3 TPU model:

- Ellison Street, Glossop between the B6105 and the High Street East (A57) - vehicles on the B6105 (SB) travelling towards Sheffield Road (A57) (and vice versa) can use an alternative to the signalised junction at Glossop Crossroads by travelling via Ellison Street.
- Shaw Lane / Newshaw Lane / Green Lane - offers vehicles access between the A57 and Hadfield Road, in addition to Dinting Road. Capturing this link road is important to ensure the level of demand replicated on the A57 is comparable to observed data.

- Dinting Road - in conjunction with Shaw Lane, Dinting Road is an alternative route to the A57. It is important to capture possible alternative routes when assessing the impact of the Scheme on the A57.

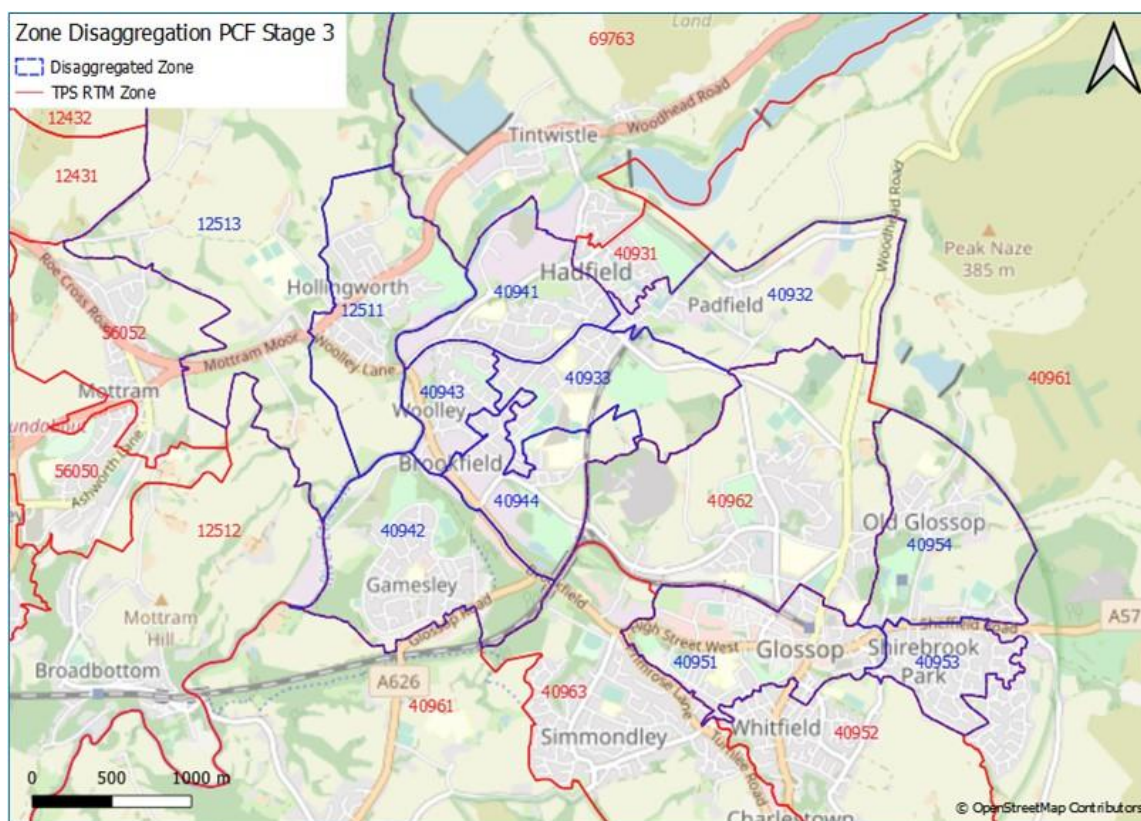
2.2.6 The zoning system for TPS RTM is derived through an aggregation of Office for National Statistics (ONS) Output Areas (OAs). Several zones have been disaggregated into smaller sets of OAs to form new zones using the ONS 2011 Census population data (KS101EW: usual resident population) obtained at OA level. Table 2.1 below provides details of the zones disaggregated in the local area, whilst Figure 2.2 provides a visual representation.

**Table 2.1: Zone Disaggregation – PCF Stage 3**

Existing Zone – Stage 2	Disaggregated Zone – Stage 3	Location	Description
40951	40951, 40953, 40954	Glossop	Glossop has been split into three zones: old Glossop, east Glossop and central Glossop.
40941	40941, 40943	Hadfield	Hadfield has been split into two zones: north Hadfield and south Hadfield.
40942	40942, 40944	Gamesley	This zone has been split into two zones: one represents Gamesley village, whilst the other represents Brookfield and the area surrounding the Carpenter industrial site.
40932	40932, 40933	Padfield	This zone has been split into two zones: one represents Padfield north of Park Road, whilst the other represents the area adjacent to Newshaw Lane.
12511	12511, 12513	Hollingworth	Hollingworth has been split into two zones: Hollingworth village and Hollingworth rural



**Figure 2.2: Zone Disaggregation – PCF Stage 3**



## 2.3 Traffic Survey Data

2.3.1 The aim of this section is to summarise the existing traffic data used in the development of the A57 Link Roads Stage 3 transport model.

2.3.2 Traffic surveys were undertaken during 2015/16. The counts comprised of Automatic Traffic Counts (ATCs), Classified Turning Counts (CTCs) and Roadside Interviews (RSIs). Additionally, ATC data used in the development of the Trans-Pennine South Regional Transport Model (TPS RTM) was also collated.

2.3.3 An extensive data collection exercise was not deemed necessary as part of the transport modelling at PCF Stage 3. However, a series of ad-hoc traffic surveys were commissioned to assist with the following aspects of model development:

- To verify vehicle volumes on the A57 for air quality assessment purposes.
- To increase the level of network coverage and improve model validity in the immediate study area.
- To inform the development of the operational model (itself developed using VISSIM software).

2.3.4 The following outlines the requirement for additional data collected during in 2020/21:

- Operational Assessment – additional data was required to expand the extent of the Stage 1 VISSIM model to include Mottram Road (A57) and Stockport Road (A560) to the south-west, the A6018 to the north and the A57 towards Glossop to the south-east. ATC, CTC, queue and signal data were collected in Mottram and for the wider area to support the expansion of the modelled network.
- Environmental Assessment – additional data was required to verify vehicle volumes on the A57 for environmental assessment purposes. ATC and MCC data were collected on the A57 between the Woolley Bridge junction and Shaw Lane to provide more detailed vehicle type classification.
- Glossop Turning Counts – seven classified turning counts at various junctions on the A57 were commissioned by Arcadis. Five further counts in Glossop were commissioned by BBA to facilitate the improvement of the network detail in the immediate local area.
- TomTom journey time data – independent observed journey time data was required to provide data for the validation of the extended network.

## 2.4 Economic Appraisal Overview

- 2.4.1 The essence of the economic appraisal is the identification and the estimation of all the associated expenditures and the benefits over the lifetime of the project to determine to what extent value for money would be delivered as a return on taxpayer investment. As per the TAG Unit A1.1, an economic assessment is undertaken with an objective to facilitate the quantification and monetisation, where possible, of scheme costs and benefits.
- 2.4.2 The economic assessment, undertaken over a 60-year period from the date of the scheme becoming operational, compares the monetised costs and benefits of the proposed scheme against the alternative without scheme scenario. To create the 60-year period, the Opening Year (2025), Design Year (2040) and Horizon Year (2051) were assessed.
- 2.4.3 The benefits of the scheme are the net benefit experienced by the road user and wider society with and without the scheme, which has been calculated from a number of sources, such as:
- User benefits during normal operation (savings relating to travel times, vehicle operating costs and user charges) have been assessed using TUBA v.1.9.14;
  - Reliability impact due to changes in journey time variability;
  - Accident savings have been forecast using COBALT v.2013.2;
  - Wider economic impacts have been assessed using WITA Beta 2.0;
  - Environmental impacts have been assessed in line with TAG A.3; and
  - Social and distributional impacts have been assessed in line with TAG A4.1 and A4.2 (May 2020).
- 2.4.4 An initial ratio of scheme benefits to scheme costs (Benefit Cost Ratio or BCR) has been calculated over the 60-year appraisal period that excludes the outputs of the journey time reliability assessment and wider economic impacts, with an adjusted BCR also reported that includes these impacts.

- 2.4.5 To ensure consistency of outputs across all elements of assessment, both costs and benefits from each of the above analyses have been output in 2010 market prices, discounted to 2010.
- 2.4.6 The economic assessment is based on the assignment of a forecast Core Growth Scenario, with alternative sensitivity tests using Low Growth and Optimistic growth assumptions for the volume of traffic using the Scheme conducted in accordance with TAG Unit M4 'Forecasting and Uncertainty'. The Core Growth Scenario traffic forecast is based upon what is deemed the most likely land use and traffic growth assumptions for the route, and therefore is the scenario reported in Section 7.2 of this report.

## 3. Baseline Conditions

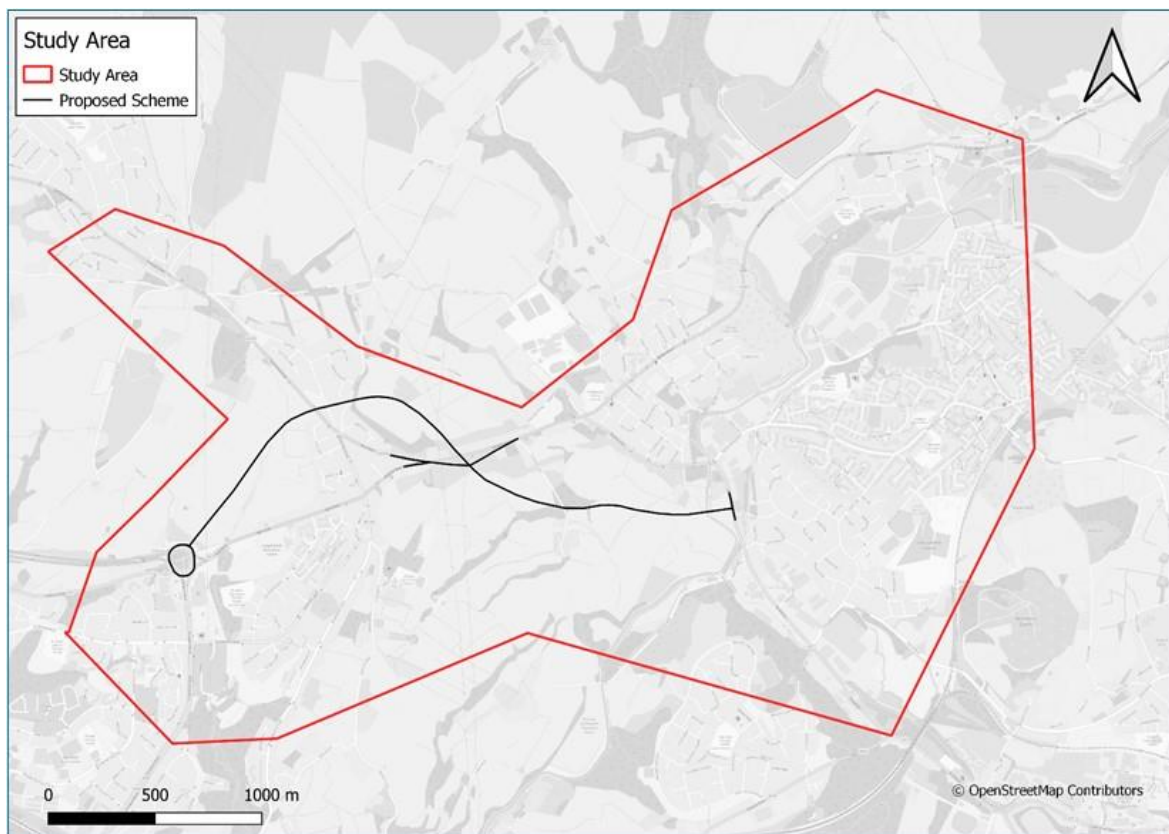
### 3.1 Overview

3.1.1 This section details the baseline transport conditions within the study area, reviewing the existing strategic and local road links, as well as public transport provision.

### 3.2 Local Study Area

3.2.1 The wider scheme assessment takes into consideration the area encompassed by the Area of Detailed Modelling (ADM), shown in in Figure 2.1. However, for the purposes of the baseline network conditions review, a local study area has been defined as shown below in Figure 3.1.

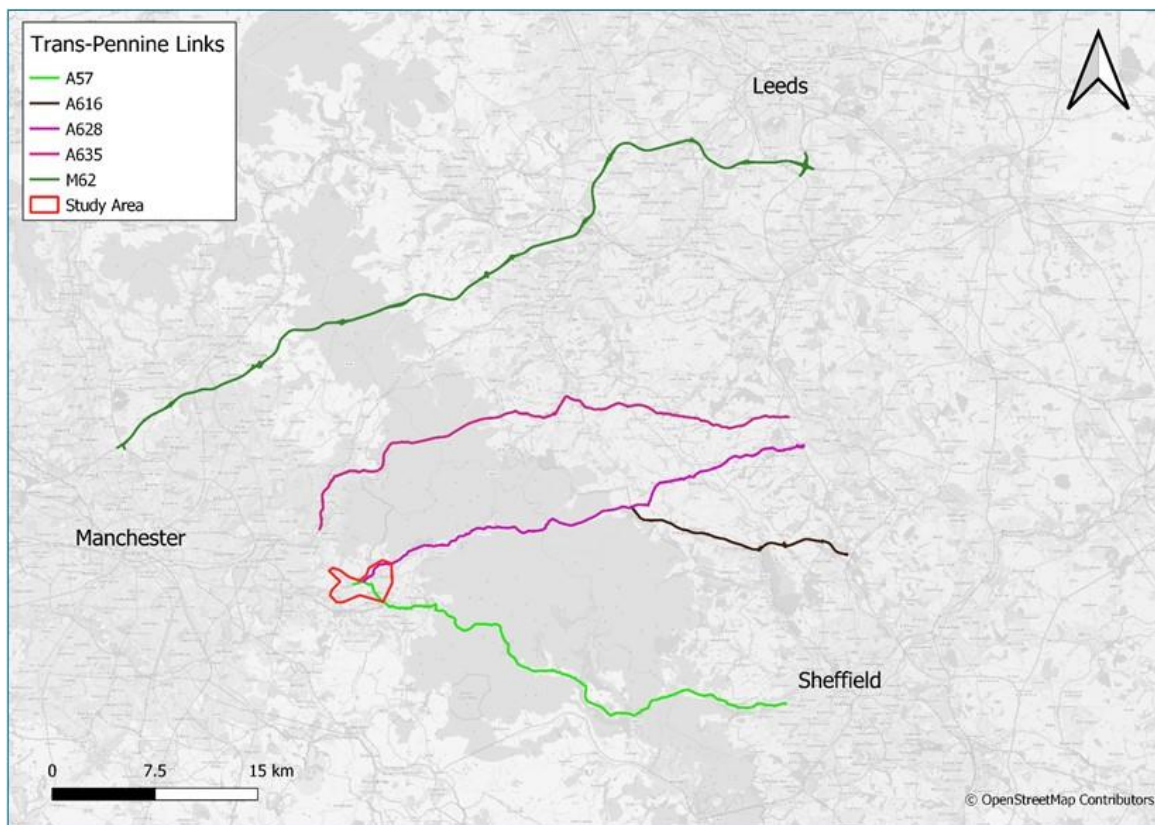
**Figure 3.1: Local Study Area**



3.2.2 The local study area for this TAR forms a key part of multiple trans Pennine routes between Sheffield and Manchester. As shown in Figure 3.2, two of the four main routes between Manchester and South Yorkshire pass through the local study area.



**Figure 3.2: Trans-Pennine Links**



3.2.3 The local study area encompasses the proposed Scheme, which lies between the M67 Junction 4 and the proposed junction location at Woolley Bridge. The local study area also captures the western end of the A628, a major road in this area, as well as the A57 through Glossop and alternative routes, such as Hadfield Road.

### 3.3 Local Road Network

3.3.1 The following section details the local road network through Mottram, including the types of road, speed limits and links that they provide. The local network through Mottram is shown in Figure 3.3.

#### M67 Junction 4 (Hattersley Roundabout)

3.3.2 This large four-arm roundabout forms a nodal point for the M67, A57 Hyde Road, A57 Mottram Road and the A560 Stockport Road, and forms the eastern terminus of the M67. The roundabout and approach lanes are dualled with the exception of the southwestern approach from the A57 Mottram Road. The roundabout is subject to a 40mph speed limit. Although pedestrian/cycle crossing points are provided on each arm of the junction, these are currently uncontrolled crossings provided with tactile paving only.

#### A57

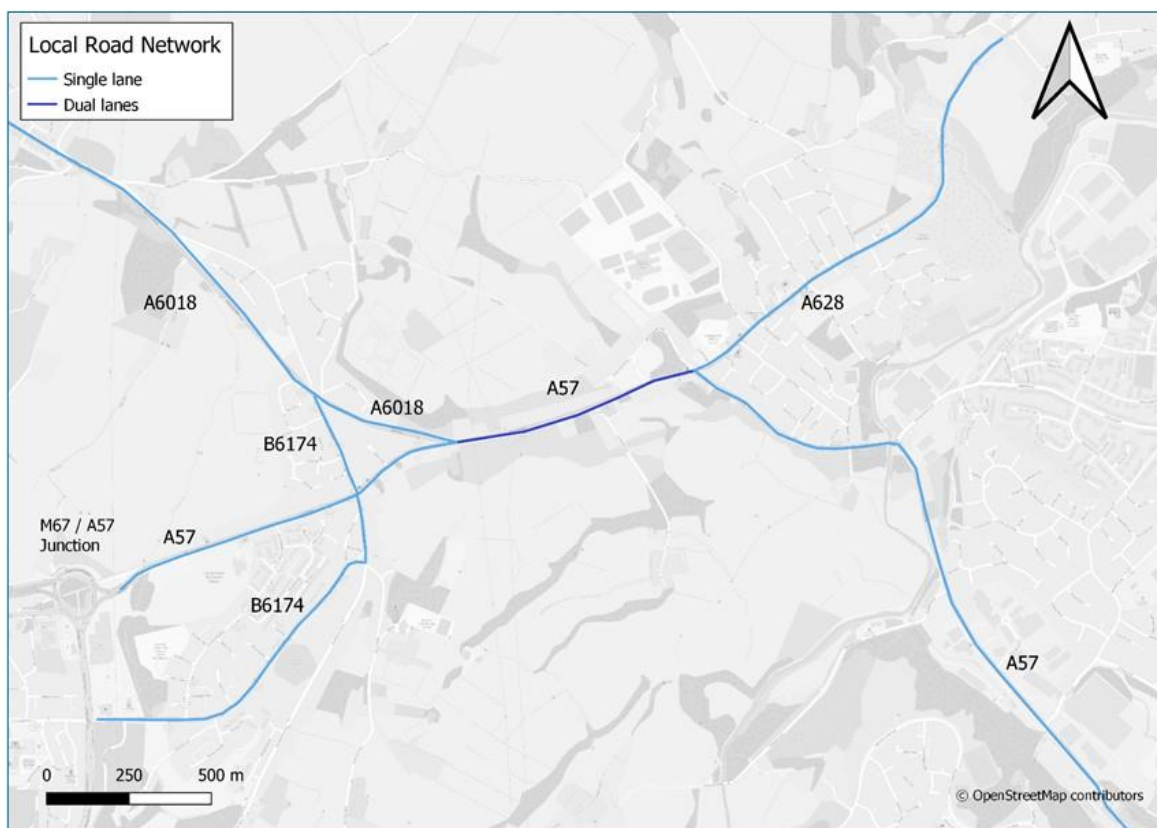
3.3.3 The A57 runs between the M67 to the west and Sheffield to the east and is predominantly a two-way single carriageway road. The A57 connects with the M67 in the form of a roundabout to the west of Mottram. The route uses the A57 for 1.3 miles, passing through the village of Mottram until its junction with the



A628 in Hollingworth where it diverges south onto Woolley Lane before reaching the junction at Woolley Bridge, and heads south to Glossop. The A57 transects Glossop and runs east through the Peak District to Sheffield.

- 3.3.4 The A57 passes through two signalised junctions within Mottram, one with the B6174 Market Street, and one with the A6018 Back Moor. The A57 between the M67 and A6018 Back Moor is a two-way single carriageway road and becomes a single carriageway with two lanes in each direction between its junctions with the A6018 Back Moor and A57/A628 (Gun Inn). Figure 3.3 below shows the existing local road network within the vicinity of Mottram.

**Figure 3.3: Existing Local Road Network Through Mottram**



### A628

- 3.3.5 The western terminus of the A628 connects with the A57 at the Gun Inn in Hollingworth in the form of a signalised junction. Within the study area, the A628 (Market Street/Manchester Road/Woodhead Road) is a two-way single carriageway road and provides local links to Tintwistle, continuing across the Pennines to Penistone and Barnsley and via the A616/A61 to Sheffield and the M1. Through the villages of Hollingworth and Tintwistle, the A628 is subject to a 30mph speed limit. Between the two villages and also on the eastern edge of Tintwistle, the speed limit rises to 40mph, before rising to 60mph for the rural route across the Pennines.

### A6018

- 3.3.6 The A6018 (Back Moor/Roe Cross Road) provides a local link between Mottram and Stalybridge to the north in the form of a two-way single carriageway road. From the Matley Lane junction travelling south towards Mottram, the speed limit

is 40mph. In Mottram, just before the Old Road junction, this decreases to 30mph. Within the study area, it intersects with the B6174 (Stalybridge Road) at a roundabout and, to the southeast, joins the A57 at a signalised junction.

## B6174

3.3.7 The B6174 (Stalybridge Road/Market Street) is a two-way single carriageway road running north to south and is intersected by the A57 trunk road at a signalised junction. To the south of this junction, it is known as Market Street, and as Stalybridge Road to the north where it terminates at the roundabout with the A6018. The B6174 is served by multiple residential side roads and is subject to a 30mph speed limit.

## 3.4 Public Transport

### Trans Pennine Railway Links

3.4.1 The main railway link between Manchester and Sheffield is the Hope Valley Line, this line is served by three services:

- Manchester Airport to Cleethorpes – Trans-Pennine Express;
- Liverpool to Norwich – East Midlands Trains; and,
- Manchester to Sheffield – Arriva/Northern

3.4.2 The frequencies of each service and the times they run between are summarised in Table 3.1.

**Table 3.1: Trans-Pennine Rail Timetable Information**

Operator	Eastbound			Westbound		
	First Service (hh:mm)	Last Service (hh:mm)	Trains per Hour (tph)	First Service (hh:mm)	Last Service (hh:mm)	Trains per Hour (tph)
Trans Pennine	06:15	22:17	1	03:25	22:11	1
East Midlands	07:38	20:38	1	06:18	20:39	1
Arriva	05:46	20:49	1	07:10	22:47	1

*Source: Service Operator Websites (Trans-Pennine Express; East Midlands Trains; Arriva/Northern). Information correct as of January 2021.*

3.4.3 Rail journey times between Manchester and Sheffield for the current services are shown in the table below. The Trans-Pennine services offer the fastest service with journey times of 53 minutes on average, the East Midlands service, Liverpool to Norwich, offers journey times of 55 minutes on average whereas the Arriva services, all stopping service, provides average journey times of 77 minutes.

3.4.4 Table 3.2 below shows the current journey times by rail between Manchester and Sheffield.

**Table 3.2: Indicative Journey Times by Rail between Manchester and Sheffield**

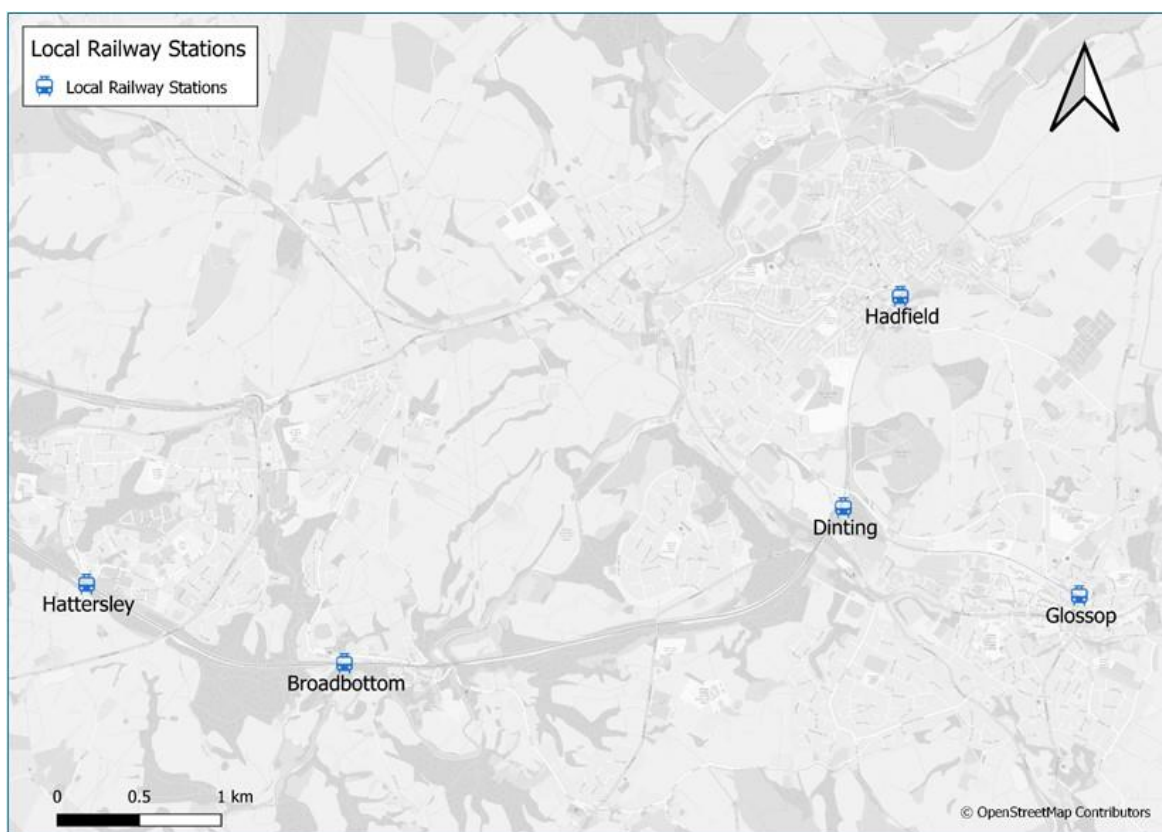
Operator/Route (2020)	Eastbound (hh:mm)		Westbound (hh:mm)	
	Off-Peak	Peak	Off-Peak	Peak
Arriva	1:17	1:17	1:20	1:20
Trans Pennine	0:53	0:53	0:53	0:53
East Midlands	0:55	0:52	0:56	0:52

Source: *thetrainline.com*

### Local Rail Services

3.4.5 The local area surrounding the Scheme is served by several train stations, which form part of the eastern end of the Manchester – Glossop line. The locations of these stations are presented in Figure 3.4.

**Figure 3.4: Local Railway Stations**



3.4.6 Services through these stations run to Manchester Piccadilly and to Hadfield via Glossop, with two tph in each direction. Of these stations, Glossop experiences the highest passenger flows, followed by Hadfield. The patronage figures for these local stations in the two most recently recorded years are shown in Table 3.3.

**Table 3.3: Station Patronage 2018-2020**

Station	2018/2019 Patronage	2019/2020 Patronage
Glossop	1,114,454	1,129,132
Hadfield	400,912	397,128
Broadbottom	197,316	202,140
Dinting	171,004	163,604
Hattersley	111,354	110,646
Glossop	1,114,454	1,129,132

*Source: ORR Annual Station Usage 2018/19 & 2019/20.*

3.4.7 It should be noted that the estimates of station usage from the Office of Rail and Road (ORR) are based on the financial year, with each financial year running from 1 April to 31 March. Therefore, for FY 2019-20, the effects of the COVID-19 pandemic on travel and station patronages would be very limited given that the Government lockdown restrictions came into effect in mid-March 2020.

### Local Bus Services

3.4.8 The local area is well served by bus services; there are 13 different services that run through the study area. Table 3.4 outlines the services that run through the area, their destinations, and their frequencies.

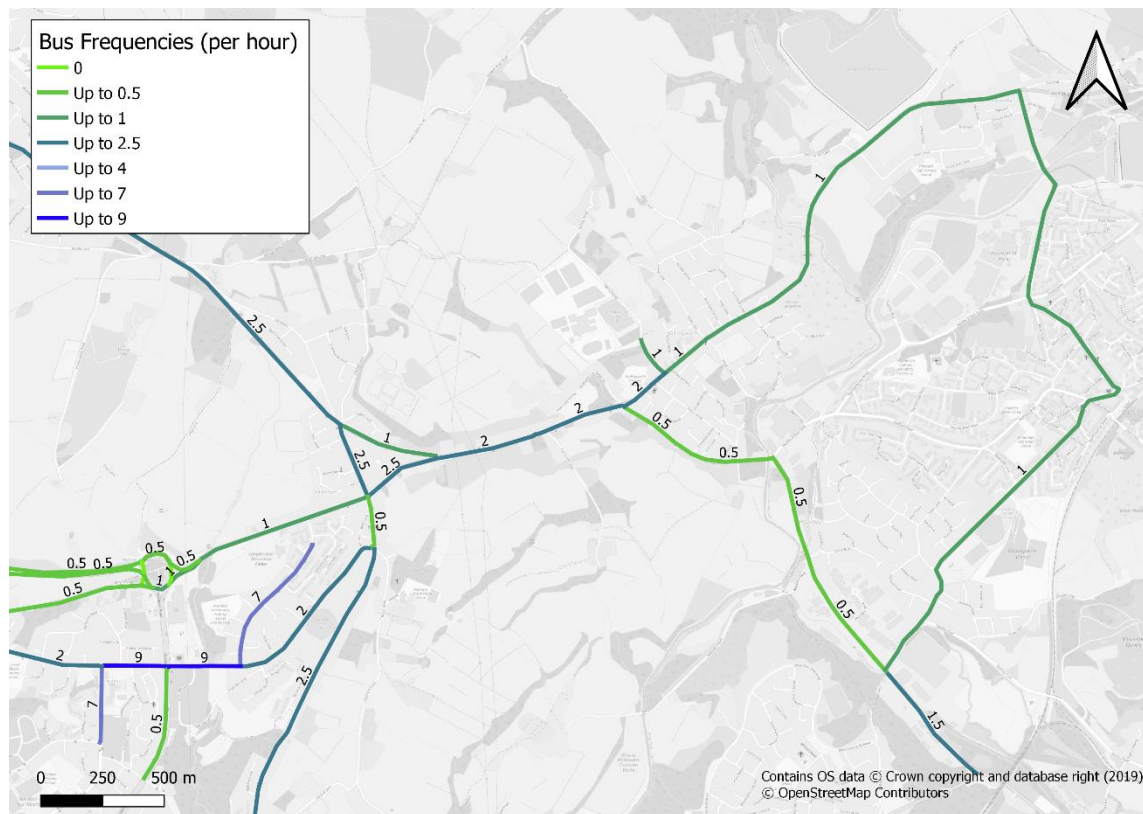
**Table 3.4: Local Bus Services**

Service	Route	Frequency (each way)
125	Mottram – Oldham Mumps	1 per day
201	Hattersley to Manchester City Centre	Up to 6 per hour
219	Glossop to Manchester City Centre	1 per day
237	Glossop to Ashton-under-Lyne	3 per hour
341	Glossop to Hyde	1 per hour
387	Ashton-under-Lyne to Hyde	1 per hour
837	Tameside Hospital to Hyde	1 every 2 hours between 11:00 – 18:00
838	Hollingworth to Ridge Hill	1 per day
841	Hattersley to Dukinfield	1 per day
842	Hollingworth to Broadbottom	1 per day
X57	Sheffield – Glossop - Manchester	1 every 2 hours



3.4.9 Data from TRACC, an industry-standard public transport analysis software tool, with the addition of the X57 service supplemented by timetable information from Transport for Greater Manchester (TfGM), was used to assess the current bus service flows through the study area shown in Figure 3-5. These flows are one-way and based on a Monday AM peak period.

**Figure 3.5: Bus Frequencies in the Study Area in each Direction**



3.4.10 As shown in Figure 3.5, the roads that are most frequently served by buses are John Kennedy Road and Ashworth Lane. There are also relatively frequent services (2 – 2.5 busses per hour) using the A57 around Mottram Moor and Back Moor.

3.4.11 It is expected that bus services running through the study area will benefit from improved journey times and reduced congestion.

### 3.5 Trans Pennine Route – Existing Users

3.5.1 The current strength of travel links between Greater Manchester, South Yorkshire and West Yorkshire can be interpreted from existing data, including 2011 census data. The existing users of the Trans-Pennine routes are discussed within this section.

3.5.2 Table 3.5 below shows the inter-peak hour road-based business trips between the Greater Manchester, South Yorkshire and West Yorkshire areas. The table also shows travel to ‘other’ areas and total inter-peak hourly movements. The table shows that the linkages between the two conurbations and West Yorkshire are significantly stronger in terms of business trips.



**Table 3.5: Trans-Pennine Inter-Peak Hour Highway Business Trips**

Origin	Destination				Total
	Greater Manchester	South Yorkshire	West Yorkshire	Other	
Greater Manchester	-	78 (2%)	533 (12%)	3,889 (86%)	4,511 (100%)
South Yorkshire	126 (7%)	-	604 (32%)	1,157 (61%)	1,887 (100%)
West Yorkshire	399 (15%)	669 (26%)	-	1,548 (59%)	2,615 (100%)

Source: *Trans-Pennine Connectivity Study Phase 1 Report*

3.5.3 Table 3.6 below shows the inter-peak hour road-based freight trips between the Greater Manchester, South Yorkshire and West Yorkshire areas. The table also shows freight travel to 'other' areas and total inter-peak hourly movements.

**Table 3.6: Trans-Pennine Inter-Peak Hour Highway Freight Trips**

Origin	Destination				Total
	Greater Manchester	South Yorkshire	West Yorkshire	Other	
Greater Manchester	-	47 (1%)	492 (10%)	4,219 (89%)	4,758 (100%)
South Yorkshire	165 (8%)	-	691 (32%)	1,278 (60%)	2,135 (100%)
West Yorkshire	305 (14%)	398 (19%)	-	1,431 (67%)	2,133 (100%)

Source: *Trans-Pennine Connectivity Study Phase 1 Report*

3.5.4 The data presented relating to freight and business trips indicates weaker links between Greater Manchester and South Yorkshire. The freight figures in Table 3.6 above illustrate that the scale of total traffic from South Yorkshire and West Yorkshire is essentially the same, yet their attractiveness as a destination from Greater Manchester is highly unbalanced, with a much higher level of freight traffic to West Yorkshire compared to South Yorkshire. The reason for this lower level of trip making could be due to factors relating to high journey time or other factors; these are discussed later in this TAR.

### 2011 Census Travel to Work Data

3.5.5 Analysis of 2011 Census Travel to Work data, presented in Table 3.7, shows a significant variation in the strength of employment links between Greater Manchester, South Yorkshire and West Yorkshire. The strongest links between the three are between the two Yorkshire metropolitan areas, with a total of over 41,500 commuting trips made between the two areas. This compares to a total of 20,600 between Greater Manchester and West Yorkshire, and only 5,000 between Greater Manchester and South Yorkshire.

**Table 3.7: Daily Commuters between Metropolitan Areas – All Journeys**

Metropolitan Area	Greater Manchester	South Yorkshire	West Yorkshire
Greater Manchester	904,361 (41.4%)	1,374 (0.1%)	8,916 (0.4%)
South Yorkshire	3,677 (0.1%)	426,951 (19.6%)	26,420 (0.2%)
West Yorkshire	11,692 (0.5%)	15,116 (0.7%)	783,428 (35.9%)

Source: Trans-Pennine Connectivity Study Phase 1 Report

### 3.6 Traffic Flow Data

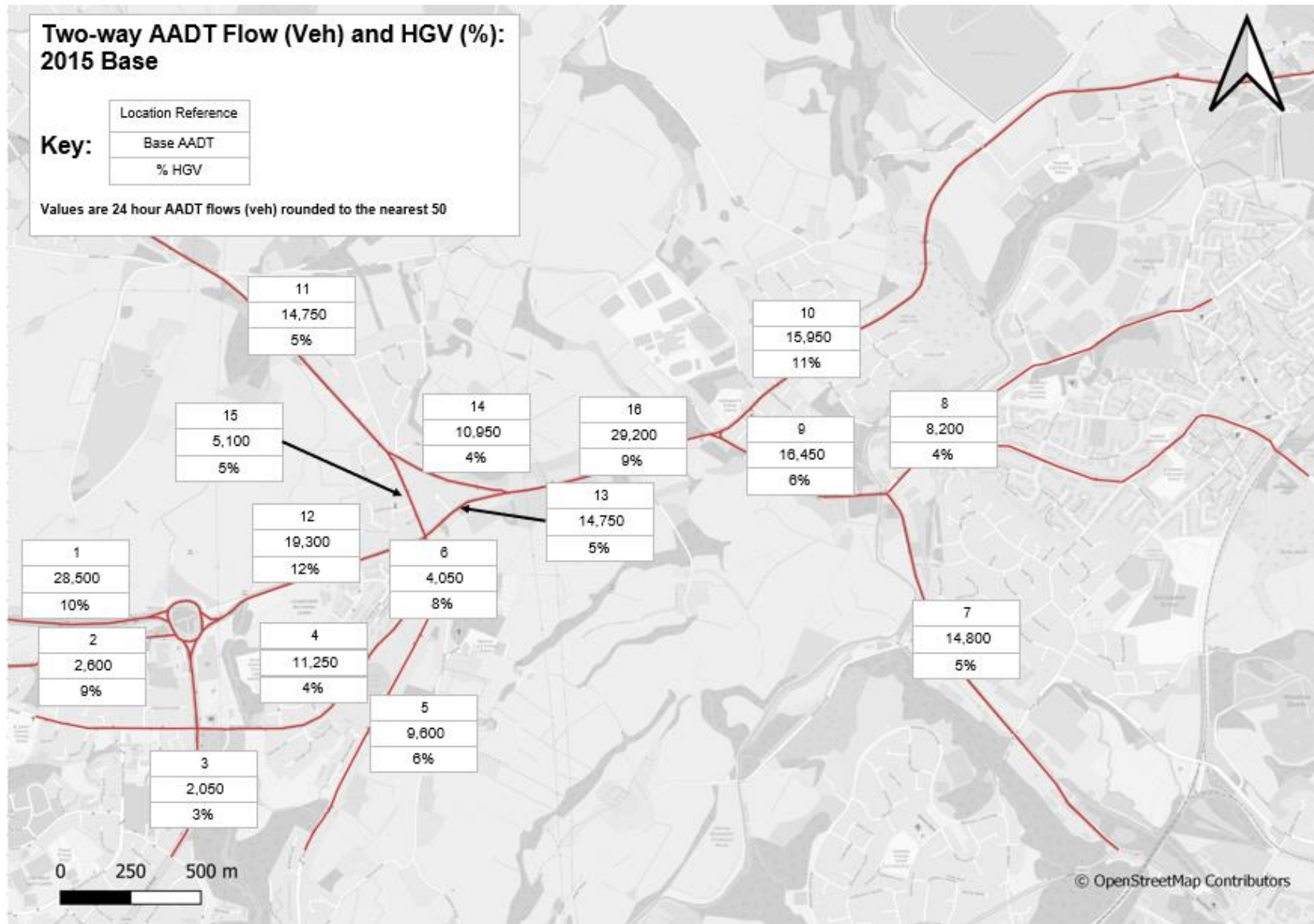
3.6.1 Base model data for 2015 shows the typical two-way Annual Average Daily Traffic (AADT) traffic flows (in vehicles) and %HGVs through the study area, as shown in Table 3.8 and Figure 3.6.

**Table 3.8: Two-way AADT Flow (Veh) and HGV% (2015 Base)**

Location	Description	AADT	%HGV
1	M67 J3-J4	28,500	10%
2	A57 Mottram Road	2,600	9%
3	A560 Stockport Road	2,050	3%
4	Ashworth Lane	11,250	4%
5	B6174 Broadbottom Road	9,600	6%
6	B6174 Market Street	4,050	7%
7	A57 Brookfield	14,800	5%
8	Woolley Bridge Road	8,200	4%
9	A57 Woolley Lane	16,450	6%
10	A628 Market Street	15,950	11%
11	A6018 Roe Cross Road	14,750	5%
12	A57 Hyde Road	19,300	12%
13	A57 Mottram Moor (between Stalybridge/Back Moor)	18,300	12%
14	A6018 Back Moor	10,950	4%
15	B6174 Stalybridge Road	5,100	5%
16	A57 Mottram Moor (between Carrhouse Lane and Woolley Lane)	29,200	9%

Note: figures have been rounded to the nearest 50 vehicles.

Figure 3.6: Two-way AADT Flow (Veh) and HGV% (2015 Base)



## 3.7 Existing Issues

### Overview

3.7.1 A number of factors have been identified that affect the existing operation, running and connectivity of the routes running east to west between Manchester and Sheffield.

3.7.2 The following factors are considered in further detail below:

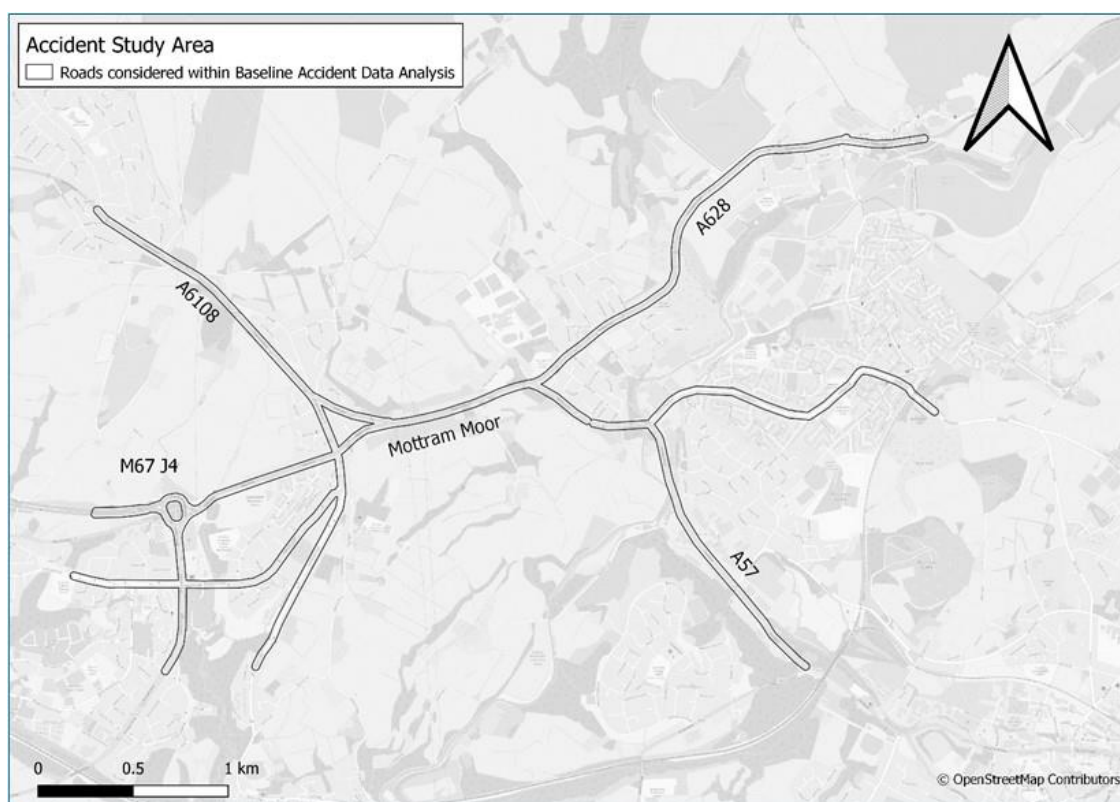
- Accidents
- Congestion and Journey Times
- Environmental
- Social Severance

### Accident Data

3.7.3 This section provides information and analysis regarding road traffic accidents on the highway network surrounding Mottram. This TAR uses accident data for the years 2014 to 2018, in line with the baseline data used for COBALT.

3.7.4 The study area used for assessing the baseline accident data is set out in Figure 3.7. The geographical extent of the study area is in line with the study area outlined in Figure 3.1. It is considered that, by using this study area, the analysis will capture the major roads through the area and omit residential roads, upon which the scheme is not expected to have an impact. A 20m buffer from these roads has also been added in order to capture any accidents that may have occurred on junctions joining the roads.

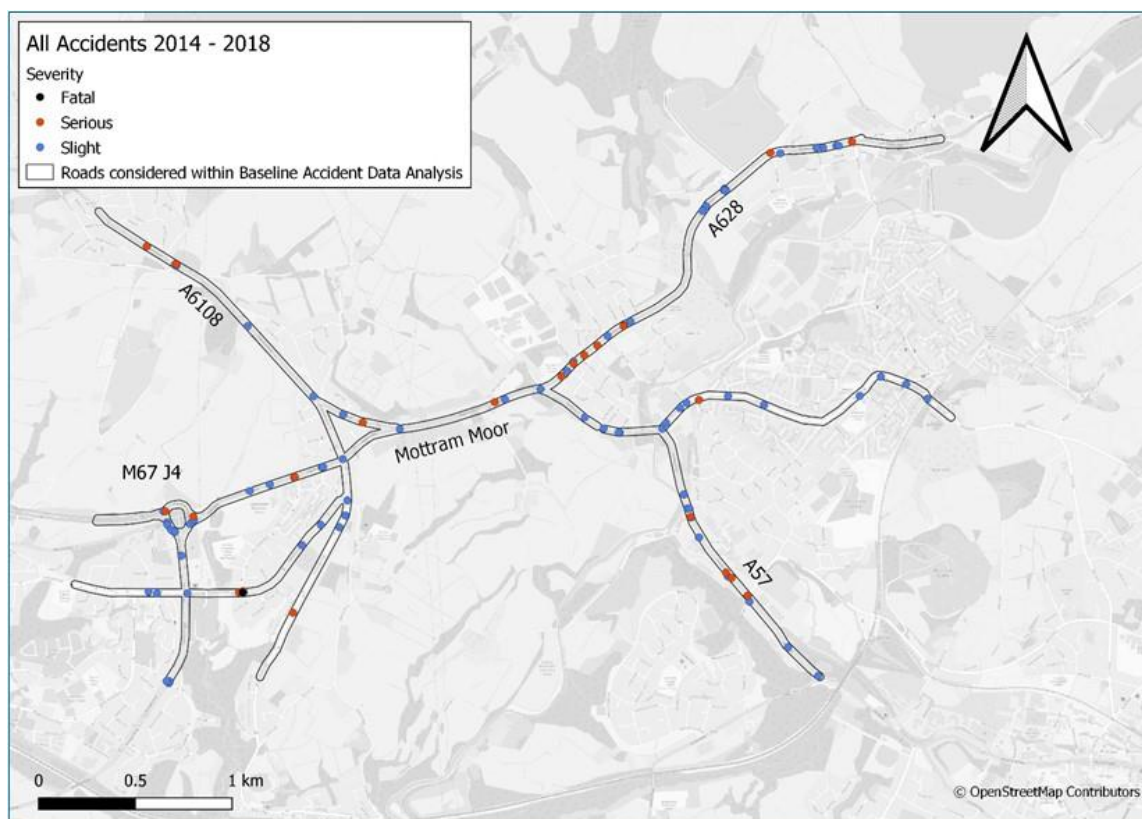
**Figure 3.7: Local Study Area used in Baseline Accident Data Analysis**





3.7.5 The distribution of all accidents within the study area registered in the years 2014 to 2018 is shown in Figure 3.8.

**Figure 3.8: All Accidents Occurring in Local Study Area (2014-2018)**



3.7.6 As shown in Table 3.9 below, 105 accidents have been recorded occurring on the selected routes in the 5 year period between 2014-2018. The single fatality occurred on Ashworth Lane; the casualty was a motorcyclist.

**Table 3.9: Accident Data by Severity**

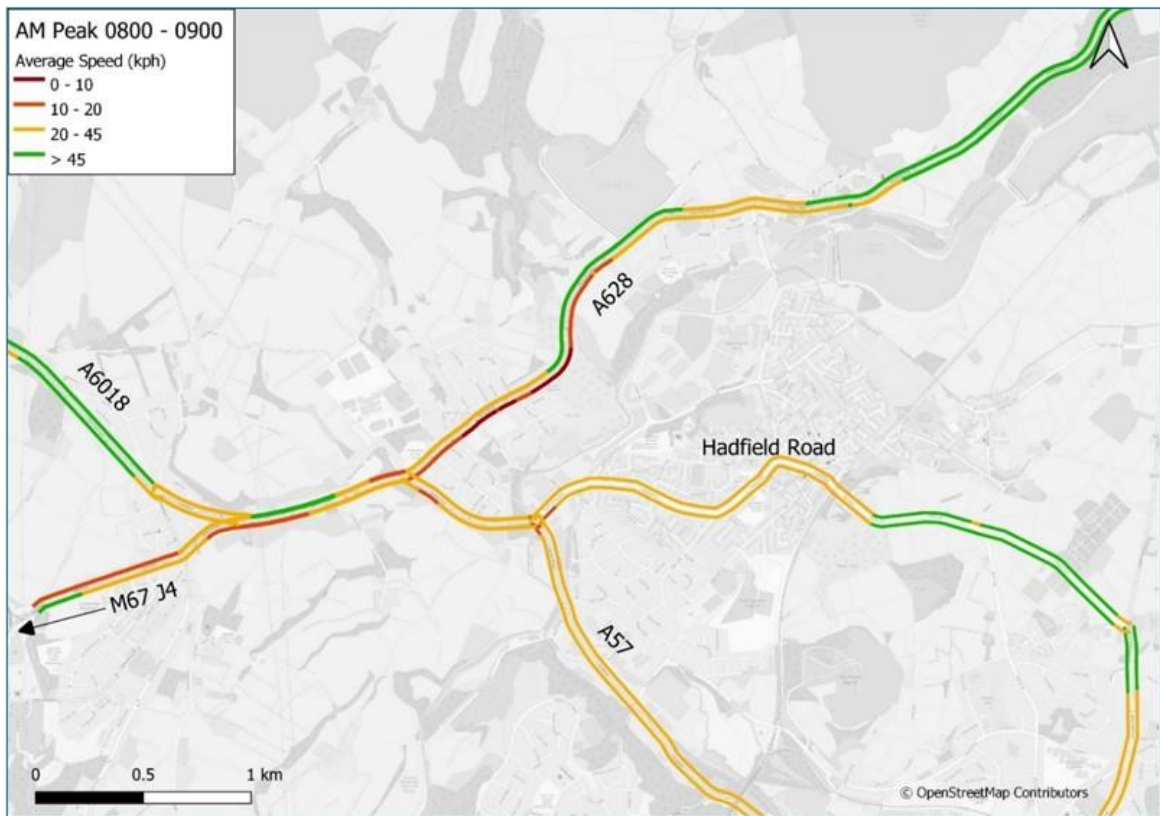
Year	Fatal	Serious	Slight	Total
2014	1	4	22	27
2015	0	2	13	15
2016	0	3	15	18
2017	0	7	16	23
2018	0	6	16	22
Total	1	22	82	105

### Congestion

3.7.7 TomTom journey time data has been obtained to assess the level of congestion on the existing road network at different times of the day, through the analysis of the average speeds of vehicles on each road on the network. Data was collected between the 7th September 2015 and the 24th October 2015 on Tuesdays, Wednesdays and Thursdays only. The data collected is consistent with that utilised within the baseline TPU model. The series of figures below demonstrates that delays are present along the strategic routes in the area.

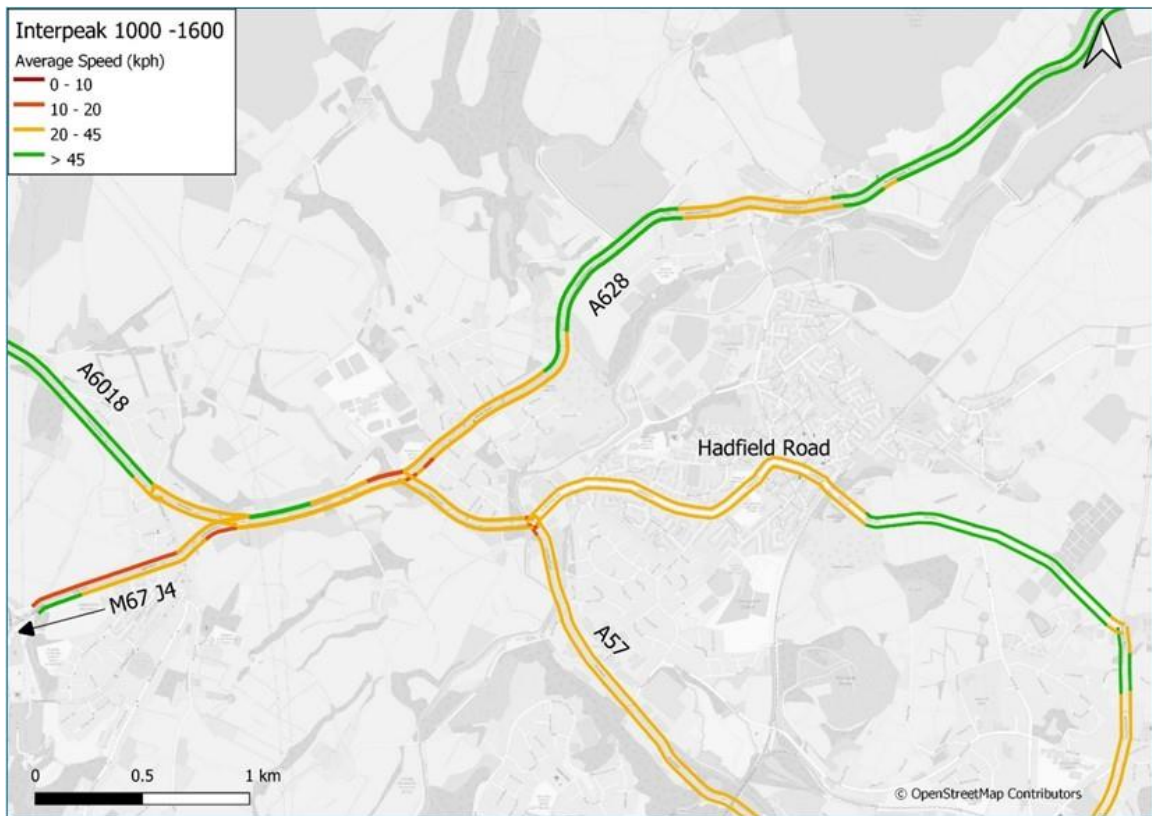


**Figure 3.9: AM Peak (0800 – 0900) Average Traffic Speed**



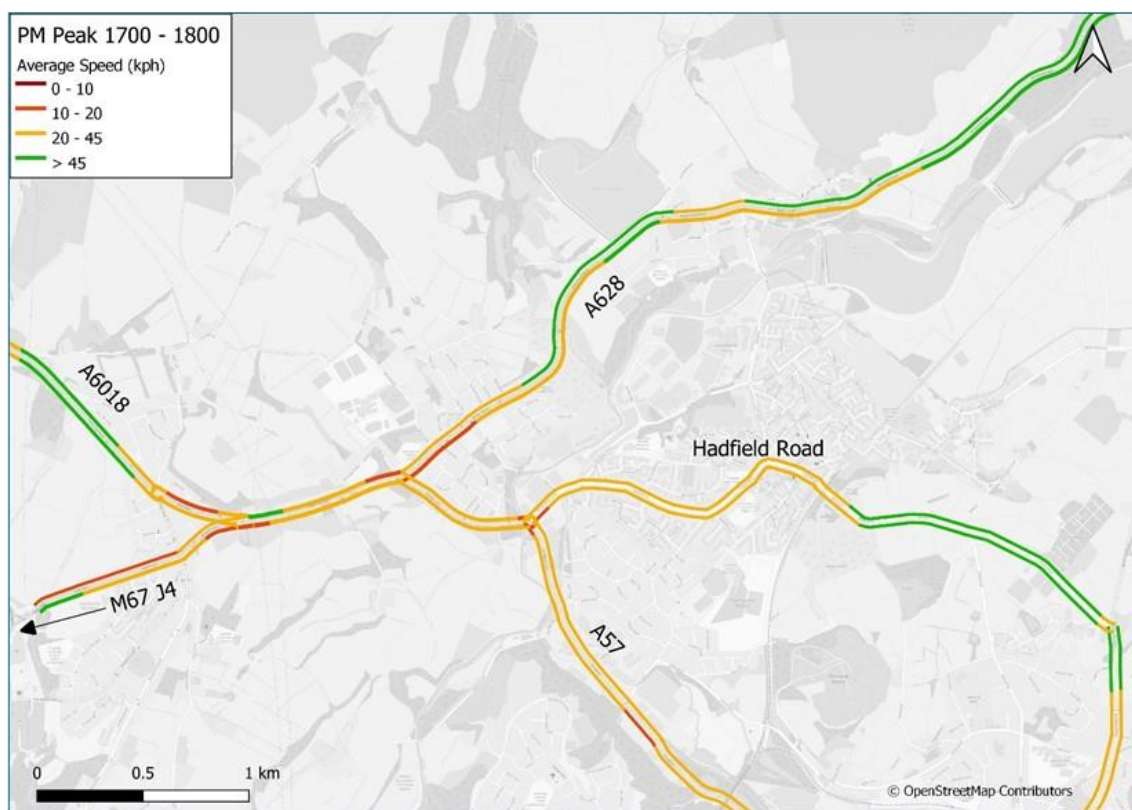
3.7.8 Figure 3.9 shows slow moving tailbacks form on the A628 westbound through Hollingworth in the AM peak and there is further congestion on the A57 Mottram Moor around the junction with the A6018 Back Moor. There is also a large amount of congestion heading eastbound on the A57 Hyde Road between the M67 Junction 4 and the junction with the B6174 Market Street/Stalybridge Road.

**Figure 3.10: Interpeak (1000 – 1600) Average Traffic Speed**



3.7.9 Figure 3.10 shows the average speed of traffic during the interpeak period. From this, it is clear that there are existing congestion issues heading east on the A57 Hyde Road, just off M67 Junction 4. The speed of traffic between the roundabout and the B6174 junction is on average below 10kph (6mph) throughout the interpeak period.

**Figure 3.11: PM Peak Average Traffic Speed (1700-1800)**



- 3.7.10 Figure 3.11 shows the average speed of traffic throughout the PM peak period (1700 – 1800). The lowest average speeds are recorded around the junctions and roundabouts along the routes, most notably at the A6018 junction with the A57, where there is evidence of tailbacks. The data suggests that, whilst the congestion is not as heavy during the PM peak, there is still a considerable amount of queuing traffic on the key junction approaches in both eastbound and westbound directions.
- 3.7.11 Figures 3.10 to 3.12 demonstrate that the A57 Mottram Moor experiences slow-moving traffic and therefore congestion in the AM peak, Interpeak and PM peak time periods on a typical weekday.

### Environmental

- 3.7.12 The key sensitivities in relation to environmental impact are shown on Figure 2.3 of the Environmental Statement (TR010034/APP/6.4) and include the following:
- Defra Noise Important Areas
  - Air Quality Management Areas (AQMAs)
  - Peak District National Park
  - Conservation Areas
  - Listed building and scheduled monuments.
- 3.7.13 Previous feasibility work, scheme definition and consultation has sought to minimise negative impacts on the environment.

## Social Severance

- 3.7.14 Earlier studies, including the Trans-Pennine Routes Feasibility Study Stage 1 Report (2015), identified severance and issues for vulnerable users in urban areas of the A628 and non-trunk A57 and A628, including the A57 through Mottram and Hollingworth. The high volume and high percentage of HGVs and associated noise and air quality issues are a deterrent to pedestrian/cycling trips along and across the A57. The Scheme will reduce the volume of traffic and percentage of HGVs on the existing A57 through Mottram and will enhance pedestrian and cyclist provision within Mottram.

## 4. Future Baseline (Do-Minimum)

This section sets out the impact of not implementing the scheme on the road network and the transport issues that are forecast to arise from a Do-Minimum scenario.

### 4.1 The situation over time

#### Traffic Flows

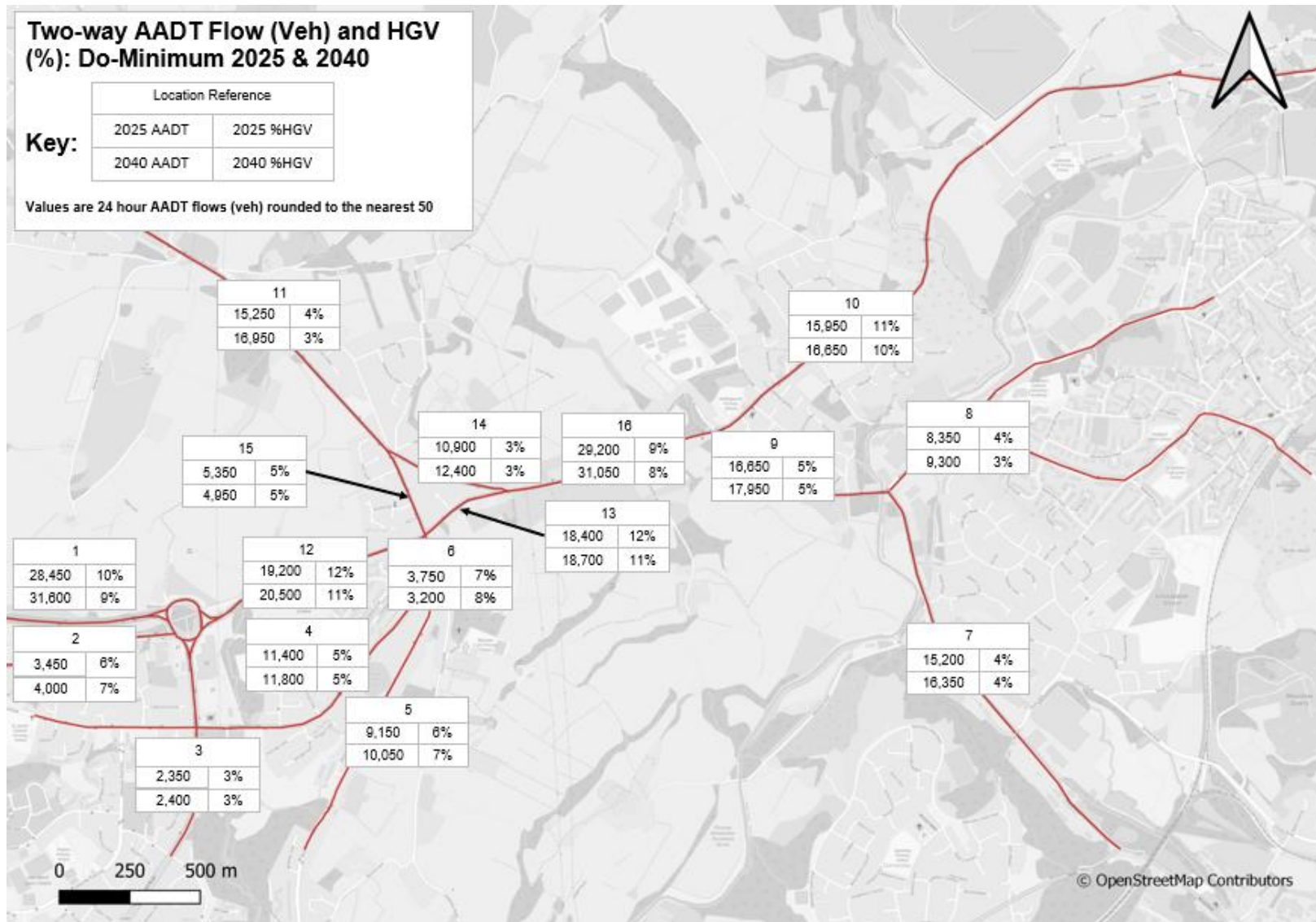
4.1.1 The Do-Minimum modelling undertaken predicts that vehicle flows on the highway links within the study area will continue to increase in a Do-Minimum scenario. Between 2025 and 2040, vehicle flows on all links except for the B6174 are forecast to increase. The most significant increases are predicted on the following links:

- M67 (+3,100 AADT)
- A57 Mottram Moor (+1,900 AADT)
- A6018 Roe Cross Road (+1,700 AADT)

4.1.2 Forecast traffic flows and %HGV in the Do-Minimum 2025 and 2040 scenarios are shown below in Figure 4.1



Figure 4.1: AADT Flows Do-Minimum 2025 & 2040



## Journey Times

- 4.1.3 The transport modelling undertaken forecasts delays in excess of 5 minutes along the A57(T) in both directions in the Do-Minimum scenario by the scheme design year of 2040 during the busy PM peak period. Due to the congestion this creates, traffic crossing the A57(T) is forecast to also experience delays of several minutes per trip.

## Uncertainty Log (UL)

- 4.1.4 The purpose of the uncertainty log is to record the central forecasting assumptions that underpin the core scenario and record the degree of uncertainty around these central assumptions. As identified in Table 4.1 assumptions are the basis for developing a set of alternative scenarios.
- 4.1.5 Three scenarios have been modelled for each forecast year: Core, Low and Optimistic growth in accordance with TAG Unit M4 (May 2019). The following uncertainty status assumptions have been made for each scenario:
- Core: ‘near certain’ and ‘more than likely’ infrastructure schemes and developments, constrained to growth from the National Trip End Model (NTEM)<sup>1</sup>.
  - Low growth: ‘near certain’ and ‘more than likely’ infrastructure schemes and developments, constrained to a lower level of background growth;
  - Optimistic: ‘near certain’, ‘more than likely’ and ‘reasonably foreseeable’ infrastructure schemes and developments, constrained to a higher level of background growth.

**Table 4.1: Uncertainty Log – Classification of Future Inputs**

Probability of input	Status	Core	Low	Optimistic
Near certain: The outcome will happen or there is a high probability that it will happen	Intent announced by proponent to regulatory agencies. Approved development proposals.	P	P	P
Projects under construction.		P	P	P
More than likely: The outcome is likely to happen but there is some uncertainty	Submission of planning or consent application imminent.	O	O	P
Development application within the consent process.		O	O	O

<sup>1</sup> Extracted from NTEM version 7.2 using TEMPro software.

- 4.1.6 The initial version of the UL was provided in early 2019, and was based on the following information:
- The Road Investment Strategy (RIS) and Local Authority highway schemes included in the TPS RTM; and
  - The housing and employment developments within the Area of Detailed Modelling (ADM) boundary.
- 4.1.7 The initial version of the UL was subsequently revised in line with current understanding of development certainty (December 2019). A review of all infrastructure schemes and developments was undertaken by each of the Local Authority districts.
- 4.1.8 In December 2020, the Greater Manchester Spatial Framework (GMSF) further revised the information included in the UL for Tameside, Manchester, Trafford and Stockport, whilst updated data was also provided for High Peak (however it should be noted that work on the GMSF has now stalled and it is likely to be replaced by a document known as 'Places for Everyone' and the previous evidence base is currently being reviewed). The following changes have been made to the December 2019 version of the UL:
- No significant changes were observed within the immediate vicinity of the scheme (i.e. in Tameside and High Peak) for developments with an uncertainty status of 'near certain' or 'more than likely' (i.e. core growth scenario).
  - However, there have been changes in the status and/or size of developments with an uncertainty status of 'reasonably foreseeable' which have been updated in the latest optimistic growth scenario used in the economic assessments of the Scheme.
- 4.1.9 The list of highway infrastructure schemes has been retained from the December 2019 version of the UL.

## 5. Option Development

Options for improving Trans-Pennine links have been assessed and refined using various approaches and frameworks, culminating in the Preferred Route Announcement in November 2017. This section provides an overview of the steps taken in the process of determining the preferred route for the Scheme.

### 5.1 Option Identification

#### Long List Sift Exercise

- 5.1.1 Following publication of the RIS, an original long list of options for the Scheme were presented to Highways England in September 2015. In accordance with the design brief, these included long bypass options (of Mottram in Longdendale, Hollingworth and Tintwistle) and short bypass options (of Mottram only) and included the option to include or exclude the A57(T) to A57 Link Road. All were considered as part of the Long List Sift.
- 5.1.2 These nine options were:
- Options 0, 3 & 4 – options for A57(T) to A57 Link Road crossing the A57(T) close to Mottram in Longdendale (Volume 3 Figure 3.1).
  - Options 1, 2 & 5 – options for A57(T) to A57 Link Road crossing the A57(T) closer to the Gun Inn Junction at Hollingworth (Volume 3 Figure 3.2).
  - Brown Route, Blue Route and Red Route – options for a Mottram, Hollingworth, and Tintwistle Bypass (Volume 3 Figure 3.3). The Brown Route was the preferred route for the Mottram, Hollingworth and Tintwistle Bypass taken to Public Inquiry in 2007.
- 5.1.3 The options discarded at this stage were:
- Options 1 and 2: The proximity of these two options to the Gun Inn Junction affected the potential deliverability and feasibility in comparison to Option 5 which is of a similar alignment.
  - Options 3 and 4: The highway alignment of these two options was less preferable in terms of Highways Standards in comparison to Option 0.
  - Blue Route: This route would pass directly between Hollingworth and Tintwistle, potentially bringing additional severance issues between the two villages. The route would also include the upgrade of the existing road within Tintwistle Conservation Area.
  - Red Route: This route would require construction over the top of Arnfield Reservoir, which was considered to pose deliverability challenges.
- 5.1.4 The best performing options that were taken forward to the next stage were:
- Brown Route. It was the better performing of the Mottram in Longdendale, Hollingworth, & Tintwistle type options considered in the Long List Sift.
  - Option 0. This option was appraised in the original first sift and was considered the better performing of the Mottram Moor Link Road options considered which cross the A57(T) closer to Mottram in Longdendale.

- Option 5. This option was considered to be the better performing of the Mottram Moor Link Road options considered which cross the A57(T) closer to the Gun Inn at Hollingworth.

5.1.5 A historic options review exercise was also undertaken, which identified a potentially feasible option that had not been previously rejected. This option is referred to as 'Department for Transport (DfT) Low Cost Option 1'. This option was also considered a viable alternative to the Brown Route and was therefore taken through to the next stage, alongside Options 0, 5 and Brown Route.

## 5.2 Option Selection

5.2.1 The next stage, referred to as the Second Sift exercise, was undertaken using Transport Analysis Guidance (TAG): 'Transport Appraisal Process' Transport Business Case2 criteria Option Assessment Framework, provided within the TAG Unit.

5.2.2 The options presented for Second Sift were:

- Brown Route including A57(T) to A57 Link Road (long bypass).
- DfT Low Cost Option 1 including A57(T) to A57 Link Road (long bypass).
- Mottram Moor Link Road Option A, including A57(T) to A57 Link Road (short bypass); (formerly Option 0).
- Mottram Moor Link Road Option B (formerly Option 5) including A57(T) to A57 Link Road (short bypass).

5.2.3 A Value Management workshop was held and the dis/benefits of the four options were considered. The two long bypass options were expected to attract significantly more traffic to the area, plus bring about additional impacts in relation to the PDNP, especially air quality and noise. The two long bypass options did provide a higher cost-benefit ratio in comparison to the short bypass options. There were also concerns that there was a higher risk relating to the funding of the long bypass options. Following the workshop, the decision was made to take the following two options through to the next stage:

- Mottram Moor Link Road Option A (short bypass) (shown as Option 0 in Volume 3 Figure 3.1).
- Mottram Moor Link Road Option B (short bypass) (shown as Option 5 in Volume 3 Figure 3.2).

## 5.3 Non-Statutory Options Consultation

5.3.1 Option A and Option B were presented during a Non-Statutory Options Consultation exercise that took place between March 2017 and April 2017. The purpose of this public options consultation was to provide an early opportunity for stakeholders, the general public, the road users and any other interested parties to be informed and provide their views on the options prior to undertaking the statutory consultation.

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<sup>2</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/712965/webtag-transport-appraisal-process-may-2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/712965/webtag-transport-appraisal-process-may-2018.pdf)

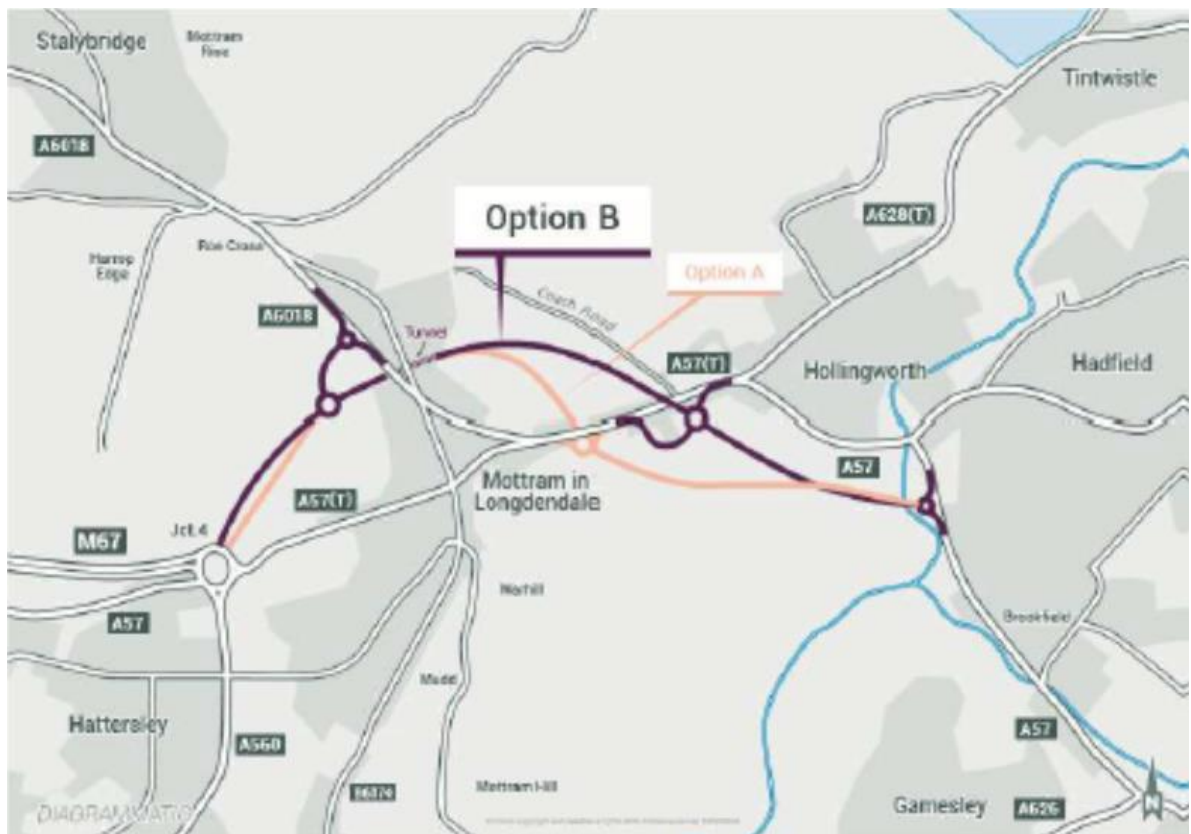


5.3.2 Option A is presented in Figure 5.1 and Option B is presented in Figure 5.2.

**Figure 5.1: Option A**

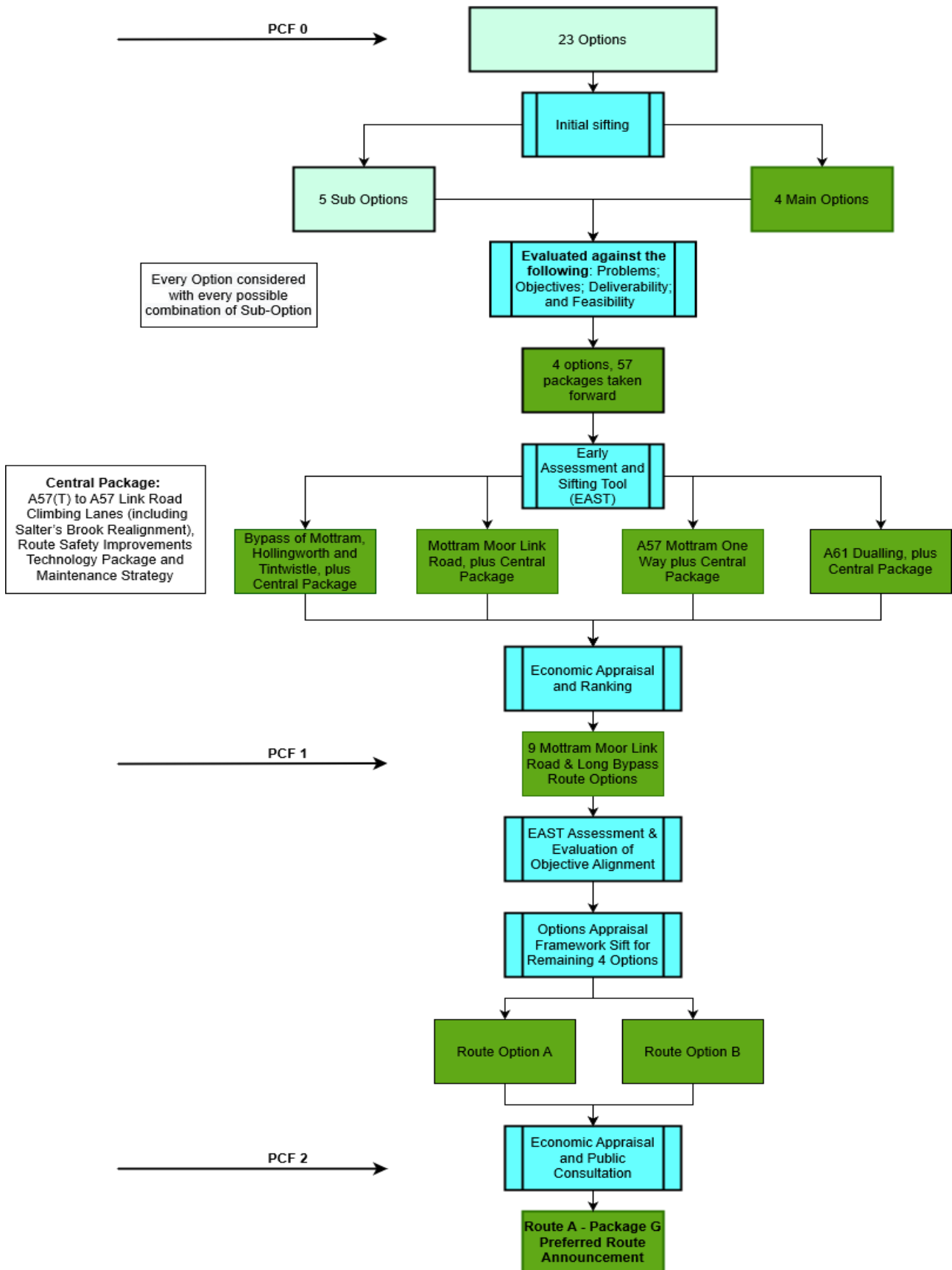


**Figure 5.2: Option B**



- 5.3.3 The Options Consultation was non-statutory and not required to meet any statutory obligations, however it was conducted using a comparable methodology to a statutory process. The Options Consultation process was influenced by government guidance, best practice and lessons learned from other major consultations.
- 5.3.4 Publicity and documentation for the non-statutory public consultation on options is set out in the Consultation Report [TR010034/APP/5.1].
- 5.3.5 The majority of respondents preferred Option A to Option B because they believed it to: be the most sensible and logical route; have a minimal impact on the environment; fewer properties would be affected; it provided a safe route; and it was similar to previously proposed route
- 5.3.6 Figure 5.3 provides a summary of the steps taken in the Option Development phase culminating in the PRA.

Figure 5.3: Option Development Leading to the PRA (November 2017)



## 6. Preferred Scheme

### 6.1 Preferred Route Announcement

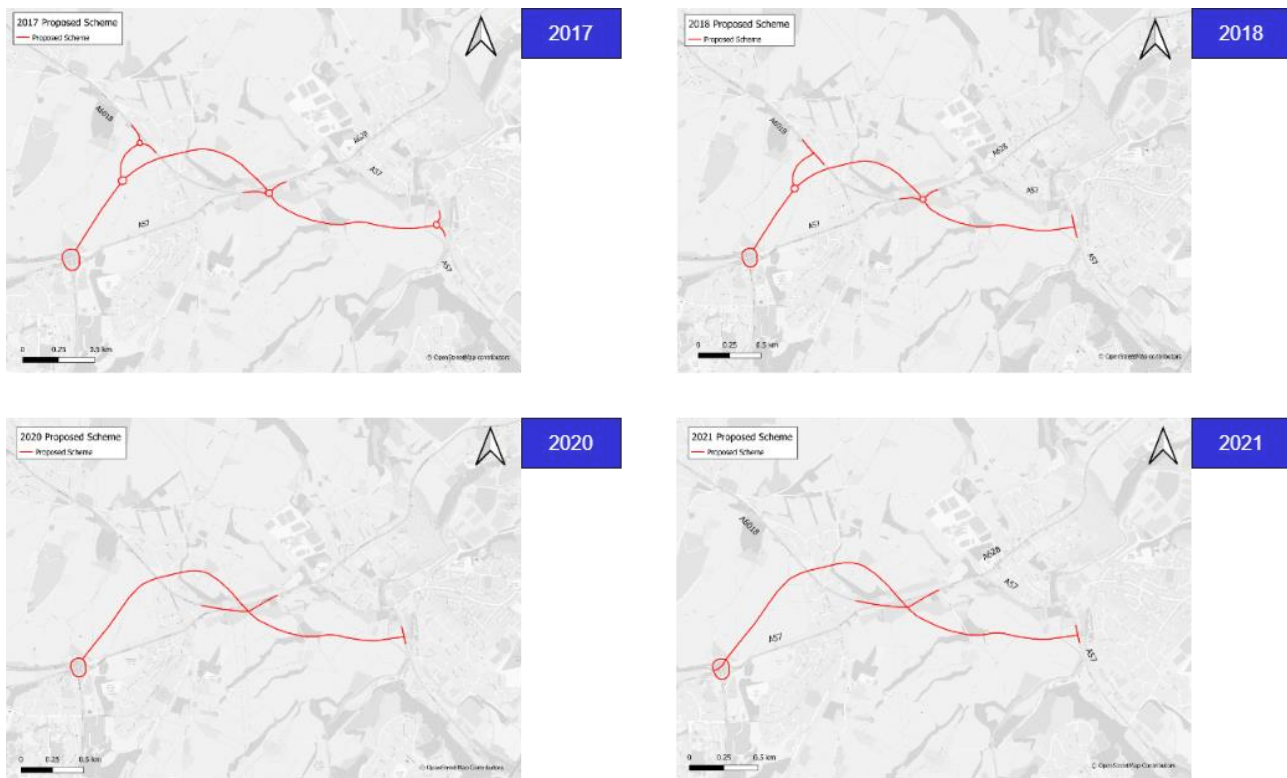
- 6.1.1 The information gathered as part of the non-statutory options consultation helped to inform the decision on the Preferred Route and the development of the Scheme that was taken to statutory consultation. Information received through the non-statutory questionnaires was considered as well as alternative suggestions put forward in the questionnaires and in other written responses submitted as part of the consultation. This information was considered alongside other factors including meeting the Scheme objectives, cost, and compliance with design and safety standards when making decisions about which options to develop.
- 6.1.2 The PRA was made by the Applicant on 2 November 2017. Option A was selected as the Preferred Route to be progressed to the next stage of development. The Applicant received feedback that 50% of respondents preferred Option A, as they believed that the road layout is more straightforward and easier to use than Option B and will have less impact on local communities. Additionally, the feedback suggested that people felt Option A balanced solving traffic problems in the area, with a reduced impact on the environment and providing a safer route.

### 6.2 Development and Refinement of the Preferred Scheme

#### Overview

- 6.2.1 The Applicant continued to engage with interested parties after the non-statutory consultation period and the PRA. This comprised of the establishment of a Local Authority Steering Group and a Statutory Environmental Bodies group, and attendance at meetings with local authorities, residents' groups and those with land interests.
- 6.2.2 Since the PRA, the Scheme has been developed further. Two rounds of statutory consultation were undertaken in 2018, one between 12 February and 25 March 2018 and the other between 4 June and 1 July 2018. These are described in more detail below.
- 6.2.3 A third round of statutory consultation was undertaken for six weeks between 5 November and 17 December 2020, to provide an opportunity to comment on changes to the design since the 2018 consultations.
- 6.2.4 The approach to, and results of these consultations are explained in detail in the Consultation Report [TR010034/APP/5.1].
- 6.2.5 The changes to the route since the PRA are summarised in diagram form in Figure 6.1.

**Figure 6.1: Changes to the Preferred Route Since 2017 (detailed below)**



**Statutory Consultation 1: 12 February to 25 March 2018<sup>3</sup>**

- 6.2.6 The statutory consultation ran for six weeks from 12 February to 25 March 2018 (42 days). This was to ensure the local community, residents, local interest groups, businesses, visitors and road users all had the opportunity to fully understand and comment on the Scheme.
- 6.2.7 The opportunity was also provided to comment on the elements of the PRA that could be delivered without a DCO (and so do not form part of this Scheme) – i.e. Westwood Roundabout and the safety/technology elements.
- 6.2.8 The statutory consultation was an opportunity to seek views on a number of aspects of the PRA proposals (including specifically in relation to the Scheme), including support for the Scheme and information on how the land above Mottram underpass may look on completion of the Scheme.
- 6.2.9 In response to the key concerns raised during consultation, Highways England decided to amend its proposals to:
- 6.2.10 Increase the number of air quality monitoring sites.
  - Carry out additional traffic assessment of alternative routes.
  - Review noise mitigation in line with reviews to changes to traffic modelling and in response to the additional surveys and areas.
  - Carry out environmental surveys to assess condition and changing nature of current environment. Survey information will be used to ensure no net loss arising from the Scheme.

<sup>3</sup> 2018 consultation brochure [https://highwaysengland.citizenspace.com/he/trans-pennine-upgrade/supporting\\_documents/Trans%20Pennine%20Upgrade%20Consultation%20Document%20Only\\_Web.pdf](https://highwaysengland.citizenspace.com/he/trans-pennine-upgrade/supporting_documents/Trans%20Pennine%20Upgrade%20Consultation%20Document%20Only_Web.pdf)



- Progress cycling / parking enhancements along Mottram Moor. Highways England are developing a strategy to address needs and views of the residents. The final details are to be agreed with TMBC via a Statement of Common Ground.
- Undertake further ground investigations where necessary, depending on the outcomes of the investigation report.
- Carry out a detailed assessment for cycling, equestrian and walking use and identify opportunities to enhance existing provision in the area.
- Provide a long-term landscaping plan for the land above Roe Cross Road overbridge structure in conjunction with TMBC.
- Review speed limits throughout the Scheme utilising traffic modelling to assess the impact of any alternatives.

### Statutory Targeted Consultation 2: 4 June to 1 July 2018

- 6.2.11 Additional interested parties were identified during the first round of statutory consultation, due to the ongoing review of land referencing and finalisation of the Book of Reference.
- 6.2.12 To ensure their views could be included, the Applicant ran a targeted statutory consultation between the 4 June to 1 July 2018 (28 days). The information distributed was the same as that used in the first round of statutory consultation. No responses to the consultation were received.

### Summary of Changes to the Scheme as a Result of 2018 Statutory Consultation

- 6.2.13 A summary of key design changes which have resulted from comments raised during statutory consultation are provided in the Consultation Report [TR010034/APP/5.1]. These are summarised below.
- 6.2.14 The Applicant identified many comments and enquiries into the effect of the Scheme on air quality and therefore added additional air quality monitoring locations along the route of the Scheme, to better understand the existing air quality and inform the air quality modelling. Additional air quality mitigation was also proposed.
- 6.2.15 In response to concerns raised about noise impact, as part of the noise mitigation for the Scheme, there are proposed noise barriers, noise bunds and low noise surfacing which are presented in ES Chapter 11 Noise and Vibration [TR010034/APP/6.3].
- 6.2.16 In response to concerns raised about impact on the landscape, the Scheme includes a range of measures designed to mitigate for potential effects on landscape character and visual amenity. These include woodland planting, woodland edge planting, linear belt of shrubs and trees, hedgerows with trees and individual trees. The top of the Mottram underpass has been designed to provide an accessible open space for the community, complete with tree planting. These proposals are detailed in the Environmental Masterplan [TR010034/APP/7.2].
- 6.2.17 A large number of responses were received with regards to detrunking, and the Applicant, along with TMBC, decided therefore to show the detrunking of the

existing A57 within the DCO documentation. Once measures to implement this are agreed, in alignment with Requirement 3, they will be shared with the stakeholders.

- 6.2.18 Following the statutory consultation, and further discussions with the Mottram Moor community group, the parking bays were initially removed from the design. Further engagement with the Mottram Moor community group confirmed they did desire more parking and so improved parking and cycling facilities have been added back into the design.
- 6.2.19 In response to suggestions around the speed limits across the Scheme, traffic speeds on the proposed roads have been reviewed within the traffic model and the subsequent air quality model. This is to ensure an optimum speed limit is chosen that does not have an adverse effect on the air quality in the surrounding area.
- 6.2.20 In response to concerns around the impact on walkers, cyclists and equestrians, the Applicant confirmed that the Scheme does not permanently sever any public rights of way (PRoWs). Those routes temporarily affected will be improved and new routes are also proposed. PRoW LON 52-20 will be temporarily severed. A temporary diversion will ensure walkers can still use this route during construction. This PRoW will be re-instated and upgraded from a footpath to a bridleway, increasing the availability of suitable equestrian facilities away from road traffic. These proposals are detailed in the Streets, Rights of Way and Access Plan [TR010034/APP/2.4].
- 6.2.21 Further changes were made to the Scheme following an internal review to optimise the design consulted upon in 2018. These changes include the removal of the Roe Cross Road Link and roundabout, repositioning of Mottram Underpass, introduction of a new bridge at Roe Cross Road, amendments to Mottram Moor Junction and reduction in size of the River Etherow crossing. Additional details are provided in the Consultation Report [TR010034/APP/5.1].

### Statutory Consultation 3: 5 November to 17 December 2020

- 6.2.22 A further consultation was held in 2020 following further design work and environmental assessment. The main purpose of the consultation was to provide the public with views on the plans, particularly on the changes to the designs made since the previous consultations in 2018. The majority of the statutory consultation was completed virtually. This was to account for the challenges presented by the COVID-19 pandemic, such as social distancing and restrictions on non-essential public gatherings. Consultations took the form of webinars, virtual meetings and phone consultation slots for those individuals asking more specific questions.

### Summary of Changes to Scheme Design post 2020

- 6.2.23 Revisions to the Scheme have been introduced following the 2020 consultation events and are identified in full within the Consultation Report [TR010034/APP/5.1]. The revisions are summarised below:
- Proposed changes to the M67 Junction 4 roundabout to include a through-about, plus improving facilities for pedestrians and cyclists in this location.
  - Additional pedestrian crossing facilities at Gun Inn Junction.

- Additional NMU facilities and crossings across the Scheme.
- Changes to minimise disruption on future farming activities.
- Larger planted areas across the DCO boundary and altered the species mix of planted areas to increase biodiversity opportunities and resilience.
- Changes to the DCO boundary, following consultation with utility companies
  - A bridleway has been widened to allow National Grid maintenance access (details are provided in the DCO Work Plans [TR010034/APP/2.3])
  - Initial proposals to divert the Cadent gas main were altered to accommodate the undertakers' development plans.
- Mottram Moor Junction has been amended following further consultation.
- The road markings at Woolley Bridge Junction have been altered to reduce safety concerns and the small traffic island proposed at Woolley Bridge Junction has been redesigned.
- More details of the key design changes which have resulted from comments raised during the 2020 statutory consultation are provided in the Consultation Report [TR010034/APP/5.1].

6.2.24 The Consultation Report indicates significant public support for the Scheme, with 64% of respondents to the 2020 consultation Feedback Form stating that they agree with the overall proposals for the Scheme.

## 7. Scheme Impacts

This section sets out the impacts of the scheme on the road network.

### 7.1 Traffic impacts of the scheme

#### Traffic Flows

- 7.1.1 Link flows have been compared between the Do-Minimum (DM) and Do-Something (DS) scenarios to understand the impact of the scheme on the localised highway network. The scheme is expected to provide significant changes to traffic flows on the surrounding road network, due to the diversion of traffic away from the A57 Mottram Moor via the link roads.
- 7.1.2 As a result of introducing the Scheme, the most significant impacts on reducing traffic are predicted in the following locations:
- Mottram Moor (between Back Moor and Stalybridge Road) – 91% reduction in 2-way AADT;
  - Hyde Road – up to 86% reduction in 2-way AADT; and
  - Woolley Lane – 77% reduction in 2-way AADT.
- 7.1.3 Figure 7.1 and Figure 7.2 below show the AADT link flows for the Do-Minimum (DM) and Do-Something (DS) scenarios in 2025 and 2040 for the local highway network.

Figure 7.1: 2025 DM and DS AADT Flows (Local Highway Network)

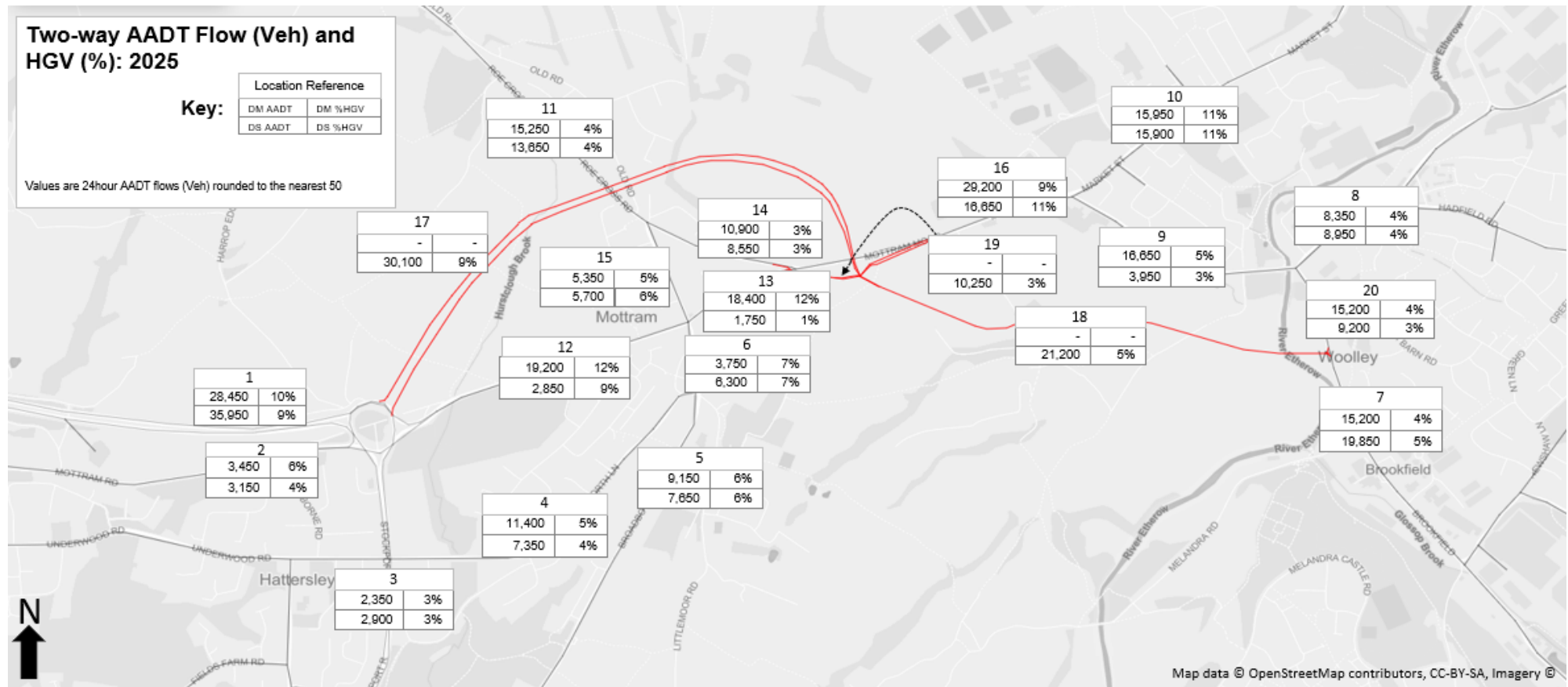
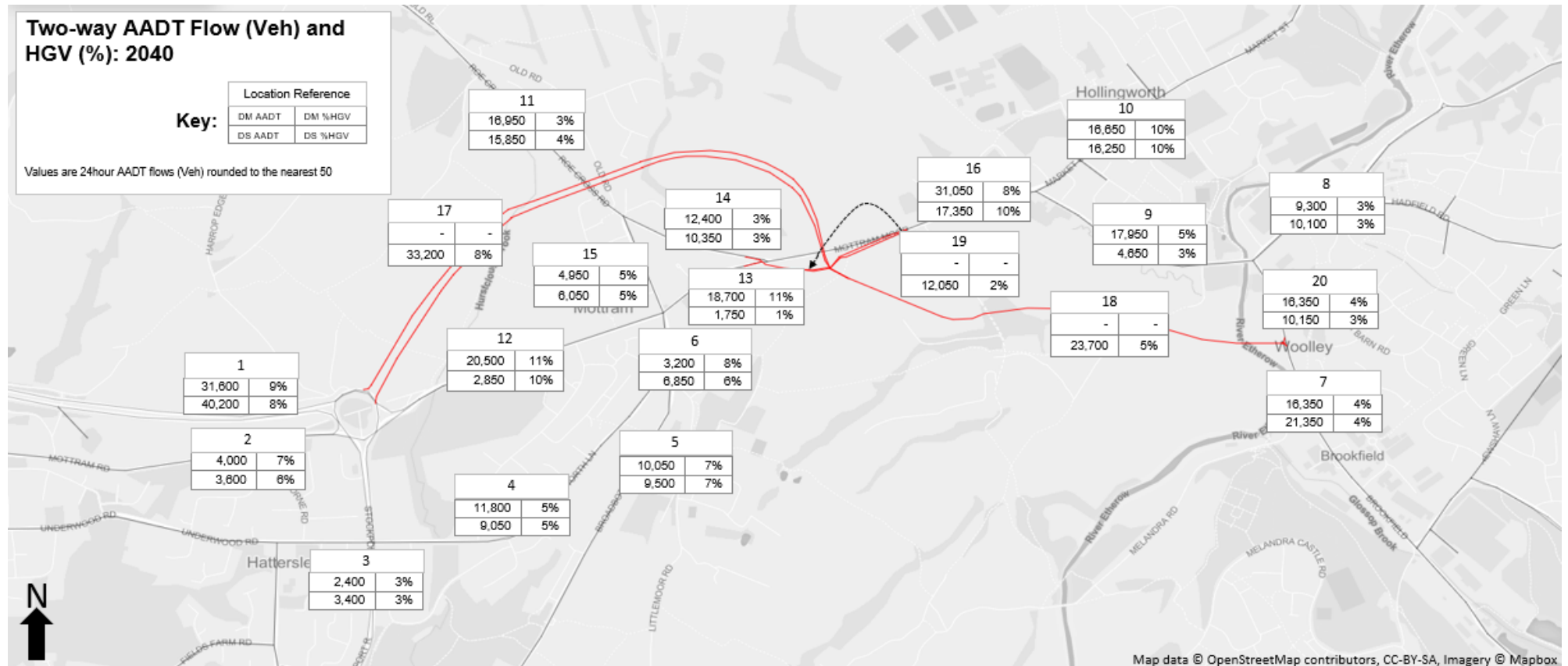




Figure 7.2: 2040 DM and DS AADT Flows (Local Highway Network)



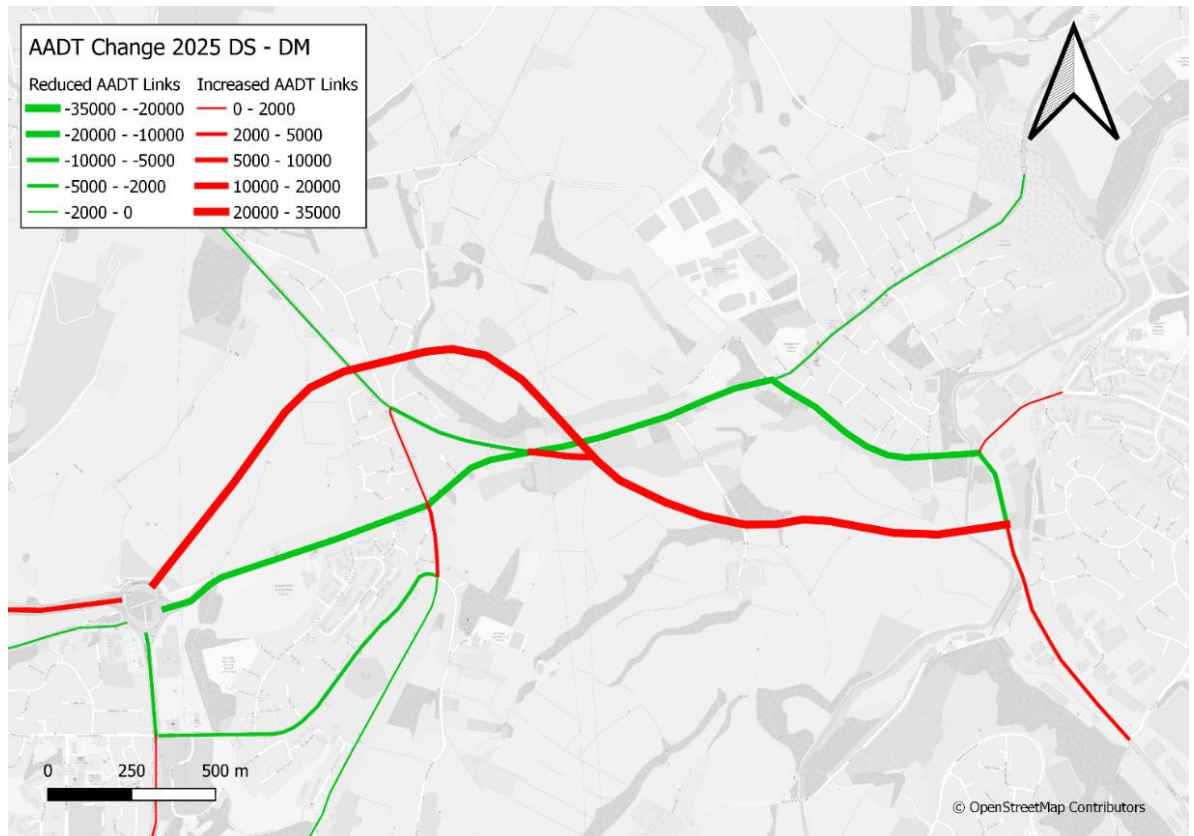
7.1.4 The full list of changes in 2 way AADT on the local highway network is shown in Table 7.1 along with the percentage change in AADT from the DM option. These changes are presented in map form in Figure 7.3 and 7.4.

**Table 7.1: Changes in Two-way AADT (DS-DM) (Local Highway Network)**

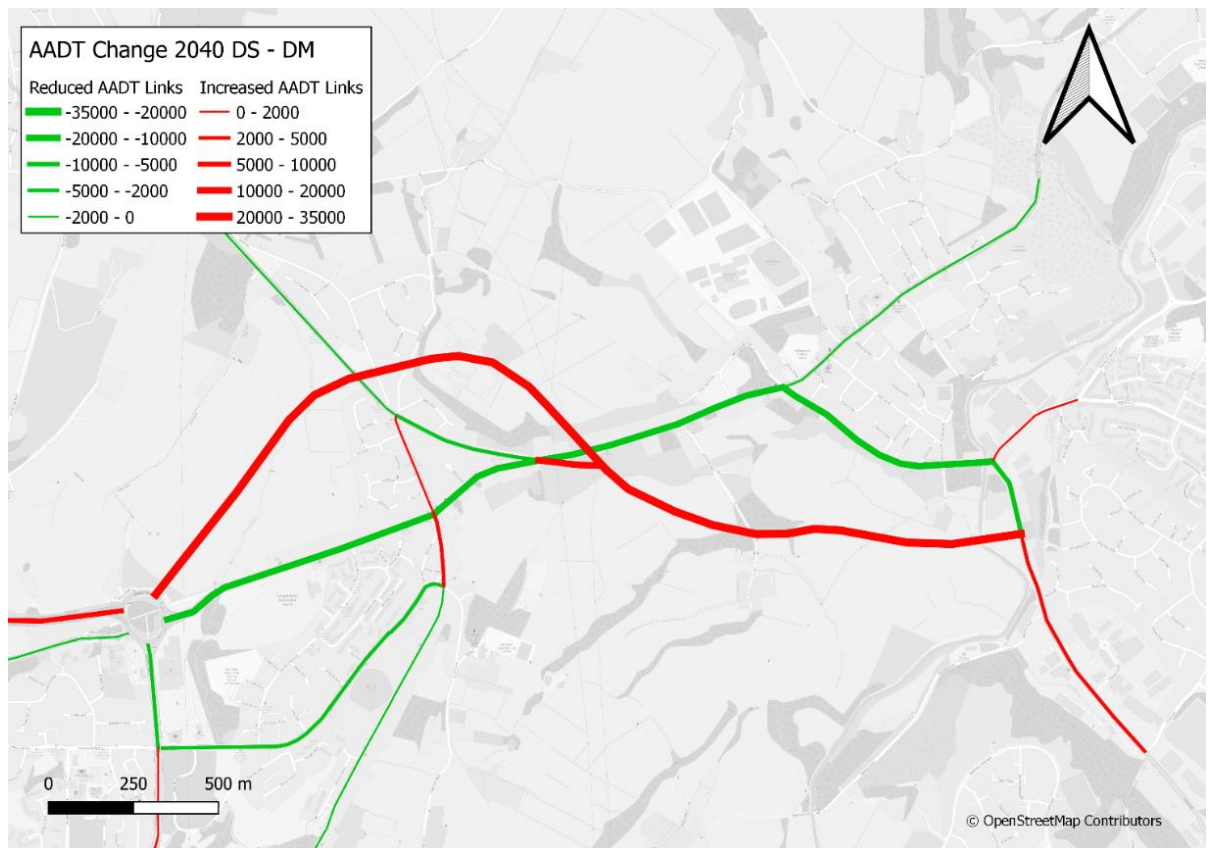
Location	Description	2025 DS - DM		2040 DS - DM	
		AADT DS - DM	% Change AADT	AADT DS - DM	% Change AADT
1	M67 J3 - J4	7,500	26%	8,600	27%
2	A57 Mottram Road	- 300	- 6%	- 400	-10%
3	A560 Stockport Road	550	26%	1,000	42%
4	Ashworth Lane	- 4,050	- 35%	- 2,750	-24%
5	B6174 Broadbottom Road	- 1,500	- 15%	- 550	-5%
6	B6174 Market Street, Mottram	2,550	70%	3,650	113%
7	A57 Brookfield	4,650	30%	5,000	31%
8	Woolley Bridge Road	600	7%	800	9%
9	A57 Woolley Lane	- 12,700	- 77%	- 13,300	-74%
10	A628 Market Street, Hollingworth	- 50	- 1%	- 400	-2%
11	A6018 Roe Cross Road	- 1,600	- 11%	- 1,100	-6%
12	A57 Hyde Road	- 16,350	- 85%	- 17,650	-86%
13	A57 Mottram Moor (Between Stalybridge/Back Moor)	- 16,650	- 91%	- 16,950	-91%
14	A6018 Back Moor	- 2,350	- 22%	- 2,050	-16%
15	B6174 Stalybridge Road	350	8%	1,100	24%
16	A57 Mottram Moor (between Carrhouse Lane and Woolley Lane)	- 12,550	- 43%	- 13,700	-44%
17	A57 Mottram Moor Link Road (From M67 J4 to Mottram Moor Junction)	30,100	-	33,200	-
18	A57 Link Road (From Mottram Moor Junction to Woolley Bridge Junction)	21,200	-	23,700	-
19	Mottram Moor Junction Arm (Link between Mottram Moor Junction and existing A57 (T))	10,250	-	12,050	-
20	A57 Woolley Bridge	-6,000	- 39%	- 6,200	-38%

*Note: figures have been rounded to the nearest 50 vehicles.*

**Figure 7.3: Changes in AADT: 2025 DS-DM (Local Highway Network)**



**Figure 7.4: Changes in AADT: 2004 DS-DM (Local Highway Network)**



7.1.5 Figure 7.5 and Figure 7.6 show the link flow comparison between the Do-Minimum (DM) and Do-Something (DS) scenarios in 2025 and 2040 for the wider High Peak area.

Figure 7.5: Changes in AADT: 2025 DS-DM (Wider Network – High Peak Area)

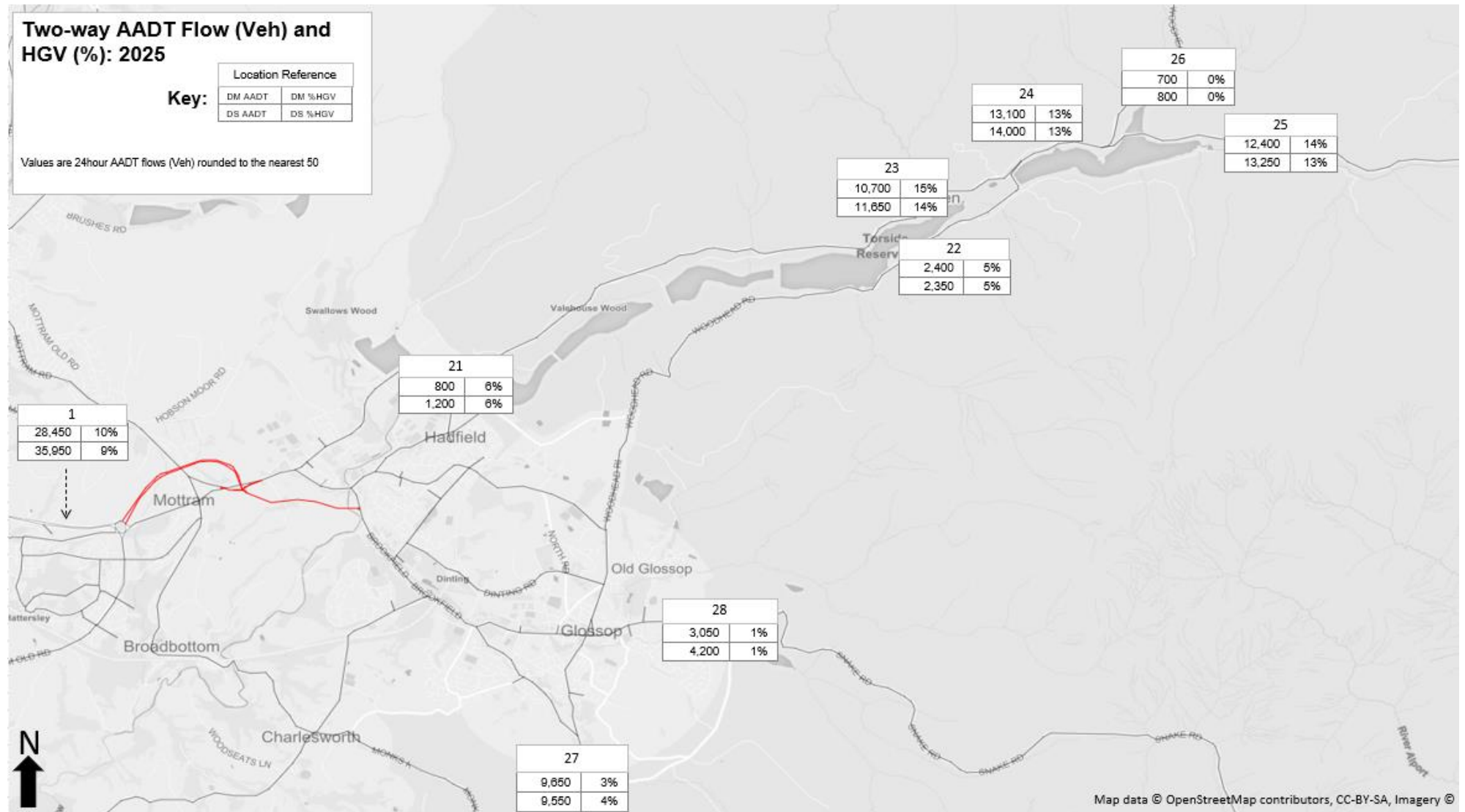
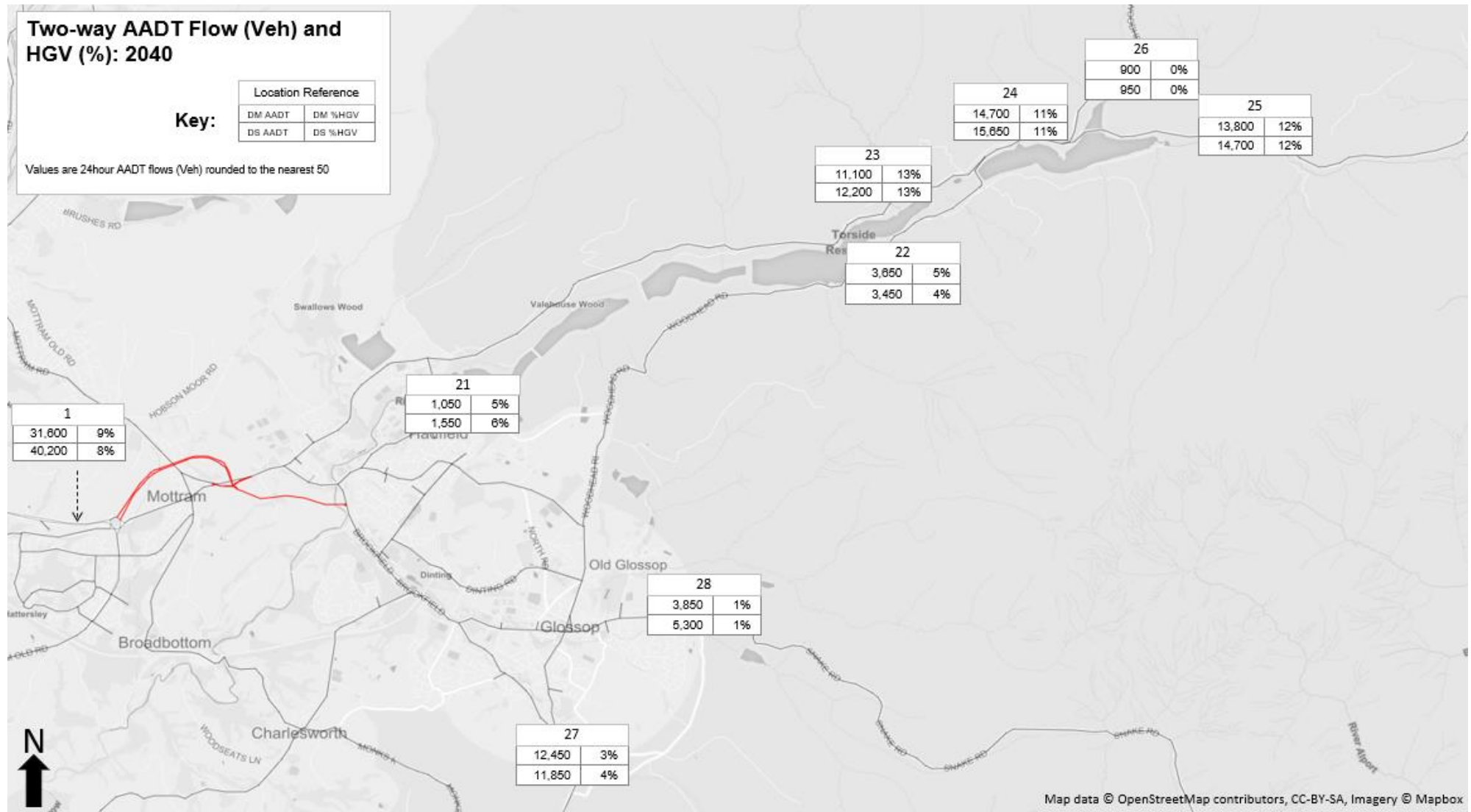




Figure 7.6: Changes in AADT: 2040 DS-DM (Wider Network – High Peak Area)



7.1.6 The full list of changes in 2 way AADT in the wider network for the High Peak area is shown in Table 7.2 along with the percentage change in AADT from the DM option.

**Table 7.2: Changes in Two-way AADT (DS-DM) (Wider Network – High Peak Area)**

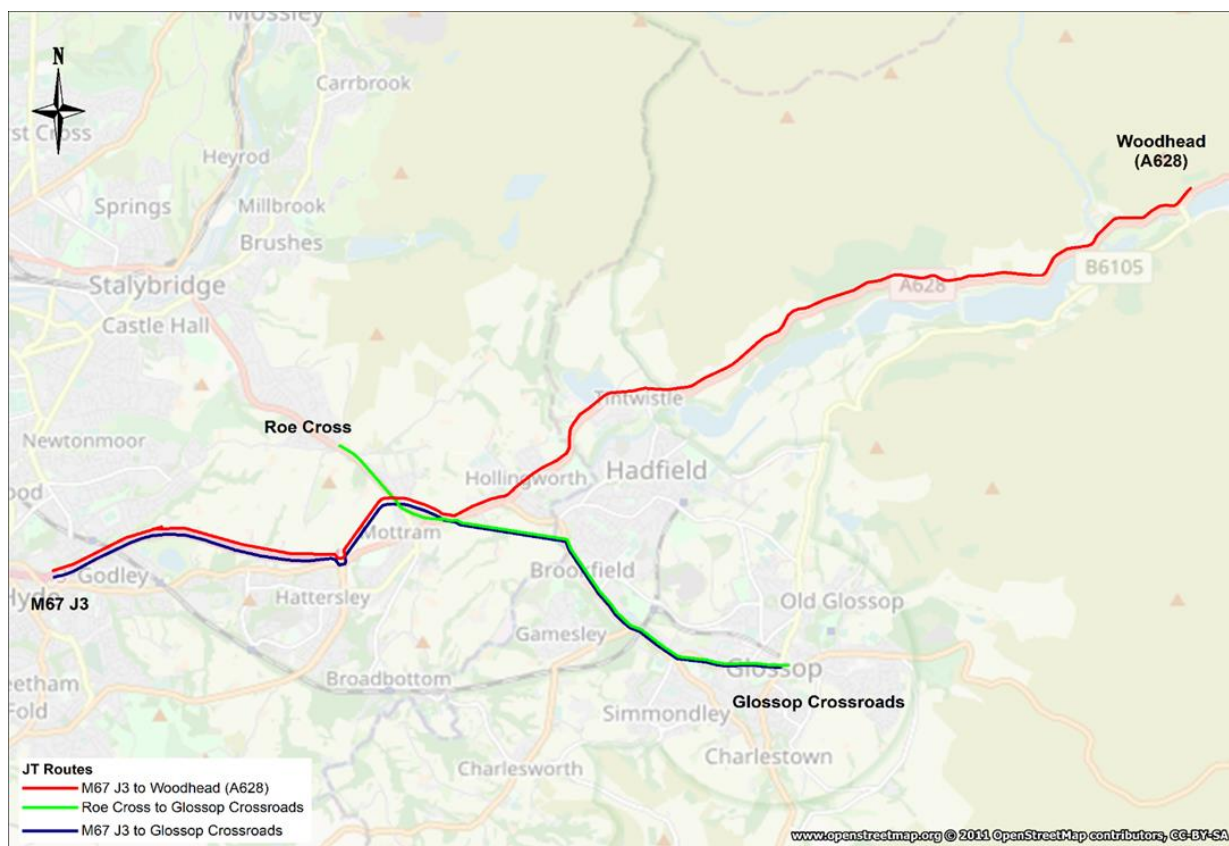
Location	Description	2025 DS - DM		2040 DS - DM	
		AADT DS - DM	% Change AADT	AADT DS - DM	% Change AADT
1	M67 J3 - 4	7,500	26%	8,600	27%
21	New Road Tintwistle	400	50%	500	48%
22	B6105 Woodhead Road	-50	-2%	-200	-5%
23	A628 Crowden	950	9%	1100	10%
24	A628 (Between B6105 and A6024)	900	7%	950	6%
25	A628 Woodhead	850	7%	900	7%
26	A6024 Woodhead Road	100	14%	50	6%
27	A624 Chunal Lane	-100	-1%	-600	-5%
28	A57 Sheffield Road	1150	38%	1450	38%

*Note: figures have been rounded to the nearest 50 vehicles.*

## Journey Times

7.1.7 Journey times on key routes have been compared between the core DM and DS scenarios to understand the impact of the A57 Link Roads Scheme on the localised highway network. Longer journey time routes have been used in order to capture any congestion and queues that the Scheme might cause or alleviate beyond the immediate Scheme limits. Figure 7.7 highlights the extent of the journey time routes that have been included in the analysis.

**Figure 7.7: Journey Time Routes – With Scheme**



7.1.8 As a result of introducing the A57 Link Roads Scheme, the model predicts the following changes in journey times in the scheme opening and design years:

M67 J3 to Glossop Crossroads

7.1.9 Journey times between the M67 J3 and Glossop Crossroads are predicted to improve in both directions across all modelled time periods and forecast years. The greatest journey time savings occur in the eastbound direction in the IP and PM peak, with improvements of ~8-10 minutes predicted in all forecast years.

7.1.10 However, journey time savings are not as significant for vehicles travelling westbound, with the greatest reduction predicted in the IP in all forecast years (~5-6 minutes):

- This is attributable to the lower levels of congestion in the westbound direction between Glossop Crossroads and the M67 J3 in the DM scenario, especially at the Gun Inn junction (A57 / A628).
- Delay is predicted on the Mottram Moor (A57) (eastbound) approach arm at the Gun Inn junction in all time periods, but delay is not reflected to the same extent on the Woolley Lane approach arm (i.e. equivalent westbound journey time route).

7.1.11 Vehicles travelling east-west (in both directions) can utilise the A57 Link Roads Scheme in its entirety, which is predicted to offer considerable journey time savings in comparison to journey times on the existing A57 route in the DM scenario.

### M67 J3 to Woodhead (A628)

- 7.1.12 Journey times are predicted to improve in both directions on the A628 between the M67 J3 and Woodhead Reservoir, across all time periods and forecast years, through the alleviation of congestion on the A57, following the implementation of the A57 Link Roads Scheme. The greatest journey time savings are predicted to occur in the eastbound direction in the PM peak, with improvements of around 5 minutes predicted in all forecast years. (The savings in the IP are only marginally less).
- 7.1.13 Journey time improvements are not predicted to be as significant for vehicles travelling westbound on the A628 due to the re-prioritisation of signal timings at the Gun Inn junction (A57 / A628), plus lower levels of congestion in the DM scenario:
- As part of the A57 Link Roads Scheme proposal, additional improvements for non-motorised users (NMU) have been considered at the Gun Inn junction. This includes increasing green time for pedestrians which will be at the expense of motorised road users.
  - Consequently, journey time savings for vehicles travelling westbound between the Woodhead and M67 J3 are not as large, at ~1-2 minutes.
- 7.1.14 Although the re-distribution of green time is predicted to affect all approach arms of the Gun Inn junction, it has a greater impact on journey times on the A628 (Market Street) compared to the A57 (Mottram Moor). This is because the introduction of the scheme is predicted to significantly reduce congestion on Mottram Moor, which outweighs the loss of journey times associated with the re-distribution of green time at Gun Inn due to the introduction of a pedestrian crossing phase.

### Roe Cross to Glossop Crossroads (A57)

- 7.1.15 Journey time savings are predicted on the A57 route between Roe Cross Road and Glossop Crossroads across all modelled time periods and forecast years, except westbound in the 2025 PM peak and 2051 AM peak:
- The greatest time savings, of ~2 minutes, are predicted eastbound in the IP in all forecast years.
  - A small increase in journey times is predicted on the A57 westbound during the PM peak in 2025 (~25 seconds) and the AM peak in 2051 (~1 minute).
- 7.1.16 The model predicts a small increase in journey times on the A57 between the Woolley Lane scheme junction and Glossop Crossroads, as a result of increased demand following the implementation of the A57 Link Roads Scheme.
- In comparison to the M67 J3 to Glossop Crossroads route, vehicles travelling north-south (in both directions) via Back Moor (A6018) only benefit from a single section of the scheme (i.e. A57(T) to A57 link road). Consequently, journey time savings are not predicted to be as significant as those predicted for vehicles travelling east-west (in both directions) between the M67 J3 and Glossop Crossroads.

## 7.2 Economic Appraisal Summary

### Economic Appraisal Results

- 7.2.1 The traffic flows, times and distances have been extracted from the forecasting traffic model for the forecast years of 2025, 2040 and 2051 as a further horizon year. These forecast model outputs have been used in the economic appraisal of the Scheme to produce a monetised cost benefit analysis. The monetised cost benefit analysis of the Scheme has included the assessment of road user benefits, changes in revenues (that is, indirect taxes), accident costs, costs during construction and maintenance, monetised noise, local AQ and greenhouse gas impacts plus reliability benefits and wider impacts.
- 7.2.2 The ratio of benefits to costs (the BCR) of the Scheme has been calculated for a range of scenarios. An adjusted BCR for the core scenario (i.e. including the outputs of the journey time reliability assessment and wider economic impacts) is also assessed, which is anticipated to be the most realistic evaluation. Following traffic modelling analysis and economic appraisal it is expected that the Scheme will provide the following benefits to road users and local residents:
- 7.2.3 The Scheme is forecast to produce benefits of £156m (PV) by the end of the 60-year appraisal period. These benefits are generated by:
- Travel time savings, vehicle operating cost and user charge benefits of £181m;
  - Safety disbenefits of -£7m;
  - An environmental disbenefit of -£18m;
  - An indirect tax increase of £1m;
  - Delays during the construction period valued at -£1m.
- 7.2.4 It is noted that the environmental disbenefit has been calculated using the standard carbon values however a high value carbon sensitivity test has been conducted and is reported in the Environmental Statement (TR010034/APP/6.3).
- 7.2.5 The total scheme costs at the time of compiling this report are £108m (PV). With consideration of these costs and benefits, the initial BCR is 1.45.
- 7.2.6 The scheme is forecast to generate additional benefits which have not been included in the Initial BCR. These include:
- Improved journey time reliability worth £11m; and
  - Wider economic impacts of £97m, composed of:
    - Agglomeration benefits of £86m; and
    - Increased output in imperfectly competitive markets of £11m.
- 7.2.7 The addition of these elements of benefit result in an Adjusted BCR of 2.45.

### Expected Level of Accident Impacts (COBALT)

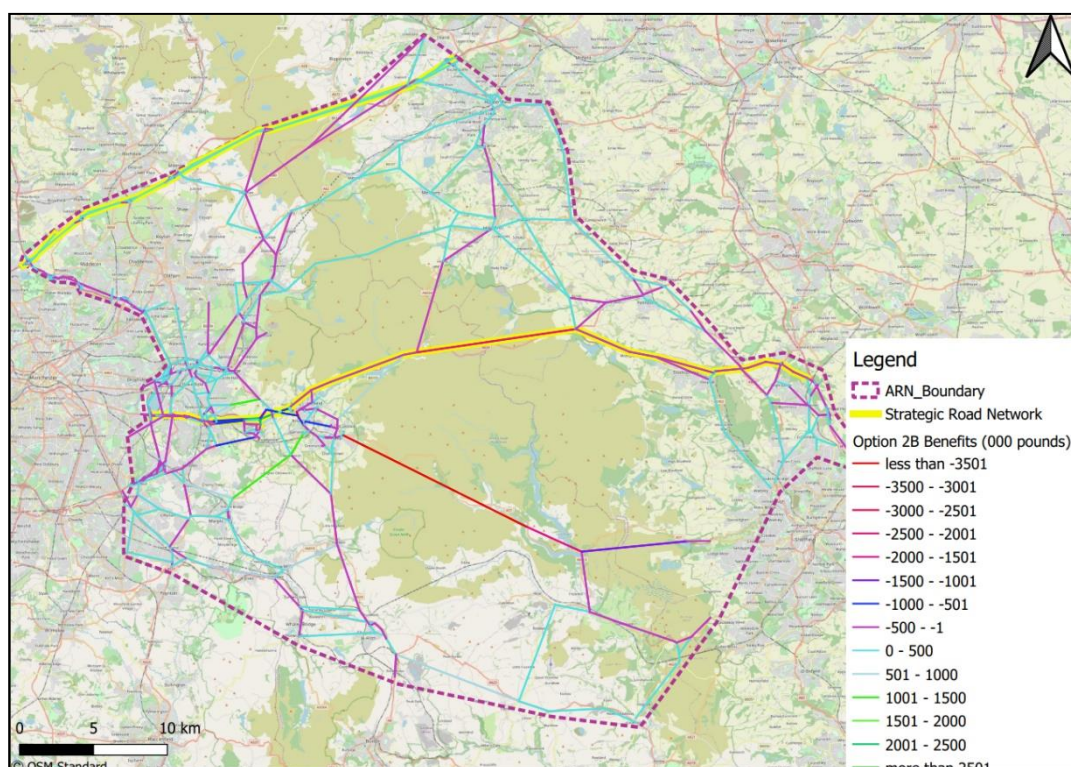
- 7.2.8 A safety assessment has been carried out using DfT's COBALT software to analyse the impact of the scheme on road traffic accidents, providing a monetised impact for inclusion in the BCR. It estimates the number of accidents for each road link over a 60-year appraisal period, based on the product of:



- The accident rate per million vehicle kilometres;
- The road length; and
- The forecast annual traffic flow.

7.2.9 The spatial distribution of safety benefits by link, as forecast through the COBALT assessment, is set out in Figure 7.8 below. This shows that the most significant negative impacts will be on the A57 Snake Pass and the A628. These are both long distance routes which will see increases in flow. As a result, the vehicle-kilometres will be increased leading to a forecast growth in accident numbers.

**Figure 7.8: Spatial Distribution of Safety Impacts**



7.2.10 Table 7.2 below summarises the accident impact of the scheme over the 60-year appraisal period, in terms of Personal Injury Accidents (PIAs), casualties and associated economic impacts.

**Table 7.3: Accidents and Casualties over Appraisal Period (Whole Network)**

Scenario	Accident Summary (PIAs)	Casualty Summary (Casualties, by Severity)			Economic Impact, 2010 PVB
		Fatal	Serious	Slight	
Do-Minimum	34,884	431	4,691	43,599	£1,304m
Do-Something	34,986	438	4,718	43,755	£1,311m
Impact	-102	-6	-28	-156	-£7.32 m

*Note: All values are in 2010 market prices discounted to 2010.*

- 7.2.11 The results show an increase in accident numbers in the area assessed by COBALT of the modelled network, resulting in a monetised cost of accidents which is higher in the DS scenarios than the DM scenario. This means that the Scheme provides an accident disbenefit. The accident impact from the proposed scheme is -£7.32m. This relates to a modelled predicted increase of 102 accidents over the 60-year appraisal period (or an average of 1.7 accidents per year).
- 7.2.12 In addition, detrunking of the A57 through Mottram and diversion of traffic onto the new link road will decrease accident numbers in Mottram, the severity of the accidents which are predicted to occur on the new link road may increase due to the increased speed.
- 7.2.13 A more detailed analysis of impacts across the network shows that the A57 Snake Pass, which is known to have a high accident rate, is forecast to experience a modelled predicted increase of more than 160 accidents over the 60-year appraisal period, as a result of increased flows in the DS scenario. This alone exceeds the total impact across the rest of the network combined. Small increases in accidents are also expected through Glossop and along the rural sections of the A628 east of Tintwistle. The Scheme does not make any of these roads intrinsically less safe for any one road user, but it increases traffic flow marginally, leading to a higher potential for accidents to occur. Flow is reduced elsewhere on the network, such as along the M62, but motorways are safer than other road types and so the net impact of the combined rerouting is negative.
- 7.2.14 As Snake Pass is an identified accident issue which will see flow increased as a result of the Scheme, measures should be pursued to minimise these negative impacts.

## 8. Mitigation

### 8.1 Proposed mitigation for scheme impacts

#### Assessment of Noise Impacts – Short-term Changes

- 8.1.1 As reported in the Environmental Statement Chapter 11 [TR010034/APP/6.3], the majority of the major and moderate increases in noise level were generally located at noise sensitive receptors close to the Mottram Underpass, on Edge Lane (to the northwest of the Scheme) and the Woolley Bridge junction.
- 8.1.2 The majority of the major and moderate decreases in noise level were at receptors on Woolley Lane, Hyde Road and Mottram Moor. These are locations adjacent to roads that are bypassed by the Scheme and are located with Noise Impact area (NIA) 10992. There were some noise sensitive receptors within this NIA on the A6018 Back Moor and Roe Cross Road where noise levels were predicted to perceptibly increase due to the introduction of the Mottram Moor Link Road.
- 8.1.3 Minor and moderate short-term noise increases were predicted at most properties within NIA 10993 (Woolley Bridge, Brookfield).
- 8.1.4 Negligible changes were predicted at NIA 1574 (Melyncourt Road), NIA 7247 (adjacent to M67) and at medical and educational facilities throughout the study area except for three schools (Mottram C of E Primary School, St Charles Catholic Primary School and Longdendale High School) where minor increases in noise were predicted.
- 8.1.5 Based on the predicted road traffic noise levels and impact magnitudes described above, there are nine properties that may be eligible for an offer of noise insulation under the Noise Insulation Regulations 1975 (as amended). Eight of the nine affected properties are dwellings located close to the Woolley Bridge junction with the A57 Link Road. The other property is adjacent to M67 Junction 4 at the west end of the Scheme.

#### Noise Mitigation Measures

- 8.1.6 The Scheme incorporates several embedded and essential mitigation measures within its design, including permanent noise barriers and low noise road surfacing. The benefits of these mitigation measures are inherent in outcomes of the noise and vibration assessment.
- 8.1.7 The noise assessment includes the beneficial effects of the mitigation measures listed below in Table 8.1.

**Table 8.1: Noise Mitigation Measures**

Phase	Mitigation measure	Classification
Operation	Design of the Scheme to minimise road traffic noise level, including alignment of Mottram Moor junction and arrangement of cuttings and embankments for the Mottram Moor Link Road and A57 Link Road	Embedded
Operation	Low noise road surfacing on the A57 Link Road and Mottram Moor Link Road (except bridges)	Embedded
Operation	Routine road maintenance	Embedded
Operation	Permanent environmental noise barriers located at the eastern and western portals of the Mottram Underpass, Mottram Moor junction, and along the A57 Link Road in proximity to Carrhouse Lane and Tara Brook Farm	Essential

## Noise Monitoring Measures

8.1.8 Likely significant environmental effects from noise during the operation phase shall be monitored and include:

- Ensuring that embedded and essential mitigation measures for the operational phase are incorporated in the as-built project;
- Where mitigation measures in the Scheme's design are excluded from the as-built project, ensuring that the resultant noise levels are not environmentally worse than those set out in the Environmental Statement. For example, this could be achieved by using a different noise mitigation strategy compared to the current design; and
- Ensuring that the specifications of noise mitigation measures meet design specifications.

8.1.9 During the operation phase, routine maintenance of road surfaces is required to avoid further noise and vibration impacts from surface discontinuities. Regular inspections of the permanent environmental noise barriers would be undertaken, and remedial works would be completed where defects are found, including sources of sound leakage such as holes or gaps in the barrier panels.

## 8.2 Proposed mitigation for construction impacts

### Traffic Management Phases

8.2.1 As the scheme is a major infrastructure project, there will be a need for temporary traffic management (TTM) measures in order to manage the impacts of construction on the surrounding road network. The TTM approach is outlined in the Traffic Management Plan (TMP) (TR010034/APP/7.5).

## Construction Noise and Vibration

8.2.2 Measures for mitigating construction noise and vibration will be implemented through an Environmental Management Plan (EMP), in accordance with the Design Manual for Roads and Bridges.

8.2.3 Standard methods include:

- Using a Traffic Management Plan (TMP) to minimise any adverse effects from construction traffic.
- Installing appropriate fencing around the construction areas likely to generate noise.
- Using silenced equipment where possible, in particular silenced power generators and pumps.
- Turning off plant machinery when not in use.
- Ensuring that the quietest plant and equipment, techniques and working practices available are selected and used.



## 9. Strategy for Dealing with the Uncertain Outcomes Arising from COVID-19

### 9.1 Introduction

9.1.1 The purpose of this Strategy is to set out Highways England's approach to addressing the uncertainty arising from the COVID-19 pandemic with respect to the A57 Link Roads Scheme (the Scheme). This strategy is informed by the guidance in the document prepared by the Department for Transport (DfT) 'A route map for updating Transport Appraisal Guidance (TAG) during uncertain times' issued in July 2020. During 2020, a number of unexpected events have occurred on the national and global stage that have the potential to have a bearing on transport scheme appraisals. The following are of particular significance.

#### Revised Economic and Fiscal Outlook

9.1.2 As part of the Spring Budget of 2020, the Office for Budgetary Responsibility (OBR) published a revised economic and fiscal outlook and associated forecasts of the UK economy in the long-term (this budget was completed pre COVID-19). On 14th July 2020, OBR published the 2020 Fiscal Sustainability Report (FSR), updating medium-term growth forecasts to 2025 to take into account COVID-19 impacts known at that time. The implications of these forecasts for appraisal is that forecast productivity and income growth is projected to be significantly lower than those previously published.

#### COVID-19 Pandemic

9.1.3 The uncertainty around future travel behaviour brought about by the COVID-19 pandemic makes it more challenging to assess which investment options may provide the best returns for the taxpayer. There is a need to consider how best to accommodate this uncertainty in appraisal and provide consistency across the local, regional and national portfolios.

#### Net Zero Carbon

9.1.4 In 2019, the UK passed laws to require the UK to bring all greenhouse gas emissions to net zero by 2050. The DfT's document *Decarbonising Transport: Setting the Challenge* published in March 2020 sets out the ambition to ensure that transport delivers its contribution to meeting this target. This is likely to have significant implications on the emissions mix of the future vehicle fleet and the way that transport infrastructure is provided to facilitate these aims. This will require that impacts on carbon are appropriately assessed and valued.

9.1.5 In combination, these represent a significant challenge for forecasting and appraisal methods as new guidance becomes available and outcomes are less certain. For example, the COVID-19 pandemic has resulted in a dramatic reduction in personal travel in the short term following the introduction of restrictions in March 2020. In the longer term, the impacts of COVID-19 are unknown but will continue to be felt in response to the downturn in economic activity, changes in working patterns and in the way people will travel.

9.1.6 At the time of writing, social restrictions remain in place and it is impossible to determine the length of time it may take for travel behaviour to stabilise following the lifting of restrictions. Furthermore, it is likely to be a significant length of time before longer term trends are fully understood. Therefore, in the meantime, forecasting future growth is likely to have higher levels of uncertainty and will need to be conducted in the context of emerging guidance.

## 9.2 Department for Transport Route Map

9.2.1 As a response to these challenges, in July 2020 the DfT published '*A route map for updating TAG during uncertain times*'. This sets out how the appraisal framework should adapt and take account of these future trends in relation to the evidence base or methods used within the Transport Analysis Guidance.

9.2.2 The route map acknowledges that change will have to be a managed process. The strategy set out in the route map seeks to balance the risk of disruption to ongoing analytical work with having the best available evidence to support decision making. It recommends that this should be achieved by progressively improving the evidence base, starting with a series of initial recommendations, followed by addressing a number of longer-term challenges that require further research.

9.2.3 It is expected that revised TAG guidance will be released in 2021 (however a specific date is not available at this time). Subsequent updates will be released as and when issues are resolved through research and consultation.

9.2.4 However, in advance of the revised TAG guidance, the route map has identified two changes recently introduced by the DfT:

- The guidance on an interim approach for using carbon values provided by the Department for Business, Energy and Industrial Strategy (BEIS);
- The incorporation of the latest OBR long-term economic growth forecast.

9.2.5 The route map advises that where appraisals have already been conducted the impact of the new OBR economic growth forecasts and use of high carbon values, which place a higher value on carbon emissions, should be considered through sensitivity testing before formal changes to guidance are introduced during 2021. This is consistent with the DfT's Orderly Release Process that provides advance notice of changes to guidance to allow more certainty of the timetable for changes and early sight of forthcoming revisions.

9.2.6 In parallel with the route map, the DfT published an updated Transport Appraisal Guidance (TAG) data book. This incorporated the updated values relating to the long term projections of employment and economic growth issued by the OBR in March 2020, and the further projections issued in July 2020 as part of the FSR Report of the medium-term impact of COVID-19 on the economy to 2025. The route map advises that these values should provide the basis for sensitivity testing. However, as detailed in 9.3.1 below the economic appraisal for the Scheme uses the updated values in the Core appraisal as a prudent approach, recognising that these would become confirmed values.

## 9.3 Implications for the scheme appraisal

- 9.3.1 The latest forecasts and economic appraisal for the Scheme were completed after publication of the DfT route map and the revised economic growth projections. Since the Scheme's forecasts were made after the release of the guidance in July 2020, the scheme assessment uses the revised growth projections for economic performance. As advised by Highways England's Transport Planning Group (TPG), the revised economic growth has been used as the scheme's core scenario with the high carbon values used as a sensitivity test (as described above in Section 9.2), which applies a higher set of carbon values to emission changes calculated for the central growth case.
- 9.3.2 It should be noted that the DfT provides travel demand forecasts for use in transport modelling through its National Trip End Model (NTEM) data set. It is understood that these will be updated during 2021 to align with the latest national population projections and economic growth forecasts and included in a further release of TAG. While the NTEM will provide updated forecasts of future growth based upon the latest evidence, these are unlikely to be issued until later in 2021.
- 9.3.3 The anticipated sensitivity test related to modified growth projections from National Trip End Model (NTEM) is likely to have a greater impact on the Scheme economics than the change in appraisal values. While the benefits in the economic appraisal are likely to reduce, given an adjusted Benefit Cost Ratio (BCR) of 2.45 has been demonstrated, it is anticipated that the overall BCR will remain above 1.5, i.e. benefits would be significantly greater than costs.
- 9.3.4 Given the timing of the release of the further information required to conduct the sensitivity test, it is considered that undertaking a sensitivity test in line with the guidance set out in the DfT Route Map following acceptance of the DCO application represents a reasonable and proportionate approach to assessing the impact of these recent changes in projections of economic growth.
- 9.3.5 It is expected that further guidance will be released by the DfT during 2021 that will seek to address some of the emerging issues. While it would be the intention to monitor and review emerging guidance, a judgement will need to be taken by Highways England, in consultation with the Planning Inspectorate and other stakeholders, to determine whether further sensitivity testing is appropriate and proportionate.

## 10. Summary and Conclusion

### 10.1 Summary

10.1.1 The Scheme includes the following components:

- A new offline bypass of 1.12 miles (1.8km) of dual carriageway road connecting the M67 Junction 4 to A57(T) Mottram Moor Junction.
- A new offline bypass of 0.81 miles (1.3km) of single carriageway connecting the A57(T) Mottram Moor to the A57 Woolley Bridge.
- Creation of two new junctions, Mottram Moor Junction and Woolley Bridge Junction and improvement works to the existing M67 Junction 4.
- Creation of five new structures (Old Hall Farm Underpass, Roe Cross Road Overbridge, Mottram Underpass, Carrhouse Lane Underpass, River Etherow Bridge and Roe Cross Road overbridge).
- One main temporary construction compound area, located on agricultural land to the east of the M67 Junction 4.
- Detrunking, including safety measures from the M67 Junction 4 to Mottram Back Moor Junction, to be agreed with Tameside MBC.
- Safety measures and improvements to the A57 from Mottram Moor Junction to Gun Inn Junction and from Gun Inn Junction to Woolley Lane Junction, to be agreed with Tameside MBC.

10.1.2 The proposed link roads will direct traffic around the village of Mottram to re-join the A57 at Woolley Bridge. The new junction at Mottram will also provide links to the A628, the A6018 and local destinations.

10.1.3 The purpose of the Scheme, together with other TPU works being advanced separately to this DCO, is to address longstanding issues of connectivity and congestion of the strategic Trans-Pennine route between the M67 at Mottram and M1 Junction 36 and Junction 35A North of Sheffield. The A57 Mottram Moor currently experiences slow-moving traffic and congestion in the AM peak, Interpeak and PM peak periods on a typical weekday.

## 10.2 Conclusion

10.2.1 Table 10.1 below sets out the performance of the Scheme against the scheme objectives and compliance factors.

**Table 10.1: Performance against Scheme Objectives**

Scheme Objectives and Compliance	Performance against Objectives
<p><b>Connectivity</b> – reducing congestion and improve the reliability of people’s journeys between the Manchester and Sheffield city regions.</p>	<p>As demonstrated by the time saving benefits and their spatial distribution. Congestion through Mottram, Hattersley and Woolley Bridge will be relieved, improving journey times for trips on the SRN between Manchester and Sheffield, as well as for trips using the local road network in this area.</p> <p>This impact benefits traffic not only between Manchester and Sheffield but also helps trips to and from Glossop which travel through Woolley Bridge or Mottram, by providing additional network capacity.</p> <p>Congestion on the detrunked section of the A57 is also relieved, improving connectivity for local traffic.</p>
<p><b>Environmental</b> – improving air quality and reducing noise levels in certain areas, through reduced congestion and removal of traffic from residential areas. The scheme is also being designed to avoid unacceptable impacts on the natural environment and landscape in the Peak District National Park.</p>	<p>The outcomes of the air quality assessment (undertaken using dispersion modelling to assess changes in concentrations at receptors during the operational phase) indicate there would be significant improvement in terms of annual mean NO2 concentrations at sensitive human health receptors within the air quality study area. The air quality assessment presented within the ES focuses on areas of poor air quality used to inform the judgement of significant air quality effects and limit value compliance. DfT’s TAG appraisal considers the changes in air quality across the entire study area irrespective of whether there are areas exceeding government air quality thresholds i.e. it is a representation of overall changes of emissions, which may lead to a total increase but still see benefits in areas of poor air quality, as is the case for this scheme.</p> <p>Once operational the Scheme will displace large volumes of traffic from a route immediately in front of properties through Mottram in Longdendale and Woolley Lane, such that despite improvements in flow the noise impacts will be positive. The Scheme also demonstrates a positive impact upon the Noise Important Area (NIA) at Mottram in Longdendale, located within the DCO boundary. However, there is forecast to be an adverse daytime noise impact during the construction phase, but with no night-time disturbance.</p> <p>The Scheme is located over two kilometres outside the PDNP. Where possible, traffic flows, resulting from the Scheme, have been designed to reduce impacts on the PDNP. Significant indirect impacts were</p>



Scheme Objectives and Compliance	Performance against Objectives
	considered as part of the EIA, with the ES reporting no significant impacts on the PDNP. Further details are provided in the ES [TR010034/APP/6.2-6.5].
<p><b>Societal</b> – re-connect local communities along the Trans-Pennine route.</p>	<p>Reduced journey times and improved reliability will increase the accessibility of the Scheme and associated routes. The user benefits, including the improvements in travel affordability of the Scheme, which will be distributed, supporting all income groups. The detrunking of a section of the existing A57 will help to decrease the severance of the communities close to this road as the speed limit is decreased on this road as the volume of traffic decreases leading to improvements in traffic flow.</p> <p>All new and improved junctions will be provided with upgraded Walkers, Cyclists and Horse riders (WCH) facilities (M67 Junction 4, Mottram Moor, Gun Inn Junction and Woolley Bridge) making crossing easier and improving safety.</p> <p>However, collision rates are expected to be adversely impacted across the wider area as a result of increased traffic drawn in by the Scheme, with motorcyclists and young males identified as being most at risk.</p>
<p><b>Capacity</b> – reduce delays and queues that occur during busy periods and improve the performance of junctions on the route.</p>	<p>Transport modelling forecasts compares delays across the area with a Do Minimum option and with the Scheme in place. It indicates that delays in excess of five minutes would be present along the A57(T) in both directions in the Do Minimum scenario by the scheme design year of 2040 during the busy evening peak period. The associated congestion would also lead to delays of several minutes per trip crossing the existing A57(T). However, with the Scheme in place delays through the same section of network or using the new links are all forecast to be less than one minute during the same time period and forecast year.</p> <p>At M67 J4 signalisation will improve safety and smoothness of flow, while the cut-through of the roundabout will provide more direct access between the M67 and the new Mottram bypass.</p> <p>A reliability assessment has been performed which shows that, particularly for local movements in the vicinity of the scheme, journey times will become more consistent on a day-to-day basis.</p>

Note: It should be noted that the DMRB LA105 Human Health methodology differs from the TAG assessment

10.2.2 The Scheme would provide time saving benefits and relieve congestion through Mottram, Hattersley and Woolley Bridge, improving journey times for trips on the SRN between Manchester and Sheffield, as well as for trips using the local road network in this area. The Scheme would also relieve congestion on the de-trunked section of the A57, improving connectivity for local traffic.

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