Document 6.2

The West Midlands Rail Freight Interchange Order 201X

Technical Appendix 15.1 - Transport Assessment

Regulation 5(2)(a)

WSP - July 2018

West Midlands Interchange

Four Ashes Ltd

The West Midlands Rail Freight Interchange Order 201x

Document 6.2

Regulation 5(2)(a)

Environmental Statement Technical Appendix 15.1

Transport Assessment

July 2018

WSP

Revision	Date	Author
Draft for Stage Two Consultation	23 June 2017	WSP
Draft for DCO Submission	9 March 2018	WSP
Submission	23 July 2018	WSP

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GLOSSARY

ANPR	-	Automatic Number Plate Recognition
DIRFT	-	Daventry International Rail Freight Terminal
DCO	-	Development Consent Order
DCTMP	-	Demolition and Construction Traffic Management Plan
DMRB	-	Design Manual for Roads and Bridges
FAL	-	Four Ashes Limited
HGV	-	Heavy Goods Vehicle
LGV	-	Light Goods Vehicle
PIA	-	Personal Injury Accident
PINS	-	The Planning Inspectorate
M54/M6SM	-	M54/M6/M6 Toll Link Road Saturn Model
MCC	-	Manual Classified Count
MSOA	-	Middle Layer Super Output Area
NMU	-	Non-Motorised Users
NPPF	-	National Planning Policy Framework
NPS	-	National Policy Statement for National Networks
NSIP	-	Nationally Significant Infrastructure Project
PIA	-	Personal Injury Accident

RFI	-	Rail Freight Interchange
SATURN	-	Simulation and Assignment of Traffic to Urban Roads
SCC	-	Staffordshire County Council
SRN	-	Strategic Road Network
SRFI	-	Strategic Rail Freight Interchange
SSDC	-	South Staffordshire District Council
SSVM	-	South Staffordshire VISSIM Model
SWHGVMP	-	Site Wide Heavy Goods Vehicle Management Plan
SWTP	-	Site Wide Travel Plan
SWTPC	-	Site Wide Travel Plan Coordinator
TSG	-	Transport Steering Group
UAP	-	Urban All-Purpose Road
VISSIM	-	Verkehr In Städten – SIMulationsmodell
		(Traffic micro-simulation modelling program)
WCML	-	West Coast Main Line
WMI	-	West Midlands Interchange

EXECUTIVE SUMMARY

This Transport Assessment (TA) has been prepared on behalf of Four Ashes Limited in support of the Development Consent Order (DCO) for the development of a new Strategic Rail Freight Interchange (SRFI) at land located at Four Ashes, Staffordshire (the Site). The Site is located south west of the M6 Junction 12 and is bordered by the A5 to the north of the Site and the A449 to the west of the Site.

The Proposed Development comprises:

- An intermodal freight terminal with direct connections to the West Coast Main Line, capable of accommodating up to 10 trains per day and trains of up to 775m long, including container storage, Heavy Goods Vehicle ('HGV') parking, rail control building and staff facilities;
- Up to 743,200 square metres (gross internal area) of rail served warehousing and ancillary service buildings;
- New road infrastructure and works to the existing road infrastructure;
- Demolition and alterations to existing structures and earthworks to create development plots and landscape zones;
- Reconfiguring and burying of electricity pylons and cables; and
- Strategic landscaping and open space, including alterations to public rights of way and the creation of new ecological enhancement areas and publicly accessible open areas.

The SRFI will operate 24 hours a day 7 days a week. Vehicle movements to the Site will be a mixture of HGVs, light goods vehicles, employee vehicles and visitors.

This TA has considered the relevant national, regional and local transport policies relevant to the Proposed Development in the production of this report.

The Proposed Development trip generation has been derived using trip rates based on surveys at Daventry International Rail Freight Terminal (DIRFT), a similar facility near M1 Junction 18. This methodology and the results have been agreed with the highway authorities along with the Proposed Development trip distribution for both employees and heavy goods vehicles, as provided by Technical Note 5.

There are a number of highway works proposed to serve the scheme and provide improvements for existing road users, the principle of which have been agreed with the highway authorities. These aspects of the strategy will ensure that appropriate access is provided for WMI traffic, ensure that the proposed development does not have an adverse impact upon the existing transport network and provide improvements for some existing road users.

In order to facilitate highway access to WMI, it is proposed to;

- construct a new roundabout on the A5;
- construct a new roundabout on the A449;
- construct a new adopted road connecting the A5 and A449 between these two new junctions (known as the A449/A5 Link Road); and
- construct a new roundabout on Vicarage Road.

There will be a number of other improvements to the local highway network and these are:

- alterations to the junction layout at the A449 / Station Drive junction with a banned right turn to reduce inappropriate through traffic;
- alterations to the layout of Crateford Lane to make it one-way in a west to east direction to reduce inappropriate through traffic; and
- the construction of an HGV turning area on Station Drive, to the west of the low WCML bridge.

To promote sustainable travel principles, a Site Wide Travel Plan and Sustainable Transport Strategy have been developed and are appended to the TA. Measures in these documents include suggested new and expanded bus services, new and improved footway / cycle ways on roads surrounding the Site and initiatives to reduce single occupancy car travel such as personalised travel planning, dedicated travel website and a car sharing portal.

A Site Wide HGV Management Plan and Demolition and Construction Traffic Management Plan have been produced in order to reduce the impact of HGV's upon the local highway network and in order to manage HGV's on site for operational reasons. This will include the banning of WMI HGV's through Penkridge (apart from those vehicles with specific business in the town), which will be enforced by a monitoring regime.

Future traffic forecasts have been derived from Highways England transport models, namely the M54 / M6 link Road SATURN Model (M54/M6SM) and the South Staffordshire VISSIM Model (SSVM). The M54/M6SM covers a large area extending from Stafford in the north to Birmingham in the south. The SSVM covers a smaller area in more detail, extending from north of the M6 Junction 12 to south of the M54. The M54/M6SM has been used to provide the growth assumptions for the SSVM together with the distribution of traffic to the wider highway network whilst the assessment of the development impact is based on the outputs of the SSVM, as agreed with the highway authorities.

Journey times, traffic flows and queue lengths have all been extracted from the SSVM in order to review the performance of the highway network with the Proposed Development. This data has demonstrated that, with the addition of the proposed highway mitigation measures, there would be no material impact upon traffic conditions on the highway network surrounding the Site. In particular, the A449/A5 Link Road will provide an alternative route for both existing road users and WMI traffic which will allow them to bypass the Gailey Roundabout. It will be available for use by public traffic at all times and would be a signed route between M6 Junction 12 and the A449. This choice of route means that in the future there will be added resilience to this area, whereby vehicles can vary their route as necessary.

Overall this TA demonstrates that, with the introduction of specific and tailored highway improvements, the highway network can accommodate the additional traffic associated with the Proposed Development. Any impact will be further reduced by the implementation of the robust Site Wide Travel Plan.

1. INTRODUCTION

1.1. Preamble

1.1.1. WSP has been appointed by Four Ashes Limited (FAL) to provide transport advice and prepare a Transport Assessment (TA) to be submitted with the Development Consent Order (DCO) application for a Strategic Rail Freight Interchange (SRFI) known as the West Midlands Interchange (WMI) in South Staffordshire.

1.1.2. The Site is located approximately 10km north of Wolverhampton and lies immediately west of Junction 12 of the M6. The West Coast Main Line (WCML) railway runs through the Site. The Site has a strategically significant location on both the national road and rail networks.

1.1.3. The Site is within the administrative boundary of South Staffordshire District Council (SSDC) and the local highway authority is Staffordshire County Council (SCC). The application Site is bordered by the M6, A5 and A449 which are part of the strategic road network and under the jurisdiction of Highways England (HE) and Vicarage Road which is a SCC road.

1.1.4. The WMI would be linked directly to the WCML, one of the country's principal freight routes, and will be well placed to serve the West Midlands region.

1.1.5. WMI will include a multi-modal rail freight interchange and distribution centre linked to both the rail and road network. The intermodal terminal will provide the interchange between road and rail for freight and goods and will be accessible to all businesses. Such facilities serve both local and national market places and, as a consequence, there is a need for these facilities to be located in proximity to the trunk road and motorway network for onward distribution of goods.

1.1.6. WMI will provide for up to 743,200 square metres (sqm) of new rail-served warehousing.

1.1.7. The National Policy Statement for National Networks (NPS) provides the primary policy basis for the consideration of SRFI.

1.1.8. WMI falls within the definition of a Nationally Significant Infrastructure Project (NSIP) as defined within the NPS. Therefore, the applicant intends to make an application to the Secretary of State (SoS) via the Planning Inspectorate (PINS) for a DCO under the Planning Act 2008 ('the Act')

1.2. Background

1.2.1. This TA considers transport issues and strategy in relation to the Proposed Development and is included as an appendix to the Environmental Statement prepared as part of the DCO submission.

1.2.2. This TA has been produced in accordance with the Planning Practice Guidance (PPG) (DCLG March 2014) entitled 'Overarching Principle on Travel Plans, Transport Assessments and Statements' which sets out the parameters for such reports.

1.2.3. This report has been produced to assess the Proposed Development in terms of transport impact, accessibility and policy compliance.

1.2.4. The Transport Assessment is part of a suite of documents which address the transport impacts of the Proposed Development and identify where mitigation measures are required. The suite of documents are headed up by the Transport Chapter of the ES. The following figure shows the relationship between the Transport Chapter of the ES, the Transport Assessment and the suite of transport management plans and strategies.

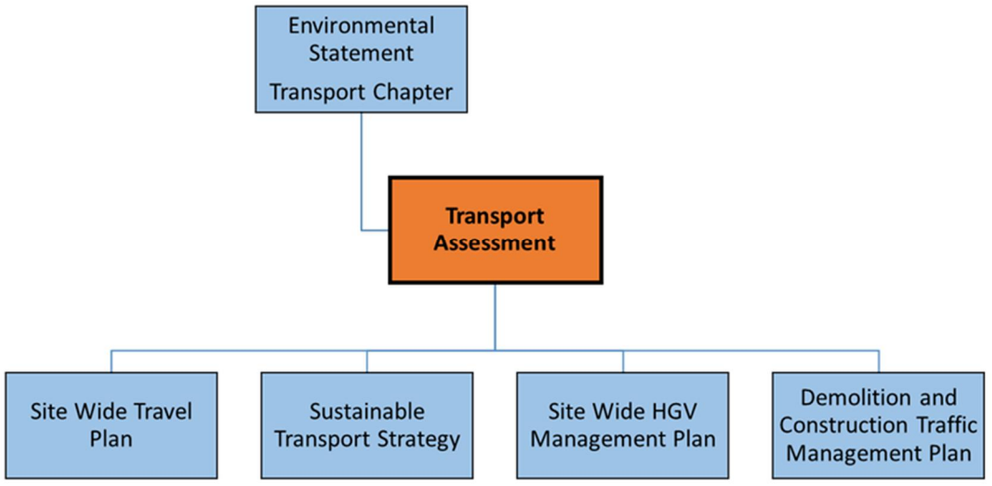


Diagram 1.1 - Transport Document Hierarchy

1.2.5. The Transport Chapter of the ES addresses the environmental impacts associated with changes in traffic flow as a result of the Proposed Development. The Transport Assessment (TA) is included as an Appendix to this.

1.2.6. The TA is supported by additional transport documents. These include the Site Wide Travel Plan (SWTP), the Demolition and Construction Traffic Management Plan (DCTMP) and the Site Wide HGV Management Plan. The implementation of these three documents will be secured through the DCO Requirements.

1.2.7. The SWTP describes the various measures that would be implemented in order to maximise the use of non-car modes of transport for travel to/from the Proposed Development. In addition, there are proposals to improve walking and cycling infrastructure in the local area, to encourage further use of non-car modes of transport. The overall management and implementation of the SWTP will be the responsibility of the Site Wide Travel Plan Coordinator under the employment of FAL. The SWTP will be used as an overarching document within which individual occupiers will produce their own Occupier Travel Plans (OTP). OTPs will be required to be in place prior to occupation of the rail terminal and new warehouse units on site.

1.2.8. The Sustainable Transport Strategy is also included as an appendix to the Transport Assessment. This sets out the strategy to improve the bus, walking and cycling infrastructure. Monetary contributions towards key elements of the Sustainable Transport Strategy, including buses, will be secured through the Section 106 Agreement and improvements to walking and cycling infrastructure are secured by DCO requirements.

1.2.9. The Site Wide HGV Management Plan sets out the key requirements and management guidance for individual occupiers to follow and implement. It governs all HGV movements to and from the warehouses and rail terminal Individual Occupiers will be expected to produce Occupier HGV Management Plans (OHGVMP's) prior to occupation of the rail terminal and new warehouse units on site). Where operators choose not to produce their own OHGVMP's, they will be governed by the SWHGVMP.

1.2.10. Finally, the DCTMP provides details on the requirements for the management of transport impacts associated with the construction phases of the Proposed Development.

1.2.11. Once the principal contractor has been appointed there will be opportunity for them to review and adjust the DCTMP in agreement with the local authorities.

1.2.12. This Assessment does not include any detailed analysis of the rail network and use for rail freight. For further details please refer to the Rail Operations Report [Document 7.3].

1.3. Stakeholder Consultation

1.3.1. A meeting was held in April 2016 between WSP, Highways England (HE) and Staffordshire County Council (SCC) to discuss transport matters in relation to WMI. Subsequently a TA Scoping Note was prepared in June 2016 and agreed by all parties. This is included in Appendix A**.**

1.3.2. Throughout the process leading to DCO submission, dialogue has been undertaken and maintained with the following authorities in order to discuss transport matters:

- Highways England;

- Staffordshire County Council;
- South Staffordshire District Council; and
- Wolverhampton City Council.

1.3.3. Copies of the minutes of the meetings held with these stakeholders between April 2016 and February 2018 are provided at Appendix B. This ongoing dialogue with Stakeholders has allowed much of the details relating to the transport strategy and implications of the Proposed Development to be agreed.

1.3.4. Provided below are details of the relevant areas of agreement that have been reached. Where appropriate, reference is made to specific documents that have been agreed.

1.3.5. Details of the proposed HGV and Non HGV trip generation (WSP Technical Note 5) and Trip Distribution (WSP Technical Note 14) have been agreed with Highways England and Staffordshire County Council.

1.3.6. An assessment for full occupation in 2036 was also requested by HE but it would need to include the proposed M54/M6/M6 Toll Link Road scheme, as it is anticipated that the M54/M6/M6 Toll Link Road will be provided by 2024. Due to delays in the M54/M6/M6 Toll Link Road programme, the details of this scheme were not available during the pre-application stage of the WMI DCO application. In these circumstances it was agreed that a fully modelled 2036 scenario was not possible and could not be undertaken. However, a 15 year assessment for the construction of new junctions on the trunk road network was agreed as appropriate with HE and these have been undertaken on the basis of applying DfT Tempro forecasts to the 2021 flows and undertaking local junction assessments.

1.3.7. It has been agreed with both HE and SCC that the proposed access strategy to serve the Site is acceptable.

1.3.8. During these stages FAL and HE have liaised on the necessary amendments to the HE models and agreement has been reached on the 2021 results as presented in the Systra Technical Notes dated 2 October 2017 and 10 October 2017.

1.3.8.1. Committed developments in 2021 have been accounted for by consultations with SCC, South Staffordshire District Council, Cannock Chase District Council and other relevant local authorities, cross checking sites already in the relevant transport models and amending as necessary. The emails dated 8 and 23 November 2016 confirmed the necessary committed developments to be included in the transport models.

1.3.9. It has been agreed with HE and SCC that the outcomes of the modelling of the highway network serving the site present an acceptable position.

1.3.10. For 2036 the methodology for assessing the two trunk road access junctions has been accepted by HE. It has been agreed with HE that the outcome of the 2036 assessments are acceptable and the proposed new junctions on the trunk road network serving the Site would operate satisfactorily at this future year.

1.3.11. The highway General Arrangement drawings [Document 2.9] showing the proposed highway works have been agreed with HE and SCC, subject to completion of Stage 1 Road Safety Audits and a Designers Response.

1.3.12. Where appropriate, reference is made within this TA where areas of agreement have been reached with the highway authorities.

1.4. Report Structure

1.4.1. The remainder of the TA is presented in the following sections:

- Section 2 provides an overview of national and local policy;
- Section 3 details existing conditions and accessibility;
- Section 4 sets out details of the Proposed Development and access strategy;
- Section 5 sets out the proposed transport strategy that will serve the Proposed Development proposals;

- Section 6 sets out the trip characteristics for the development, including trip generation, modal split and distribution onto the local highway network;

- Section 7 provides details of the forecast construction traffic;

- Section 8 outlines the traffic modelling process and provides background to the models used to assess the impact of the development;

- Section 9 provides a summary of the traffic model impact analysis and justifies the mitigation strategy proposed; and

- Section 10 summarises and concludes this Transport Assessment.

2. PLANNING POLICY REVIEW

2.1. Preamble

2.1.1. This section sets out an overview of the national, regional and local transport policy to provide context for the assessment of the development proposals.

2.2. National Planning

National Policy Statement for National Networks (December 2014)

2.2.1. The document sets out the need for, and Government policies to deliver, development of NSIPs on the national road and rail networks in England.

2.2.2. Section two of the document sets out the Government's 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.'*

2.2.3. Paragraph 2.29 summarises the 'must haves' for railway developments and summarises the requirement to 'provide for the transport of freight across the country, and to and from ports, in order to help meet environmental goals and improve quality of life.'

2.2.4. The NPS sets out the need for the development of SRFI in paragraphs 2.42 to 2.45 of the NPS. The NPS highlights that SRFI's can be a key element in reducing the cost to users of moving freight by rail and are important in facilitating the transfer of freight from road to rail.

2.2.5. Paragraph 2.54 outlines the need for a network of SRFIs across the regions, to serve regional, sub-regional and cross regional markets to facilitate modal shift. Furthermore paragraph 2.54 states '*In all cases it is essential that these have good connectivity with both the road and rail networks."*

2.2.6. Paragraph 2.56 states that the Government has concluded that there is a compelling need for an expanded network of SRFI's. It is important that SRFI's are located near the business markets they will serve major urban centres, or groups of centres – and are linked to key supply chain routes.

2.2.7. Paragraph 3.17 stresses the importance of accommodating pedestrians and cyclists; noting "*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."*

2.2.8. Section 5 of the NPSNN discusses the impacts on transport networks, specifically it notes for SRFI developments at paragraph 5.207 that '*it should include a Transport Assessment, using the WebTAG methodology stipulated in Department for Transport guidance, or successor to such methodology. If a development is subject to EIA and is likely to have significant environmental impacts arising from impacts on transport networks, the applicant's environmental statement should describe those impacts……. the applicant should prepare a travel plan including management measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by public transport and sustainable modes where relevant, in order to reduce the need for any parking associated with the proposal and to mitigate transport impacts*."

2.2.9. Section 8 of this report provides more detail of the approach to traffic modelling undertaken in order to assess the implications of the Proposed Development.

National Planning Policy Framework, DCLG, March 2012

2.2.10. The National Planning Policy Framework (NPPF) was published in March 2012 and replaced all PPGs and PPSs relating to Transport.

2.2.11. The NPPF introduces a presumption in favour of sustainable development, summarised in paragraph 14 of the document as follows "*At the heart of the National Planning Policy Framework is a presumption in favour of sustainable*

development, which should be seen as a golden thread running through both plan-making and decision-taking."

2.2.12. The objectives in relation to transport policy are:

- *"facilitating sustainable development but also in contributing to wider sustainability and health objectives" (Paragraph 29);*
- *Support reductions in greenhouse gas emissions and reduce congestion. In preparing Local Plans, local planning authorities should therefore support a pattern of development which, where reasonable to do so, facilitates the use of sustainable modes of transport" (Paragraph 30); and*
- *Develop strategies for the provision of viable infrastructure necessary to support sustainable development"* (Paragraph 31).

2.2.13. The framework provides guidance on the key transport issues which should be considered through the planning process for developments that generate significant amounts of movements. It states that plans and decisions should consider:

- *"That opportunities for sustainable transport modes have been taken up depending on the nature and location of the Site, to reduce the need for major transport infrastructure, and that safe and suitable access to the Site can be achieved for all people; and*
- *Paragraph 32 states that "improvements can be undertaken within the transport network that costs effectively limit the significant impacts of the development. Development should not be prevented or refused on transport grounds where the residual impacts of development are severe (Paragraph 32)."*

2.2.14. Paragraph 36 discusses that a travel plan would be a key tool to facilitate a shift in sustainable travel modes to the Site; and that "*All developments which generate significant amounts of movement should be required to provide a Travel Plan.*"

DFT Circular 02/2013, The Strategic Road Network and the Delivery of Sustainable Development

2.2.15. This document provides details of how HE will engage with communities and the development industry to deliver sustainable development and, thus, economic growth, whilst safeguarding the primary function and purpose of the strategic road network.

2.2.16. The document reflects the Policy stance of the NPPF of a presumption in favour of development where at paragraph 9 it states:- "*Development proposals are likely to be accepted if they can be accommodated within the existing capacity of a section (link or junction) of the strategic road network, or they do not increase demand for use of a section that is already operating at over-capacity levels, taking account of any travel plan, traffic management and/or capacity enhancement measures that may be agreed. However, development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe".*

2.2.17. Paragraph 48 goes on to state that any Transport Assessment undertaken by the promoter of the development should be comprehensive enough to establish the likely environmental impacts, including air quality, light pollution and noise, and to identify the measures to mitigate these impacts.

Creating Growth, Cutting Carbon: Making Sustainable Transport Happen (DFT, 2011)

2.2.18. Creating Growth, Cutting Carbon is the DfT White Paper published in January 2011, which sets out plans for transport to become an engine to economic growth through careful investment in sustainable transport. Its key aim is to:

> *"Encourage sustainable local travel and economic growth by, making public transport, cycling and walking more attractive and effective, promoting lower carbon transport and tackling local road congestion."*

2.2.19. The document aims to encourage more sustainable transport choices through returning decision making to the local level where they know what works. It realises that for some journeys the car is the only viable mode and therefore, low emission vehicles are important in addressing that demand, together with car sharing and car-pooling opportunities.

The Logistics Growth Review – Connecting People with Goods, DFT Circular, November 2011

2.2.20. The document outlines five core areas in which Government can play a significant part in increasing productivity of the UK industry and strengthening its role in the UK economy:

- Giving industry greater confidence to invest;
- Improving the longer term capacity, performing and resilience of our congestion road and rail networks;
- Promoting the image of the sector at local level;
- Reduce unnecessary regulation; and
- Attracting and retaining high calibre recruits.

2.3. Regional Policy - Transport

Movement for Growth: The West Midlands Strategic Transport Plan, December 2015

2.3.1. Section 3.1 of the document sets out the vision for transport:

> *'We will make great progress for a Midlands economic 'Engine for Growth', clean air, improved heath and quality of life for the people of the West Midlands. We will do this by creating a transport system befitting a sustainable, attractive conurbation in the world's sixth largest economy.'*

2.3.2. The document sets out aims to improve transport connectivity and reduce the environmental impact on the environment including reducing carbon emissions and improving air quality, through making better use of the transport capacity and providing new capacity for road and rail freight. Three key policies include:

- *Policy 1: To use existing transport capacity more effectively to provide greater reliability and average speed for the movement of people and goods*
- *Policy 3: To improve connections to new economic development locations to help them flourish and*
- *Policy 5: To accommodate increased travel demand by existing transport capacity and new sustainable transport capacity.*

2.4. Regional Policy – Economic Growth

West Midlands Metropolitan Freight Strategy 2030, Supporting our Economy: Tackling Carbon (April 2013)

2.4.1. This document aspires to deliver investment in freight to meet the following vision '"*By 2030, the Metropolitan Area will have safer, more reliable and efficient freight and logistics movements to, from and within the West Midlands, which support sustainable economic growth by enhancing our trade links, boosts productivity, addresses carbon emissions and attracts investment into the Metropolitan Area*."

2.4.2. To meet this target a number of key objectives have been set out which include supporting sustainable economic growth (Key Objective 1) *"by improving productivity and competitiveness through reduced costs for businesses and freight operators; enhancing market access and; attracting new companies and industrial sectors to relocate here, creating new jobs and economic growth".* In addition Key Objective 2 – carbon emissions should be reduced "*through shorter, more reliable journeys whilst also promoting and encouraging greater use of low carbon modes of freight."*

2.4.3. Support for the SRFI is promoted within this document and paragraph 9.25 states '*Without SRFI, businesses are forced to make longer distance deliveries to their stores from other distribution centres. This leads to cost, congestion, carbon and air quality impacts"*

2.5. Black Country and Southern Staffordshire Regional Logistics Site Study (URS, 2013)

2.5.1. In June 2012, a number of local authorities in the Black Country and Staffordshire commissioned URS Infrastructure and Environment UK Ltd to consider the need for regional logistics provision, or a Regional Logistics Site (RLS), to serve the Black Country and southern Staffordshire and, based on the findings, make recommendations for a suitable location.

2.5.2. The study identifies that the Midlands continues to remain one of the most strategic and efficient locations in the country for major distribution occupiers and developers remain active, although they are frustrated by the lack of suitable land supply and the time to secure planning consent.

2.5.3. The study identifies that, broadly speaking, the transport impacts of an RLS can be divided into two:

- Wider area impacts due to the modal shift of goods being transported from the major ports to the West Midlands by rail; and
- Localised impacts between the RLS and the Strategic Route Network (SRN) and other main routes for onward delivery.

2.6. Local Policy

Staffordshire Local Transport Plan, Staffordshire County Council, 2011

2.6.1. This document sets out how economic growth and regeneration in the area will be promoted through ensuring efficiency of transport networks in contributing to the attractiveness and vibrancy of towns and villages and supporting schemes that "add value" to the transport network particularly those that promote its "place" route.

2.6.2. Policy 1.8 states "*We will improve the efficiency of Freight Distribution and sets out that this will be achieved through the actions set out in the Staffordshire Freight Strategy*."

2.6.3 Policy 5.1 includes "*Supporting new development that includes or is located in areas with good public transport links, well-connected to walking and cycling networks and facilities, and where the demand for 'place' and 'movement' is considered together."* In addition, SCC will work "*with local planning authorities and developers to mitigate impacts of development in less sustainable locations but which is essential to support regeneration and economic growth."*

Site Allocations Document (September 2017)

2.6.4 The SSDC Site Allocations Plan was submitted to the Secretary of State in September 2017 for examination. It is anticipated that the SSDC SAD will be adopted in Q2 of 2018.

2.7. Policy Summary

2.7.1. As a key national infrastructure project there are a number of policy documents which set out the need for an SRFI.

2.7.2. In the national interests, the sustainable principles of the Site to remove freight transport from road to rail underpin the development, which will improve the resilience of the road and rail network for future years.

2.7.3. WMI will provide key economic growth for the area and employees at the Site will be encouraged to travel to the Site through the sustainable travel principles underpinned in national policies, which will be used to form the basis for undertaking this Transport Assessment.

2.7.4. This TA demonstrates that the Development will be in full accordance with the relevant policy frameworks at a national and local level.

3. SITE LOCATION AND EXISTING CONDITIONS

3.1. Preamble

3.1.1. This section outlines the existing transport conditions in the vicinity of the Site, including the strategic and local highway network as well as opportunities for walking, cycling, and public transport, which will facilitate sustainable access to the Site.

3.2. Site Location & Existing Use

3.2.1. WMI is strategically located at an intersection of the Strategic Rail Network (the West Coast Main Line, Western Branch) and the Strategic Road Network (M6, A5 and A449). These connections ensure the Site is ideally located for a national distribution by road and rail. The WMI Site is approximately 300 hectares in size. A detailed description of the Site is provided within the Planning Statement prepared by Quod [Document 7.1A].

3.2.2. The Site is bounded by the A5 trunk road to the north (from Junction 12 to the Gailey Roundabout); Calf Heath reservoir, the M6, Stable Lane and Woodlands Lane to the east; Station Drive, Vicarage Road and Straight Mile to the south; and the A449 trunk road (Stafford Road), from the Gailey Roundabout to Station Drive to the west. The south-eastern area of the Site is also bisected by Vicarage Road. These trunk roads provide connections with the M6 Toll, the M54 and other major trunk roads.

3.2.3. The Site is currently used as arable farmland. In addition to the farmland a large section of the north eastern part of the Site, known as Calf Heath Quarry is used for sand and gravel mineral extraction.

3.2.4. The location of the Site in relation to the highway network is shown in Figure 1.

3.3. Highway Network

M6 Motorway

3.3.1. M6 Junction 12 is located to the east of the Site and is a large conventional grade separated roundabout with four approach arms and no traffic signals. The M6 provides a strategic route which connects both the north and south of England.

3.3.2. To the north, the M6 provides a strategic route towards Stafford and onto Stoke-on-Trent and Newcastle-under-Lyme before reaching the M56 at Junction 20 and the M62 at Junction 21A, which provides an east west route towards Liverpool and Manchester and onto Leeds. Progressing north the M6 passes Preston, Lancaster, Kendal and onto Carlisle. To the south the M6 provides links with Walsall at M6 junction 10 and Birmingham via the A38 (M) enabling a direct route into Birmingham city centre. The M6 also provides a connection to Coventry at Junction 3 before merging with the A4 and M1 at Junction 19.

M6 Toll Motorway

3.3.3. The M6 Toll is situated approximately 3.2km south of M6 Junction 12 and provides a 27 mile route towards M6 Junction 3a to the east of Birmingham. The toll road provides an alternative route through the Midlands which bypasses areas of the M6 which pass though Birmingham and Walsall. The M6 Toll follows a route to the east of Birmingham, Walsall, Sutton Coldfield and Wolverhampton while passing the south of Cannock where it merges with the M6 to the east of the WMI Site at Junction 11a. The M6 Toll provides a strategic route to the East Midlands Airport (via M42/A42) which is located 47 miles to the east of the Site and also to Birmingham International Airport (via M42) which is 31 miles to the south east of WMI.

A5

3.3.4. The A5 runs on an east to west alignment along the northern border of the Site and forms part of the Strategic Road Network (SRN) from London, England and North Wales with Highways England (HE) as the relevant highway authority. The section of A5 to the north of the Site consists of a single carriageway road with a carriageway width of approximately 10m and is subject to a 50mph speed limit enforced by cameras.

3.3.5. The section of A5 bordering the north of the Site has a number of residential dwellings and other properties with direct frontage access distributed on both the northern and southern sides of the carriageway. Access is also provided to the Calf Heath Quarry and Avenue Cottages via a left in / left out junction.

3.3.6. To the west of the Site the A5 facilitates routes towards the A449 via a priority controlled roundabout junction known locally as the Gailey Roundabout while continuing west towards the A41 and Telford. Gailey Roundabout has development on three corners with individual accesses near the junction itself.

3.3.7. To the east of the Site the A5 provides a connection to M6 Junction 12. Continuing east, the A5 passes Four Cross where the Truckers Rest Café is located and progresses into Cannock. At this point the A5 provides further connection to the M6 Toll and continues east towards Tamworth and onto Northampton.

A449 (Stafford Road)

3.3.8. The A449 Stafford Road is a dual carriageway bordering the west of the Site which runs in a north south alignment from Stafford to Wolverhampton and is subject to a speed limit of 60mph. At grade junctions are formed with A449 Stafford Road which are a combination of priority controlled, roundabouts and traffic signals with some direct accesses to properties. A449 Stafford Road has a carriageway width of approximately 7.3m on each side of the trunk road.

3.3.9. Approximately 1.1km south of Gailey Roundabout the A449 Stafford Road forms a recently constructed traffic signal controlled crossroad junction with Gravelly Way forming the eastern arm towards the Site and Crateford Lane to the west. Progressing approximately 1.2km south from the junction with Gravelly Way, the A449 Stafford Road forms a traffic signal controlled crossroad junction with Station Drive / Four Ashes Road. The A449 Stafford Road then passes though area of Standeford and onto Coven which is accessible via a priority controlled roundabout with Brewood Road.

3.3.10. To the south of the Site, the A449 Stafford Road provides a link to Junction 2 of the M54 approximately 6km south of Gailey Roundabout. At the M54 Junction 2 there is a large signal controlled grade separated roundabout which has recently been upgraded as part of the i54 Development. At its southern end the A449 provides a direct route to the centre of Wolverhampton and a connection to the A4150 Ring Road.

Station Drive/Vicarage Road

3.3.11. To the south of the Site, Station Drive runs eastbound from the A449 through Four Ashes before continuing as Vicarage Road over the M6 and forming a traffic signal junction with the A5 to the east of the M6 Junction 12. Station Drive is a single carriageway which is subject to a 30mph speed limit through Four Ashes but then is subject to the national speed limit of 60mph. As the road approaches Four Ashes it passes under the West Coast Main Line (WCML). This bridge has restricted headroom of 3.7 metres which precludes its use by most HGVs. Station Drive provides access to the Four Ashes Industrial Area and a small number of residential properties.

3.3.12. Vicarage Road is a rural single carriageway road situated to the south of the Site with a north east to south west orientation and is subject to the national speed limit of 60mph. At its north eastern end, Vicarage Road provides a connection to the A5 via a traffic signal controlled junction. Approximately 2km south of the A5 Vicarage Road becomes Station Road and continues through Four Ashes onwards to A449 Stafford Road. Vicarage Road serves several rural roads including Stable Lane and Straight Mile via priority T-junctions and has a typical carriageway width of 6.8m.

3.4. Pedestrian and Cycle Network

3.4.1. The Site is located immediately north of Four Ashes, with the residential areas of Standeford and Calf Heath all located within 2km of the Site to the south. Furthermore the residential areas of Penkridge to the north, Featherstone and Coven to the South and Brewood to the west are located within 5km of the Site. The location of the existing pedestrian and cycle network is shown in Figure 2.

A449 (Stafford Road)

3.4.2. The A449 Stafford Road bordering the west of the Site provides a footway network north towards Penkridge and south towards Wolverhampton. Shared use cycle/footways are present on both the east and west sides of the carriageway. The route towards Wolverhampton provides signalised pedestrian crossing points at the junction with Station Drive together with the M54 Junction 2 grade separated junction. North of Gailey Roundabout the

A449 provides footways on the eastern side of the carriageway towards Penkridge. This northbound route provides a continuous footway from the Site to Penkridge Railway Station.

3.4.3. During the first six months of 2017, HE undertook resurfacing, drainage repairs and barrier installation works on the A449 Stafford Road, from A5 Gailey Roundabout to the Brewood roundabout.

3.4.4. This has included kerb realignments and edging along with new tactile paving and increased separation of vehicular traffic from the cycleway/footway to enhance pedestrian and cycle provision. In addition, accessibility improvements to the bus stops on the A449 have been provided.

3.4.5. Finally, signal controlled crossings have been provided on the Gravelly Way and Stafford Road (north) arms of the A449/Gravelly Way junction. These have been introduced as part of the works to convert the junction to traffic signal control.

A5

3.4.6. The A5 forms the northern boundary of the Site. A footway is located on the northern side of the A5 carriageway between M6 Junction 12 and the Gailey roundabout. This footway continues on the western arm of Gailey Roundabout for a distance of approximately 100 metres. Uncontrolled crossing points with dropped kerbs are provided across the northern and southern arms of the Gailey roundabout. Footways continue to the east extending for a distance of approximately 165m. Further to the east, there is a short section of footway to the south of the A5 between Gailey Marina and Croft Lane.

3.4.7. Footways along the A449 and the A5 which border the Site provide connectivity with the surrounding network. Extensive footways are also provided within Four Ashes, including Station Road, providing further connection to the A449.

Public Rights of Way

3.4.8. There is an existing public right of way (PRoW), through the Site. This goes from the A449 approximately 400 metres south of the Gailey Roundabout and terminates to the south west of Croft Farm.

3.4.9. In addition, the Staffordshire and Worcestershire Canal passes through the Site offering a recreational tow path. Connections to the canal are possible via Gailey Marina and Gravelly Way in the vicinity of Gravelly Farm, and Vicarage Road to the south of the Site. At present, the existing towpath primarily consists of grass walking paths.

Existing Traffic Regulation Orders

3.4.10. Traffic Regulation Orders, in the vicinity of the Site are held by Staffordshire County Council. These set out roads which have prohibitions of certain vehicle types.

3.4.11. A signed prohibition of 7.5 tonne (except for access) restriction applies on Four Crosses Lane/Oak Lane/Woodlands Lane/Stable Lane and Straight Mile.

3.4.12. Under the railway bridge on Station Drive, a height restriction prohibition is present (3.7m 12'3") this is signed accordingly for vehicles on the A449 to ensure no HGVs turn into Station Drive. These existing restrictions are shown in Figure 3.

3.4.13. An urban clearway restriction is present for the duration of the A449 between the M54 Junction 2 and the A5 Gailey Roundabout, and on the A5, between the Gailey Roundabout and Four Crosses to the east. In the vicinity of the Site, the urban clearway restriction is indicated to drivers by the presence of repeater signs.

3.4.14. The A5 between the Gailey Roundabout and M6 Junction 12 is subject to a 50mph speed limit, and the A449 is subject to a 60mph speed limit.

3.5. Public Transport Network

3.5.1. The existing public transport network in the vicinity of the Site is shown in Figure 4.

Bus Services

3.5.2. There are several sets of bus stops within close proximity of the Site. To the west, northbound and southbound bus stops are situated on A449 Stafford Road at the A449 Stafford Road / Gravelly Way / Crateford Lane junction.

3.5.3. There are an additional set of stops located at the Gailey Roundabout to the northwest of the Site, with the northbound stop situated on the northern A449 arm of the junction and the southbound stop located on the southern arm.

3.5.4. To the southwest of the Site there is a set of stops located on A449 Stafford Road / Station Drive / Four Ashes Road junction.

3.5.5. Table 1 sets out the frequency of the bus service serving the A449.

Table1: Bus Service available from the A449 Stops in the Vicinity of Gravelly Way

FREQUENCY (MINUTES)						
SERVICE	ROUTE	WEEKDAY	SAT	SUN	EARLIEST ARRIVAL (TO WMI)	LATEST DEPARTURE (FROM WMI)
54/54A	Stafford – Penkridge – i54 – Wolverhampton	60	60	-	0559 (Mon-Fri) 0806 (Sat)	1934 (Mon-Sat)

Source: Traveline West Midlands –June 2018

3.5.6. The routes available from the local stops provide a north-south link from Stafford to Wolverhampton passing the western boundary of the Site. Service 54/54A provides a direct route north from the Site to Stafford Town Centre, stopping directly outside Stafford Railway Station. The services operating to the north of the Site pass through the residential area of Penkridge before continuing through the southern part of Stafford towards the town centre. The journey time from Stafford Railway Station to the site on Service 54/54A is approximately 28 minutes

3.5.7. To the south, the 54/54A service routes towards Wolverhampton city centre via the A449 Stafford Road. This route provides a direct service to Wolverhampton's bus and coach station, situated within close proximity to Wolverhampton's railway station. The route offers a journey time of approximately 29 minutes from the Site to Wolverhampton city centre.

3.5.8. Both Wolverhampton and Stafford bus stations provide further onward travel to a large number of destinations and wider areas including residential areas.

Passenger Rail Services

3.5.9. Penkridge railway station is the closest railway station to the Site, and is located on the WCML, which provides connections between Liverpool Lime Street and Birmingham New Street.

3.5.10. The rail station is located approximately 5km from the centre of the Site. The rail station can be accessed from the Site by continuous footway provision along the A5 and A449.

3.5.11. Penkridge railway station provides 10 parking spaces for bicycles which are overlooked by CCTV. Table 2 sets out a summary of National Rail services serving Penkridge railway station.

Table 2: Summary of National Rail Services to and from Penkridge Railway Station

DESTINATION	APPROX JOURNEY TIME	FREQUENCY	EARLIEST ARRIVAL TO/LATEST DEPARTURE FROM PENKRIDGE
Birmingham New Street (including stops at Wolverhampton and Coseley)	32mins	2 per hour	0630 / 2246
Liverpool Lime Street (including stops at Stafford and Crewe)	67mins	2 per hour during peak 1 per hour off peak	0630/ 2204

Source: National Rail, May 2018

3.5.12. In addition to Penkridge railway station; mainline railway stations are located at Cannock and Wolverhampton which are located at 7km and 10km respectively away from the Site. Wolverhampton has the highest level of service provision from local stations with a maximum of nine services per hour operating between Wolverhampton and Birmingham New Street and is located on the WCML, which provides connections with a number of key cities across the UK, while Cannock is served by trains between Birmingham New Street to the south and Rugeley Trent Valley to the north. These services operate at a frequency of two trains per hour in each direction during the peak periods,

which reduces to one train per hour in each direction during off peak periods. These stations provide an opportunity for workers at WMI to be able to travel to the Site as part of a multi modal journey.

3.5.13. Rail services from Cannock and Wolverhampton are shown in Tables 3 and 4 below.

Table3: Summary of National Rail Services to and from Cannock Railway Station

DESTINATION	APPROX. JOURNEY TIME	FREQUENCY	EARLIEST ARRIVAL TO/LATEST DEPARTURE FROM CANNOCK
Birmingham New Street (including stops at Landywood, Bloxwich North, Bloxwich, Walsall)	41 mins	2 per hour	0641 / 2256
Rugeley Trent Valley (including stops at Hednesford and Rugeley Town)	17 mins	2 per hour	0609 / 2256

Source: National Rail, May 2018

Table 4: Summary of National Rail Services to and from Wolverhampton Railway Station

DESTINATION	APPROX. JOURNEY TIME	FREQUENCY	EARLIEST ARRIVAL TO/LATEST DEPARTURE FROM WOLVERHAMPTON
Birmingham New Street (including stops at Sandwell and Dudley, Tipton and Coseley)	20 mins	9 per hour	0547 / 2318
Birmingham International (including stops at Sandwell and Dudley)	36 mins	3 per hour	0653 / 2245
Walsall (including stops at Coseley, Tipton and Birmingham New Street)	54 mins	2 per hour	0705 / 2220
Shrewsbury (including stops at Wellington, Telford Central and Cosford)	38 mins	2 per hour	0558 / 2244
Stoke-on-Trent (via Stafford)	33 mins	2 per hour	0638 / 2248
Liverpool Lime Street (including stops at Penkridge, Stafford and Crewe)	82 mins	2 per hour	0758 / 2154

Source: National Rail, May 2018

3.6. Accessibility to Local Facilities

Walking & Cycling Distances

3.6.1. The Design Manual for Roads and Bridges (DMRB) Transport Advice 91/05 Provision for Non-Motorised Users states that a distance of two miles could easily be walked by the majority of people. Paragraphs 2.2 and 2.3 state the following:

- *"Walking is a means of travel in its own right, but is an essential part of many other journeys, including those by car and public transport. However, there has been a decline in both the number and distance of journeys on foot since the mid-1980s. Nearly half of all journeys are less than 2 miles, a distance that could easily be walked by the majority of people."*

- *"Walking is used to access a wide variety of destinations including educational facilities, shops, and places of work, normally within a range of up to 2 miles. Walking and rambling can also be undertaken as a leisure activity, often over longer distances."*

3.6.2. DMRB TA 91/05 also refers to cycling distances, Paragraph 2.9 states that "Nearly three quarters of all journeys are less than 5 miles (8km) in length, distances that could easily be cycled by the majority of people", and in Paragraph 2.11 that "cycling is used for accessing a variety of different destinations, including educational facilities, shops and places of work, up to a range of around 5 miles."

3.6.3. The National Travel Survey highlights that the average cycle trip is currently three miles (4.9 km). Local Transport Note 1/04 highlights the average distance travelled by Non-Motorised Users (NMUs) at that time, and suggests in paragraph 3.10.3 that "*…journeys up to three times* [the average distance] *are not uncommon for regular commuters"* accepting that *"fitness and physical ability, journey purpose…and conditions"* are relevant factors.

3.6.4. It should also be noted that this distance is an *average* distance, and consequently people are willing to regularly cycle further.

Accessible Facilities

3.6.5. Due to the employment nature and scale of WMI, it is envisaged that local food retail will be provided internally within the warehouse units by the individual occupiers.

3.6.6. Facilities located within a distance of under 2 miles walk from the Site are shown in Table 5 below.

Table 5: Local Facilities under 2 miles from Site

NAME	LOCATION	FACILITY	DISTANCE FROM CENTRE OF SITE
Gailey Wharf	A5	Café/Gift Shop/Recreation	500m
Gailey Service Station	A5	Service Station	600m
Calf Heath Reservoir	A5	Recreation	1000m
Spread Eagle	A449 Stafford Road	Public House	1500m
Standeford Farm Café	A449 Stafford Road	Truck Stop	2400m
Four Ashes Pub	Station Drive	Public House	2100m

3.6.7. Local retail facilities including post office, banking, doctors, dentists and convenience stores are located in Penkridge which is approximately 4km from the centre of the Site and Cannock 6km east of the Site. In addition, Coven, approximately 5km to the south has a local centre with local retail stores. As stated in paragraph 3.6.2 all of these areas are located within a distance that could be made by cycle from WMI.

3.7. Baseline Traffic Flows

3.7.1. Traffic surveys have been carried out during 2013 and 2015 in the area surrounding the Site. These surveys were carried out in order to validate the Highways England South Staffordshire VISSIM micro simulation traffic model against 2015 baseline conditions. The location of these surveys is shown in Figure 5 and listed in Appendix C.

3.7.2. These surveys provide baseline traffic flows around the Site, during the AM (08:00-09:00) and PM (17:00-18:00) peak hours. The use of traffic data from the South Staffordshire VISSIM Model (SSVM) as the source of traffic data for the assessment of the implications of the Proposed Development has been agreed with both Highways England and Staffordshire County Council.

3.7.3. To ensure a consistent base year, TEMPRO growth rates have been applied to the 2013 survey data, to apply a common factor in order to identify 2015 traffic flow values. The 2015 baseline link traffic flows, and HGV proportions, gathered from traffic survey data for AM and PM peak periods are shown in Appendix D and summarised in Tables 6, 7 and 8 below.

Table 6: 2015 Baseline Traffic Flows on A5 (Vehicles per Hour)

LINK	DIRECTION	AM PEAK (08:00-09:00)	AM HGV VOLUME (%)	PM PEAK (17:00-18:00)	PM HGV VOLUME (%)
A5 Watling Street (East of Vicarage Road)	Eastbound	988	85 (8.6%)	1039	97 (9.3%)
	Westbound	1028	90 (8.7%)	835	46 (5.5%)
A5 Between J12 & Vicarage Road	Eastbound	919	90 (9.7%)	819	96 (11.7%)
	Westbound	847	84 (9.9%)	705	50 (7.1%)
A5 Between J12 and Gailey Roundabout	Eastbound	840	45 (5.3%)	739	39 (5.2%)
	Westbound	822	53 (6.4%)	795	24(3.0%)
A5 West of Gailey Roundabout	Eastbound	842	40 (4.7%)	610	27 (4.4%)
	Westbound	736	33 (4.4%)	953	20 (2.1%)

Table 7: 2015 Baseline Traffic Flows on A449 (Vehicles per Hour)

LINK	DIRECTION	AM PEAK (0800-0900)	AM HGV VOLUME (%)	PM PEAK (1700-1800)	PM HGV VOLUME (%)
A449 Stafford Road (North of Gailey Roundabout)	Northbound	979	45 (4.5%)	1110	25 (2.25%)
	Southbound	1083	33 (3%)	1035	20 (1.93%)
A449 Stafford Road (Between A5 & Gravelly Way)	Northbound	867	41 (4.7%)	1033	25 (2.42%)
	Southbound	1043	40 (3.8%)	689	14 (2.0%)
A449 Stafford Road (Between Gravelly Way & Station Drive)	Northbound	863	32 (3.7%)	1007	24 (2.3%)
	Southbound	1013	38 (3.7%)	704	13 (1.8%)

Table 8: 2015 Baseline Traffic Flows on roads south of WMI Site (Vehicles per Hour)

LINK	DIRECTION	AM PEAK (0800-0900)	AM HGV VOLUME (%)	PM PEAK (0800-0900)	PM HGV VOLUME (%)
Station Drive	Eastbound	492	17 (3.4%)	406	12 (2.9%)
	Westbound	579	42 (7.2%)	546	5 (0.9%)
Vicarage Road (North of Straight Mile)	Eastbound	297	7 (2.3%)	340	7 (2.0%)
	Westbound	405	19 (4.6%)	253	3 (1.1%)

3.7.4. A comparison of flow data against highway link capacity values as specified by DMRB can be made to identify whether local roads are operating within capacity.

3.7.5. DMRB Volume 5 Section 1 Part 3 TA 79/99 Amendment No1 Traffic Capacity of Urban Roads provides guidance on highway capacities that can be achieved for different types of road and widths. Factors that impact capacity include the road function, road width and the presence of on street parking.

3.7.6. DMRB TA 79/99 Traffic Capacity of Urban Roads contains advice on the one-way hourly flow capacities of roads. It is considered that the road should be classified as an Urban All-Purpose (UAP) 1 or UAP2 urban all-purpose road for assessment purposes.

3.7.7. Taking the busiest directional flow as set out in DMRB, the capacity of each link has been assessed based on AM and PM traffic flows and is shown in Table 9 below.

Table 9: 2015 Highway Link Capacity Assessments (Vehicle per Hour)

LINK	ROAD TYPE (CAPACITY VEHICLES PER HOUR	AM PEAK HOUR FLOW (08:00-09:00)	WITHIN TA 79/99 CAPACITY	PM PEAK HOUR FLOW (17:00-18:00)	WITHIN TA 79/99 CAPACITY
A5 Watling Street (Towards Cannock)	UAP2 (1550)	1028	Yes	1039	Yes
A5 (Between J12 & Vicarage Road	UAP2 (1550)	919	Yes	819	Yes
A5 Between J12 and Gailey Rdbt	UAP1 (1590)	840	Yes	795	Yes
A5 West of Gailey Rdbt	UAP1 (1590)	842	Yes	953	Yes
A449 Stafford Rd (North of GaileyRdbt	UAP 2 (1550)	1083	Yes	1110	Yes
A449 Stafford Road (Between A5 & Gravelly Way)	UAP 2 (3200)	1043	Yes	1033	Yes
A449 Stafford Road (Between Gravelly Way & Station Drive)	UAP 2 (3200)	1013	Yes	1007	Yes
Station Drive	UAP 2 (1020)	579	Yes	546	Yes
Vicarage Road	UAP 2 (1470)	405	Yes	340	Yes

3.7.8. As can be seen from Table 9 above, all the roads surrounding the Site operate within capacity thresholds set out within DMRB.

3.8. Personal Injury Accident Data

3.8.1. Personal Injury Accident (PIA) data has been obtained from Staffordshire County Council for the most recent five year period (1/7/2011 to 30/6/2016). At the time of submission of the DCO application, the full accident report can be made available on request. The location of the recorded accidents is shown in Figure 6.

3.8.2. The data shows that during this period a total of 119 accidents over the five year period were recorded of which 109 were classified as slight, nine serious, with one fatality.

3.8.3. In terms of casualties, 13 involved pedal cyclists (12 Slight, one Serious) and three involved pedestrians (two Slight, one Serious).

3.8.4. A detailed review of the safety record of the existing highway network serving the site is provided within Chapter 15 of the Environmental Statement [Document 6.2].

Junctions

3.8.5. The accidents that have occurred at each junction are summarised in Table 10 and then described in the text that follows.

Table 10: Personal Injury Accident Data at Junctions

JUNCTION	SEVERITY			VULNERABLE ROAD USER		
	SLIGHT	SERIOUS	FATAL	PED	CYCLE	MOTOR CYCLE
M6 Junction 12	12	1	1	1	0	3
Gailey Roundabout	16	1	0	0	6	2
A5 Watling Street/ Four Crosses Lane	7	0	0	0	0	1
A449/Station Drive	3	1	0	0	1	0

M6 Junction 12

3.8.6. There have been 14 PIAs recorded at the M6 Junction 12 roundabout and slip roads. Of these incidents, one accident was classified as fatal, the description of the accident is not provided in the accident data, but the principal contributory factor was loss of control. In addition there was a further serious and 12 slight PIAs at this location. The most common contributory factor in the 13 non-fatal accidents was failure to look properly, as this was included in six of the 13 accidents.

Gailey Roundabout

3.8.7. There have been 17 PIAs recorded at the Gailey Roundabout. Of these incidents, one accident was classified as serious and the 16 remaining accidents were classified as slight. Eight of the slight collisions involved vulnerable road users. In six of these incidents, a cyclist was involved and in two a motor-cyclist. Failure to look properly was the contributory factor in six of the accidents.

3.8.8. A review has been carried out of incidents involving cyclists at the junction. Of the four accidents where contributory factors are noted, these are all attributed to the vehicle rather than the pedal cycle, with “failure to look” reported in all cases.

3.8.9. Of the six reported accidents involving cyclists, three were travelling north to south, two travelling south to north and one travelling south to east.

3.8.10. In terms of the nature of these incidents involving cyclists, all involved cyclists being hit by vehicles whilst being on the circulatory carriageway of the junction.

3.8.11. No accidents happened within AM or PM peak hours, although three incidents took place on a Saturday, presumably involving leisure cyclists. None of the recorded incidents involved minors.

3.8.12. Whilst it is considered that there are no specific causation factors relating to these incidents it does appear that collisions do involve cyclists being struck whilst negotiating the roundabout.

A5 Watling Street/Four Crosses Lane

3.8.13. All seven PIAs recorded at this junction were of slight severity, and all involved vehicle on vehicle collision. Failure to look properly was the most common contributory factor of collisions at this location, being recorded in five of the seven accidents.

A449 / Station Drive

3.8.14. Four personal injury accidents were recorded at the A449 / Station Drive junction. One of these accidents was classified as Serious and the remaining accidents were classified as Slight.

3.8.15. The serious accident occurred when a vehicle undertaking a right turn failed to look properly and collided with another vehicle. In respect of the slight accidents, the contributory factor in two of the accidents was failure to look properly, whilst for the other accident the contributory factor was defective brakes

Links

3.8.16. Personal Injury Accidents that have occurred along specific links around the area of the Site are summarised in Table 11 and in the paragraphs that follow.

Table 11: Personal Injury Accident Data on Links

LINK	SEVERITY			VULNERABLE ROAD USER		
	SLIGHT	SERIOUS	FATAL	PED	CYCLE	MOTOR CYCLE
A5 Watling Street/Four Crosses Lane to M6 J12	13	1	0	0	0	2
A5 between M6 J12 to Gailey Roundabout	10	0	0	0	0	0
A449 Gailey Roundabout to junction of B5012	11	2	0	0	2	
A449 Gailey Roundabout to Station Drive	6	0	0	0	0	0
Vicarage Road	2	1	0	0	1	1
Straight Mile	2	0	0	0	2	0

A5 Watling Street/Four Crosses Lane to M6 Junction 12

3.8.17. There have been 14 PIAs recorded on the A5 between M6 Junction 12 and Four Crosses Lane. One accident was classified as serious and the remaining 13 as slight, of which two involved a motorcyclists.

3.8.18. The incident recorded as serious occurred when an emergency vehicle was travelling, with blue lights on, through the off side of stationary vehicles; vehicle two pulled out from line of traffic trying to give space to vehicle one. However, vehicle two collided with vehicle one.

3.8.19. Failure to look properly was the most common contributory factor during these five years, being the factor in 6 of the slight accidents.

A5 between M6 Junction 12 and Gailey Roundabout

3.8.20. There have been ten PIAs recorded on the A5 between M6 Junction 12 and Gailey roundabout. All the accidents were classified as slight in terms of severity, and none involved vulnerable road users.

3.8.21. Failure to look properly, following too close and failure to judge other persons path or speed were the most common contributory factors.

A449 Gailey Roundabout to Junction of B5012

3.8.22. There have been thirteen accidents recorded on this section of the A449 Stafford Road. Two accidents were classified as serious and eleven as slight. Four accidents involved vulnerable road users; two involved a cyclist and two a motorcyclist.

3.8.23. Both serious accidents involved a motor-cyclist, at separate arms on the roundabout and the contributory factor of both of them was 'Failed to look properly'. The remaining Slight accidents were as a result of following other vehicles too closely and failure to look properly.

A449 Stafford Road to Station Drive

3.8.24. There have been six accidents on the A449 Stafford Road between Gailey roundabout and theA449 junction with Station Drive. None of these accidents involved a vulnerable user.

3.8.25. Five of the accidents recorded in this link occurred on the crossroads between Crateford Lane/Gravelly Way and had a common contributory factor of 'Poor turn or manoeuvre'.

Station Drive / Vicarage Road

3.8.26. There have been three accidents on the Station Drive/Vicarage Road Link. One of the accidents was classified as Serious and the remainder as Slight in terms of severity, two of these three accidents involved a vulnerable user; one involved a cyclist and the other a motor-cyclist.

3.8.27. The incident recorded as Serious was due to the result of motor-cyclist driving impaired by alcohol.

Straight Mile

3.8.28. Two PIAs were recorded along Straight Mile, both of these involved pedal cyclists colliding with private cars accessing private drives. Failure to look properly was the recorded contributory factor in both of these accidents.

3.9. Personal Injury Accident Data – (1/7/2016 – 30/06/2017)

3.9.1. Since the production of the Transport Assessment in order to accompany Stage Two Consultation, further publically accessible personal injury accident data has become available for the period between 01/07/2016 to 30/06/2017.

3.9.2. Whilst the full five year period between 01/07/2011 to 30/06/2016 remains relevant and has been used for analysis purposes, a review of the more recently available period has been undertaken to ascertain any changes in accident patterns.

3.9.3. A comparison of these two data sets, shows that the annual accident rate remains similar with the full five year period, with 17 accidents recorded during the most recent one year period, compared to an average of 18 accidents per year during the five year period.

3.9.4. Of the 17 accidents, which occurred between July 2016 and June 2017, 16 were of slight severity and one was a fatal accident, no serious accidents were recorded during this time.

3.9.5. In terms of vulnerable road users, there were two accidents involving non-motorised users, both of which were cyclists. One was of slight severity occurring on the link between A5 Watling Street, approximately 150 metres west of its junction with Four Crosses Lane.

3.9.6. The other accident involving a cyclist was a fatality, which occurred in May 2017, at the junction of Vicarage Road/Straight Mile. This involved a collision between a light good vehicles and cyclist, resulting in the death of a 16 year old cyclist.

3.10. M6 Junction 12 Road Closures

3.10.1. Due to the proximity of Junction 12 of the M6, in relation to WMI, it is important that journeys to and from WMI can be undertaken in an expeditious manner from the strategic road network, with minimal disruption on route.

3.10.2. To understand the historic level of closures around the M6 Junction 12, Highways England has supplied road closure information from 01/01/2013 to 29/08/2017. This sets out all closure periods of the M6 Junction 12 either due to planned works / emergency work or incidents.

3.10.3. There were a total of 203 closures during this period, which affected either the closures of slip roads around Junction 12 or north/southbound links between Junctions 11 to 13. It is important to recognise that during this time, the M6 SMART motorway scheme was being introduced, which necessitated closures. These works have now been completed.

3.10.4. To ensure minimal disruption to the road network, closures which have the most severe impact have been planned overnight by HE. Of the five occasions were works undertaken with severe delays (that being over 30 minutes delay) four were undertaken between 20:00-07:00 hours, with only one undertaken during daytime hours (09:30-16:00hrs) for emergency bridge repairs which closed the northbound lanes between Junctions 12 to 13,. All five occasions were in 2013 and 2014 preceding the SMART motorway upgrade.

3.10.5. The number of planned closures has significantly decreased since 2014 and 2015 when the M6 SMART upgrade was being installed. There were a total of 34 unplanned closures during the period investigated. The number of unplanned closures peaked in 2015, with 15 closures during this year. Since 2015 the number of unplanned closures per year has shown a decline. In 2016 there were seven closures and in the first eight months of 2017 there were five closures. This shows that the number of emergency closures on the M6 in the vicinity of the Site has reduced since completion of the SMART motorway scheme.

3.10.6. There have been no occurrences of all slips at Junction 12 being closed at the same time.

3.11. Summary

3.11.1. By its nature as a SRFI, WMI is well served from the motorway and strategic A road network, being bounded by the M6, A5 and A449.

3.11.2. The Site currently benefits from public transport provision and is well served with bus stops located on the A449. The nearest rail station is Penkridge, which is located 4km to the north of the Site and is connected to the Site

through footways and cycleways, providing opportunities for employees at WMI to walk/cycle to the Site. In addition, Stafford and Wolverhampton rail stations, located 7 km and 10km away from the Site respectively provide opportunities for workers at WMI to travel as part of a multi modal trip.

3.11.3. It is noted that the majority of accidents are related to driver behaviour (failure to look properly, loss of control or driver misjudgement) rather than issues of geometry, sight lines and road alignment.

4. DEVELOPMENT PROPOSALS

4.1. Introduction

4.1.1. This section provides details of the development proposals.

4.1.2. A ‘Parameters Approach’ has been applied to the Proposed Development whereby the development is described in terms of clearly defined parameters inside which future design development will be undertaken. This approach is used across a range of infrastructure projects in order to ensure that the potential impacts of a project are properly controlled whilst allowing flexibility in design options for future design development.

4.1.3. Three Parameter Plans [Documents 2.5 – 2.7] have been developed which encapsulate the scheme’s concept and which will form the ‘envelope’ within which future detailed design proposals will need to evolve. In addition, limits of deviation for the highway works are shown on the Works Plans [Documents 2.2 A – J] and the Highway General Arrangement Drawings [Documents 2.9 A – K].

4.1.4. The Parameter Plans identify those elements of the scheme which are to be fixed or controlled as part of the DCO (i.e. the location of development plots and the framework of green infrastructure) and those elements which are subject to restrictions. The three Parameter Plans which set out the design parameters are:

- Building Development Parameter Plan;
- Green Infrastructure Parameter Plan; and
- Floor Level and Building Heights Parameter Plan.

4.1.5. An Illustrative Masterplan [Document 2.8 A - D] has also been produced which demonstrates one way in which the WMI proposals could potentially come forward, in accordance with the controls set out in the Parameter Plans.

4.1.6. This section provides details of the development proposals. This description should be read in conjunction with the Parameter Plans [Documents 2.5 – 2.7],

Schedule 1 of the Development Consent Order [Document 3.1] and the Works Plans [Document 2.2 A - J] to be submitted as part of the application for Development Consent.

4.1.7. The Development Zones Parameter Plan [Document 2.5] and the Illustrative Masterplan [Document 2.8 A - D] indicate how the Proposed Development could be introduced**.**

4.1.8. The Proposed Development comprises:

- An intermodal freight terminal with direct connections to the West Coast Main Line, capable of accommodating up to 10 trains per day and trains of up to 775m long, including container storage, Heavy Goods Vehicle ('HGV') parking, rail control building and staff facilities;
- Up to 743,200 square metres (gross internal area) of rail served warehousing and ancillary service buildings;
- New road infrastructure and works to the existing road infrastructure;
- Demolition and alterations to existing structures and earthworks to create development plots and landscape zones;
- Reconfiguring and burying of electricity pylons and cables; and
- Strategic landscaping and open space, including alterations to public rights of way and the creation of new ecological enhancement areas and publicly accessible open areas.

4.1.9. The Proposed Development is described in detail within the Planning Statement prepared by Quod [Document 7.1A], however, those elements relevant to the TA are summarised below.

4.1.10. A freight terminal is proposed, to be connected to, and immediately west of, the WCML.

4.1.11. The freight terminal is designed to accommodate up to 10 trains per day, and to accommodate trains of up to 775m in length (the maximum length of UK and European intermodal trains), without the need to 'break' the trains. The freight terminal would enable the transfer of freight from road to rail, and vice versa.

4.1.12. In addition to serving the operators located on the WMI Site itself, the freight terminal would also be an open terminal so that it could serve a wider market, enabling the transfer, storage and distribution, as required, of containers and other goods. Areas for container storage and a 75 space HGV parking area are proposed to be provided at and adjacent to the rail terminal.

4.1.13. The freight terminal would connect directly to the WCML via north and south facing connections, giving direct access to the principal UK ports at Southampton, Felixstowe, London Gateway plus other smaller container ports, the Channel Tunnel and many of the key UK regional distribution cluster locations.

4.1.14. At start-up and based on equivalent UK terminal operations, WMI is expected to handle 4 trains per day in its earlier phases, rising over time up to 10 trains per day.

4.1.15. The WMI project proposes up to 743,200 sqm (8 million sq ft) of rail served warehouse floor space. A small amount of space for ancillary buildings relating to the freight terminal and storage areas is also proposed.

4.1.16. The final and detailed configuration of the warehousing would be determined in response to market demand but the expectation is that the development would comprise large floorplate buildings.

4.1.17. The Illustrative Masterplan [Document 2.8], demonstrates one way in which the Site could potentially be developed in accordance with the Parameter Plans.

4.1.18. Given the scale of the site, there is sufficient space to ensure that access can be provided to the various units such that it accords with the requirements of the Disabled Discrimination Act.

4.2. Access and Highways Works

4.2.1. The WMI project contains a number of road infrastructure elements, including new roads, and improvements to existing roads, as shown on the Highway General Arrangement drawings [Document 2.9 A – K]. These are described more fully within Section 5 - Transport Strategy.

4.2.2. Principal new highways works include:

- the construction of a new roundabout on the A5, providing access to the Site;
- the construction of a new roundabout on the A449, providing access to the Site;
- the construction of a new roundabout on Vicarage Road, providing access to the Site;
- the construction of a new road between the new A5 and A449 roundabouts (The A449/A5 Link Road);
- the construction of two new bridges, one across the Canal and one across the WCML to facilitate the new road between the A5 and A449;
- the construction of a new road linking the new A5 / A449 Link Road, with the new Vicarage Road roundabout (known as The Vicarage Road Link); and
- the construction of a new three arm roundabout junction provided within the curtilage of the Site connecting the A449/A5 Link Road to the Vicarage Road Link.

4.2.3. In addition, the following other works are proposed to the local highway network to facilitate access to the Site and mitigate the impacts of the Proposed Development:

- the alteration of the existing junction layout at the A449 / Station Drive traffic signals;

- amending Crateford Lane to make it one way to the A449 (eastbound) from the last property on Crateford Lane;
- realigning and improving Gravelly Way, including the removal of the substandard bridge over the WCML;
- widening to 3m the existing footway / cycleway along the east side of the A449 from Station Drive to Gailey Roundabout;
- two new A449 laybys;
- upgrading the existing footway along the A5 from Gailey Roundabout to the new A5 access to a combined footway / cycleway;
- alterations to the Harrison Lane (north of the A5) access;
- alterations to the access with Avenue Cottages with the A5 providing a median to prevent right turn movements;
- provision of a new footway to the south of the A5 linking Avenue Cottages to the Gailey Marina;
- the provision of a new cycleway on Vicarage Road from the new Site access roundabout;
- the provision of new footways at the junctions of Straight Mile / Kings Road / Woodlands Lane together with crossing facilities;
- the provision of an improved visibility splay to the north east at the junction of Vicarage Road / Straight Mile and
- the construction of a HGV turning area on Station Drive to the west of the WCML bridge.

4.3. Indicative Phasing of Works

4.3.1. The delivery of WMI will be phased over a 15 year development period from 2021 to 2036. On the basis of the indicative phasing plans, all highway infrastructure will have been introduced by the end of indicative phase one. Therefore, there are no specific issues in relation to the delivery of transport related mitigation in phasing terms.

4.4. Operation

4.4.1. The SRFI will operate for 24 hours a day, seven days a week, this means that there could be associated HGV movements at all times, although generally the pattern is for uniform volumes between 0700-1900 with a lower level of activity at other times.

4.4.2. There is likely to be two employment components namely office workers with conventional office hours and shift workers who conventionally work over the following three periods: 0600-1400, 1400-2200 and 2200-0600. As a result the employment traffic generation is spread out over a number of hours.

4.5. Parking

4.5.1. The Illustrative Masterplan [Document 2.8 A – D] indicates one way that the Site can be developed. The reserved matters applications that will be submitted to deal with matters of detail would need to specify parking provision for each development plot as and when they come forward. It would be necessary for these reserved matters applications to have regard to the adopted parking standards and tenant requirements at that time. This will address parking provision for each unit in terms of HGV, car, cycle and motor cycle parking requirements together with provision for the disabled and charging of electric vehicles.

5. TRANSPORT STRATEGY

5.1. Introduction

5.1.1. This section sets out the transport strategy to serve the Proposed Development including the walking / cycling, public transport and highway works that will serve WMI.

5.1.2. The transport strategy has been based on the requirements of WMI, reviews of consultation with Stakeholders, the findings of responses received from DCO consultation and allowing for the outcomes of traffic modelling of the operation of the highway network with the Proposed Development in place.

5.1.3. The Proposed Development will provide a range of on Site and off Site transport facilities to allow for movement towards the Proposed Development. A walking, cycling and public transport strategy has been developed to improve movement to and from the Site by sustainable modes of transport. These improvements will also benefit existing people travelling in the vicinity of the Site.

5.2. Highway Infrastructure

5.2.1. The Proposed Development includes significant highway works in order to serve the scheme and provide improvements for existing road users. These aspects of the strategy will ensure that appropriate access is provided for WMI traffic, ensure that the Proposed Development does not have an adverse impact upon the existing transport network and also provide improvements for some existing road users.

Access to Site

5.2.2. In order to facilitate highway access to the Proposed Development, it is proposed to construct three new roundabout junctions. The location of the proposed access points are shown in Figure 7 and the junction layouts contained in the General Arrangement Drawings [Document 2.9 A – K] shown in Appendix E. The works are as follows:

- A449 Access (west of Site) – Construction of a new four arm roundabout from the A449 with Gravelly Way and Crateford Lane. This will replace the existing traffic signal controlled junction [Document 2.9 C];

- A5 Access (north of Site) – Construction of a new three arm roundabout from the A5 [Document 2.9 G]; and

- Vicarage Road Access (south of Site) - Construction of a new four arm roundabout from Vicarage Road [Document 2.9 I].

5.2.3. The junctions have been designed in accordance with standards contained in the DMRB Volume 6 Section 2 Part 3 TD 16/07 Geometric Design of Roundabouts.

5.2.4. In addition, it is proposed to construct a priority junction with Vicarage Road to serve a small amount of development floor space to the south west.

A5 Access

5.2.5. Given the close proximity to M6 Junction 12, the northern access on the A5 is the key access to the Proposed Development for vehicular traffic. The junction configuration would consist of a three arm roundabout with a diameter of approximately 60 metres. These highway works are shown at Document 2.9G.

5.2.6. Localised widening of the A5 would be required to accommodate flared approaches to the junction. The access to Calf Heath Quarry will be closed; however, this junction with the A5 will be amended to retain the access to Avenue Cottages, with the left in / left out arrangements enforced through the implementation of kerb line arrangements. The existing priority junction of A5 / Harrisons Lane will be converted to a left in / left out only arrangement as will access to The Poplars to the north. This will be physically enforced through the implementation of the kerb line arrangements. Flared exits are provided on all arms of the junction. Two access points to the south of the A5 serving an existing property and agricultural land will be closed as part of the access works via the A5.

5.2.7. The roundabout is off set to the south to facilitate the necessary entry path deflection and kerb radii. This will also assist with the construction of the junction as around 75% of the works will be offline. This will mean that the existing A5 carriageway can be kept open during the majority of the works. Once the main part of the junction has been constructed, it can be opened to traffic whilst the final part of the junction is completed.

5.2.8. Overall, there would not be a net gain in the number of junctions along the A5 as a consequence of the Proposed Development. The proposed A5 roundabout will be of benefit to all road users, particularly those with existing accesses with the A5. For example, traffic arriving at Harrisons Lane from the east will now be able to U turn at the proposed roundabout rather than waiting within the carriageway of A5 whilst waiting to turn right.

5.2.9. The introduction of the A5 roundabout would require the closure of the existing A5 laybys. However, it is proposed to relocate these laybys to the A449. This is discussed later within this Section.

5.2.10. Pedestrians and cyclists are provided for with at grade uncontrolled crossing points on all the arms of the junction.

A449 Access

5.2.11. A second access to serve the Site is proposed from the A449 via a modified junction with Gravelly Way and Crateford Lane. Currently, the existing junction is a four arm traffic signal controlled cross roads. These highway works are shown at Document 2.9 C.

5.2.12. The junction has recently been the subject of highway works that have seen the construction of the traffic signal junction which replaces the previous priority cross roads arrangement. This scheme was constructed in order to serve the consented Bericote development on land to the east of Gravelly Way. These works have been designed to serve the consented Bericote Development, rather than serving more strategic growth. It is proposed to replace this junction with a four arm roundabout with a diameter of approximately 60 metres in order to serve the additional traffic generated by both the Bericote consented scheme and the proposed SRFI.

5.2.13. The proposed junction arrangement would be off set to the east in order to accommodate the necessary entry path deflection. However, the A449 arms would not require widening on the approaches to the junction. Two lane exits on the A449 arms of the junction would be retained. To the west, it is proposed to convert Crateford Lane to one way in a west to east direction. The eastern arm within the Site would be flared on the approach to the junction, with a flared single lane exit provided. The access to the Intermodal Terminal will be 100 metres further to the east of the roundabout and is served by a ghost island right turn lane.

5.2.14. Given that the A449 access would see the conversion of an existing junction, the access strategy would not see an increase in junctions along this section of the SRN.

5.2.15. Pedestrians and cyclists are provided for by at grade uncontrolled crossings of the southern, western and eastern arms of the junction.

5.2.16. Improved bus facilities, including bus bays will be provided to the south of the proposed roundabout. These bus stops will connect to the improved footways and the crossing facilities described above.

Vicarage Road Access

5.2.17. A third vehicular access is proposed from Vicarage Road to the south east of the development. This access junction would serve the southern part of WMI and development land south of Vicarage Road. These highway works are shown at Document 2.9 I.

5.2.18. This junction would take the form of a four arm roundabout with a diameter of approximately 50 metres. This would facilitate access to land either side of Vicarage Road. All arms are flared on the approach to the junction. Flared single lane exits are provided on all arms of the junction. It is proposed to amend the speed limit of Vicarage Road at the location of the proposed roundabout from the National Speed Limit to 40mph.

5.2.19. The junction configuration would be slightly offset to the north in order to facilitate the necessary entry path deflection and kerb radii as well as allowing the retention of a number of mature oak trees. This will assist with the construction of the junction as around 75% of the implementation of this arrangement will be able to be carried out offline. This will mean that the

existing Vicarage Road carriageway can be kept open during the majority of the works. Once the main part of the junction has been constructed, it can be opened to traffic whilst the final part of the junction is completed.

5.2.20. Pedestrians and cyclists are provided for via at grade uncontrolled crossings on all arms of the junction.

5.2.21. In addition, a priority junction is proposed to be provided to the south of the Vicarage Road roundabout in order to serve car parking areas within this part of the Proposed Development.

5.2.22. Following Stage Two Consultation, comments were received questioning the provision of the proposed Vicarage Road roundabout access. Provided at Appendix F is a Technical Note which has reviewed alternative access arrangements to this part of the Site. The conclusion of this exercise is that the proposed roundabout forms the most logical form of access and is in a recognised form that will provide a conventional arrangement that will be familiar to road users. The proposed roundabout would not increase the potential for hazardous movements, which would be expected to occur if a less conventional arrangement were proposed.

5.2.23. It is also important to recognise that SCC as highway authority for Vicarage Road agrees to the provision of the proposed roundabout arrangement. SCC are supportive of the general access strategy that sees access provided from Vicarage Road.

5.2.24. As discussed later in this Section, it is proposed to implement a ban on traffic travelling northbound along the A449 from turning right into Station Drive. These highway works are shown at Document 2.9 A.

5.2.25. Through traffic on Station Drive will transfer to the new A449/A5 Link Road. Comment has been made that providing an alternative access arrangement from Vicarage Road may remove the need for the banned right turn for traffic travelling northbound on the A449. However, the right turning movements from the A449 generally consist of through traffic travelling towards the A5. Therefore, if the ban was not implemented then this through traffic would still remain on the Station Drive / Vicarage Road link.

5.2.26. In view of the above and the Technical Note provided at Appendix F, it is concluded that providing access via Vicarage Road by way of a roundabout junction is the most conventional and logical option.

A449/A5 Link Road

5.2.27. To mitigate the impact of WMI the Proposed Development will provide a road between the A5 and A449 roundabouts. This will be provided as an "A" Class 30 mph adopted public highway to be maintained by Staffordshire County Council. It will be available for use by public traffic at all times. This would be provided as a signed route to and from M6 Junction 12 and the A449. These highway works are shown at Documents 2.9 C, D, H and G.

5.2.28. This route will be a 7.3 metre carriageway together with a 3 metre shared use cycle footway provided adjacent to the east and north bound carriageway. The width of the route will widen in order to facilitate right turn lanes to serve development plots. Pedestrian crossing islands will be provided in the vicinity of the access junctions to the development plots and a 24 hour clearway will be provided along the route in order to prevent on carriageway parking.

5.2.29. This road will improve the operation and resilience of the Gailey Roundabout by providing a choice of routes for trunk road traffic travelling between the A5 and A449.

5.2.30. A new bridge structure will be provided in order to cross both the WCML and the Staffordshire and Worcestershire Canal. The provision of this new bridge will enable the closure and removal of the existing Gravelly Way WCML railway bridge. All existing land along Gravelly Way that is adopted highway and which is not required to accommodate the new highway infrastructure will be stopped up. The existing Gravelly Way canal bridge (Canal and Rivers Trust (CRT) Bridge No. 72a) and the existing footbridge (Bridge No. 72) will remain. The existing vehicle bridge will be closed to traffic and will provide a pedestrian and cycle route connection towards the canal.

5.2.31. During construction, the existing canal bridge will be retained in order to maintain access to the Bericote and SI uses. When construction of the A449 / A5 Link Road is complete, access will revert to the arrangements shown by Document 2.9D.

5.2.32. Gravelly Way cannot, in its current form, be utilised to fully serve the site. This is because the existing WCML and canal bridges are not of a sufficient width to accommodate two way traffic movement. In order to ensure a resilient transport network, the A449/A5 Link Road accommodates traffic in both directions. If the A449 / A5 Link Road were to utilise these two existing bridges it would compromise the efficiency of the infrastructure proposed. Consequently, it is not possible to utilise the existing Gravelly Way in order to serve the Proposed Development.

5.2.33. In addition, accesses to the existing employment uses to the south of the A449/A5 Link Road require some separation with the new infrastructure for operational reasons, which would not be possible if the existing Gravelly Way were retained.

5.2.34. It is proposed that this delivery of this A449 / A5 Link Road infrastructure is linked to occupation of a specific level of floor area and or a specific time limit, whichever is sooner. This is discussed in more detail in Section 9.

Access to Existing Uses

5.2.1. It is necessary to maintain access to the existing employment uses located to the south of Gravelly Way.

5.2.2. The Bericote development will be served via the existing four arm Hoppe roundabout that is located to the south of the A449 / A5 Link Road. This arrangement is shown on Document 2.9D and will see the existing Canal bridge closed to vehicular traffic and used instead as a pedestrian / cycle route connecting to the canal. The Hoppe Roundabout would connect to the A449 / A5 Link Road via a new road to the north. This arrangement will provide access to Bericote via the southern and eastern arms of the Hoppe Roundabout.

5.2.3. This four arm roundabout would be instead of the five arm arrangement that accompanied DCO Stage 2 Consultation. A five arm roundabout would not be required as previously the fifth arm to the west passing over the canal would no longer be required in order to provide vehicular access to SI Group from this direction.

5.2.4. Access to SI Group will be via the proposed Development Plot access shown to be located to the east of the WCML and to the west of the canal. This new access arrangement is shown to pass beneath the proposed A449 / A5 Link Road Bridge as it heads to the south. The height of the bridge will be sufficient to ensure HGV's can pass beneath it order to reach SI Group. This arrangement is also shown at Document 2.9D.

5.2.5. Access for cyclists and pedestrians will also be provided for by way of the arrangements provided by the amended Hoppe Roundabout.

Vicarage Road Link

5.2.6. In addition to the adopted route through the Site, a further traffic route will be provided to the south east towards Vicarage Road. This is known as the Vicarage Road Link. The two routes will connect via a new three arm roundabout located within the Site approximately 500 metres to the south of the A5. These highway works are shown at Documents 2.9 H and I.

5.2.7. Whilst this route will not be offered for adoption by Staffordshire County Council, it will be provided to adoptable standards. However, for operation and management purposes, the applicant wishes to retain an element of control of the highway infrastructure within certain areas of the Site.

5.2.8. This route will provide access to the majority of development plots, however the purpose of the route is not to provide a strategic function in terms of traffic distribution, but act as an access to the core parts of the site. Therefore, there is no need for this road to be offered for adoption by the Highway Authority. There may also be a need for the developer to restrict public access to this area from time to time for operational and management reasons which would not be possible if the route were adopted.

5.2.9. This route would consist of a 7.3 metre carriageway, which would widen at the development plot access junctions in order to provide right turn lanes. 3 metres cycleway/footways would be provided adjacent to both sides of the carriageway, with at grade crossing facilities by way of pedestrian refuge islands.

Crateford Lane

5.2.10. To ensure that existing and WMI vehicles use the SRN and appropriate local routes, it is proposed that, as part of the works to provide the A449 roundabout, Crateford Lane would be converted to a one way only route in a west to east direction. These highway works are shown at Document 2.9 C.

5.2.11. There would therefore be no entry into Crateford Lane from the A449. As queues are known to form on the A449 south approach to The Gailey Roundabout, providing the one way arrangement in a west – east direction will prevent traffic seeking to avoid Gailey from leaving the A449 at Crateford Lane. Therefore, this will preclude the opportunity for traffic from the A449 south from rat running through the villages of Brewood to the west in order to avoid The Gailey Roundabout.

Station Drive / Vicarage Road

5.2.12. In order to improve the traffic conditions on Station Drive and Vicarage Road it is proposed to implement a ban on traffic travelling northbound along the A449 from turning right into Station Drive with the result that through traffic on Station Drive will transfer to the A449/A5 Link Road. Local access is facilitated by making a U turn at the new A449 Gravelly Way roundabout. These highway works are shown at Document 2.9 A.

5.2.13. Currently the junction of Station Drive and the A449 is subject to peak period queuing. Station Drive and Station Road also have a number of properties with direct frontage and there is a low railway bridge which can give rise to problems for over height vehicles.

5.2.14. The Station Drive / Vicarage Road corridor is known to experience rat running traffic travelling towards the A5 in order to avoid The Gailey Roundabout. The implementation of the right turn ban will prevent rat running traffic from the south from being able to reach the A5 by using Station Drive and onto Vicarage Road as a means to avoid the Gailey Roundabout.

5.2.15. Banning this right turn will reduce the level of existing traffic using Station Drive in order to reach the A5 to the north. In relation to the Proposed Development, it will ensure that WMI traffic from the south will not be able to access the development from this route and instead will need to use the A449 junction in order to reach the Site. Details of the change in traffic flows along Station Drive arising from the banned right turn are reported in Section 9.

5.2.16. In addition to the right turn ban and in response to comments received at Consultation events from residents of Station Drive, it is also proposed to provide an HGV turning area on the west side of the railway bridge on Station Drive. It is understood that instances do occur where HGV's make erroneous route choices into Station Drive. The provision of this facility means that any HGVs which do inadvertently turn into Station Drive can turn around without striking the bridge or causing traffic disruption.

5.2.17. Finally, it is proposed to improve driver visibility at the junction of Vicarage Road with Straight Mile. The existing visibility for drivers existing straight Mile at this junction is restricted to the north by vegetation. This vegetation would be removed in order to maximise visibility to the north, with replacement planting provided to the east of the visibility splay. This will improve safety conditions at this junction for traffic using Vicarage Road and turning from Straight Mile. These highway works are shown at Document 2.9J.

A449 Layby's

5.2.18. The introduction of the A5 access roundabout requires the removal of the existing layby's from the A5. The Highway Authorities have advocated that replacement layby's should be considered and details of how these could be provided adjacent to the A449 have been provided on the General Arrangement drawings provided at Appendix E specifically Document 2.9 E. It should be noted that the land to the west of the A5 is within the control of the Applicant, including the existing field access to the north of the northbound facility which will be closed and access taken via Marsh Farm. The proposed layby lengths have been agreed by HE.

5.3. Departures from Design Standard and Stage One Road Safety Audits

5.3.1. As part of the design process of the highway works, departures from design standard have been identified. Discussions with HE have requested that formal requests for these departures from design standard be made in advance of the DCO submission. The substance of the departures from design standard have already been agreed with HE and submissions have been made seeking their formal approval.

5.3.2. In addition, all proposed highway works within the highway network controlled by SCC have been subject to a Stage One Road Safety Audit and where necessary, alterations made to the highway general arrangements proposed in order to reflect the findings of the Audits. Road Safety Audits of the works to the Highways England network are currently ongoing.

5.4. Sustainable Transport Strategy

5.4.1. A Sustainable Transport Strategy has been prepared which proposes a number of infrastructure improvements and management measures in order to provide opportunities to reach the Site using non car modes, either by way of active modes such as walking or cycling as well as by public transport.

5.4.2. The overall aim of the Sustainable Transport Strategy is to create an environment for employees that actively promotes a range of sustainable, low carbon travel choices and reduces the overall need to commute to work by car.

5.4.3. This strategy underpins the policy requirement to achieve a modal shift away from Single Occupancy Vehicle journeys. Full details of the Sustainable Transport Strategy are provided in Technical Note 19, which is provided at Appendix G.

Public Transport

5.4.4. It is proposed to improve the existing public bus services to the Site; this could potentially include an improved service frequency between Wolverhampton City Centre and WMI. These potential improvements could enhance the existing Service 54/54A to provide a half hourly service between

Wolverhampton and the Site, through an extra journey each hour between Wolverhampton and WMI. These buses would serve the improved bus stops on the A449 and those located in the vicinity of the Gailey Roundabout. Bus stops would additionally be provided on the A449/A5 Link Road in the vicinity of the internal roundabout as well as on the Vicarage Road Link Road. Provision would be made for bus shelters and waiting facilities.

5.4.5. Prior to the construction of the A449/A5 Link Road the extra journey each hour would enter the site via the Gailey roundabout and the new WMI entrance on the A5, with the existing service maintaining its current route on the A449 utilising the existing bus stops to the north and south of Gailey Roundabout. Once the link road is open, both the extra service and the existing Service 54/54A would use the A449/A5 Link Road.

5.4.6. To incorporate access to the Site the existing hourly bus route would potentially divert into the Site via the proposed roundabout junction with the A449 and through the Site before emerging at the A5. It is then envisaged that the additional half hour service from Wolverhampton would turn into the site from the A449 and turn around within the site where a bus stand can be created

5.4.7. This suggested service pattern reflects the most significant demand from the estimated location of employees Should demand or aspirations of the operator or other Stakeholders be to improve the service frequency between WMI, Penkridge, Stafford or any other destination, the proposals do not preclude this from being implemented in the future.

Shuttle Bus

5.4.8. In addition to the potential enhancements to the existing Service 54/54A, it is proposed that shuttle bus services could be provided between the Site and significant clusters of employees. Based on current demographics these are likely to be Cannock Chase, Walsall and the wider Wolverhampton urban area, however in practice the clusters will be informed by the personalised planning to be undertaken with the Travel Plan which may identify other areas of South Staffordshire.

5.4.9. Providing a shuttle bus to Cannock Chase, Walsall and the wider Wolverhampton area would serve the areas of highest forecast employee numbers and trip demand. Approximately 32% of future workers are forecast to come from these areas.

5.4.10. In addition, these areas do consist of specific population centres which lend themselves, to being able to provide specific pick up and drop off points for future workers.

5.4.11. Shuttle bus arrivals and departures would coincide with shift patterns and office hours. The buses would require capacity for approximately 20 to 40 passengers.

5.4.12. Upon occupation of the first tranche of development floor space, one shuttle bus will be provided, increasing to up to three shuttle buses as WMI is fully developed or alternatively with a combination of dedicated employer buses. The routing and introduction of the shuttles buses provided by WMI, will be led by the Transport Steering Group.

Walking and Cycling

5.4.13. To improve the main pedestrian and cycle route connections to WMI the following improvements are proposed. These details are shown on Figure 8:

- Upgrade the existing shared use cycle/footway to a 3 metre wide shared cycleway/footway to the east of A449 between Gailey Roundabout and the junction with Station Drive to the south, as shown on Documents 2.9 A, B, C, E and F;

- Provide pedestrian crossing facilities at the proposed A449 Site access roundabout to facilitate access to bus facilities to the west as shown on Document 2.9 C;

- Upgrade existing footway to the west of the A449 in the vicinity of the proposed Site access roundabout to provide a width of 2 metres as shown on Document 2.9 C;

- Alter the existing footway adjacent to the north of the A5 to provide where feasible a 3 metre wide shared cycleway/footway. This will be introduced along the A5 between Gailey Roundabout and the proposed Site access from the north. It is not possible to provide a full 3 metre width along the entirety of this route given the existing railway bridge and the limited land availability in certain areas further to the east. The proposed roundabout junction with the A5 will also incorporate suitable crossing facilities into the Site. These works are shown on Document 2.9 F and G;

- Provision of a new footway from the A5 access roundabout towards the Gailey Marina to the west and Avenue Cottages to the east as shown on Document 2.9 G;

- Upgrade the section of towpath on the Staffordshire and Worcestershire Canal that is present within the Site. This improvement will provide a route for pedestrians and cyclists who may prefer to travel away from road traffic. This is discussed in more detail later in this section;

- Provide a cycle / footpath using the existing Gravelly Way canal bridge connecting to the towpath as shown on Document 2.9 D. this path will connect to the A449 / A5 Link Road via a new route to the north;

- Provide a 3 metre cycleway along Vicarage Road as shown on Documents 2.9 I and J; and

- Provide pedestrian crossing facilities at the new four arm Site access roundabout junction with Vicarage Road as shown on Document 2.9I.

5.4.13 In addition, the on-site roads will have 3 metre shared use cycleway/footways which will provide further opportunities for movement by these modes. These routes will be supplemented by a network of permissive path's, which will provide access to the Community Parks that the Proposed Development will provide. The permissive paths will, where possible, link to the Canal Towpath as well as to specific car parking areas that are proposed and will provide replacement facilities for Footpath 29 that will be stopped up to accommodate the Proposed Development.

5.4.14. From the south, at grade pedestrian crossing facilities are proposed in order to facilitate crossing of Straight Mile towards the permissive paths within the proposed Calf Heath Community Park. It is also proposed to provide new footways at the junction of Straight Mile / Kings Road / Woodlands Lane together with crossing facilities. These works are shown on Documents 2.9 J and K.

5.4.15. The provision of this network of pedestrian facilities will ensure access to the Community Parks will be possible for those existing residents who may wish to visit these areas.

Canal Improvements

5.4.16. Through discussions with CRT and in accordance with the parameter plans and DCO document, a Canal Enhancement Scheme will be agreed and secured through a DCO requirement. The improvements and mitigation measures included in the Canal Enhancement Scheme will only relate to the section of the canal which is located within the WMI Order Limits. From the transport perspective, the scheme will include improvements and mitigation measures such as:

- The towpath would be surfaced with a suitable bound/compacted gravel surface (eg Breedon gravel type) to provide an appropriate surface capable of dealing with an increased level of use where needed for connectivity to the footpath routes;

- Two new pedestrian connections to the towpath from the Croft Lane Community Park permissive paths are shown on the Illustrative GI Strategy Plan. Pedestrian access points at the A5, Hoppe Roundabout and Station Road would be improved;

- The introduction of wayfinding and information signage in appropriate locations along the canal and, in particular, at the access points. The signage would identify routes and provide information on local heritage, ecology and points of interest; and

- The proposed car parking areas within the Community Parks would be available for canal users;

5.4.17. It is not proposed to remove the existing Gravelly Way vehicular bridge over the canal (CRT Bridge No. 72a) or the existing footbridge (Bridge No. 72). The existing footbridge is not up to the task of supporting the increased pedestrian traffic and so the vehicular bridge will likely become a cycle / pedestrian bridge.

5.4.18. This package of improvement measures will provide betterment in terms of the existing canal facilities and will specifically provide a route for those who wish to travel to the Site on foot or by bicycle but who wish to travel away from trafficked routes.

5.5. Transport Steering Group

5.5.1. To effectively deliver and co-ordinate the measures set out in the sustainable access strategy, specifically the implementation of the Shuttle Bus, Site Wide Travel Plan (SWTP) and Site Wide HGV Management Plan (SWHGVMP), a Transport Steering Group (TSG) will be formed prior to occupation. The status and constitution of the TSG is set out in the SWTP (Appendix H) and the membership is anticipated to include SCC, South Staffordshire District Council, HE, Wolverhampton City Council (WCC), the Site Wide Travel Plan Coordinator and FAL.

5.5.2. Details of the role of the TSG are also provided within the SWTP.

5.5.3. In addition, the TSG will also consider matters relating to potential use of inappropriate routes by traffic associated with WMI through the general areas of Brewood and Calf Heath and potential inappropriate WMI HGV parking in the vicinity of HGV parking areas and laybys.

5.5.4. The TSG membership will be responsible for the administration and distribution of monies from the Contingent Traffic Management Fund and the HGV Enforcement Fund in order to review any ongoing transport impacts of WMI. These matters are discussed later within this section.

5.6. Site Wide Travel Plan

5.6.1. A Site Wide Travel Plan (SWTP) has been prepared to promote sustainable travel to the Site for workers and visitors. This is shown in Appendix H. The headline aim of the SWTP is to:

'To create an environment for employees that actively promotes a range of sustainable, low carbon travel choices and reduces the overall need to commute to work by car'.

5.6.2. The Site wide objectives of the SWTP are in line with national and local policies which are to:

- Minimise the overall proportion of single-occupancy car trips associated with commuting to and from the Site;
- Reduce the overall need to travel to and from the Proposed Development, especially by private car;
- Facilitate and encourage the use of healthy, low carbon and sustainable transport options amongst employees and visitors to the Site;
- Ensure that the differing transport needs of all site users are taken into account as far as practicable;
- Work in partnership with the local planning and highway authorities, and other key stakeholders locally, to achieve both site-specific and area-wide reductions in single-occupancy car-based commuting; and
- Continually develop, evaluate and review progress of the SWTP delivery.

5.6.3. The four main strands of the SWTP measures are:

- Improving sustainable transport services and facilities;
- Promotion and marketing;
- Promoting more efficient car use; and
- Introducing smart working practices.

5.6.4. The SWTP for WMI will operate under a specific brand identity which will be promoted to employees and a single online website portal will bring together transport information for the Site, to promote sustainable transport and enable employees to make an informed choice on their mode of travel to the Site; this will be supported by Personalised Travel Planning sessions which will be delivered to businesses at WMI. In addition, a number of measures can be promoted including employee/workplace engagement 'challenges' , employee discounts and promotions.

5.6.5. To promote more efficient use of car journeys, a car sharing portal will be created and promoted to employees, supported by a 'guaranteed ride home scheme'.

5.6.6. The car sharing portal will provide an ideal platform for employees with the same, or very similar, commuting origins to find a suitable car-sharing partner to share their journey to the Site. More car-based journeys will therefore be made with higher vehicle occupancy and in a more efficient manner, resulting in an overall reduction in car trips.

5.6.7. As part of the SWTP, clear directional information will be supplied for workers and visitors using WMI. This will correspond with the dedicated signed routes for WMI along the SRN, and drivers will be advised to follow these routes, as they will provide the most direct and expeditious approach to WMI.

5.6.8. Local evidence from the i54 Business Park, which is located relatively near to WMI, shows the positive effect the introduction of a car sharing scheme can have on the proportion of commuting journeys. At Jaguar Land Rover, from a baseline level of 21% of commutes made by car sharing, the introduction and promotion of car sharing resulted in increasing the car sharing use to 25% after two years. The proportion of single-occupancy car drivers fell from 62% to 56% over the same period, suggesting car sharing can play a key role in reducing the overall number of car-based vehicle trips.

5.6.9. In addition to Site specific strategies there is also scope for travel planning measures to be delivered on a wider scale across the A449 Stafford Road corridor, which includes the i54 Business Park and share best practice and resource, to leverage greater returns on combined investment in sustainable transport services and promotional initiatives.

5.6.10. Before first occupation of WMI, a Site Wide Travel Plan Coordinator (SWTPC) will be appointed, to effectively deliver the SWTP and the measures outline, in a co-ordinated manner.

5.6.11. Where possible and having regard to the nature of the type of jobs that would be provided at WMI, smarter working practices, including flexible and/or staggered working hours and remote/home working will be promoted by the SWTPC and discussed with employers at WMI to reduce car borne trips.

5.6.12. At this stage the occupiers of individual employment units are unknown; therefore the SWTP identifies certain measures which should be considered and then feature within occupier-specific travel plan documents. These travel plans will be prepared by all occupiers with a minimum of 50 employees and will be submitted to the SWTPC within six months of the occupier commencing their tenancy.

5.6.13. Forecast peak period modal shift targets have been set by the SWTP, which will be re-assessed following the initial baseline travel survey at WMI following occupation. This will provide observable empirical data on actual travel patterns at the Site to demonstrate progress against the desired modal outcomes.

5.6.14. For the purposes of defining an interim Travel Plan target, a 10 percentage point reduction in mode share for car driver journeys to work during peak periods at WMI is proposed, with a corresponding shift towards bus use and car sharing as the indicative alternative modal options. This represents the headline applicable target for this SWTP.

5.7. Site Wide HGV Management Plan

5.7.1. The WMI site has been selected as an SRFI because it is specifically well suited in terms of transport access. The WCML runs through the Site it, is located within very close proximity of a motorway junction, has direct access to the strategic road network; and is close to several large built up areas including Wolverhampton, Walsall and Stafford.

5.7.2. In order to ensure HGV traffic does not impact on local roads and villages surrounding the Site, a series of measures have been identified to be implemented through the proposed SWHGVMP. The SWHGVMP has been prepared as a separate document in order to support the DCO submission. This is shown in Appendix I.

5.7.3. In addition, the SWHGVMP can adopt practices which maximise the efficiency of HGV journeys in order to facilitate sustainable transport. Full details of the overall strategy are presented within the SWHGVMP document, with the key aspects as follows: -

- Promotion of back-loading – this is the practice of making use of spare capacity on both legs of an HGV delivery trip in order to create more sustainable HGV journeys;

- Vehicle booking schemes – Using these systems, any vehicle wishing to deliver or collect at WMI would be required to make a vehicle booking before reaching either the Intermodal Terminal or any warehouse. Without these bookings, access for HGV's would be prohibited. These schemes have been proven as being effective in controlling the flow of traffic by reducing the number of vehicles that arrive at any one time especially at peak times;

- Provision of early arrival bays – If a vehicle arrives outside its booked time slot it is normal for them not to be allowed into the service yards of the individual warehouses. Therefore, in order to avoid HGVs waiting on site roads and in local truck stops until their allocated time, early arrival bays will be provided for these vehicles in front of the gates into the service yards. Each development unit will be required to provide a minimum of three early arrival bays, up to a maximum of one bay per 7,000 sqm;

- Provision of driver welfare facilities will be accessible to all drivers using WMI within each warehouse facility, these facilities could include but not be limited to dedicated male and female toilet facilities for HGV drivers, rest areas with heating/cooling facilities and access to food and drink vending machines and electric sockets for charging of mobile phones etc;

- HGV routing and signage strategy which focuses movement to WMI via the SRN in order to avoid local road. Subject to agreement from Highways England and Staffordshire County Council, WMI will be signed from the M6 to advise drivers to use Junction 12 and on the M54 to advise drivers to use Junction 2;

- It is proposed that the Site will be designated into three specific zonal areas, to assist with driver navigation and ensure the HGVs arrive at WMI in an expeditious manner. It is proposed that each access point is signed as follows;

  - WMI North – general area served via the A5 access;

  - WMI West – general area served via the A449 access (including the Intermodal Terminal) and the A449 / A5 Link Road;

  - WMI – South – general area served via the Vicarage Road access;

- HGV drivers travelling to or from WMI will be informed of the following: -

  - Existing height restriction under the rail bridge at Station Drive / Station Road preventing HGVs from being able to use this route. To assist with enforcement, the right turn movement from A449 south will be removed and physically restricted. An HGV turning head is proposed in order to facilitate any erroneous HGV movements arriving from the A449 north;

  - Straight Mile – this road is a local road unsuitable for HGV traffic and is subject to local HGV restrictions. As part of the proposed HGV routing strategy HGV drivers will be advised not to use this route;

  - Crateford Lane - this road is a local road unsuitable for HGV traffic. As part of the proposed HGV routing strategy HGV drivers will be advised not to use this route. To assist in enforcing this Crateford Lane will be made one way out on to the A449 at the Site access;

- Details of specific signage advising of specific routing instructions in order to reach WMI are provided at Figure 9 and proposed local advisory signs to be located to deter HGVs from travelling through Crateford are shown at Figure 10;

- The provision of a Traffic Regulation Order to be provided at the relocated A449 laybys to limit the duration of parking between specific hours in order to prevent overnight parking;

- A449 between Gailey Roundabout and M6 Junction 13 – WMI HGV traffic will be banned from using this route unless it is a local journey, with an origin or destination along the A449 south of M6 Junction 13. This could be enforced by using ANPR camera technology at accesses serving the development plots and within Penkridge on the A449 to track HGV movements to and from the Site. Alternatively any other available technology at the time of implementation could be used to track WMI HGVs; and

- If any HGVs are found to be using the A449 inappropriately, financial penalties will be levied against each tenant in the event that the Penkridge HGV ban is not adhered to. This will be known as the HGV Enforcement Fund.

5.7.4. With regard to the provision of HGV early arrival bays, in accordance with the DCO document, the Highway Authorities will be consulted on the design and layout of the facilities so that they can be satisfied that they are provided in a form which does not impact upon the existing and future highway network. This will be secured through a DCO requirement.

5.8. Contingent Traffic Management Fund

5.8.1. Should FAL be advised by the TSG of the use of inappropriate routes by WMI traffic as a consequence of the transport generation associated with the WMI proposals, then FAL will investigate the validity of these claims. Should the TSG determine that such transport impacts have arisen and mitigation measures are required then measures will be proposed to mitigate the impact and agreed with the relevant Highway Authorities.

5.8.2. A specific fund will be made available to be spent if necessary by SCC on implementing local traffic measures in the event that a specific need is identified.

5.8.3. Potential measures that the Contingent Traffic Management Fund could be spent on are:

- Relevant surveys in order to examine validity of claimed transport impacts;
- Traffic Regulation Orders;
- Speed limit changes;
- Banned vehicle movements;
- Additional Banned HGV movements;
- Traffic management measures;
- Traffic calming; and
- Carriageway surfacing treatment.

5.8.4. The routes covered by the Contingent Traffic Management Fund are shown on Figure 11

5.9. Intermodal Terminal

5.9.1. WMI includes an Intermodal Freight Terminal to the west of the WCML and will be connected to it.

5.9.2. The freight terminal is designed to accommodate up to 10 trains per day with trains of up to 775m in length. It would facilitate the transfer of freight from road to rail, and vice versa. In addition to serving the operators located on the Site itself, the freight terminal would also serve a wider market area, enabling the transfer, storage and distribution of containers and other goods. Areas for container storage and HGV parking are therefore provided at and adjacent to

the rail terminal. There would also be the ability for goods to be brought to the Site by rail to specific end user warehousing, as is the case at other SRFI in the UK, for example DIRFT.

5.9.3. The intermodal freight terminal would connect directly to the WCML via north and south facing connections, giving direct access to the principal UK ports at Southampton, Felixstowe, London Gateway plus other smaller container ports, the Channel Tunnel and many of the key UK regional distribution cluster locations.

5.9.4. The rail terminal would include four unloading sidings and an engine release siding. All reception sidings, the unloading sidings and the engine release siding will be capable of handling trains of up to 775m in length.

5.9.5. At start-up and based on equivalent UK terminal operations, WMI is expected to handle 4 trains per day in its earlier phases, rising over time to up to 10 trains per day. Greater detail of the rail layout, connections and the operation of the interchange terminal are contained in the Rail Operations Report (Document Reference 7.3).

5.9.6. In terms of vehicular access arrangements, the Intermodal Terminal would be served via a ghost island right turn priority junction arrangement with the proposed internal road. This would accommodate access via the A449 to the west and A5 to the north. As shown on the Illustrative Masterplan [Document 2.8], the entrance to the main Intermodal terminal area would be provided to the south of the junction with the A449/A5 Link Road.

5.9.7. This entrance leads into the main HGV parking area for the terminal, which also serves the entrance and exits routes to the container loading area. The HGV parking area provides parking for up to 75 HGVs. The provision of this level of HGV parking will allow for the early arrival of such vehicles to the terminal and ensure that they do not park at adjacent laybys and truck stops.

5.9.8. Details of the internal arrangements of the HGV parking area, including vehicle circulation details together with the access to the Terminal itself, are provided in Appendix J. This has been supplemented by vehicle tracking of the access arrangements and key parking spaces. This illustrates the adequacy of the Intermodal Terminal to provide workable parking and access arrangements for articulated HGVs which would not result in any vehicle conflict.

5.10. Summary of Benefits of Transport Strategy

5.10.1. The Transport Strategy proposed to serve WMI would afford a number of benefits which are summarised below.

5.10.2. Currently the A5/A449 Gailey roundabout is subject to queuing and often this is related to traffic conditions on the M6. At Gailey the predominant movement is between the two trunk roads, namely the A5 east and A449 south approaches. WMI is proposing to provide a new road between the A5 and A449 which passes through the Site and avoids Gailey roundabout. This means that, not only can WMI traffic avoid Gailey, but existing traffic can do likewise. As the level of queuing is often dependent on the M6, this choice of route means that in the future there will be added resilience to this area, whereby vehicles can vary their route as necessary.

5.10.3. There are local concerns regarding the level of traffic currently using Station Drive and Station Road and the possible increase due to WMI. Some of this traffic is due to vehicles rat running from the A5 east of Junction 12 to the A449 and will revert to using Junction 12 because of the new road referred to above. In addition, it is proposed to ban the right turn from the A449 into Station Drive so that all vehicles travelling north will continue on the A449 and those wishing to access Station Drive only can make a U turn at the new Gravelly Way roundabout. This will result in a reduction in traffic on Station Road and Station Drive.

5.10.4. There is also a concern that with WMI there will be more HGVs trying to use Station Drive and not being able to pass under the low railway bridge. To directly address this concern, it is proposed to provide an HGV turning area on the west side of the bridge to complement the turning facilities currently possible in the side roads on the east side, although it is envisaged that such a turning area will rarely be needed, due to other measures that will be introduced, including proposals to provide improved low bridge warning signs on the approaches to the area and the banned right turn from A449.

5.10.5. It has been reported that Crateford Lane is often used by rat running traffic, particularly by northbound vehicles avoiding a queue on the approach to Gailey. It is therefore proposed that Crateford Lane is made one way eastbound. This means that egress is maintained for local residents whilst preventing the identified rat running.

5.10.6. There will be improved pedestrian and cyclist access around and through WMI. These include upgraded routes along the A449 and A5, a new provision on Vicarage Road and a series of permissive paths through the Site.

5.10.7. Due to the anticipated number of employees at WMI an increased frequency (from hourly to half hourly) of the 54 bus service between Wolverhampton and the Site has been identified as a possible solution and would be promoted closer to the date of occupation. This increased frequency would then be available for all residents on the route between Wolverhampton and Four Ashes.

5.10.8. A shuttle bus service will be provided, operating between WMI and significant clusters of employees.

5.10.9. A Contingent Traffic Management Fund will be created. This will allow traffic conditions within the areas of Brewood, Coven and Calf Heath to be reviewed and if considered necessary by the TSG, allow for mitigating works to be undertaken in order to provide traffic management measures.

5.10.10. A Vehicle Booking system will operate at WMI which regulate arrival times by HGV's. This will control the flow of traffic at WMI and the local area by reducing the number of vehicles that arrive at any one time especially at peak times.

5.10.11. Early arrival bays will be provided in order to accommodate WMI HGV's that may arrive ahead of their vehicle booking slot. This will remove pressure from WMI HGV's on local HGV parking areas. In addition, contingent measures have been identified that will address increases in demand for HGV parking at the Site in the event of disruption on the surrounding strategic and local highway network as well as in the event of short or long term closures of the WCML.

6. TRIP CHARACTERISTICS

6.1. Background

6.1.1. This section summarises the derivation of the trip generation, and distribution for WMI.

6.1.2. Due to the specific characteristics associated with an SRFI, it was deemed inappropriate to use more conventional trip databases, such as TRICS trip rates for warehousing units. It was therefore agreed with HE and SCC as part of the TA scoping exercise, that traffic surveys of the Daventry International Rail Freight Terminal (DIRFT) would be used as a basis for trip generation for WMI as this is one of the most mature SRFI's, is of a similar size and is located in a similar region.

6.1.3. The general trip generation methodology, using the DIRFT surveys, was presented to and agreed by HE and SCC in the Transport Assessment Scoping Report (included in Appendix A).

6.1.4. DIRFT has developed into a mature and successful rail freight interchange, which is typically served by nine trains a day. In addition DIRFT is comparable with WMI for the following reasons:

- It is located within the Midlands, and is therefore comparable within the regional context;
- It is located in proximity to the Strategic Road Network (Junction 18, M1);
- Public transport is limited and there are no built up areas within a reasonable walking distance; and
- It is a rail freight terminal including 3 intermodal terminals, rail connected warehousing and standalone warehousing.

6.1.5. A specific characteristic of SRFI's is the movement of goods between the intermodal terminal itself and the associated warehousing and this results in the containment of a number of trips on site which means the traffic characteristics are different to traditional warehousing developments. The following three types of road based freight movements occur: -

- External HGVs travelling to and from the intermodal terminal;
- External HGVs travelling to and from the warehousing; and
- Internal HGVs or tractors travelling between the warehousing on site and the rail terminal.

6.1.6. To ascertain the volume of trips arriving, departing and moving internally within DIRFT, Manual Classified Counts (MCC) and 24hr Automatic Number Plate Recognition (ANPR) survey were carried out in June 2016.

6.1.7. Further details on the methodology for the surveys carried out at DIRFT, can be found in Technical Note 5 which is included in Appendix K.

6.1.8. The detailed dialogue held with both HE and SCC since April 2016 has allowed the methodology adopted to forecast trip generation of the Proposed Development, as provided within Technical Note 5 to be agreed.

6.2. Trip Rates & Generation

6.2.1. The trip rates for the HGV, light vehicle and non-HGV vehicular movements generated by WMI have been calculated based upon the manual classified count surveys at the access to each of the six DIRFT zones, defined as part of the surveys, and the known gross floor areas of each unit as defined by the Valuation Office Agency.

External – Light Vehicle Trips

6.2.2. The non-HGV (light vehicle) trip generation primarily consists of employee vehicles, although there is a smaller element of vans which service the area. The external light vehicle trip rates, based on 100sqm GFA and derived from the 2016 MCC DIRFT surveys, are shown in Table 12 and the calculated external trips for WMI during the peak hours in Table 13 below.

Table 12: External Light Vehicle Trip Rates at DIRFT (Per 100sqm)

TIME	ARRIVAL	DEPARTURE	TWO WAY
AM (08:00-09:00)	0.072	0.012	0.084
PM (17:00-18:00)	0.040	0.059	0.099
24 Hour	0.834	0.821	1.655

Source: DIRFT Survey

Table 13: Number of External Light Vehicle Trips at WMI by peak hours

TIME	ARRIVAL	DEPARTURE	TWO WAY
AM (08:00-09:00)	531	91	622
PM (17:00-18:00)	300	438	738
24 Hour	6,197	6,108	12,304

Mode of Travel

6.2.3. It was initially assumed that travel patterns at WMI for all modes of travel will reflect those currently exhibited at nearby employment areas, such as Four Ashes industrial estate. Therefore, in order to establish the likely trip generation at WMI for travel modes other than the private car, the 2011 Census journey to work statistics for the area south of WMI, South Staffordshire Super Output Area 006, which includes Four Ashes industrial estate were obtained. It is accepted that due to the size and scale of the development it is unlikely that the local population is large enough to support the current walking and cycling mode share. Therefore the travel mode shares have been adjusted to reflect this. These are set out in Appendix K and summarised in Table 14

:

Table 14: Proposed WMI Travel to Work Mode Share

TRAVEL MODE	MSOA 006 % MODE SHARE	ADJUSTED BASE WMI MODE SHARE
Car Driver	83%	83%
Car Passenger	6%	7.5%
Bicycle	2%	4%
Bus	3%	3%
Train	0%	1%
Motorcycle	1%	1%
Walking	5%	0.5%

6.2.4. Due to the geographic nature of the area it can be seen in Table 14 that 83% of employees are expected to travel to work by car alone and 7.5% as car passenger.

6.2.5. The trip rates in Table 12 are primarily private car therefore, as shown in Table 14, cars are 83% of the Non – HGV person trip rate. Factoring this up to 100% provides a Non - HGV person trip rate, this can then be converted to trip rate by travel mode using the travel mode shares in Table 14. This is set out in Table 15.

Table 15: External Non – HGV Multi Modal Person Trip Rates (per 100sqm)

TRAVEL MODE	AM IN	AM OUT	AM TWO WAY	PM IN	PM OUT	PM TWO WAY	DAILY IN	DAILY OUT	DAILY TWO WAY
Train	0.001	0.000	0.001	0.000	0.001	0.001	0.010	0.010	0.020
Bus	0.003	0.000	0.003	0.001	0.002	0.004	0.030	0.030	0.060
Taxi	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Motorcycle	0.001	0.000	0.001	0.000	0.001	0.001	0.010	0.010	0.020
Car driver	0.072	0.012	0.084	0.040	0.059	0.099	0.834	0.822	1.656
Car Passenger	0.006	0.001	0.008	0.004	0.005	0.009	0.075	0.074	0.150
Bicycle	0.003	0.001	0.004	0.002	0.003	0.005	0.040	0.040	0.080
Walking	0.000	0.000	0.001	0.000	0.000	0.001	0.005	0.005	0.010

6.2.6. Access to the Site via other sustainable modes of transport including cycle, bus and rail will be promoted within the SWTP that will be provided for WMI.

External Heavy Goods Vehicle Trips

6.2.7. As a proportion of HGV trips will originate from and remain within the Site for operational purposes, such as transferring cargo from rail to warehouse, it is important to disaggregate internal trips and external trips made by HGVs, because internal trips would not have an impact on the external highway network.

6.2.8. Through analysis of the ANPR survey data HGVs were monitored, entering and exiting each zone of DIRFT to gauge the level of internal and external HGV movements.

6.2.9. Based on the surveys undertaken at DIRFT the external HGV trip rates per 100sqm have been calculated and are set out in Table 16 below.

Table 16: External Warehouse Related Heavy Good Vehicle Trip Rates at DIRFT (per 100sqm)

TIME	ARRIVAL	DEPARTURE	TWO WAY
AM (08:00-09:00)	0.017	0.016	0.032
PM (17:00-18:00)	0.017	0.022	0.038
24 Hour	0.382	0.366	0.748

6.2.10. Based on the GFA of WMI being up to 743,200sqm the resulting AM and PM external warehouse related trips are shown in Table 17.

Table 17: External Warehouse Related Heavy Goods Vehicle Trips at WMI

TIME	ARRIVAL	DEPARTURE	TWO WAY
AM (08:00-09:00)	124	117	241
PM (17:00-18:00)	123	161	284
24 Hour	2,841	2,719	5,560

6.2.11. In addition to the above external HGV movements, the intermodal terminal is also expected to generate a number of HGV movements, independent of the warehousing. These relate to the number of trains currently envisaged to serve the rail terminal at WMI. Table 18 sets out the expected external Intermodal HGV trip generation for the predicted 10 trains a day serving WMI.

Table 18: External Intermodal related Heavy Goods Vehicle Trips

TIME	ARRIVAL	DEPARTURE	TWO WAY
AM (08:00-09:00)	15	25	40
PM (17:00-18:00)	24	17	41
24 Hour	395	364	759

6.2.12. By combining the external warehouse related HGV trips and the external intermodal HGV trips, the total external HGV trip generation is shown in Table 19 below.

Table 19: Total External Heavy Good Vehicle Trips by peak hours

TIME	ARRIVAL	DEPARTURE	TWO WAY
AM (08:00-09:00)	138	142	282
PM (17:00-18:00)	147	178	325
24 Hour	3,236	3,083	6,319

Daily Profile

6.2.13. At the request of SSDC and SCC, in order to understand the level of traffic movements, across the day, a daily profile of trips per hour generated by WMI has been estimated based on surveys carried out at DIRFT in 2016. The estimated number of light vehicle trips per hour is set out in Table 20.

Table 20: Number of Daily External Light Vehicle Trips at WMI Per Hour

HOUR	IN	OUT	TWO WAY
00:00	31	108	139
01:00	41	144	185
02:00	54	146	201
03:00	59	69	128
04:00	114	70	184
05:00	842	167	1009
06:00	551	519	1070
07:00	477	263	740
08:00	531	91	622
09:00	362	145	508
10:00	188	145	333
11:00	190	166	356
12:00	210	221	431
13:00	572	239	811
14:00	286	765	1051
15:00	192	468	660
16:00	147	501	648
17:00	300	438	738
18:00	221	394	615
19:00	103	145	248
20:00	94	141	235
21:00	352	112	465
22:00	200	445	645
23:00	80	203	282

6.2.14. The estimated daily profile of the combined external Intermodal HGV trips and related external warehouse related HGV trips is set out in Table 21.

Table 21: Number of Daily External Heavy Good Vehicle Trips at WMI Per Hour

HOUR	IN	OUT	TWO WAY
00:00	107	66	173
01:00	85	87	172
02:00	74	68	142
03:00	74	64	138
04:00	69	81	150
05:00	102	91	193
06:00	136	116	252
07:00	125	100	225
08:00	138	142	281
09:00	170	160	329
10:00	173	157	330
11:00	168	177	345
12:00	191	196	386
13:00	162	169	331
14:00	210	161	371
15:00	204	193	397
16:00	166	175	341
17:00	147	178	325
18:00	114	148	262
19:00	143	130	273
20:00	119	115	234
21:00	105	116	221
22:00	128	83	211
23:00	125	112	238

Trip Rates for Pre A449/A5 Link Road Assessment

6.2.15. As the construction of WMI is anticipated to be over a 15 year period, it is intended that a small volume of warehousing will be constructed and accessed either from the A5 or Vicarage Road and the A5 prior to the completion of the A449/A5 Link Road and rail terminal.

6.2.16. This initial phase would consist of up to 185,000sqm (2 million sqft) of warehousing. This would be operational before the rail terminal and will therefore operate as standard commercial warehousing. There is unlikely to be any internal trips at this stage therefore for these reasons, it is not felt that the specific DIRFT trip rates and data are appropriate for this assessment.

6.2.17. As a result the TRICS database has been consulted in order to find suitable trip rates. The TRICS database is a standard and nationally accepted methodology for obtaining trip rates for development purposes.

6.2.18. The Employment; Warehousing (commercial) category has been used and all regions, excluding Greater London, Ireland, Scotland and Wales, have been included. The warehousing on the WMI site is going to be large therefore all sites below 20,000sqm in the TRICS database have been excluded from the search in order to generate the most representable trip rates.

6.2.19. The search returned 3 sites and these have been used to generate the proposed trip rates. The TRICS output is included in Appendix L and summarised for the AM and PM peak hours in Tables 22 and 23 below.

Table 22: Warehouse (Commercial) TRICS Trip Rates (Per 100sqm)

	AM PEAK			PM PEAK		
	IN	OUT	TWO WAY	IN	OUT	TWO WAY
Car/LGV	0.032	0.014	0.046	0.004	0.019	0.023
HGV	0.019	0.018	0.037	0.017	0.021	0.038

Table 23: Pre A449/A5 Link Road Warehouse Trip Generation (185,000sqm)

	AM PEAK			PM PEAK		
	IN	OUT	TWO WAY	IN	OUT	TWO WAY
Car/LGV	59	26	85	7	35	43
HGV	35	33	68	31	39	70

6.2.20. The use of these trip rates for this pre A449/A5 Link Road assessment has been agreed with HE and SCC.

6.3. Trip Distribution

6.3.1. In order to establish where traffic is travelling to and from to access WMI, a distribution model for both light vehicles and HGVs has been developed.

6.3.2. The trip distribution methodology for traffic generated by WMI is set out in Technical Note 14, (included in Appendix M). The methodologies outlined in this technical note were discussed and agreed with HE and SCC as the most appropriate method of trip distribution for both vehicle classes.

Light Vehicle Trips Distribution from WMI

6.3.3. Two distribution methodologies for light vehicles were examined including using Journey to Work Census Data and a Gravity Model. Journey to Work Census Data was analysed for the Middle Layer Super Output Area (MSOA) South Staffordshire 006. Whilst the majority of the Site is in MSOA South Staffordshire 001, it was not deemed appropriate to use as it does not include any significant employment areas. South Staffordshire 006 contains the adjacent Four Ashes and SI Group employment areas.

6.3.4. It was concluded that as a large new employer, it is unlikely that the employee distribution will match the existing journey to work patterns of 006; therefore, an extended gravity model was produced based on the potential catchment areas of employees for WMI.

6.3.5. Discussions have been undertaken with the Quod socio-economic team to ensure a robust approach is taken, based on the economically active residents in the catchment.

6.3.6. The final proposed light vehicle (employee) distribution is set out in Table 24.

Table 24: Light Vehicle (Employee) Distribution – Gravity Model

AREA	DISTRIBUTION (%)
Birmingham (Part Of)	6.61%
Cannock Chase	8.81%
Dudley	2.60%
Litchfield	8.29%
Sandwell	8.49%
Shropshire	3.66%
South Staffordshire	18.20%
Stafford	5.13%
Telford and Wrekin	6.10%
Walsall	11.38%
Wolverhampton	12.08%
Stoke-on-Trent	5.17%
Staffordshire Moorlands	0.53%
Newcastle-under-Lyme	1.70%
East Staffordshire	1.26%
Total	100%

Heavy Goods Vehicle Trips Distribution from WMI

6.3.7. WMI is expected to deliver goods on a regional and national basis. In order to assess the HGV distribution, calculations have been undertaken based on the DfT Road Freight Statistics 2015 and are set out in Table 25.

Table 25: National HGV Two Way Distribution

DESTINATION (FROM WEST MIDLANDS)	MILLION TONES	DISTRIBUTION (%)
North East	2	0.6%
North West	26	7.3%
Yorkshire & Humber	15	4.2%
East Midlands	33	9.3%
West Midlands	218	61.6%
East of England	13	3.7%
London	5	1.4%
South East	14	4.0%
South West	14	4.0%
Wales	12	3.4%
Scotland	2	0.6%
All Regions	354	100.0%

6.3.8. Table 25 shows it is expected that 61.6% of goods to and from WMI will be transported by HGV from within the West Midlands region. To understand how these HGV movements will impact on the local highway network around WMI, a further gravity distribution model was developed for this region using a resident population / distance calculation. HGV movements are related to economic activity and centres of population and it was felt that using resident population and distance for the gravity model best reflected this. The results of this are shown in Table 26.

Table 26: HGV Distribution within West Midlands

DESTINATION	DISTRIBUTION (%)
Birmingham	11.7%
Bromsgrove	0.7%
Cannock Chase	3.3%
Coventry	1.7%
Dudley	3.5%
East Staffordshire	1.1%
Herefordshire, County of	0.6%
Lichfield	1.5%
Malvern Hills	0.3%
Newcastle-under-Lyme	1.0%
North Warwickshire	0.5%
Nuneaton and Bedworth	0.7%
Redditch	0.5%
Rugby	0.5%
Sandwell	5.1%
Shropshire	2.1%
Solihull	1.4%
South Staffordshire	3.6%
Stafford	1.6%
Staffordshire Moorlands	0.6%
Stoke-on-Trent	2.1%
Stratford-on-Avon	0.5%
Tamworth	0.8%
Telford and Wrekin	1.9%
Walsall	5.5%
Warwick	0.7%

Wolverhampton	6.4%
Worcester	0.5%
Wychavon	0.5%
Wyre Forest	0.7%
Total	61.6%

6.4. Summary

6.4.1. The trip generation for WMI is based on surveys carried out at the existing successful SRFI near Daventry, namely DIRFT. A number of MCC and ANPR surveys were undertaken at DIRFT, to ascertain a trip rate for light vehicle and HGV movements generated by WMI.

6.4.2. Trip distribution has been calculated using gravity models for both light vehicles and HGVs. The results of the light vehicle distribution have been correlated with regional demographics and specifically local labour force profiles to ensure the distribution is realistic. The majority of HGV trips will travel to / from the local area (with 61% of HGV movements remaining in the West Midlands).

6.4.3. The methodology adopted to forecast both HGV and non HGV trip generation has been agreed with HE and SCC. In addition, the methodology used to forecast the distribution of HGV and non HGV trips to the highway network has been agreed with HE and SCC.

7. CONSTRUCTION AND PHASING

7.1. Preamble

7.1.1. This Section summaries the indicative construction programme of the development and management of the construction traffic. It also summaries the potential local traffic effects during the construction phase, setting out how access will be maintained for existing industrial areas, immediately surrounding the Site.

7.2. Construction Programme

7.2.1. Construction and occupation of the development will take approximately 15 years, commencing in 2021 through to completion in 2036, with construction of the site generally taking place in a north to south direction. It is anticipated that the Proposed Development would be delivered through five indicative phases.

7.3. Construction Working Hours

7.3.1. The normal construction hours would consist of a 5 and half day week and are proposed as Monday to Friday 07.00 to 19.00 hours and Saturday 07.00 to 13.00hours.

7.3.2. No works will take place outside of the hours stated above, unless by agreement with South Staffordshire District Council or in emergency situations.

7.3.3. All delivery vehicles and plant arriving and leaving the Site will comply with such time restrictions, although Site personnel will be permitted to access the Site shortly before these hours and exit shortly after.

7.4. Demolition and Construction Traffic Management Plan

7.4.1. Delivery of the Proposed Development will see site works that will consist of a number of elements including construction of infrastructure (for example roads, bridges and drainage), the rail freight terminal, individual buildings, earthworks, landscaping and utilities works.

7.4.2. To mitigate against any negative environmental impacts associated with construction traffic a Demolition and Construction Traffic Management Plan (DCTMP) has been prepared as a separate document in order to support the DCO submission. This is shown in Appendix N.

7.4.3. During the construction of the Proposed Development it will be necessary for various plant, equipment and material to be transported to and from the Site. The DCTMP has been produced to consider construction traffic and how it can be managed effectively to minimise the adverse impact on the local and strategic highway network.

7.4.4. To minimise the impact on the local area all construction traffic will be encouraged to remain on strategic routes, and will be advised to use the A5 access, coming in from the M6 Junction 12.

7.4.5. As this junction is accessible for vehicles travelling from the north, south and east of the country, vehicles travelling from the immediate west of the site, for example Mid Wales or Telford areas, would be advised to use the A449, via the M54 Junction 2.

7.4.6. Off-site directional signage on the A5 will be provided to advise road users of the construction access.

7.4.7. Holding areas for construction traffic will be provided on-site, clear of the public highway. These will accommodate HGV's that arrive at the Site earlier than anticipated in order to avoid additional demand at adjacent laybys and truck stops.

7.4.8. Specific additional on-site measures will be introduced which would include:

- The supply of pre-trip directional and access information;
- Vehicle wheel washing; and
- Dust and dirt management.

7.4.9. Measures will be provided to encourage and facilitate construction worker travel by sustainable modes and reduce single occupancy vehicle travel during the delivery of the scheme. Bespoke measures will be developed as more is known about the number of construction workers required on Site and their origins but could include the following:

- Dedicated shuttle buses to the Site from key locations such as Cannock, Wolverhampton and Walsall;
- Provision of information on public transport services in the area; and
- Information on local car share schemes.

7.4.10. The DCTMP will focus on the WMI Site being a “considerate neighbour” and contractors will be required to follow the considerate contractor’s scheme.

7.4.11. The DCTMP will be managed by the Site contractor and regular monitoring and review of the FCTMP will be documented and shared with HE and SCC.

7.5. Construction Access Points

7.5.1. The main access points for construction traffic will be via the A449 and A5. To ensure construction traffic remains on the strategic road network, all construction traffic will be advised to use M6 Junction 12 and access the site via the A5 access.

7.5.2. Due to the severance the railway bridge and the canal bridge create through the Site around the intermodal terminal some access would be required from the A449 as part of the bridge construction and intermodal works.

7.6. Construction Traffic

7.6.1. To ascertain the level of construction movements associated with the Site, traffic flow calculations were carried for a 2021 base year. Details of the volumes of construction traffic activity have been based upon information received from a contractor in relation to the construction of warehousing development at Greenham, Berkshire. In terms of the volumes of construction traffic associated with the delivery of the rail and bridging elements of the Proposed Development, this has been based upon known activity from the implementation of similar infrastructure at other locations within the UK.

7.6.2. The annual average daily construction flow associated with WMI equated to a total of 426 vehicular trips of which 240 were HGV's and 186 light vehicle movements.

7.6.3. The dominance of the A5 entry to the site is shown in the vehicular movements which show 155 vehicle movements by direction on the A5 between Junction 12 and the site access compared with 52 on the A449 between the M52 and Gravelly Way

7.7. Access to Surrounding Industrial Estates

7.7.1. During the construction period of WMI, close consultation will take place with existing industrial units at Bericote and Four Ashes to ensure access would be maintained to their premises.

7.7.2. As the proposed new bridges over the railway line and canal would be constructed 'off line', access along Gravelly Way would be maintained until such a time that the new road and bridges are completed. Throughout the construction process, dialogue will be carried out with neighbouring units to update them on schedule of works.

8. MODELLING BACKGROUND

8.1. Preamble

8.1.1. This Section summarises the strategic traffic modelling approach adopted to assess the highway implications of WMI.

8.1.2. The modelling platforms utilised are the M54 / M6 / M6 Toll Link Road SATURN Model (M54/M6SM) and the South Staffordshire VISSIM Model (SSVM). The M54/M6SM was developed by Atkins on behalf of Highways England with a 2012 Base Year and forecast years of 2021 and 2036. The SSVM has been developed by Systra on behalf of Highways England with a Base Year of 2015. Both of these models have been prepared in accordance with the Department for Transport WebTAG guidance, as specified by the Local Model Validation Reports that accompanied the work undertaken by HE's relevant consultants.

8.1.3. In order to provide a policy compliant assessment in accordance with Circular 02/2013, it has been agreed with both HE and SCC that it is necessary to undertake capacity analysis of the operation of the highway network at the year of opening of the scheme, which is 2021. This future year assessment at 2021 allows for the full delivery of development floor area of WMI in accordance with Circular 02/2013 and it is this future year assessment that is utilised in order to determine any highway mitigation that may be required as a consequence of the Proposed Development.

8.1.4. Both Atkins and Systra were commissioned separately to undertake further modelling on behalf of WSP in order to assess the implications of the Proposed Development with the agreement of HE and SCC.

8.1.5. M54/M6SM has been used to distribute WMI traffic to the wider highway network, with HE's SSVM then distributing it across the local highway network, more accurately reflecting the local conditions. The SSVM is then used as a tool to assess the operation of the highway network.

8.1.6. It was agreed with the Highway Authority's that the area covered by the SSVM should form the assessment cordon to be considered in order to identify the highway implications of WMI.

8.1.7. In the absence of an announcement of the preferred route of the M54/M6/M6 Toll link, it has been agreed with the Highway Authority's that modelling of the assessment cordon should not consider a 2036 forecast year other than to assess the future operation of the proposed A5 and A449 roundabouts at this future year. This assessment is a requirement of the DMRB TD 37/93. It should be noted that the 2036 assessment makes no allowance for traffic changes arising from the M54/M6/M6 Toll link, which are generally anticipated to reduce traffic volumes along the A449 and the A5 in the vicinity of the Site. The 2036 assessment of the A5 and A449 roundabouts has been undertaken using standalone junction models using the computer program Junctions8. These assessments are discussed in Section 9 of this report.

8.1.8. Therefore, for each strategic traffic model platform, two separate scenarios have been prepared. These are: -

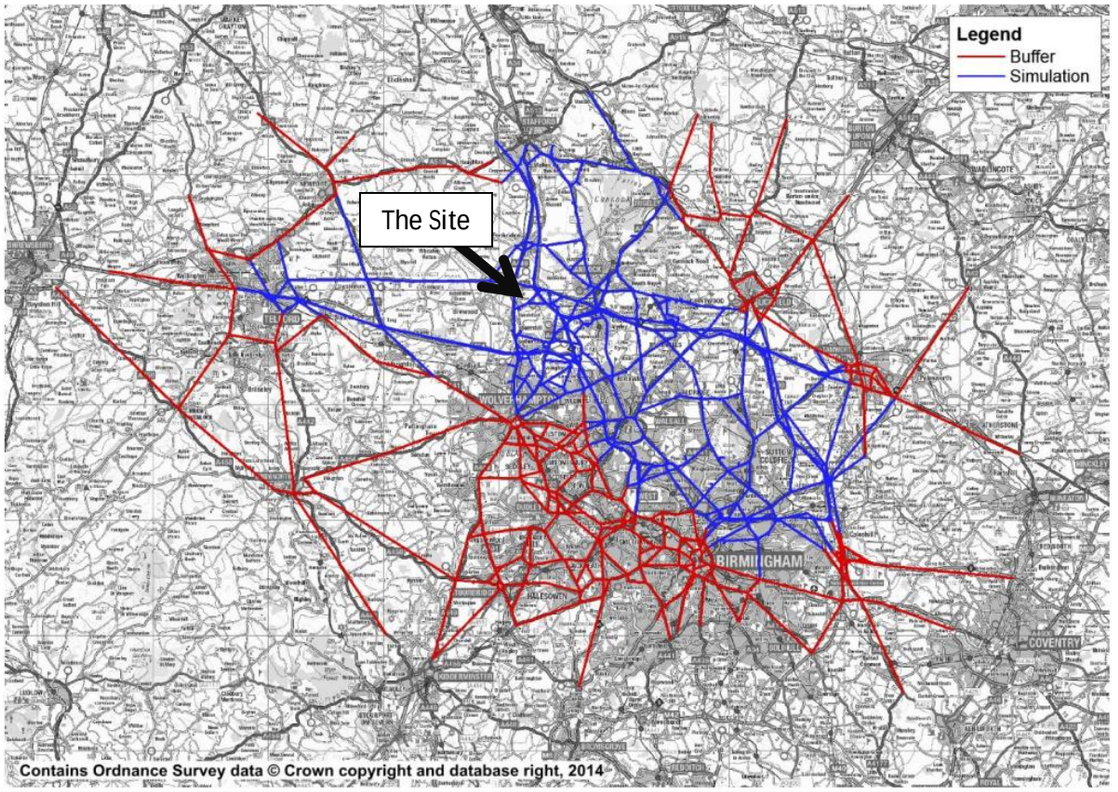
- 2021 Do Minimum (including committed development); and
- 2021 Do Something (including committed development and the WMI Proposed Development).

8.1.9. For descriptive purposes, the 2021 Do Minimum scenario is referred to as 2021 without WMI, whilst the 2021 Do Something, is referred to as 2021with WMI.

8.2. M54 / M6 / M6 Toll Link Saturn Model

8.2.1. The M54/M6SM has been prepared by Atkins acting for Highways England. The SATURN model network is shown in Diagram 8.1 below.

Diagram 8.1 Extent of M54/M6/M6 Toll Link SATURN Model



Source: Highways England M54/M6/M6 Toll Road Link Road Scheme, Traffic Forecasting Report, March 2015

8.2.2. In 2015 a report was produced by Atkins that provided details of forecast future traffic movements within the region based on the introduction of the M54/M6/M6Toll link road scheme. The model considered three route options, together with a variant. This document considered future years of 2021 and 2036.

8.2.3. With the agreement of HE and SCC, a request was made to expand on this model to act as a parent model to supply demand forecasting for the VISSIM analysis.

8.2.4. The original 2021 M54/M6SM did not include for the full quantum of development of all committed development schemes within the study area at the 2021Without WMI scenario.

8.2.5. At the request of the Highway Authority's, the extent of cumulative schemes included within the model was expanded in order to account for further schemes that have been consented since the preparation of the original 2021 M54/M6SM. These additional cumulative schemes are: -

- Ward Street, Ettingshall (650 dwellings);
- Bilston Urban Village (478 dwellings);
- Watery Lane, Codsall (180 dwellings);
- Cley Road, Cannock (34,560 sqm B8 floor space); and
- Kingswood Lakeside, Blakey Way (12,454 sqm B8 floor space).

8.2.6. These sites are located beyond the Cumulative search area as agreed with SSDC in respect of the Environmental Statement, but are located within the Administrative Districts surrounding the Site. In accordance with Circular 02/2013, all development consents within the vicinity of the Site should be included within Baseline traffic flow. On this basis and as required by the Highway Authority's, they have been included within the strategic traffic modelling that has been undertaken.

8.2.7. In relation to the Bericote committed development scheme, a further consent was secured during 2016 and the associated development traffic was not included within the original M6/M54SM. Whilst this site does form part of the Cumulative Site search area, it was necessary to include for the further traffic associated with the additional consent within the traffic modelling.

8.2.8. Finally, the original 2021 M54/M6SM included allowances for strategic improvements to the A449 corridor. These improvements are not committed therefore, these infrastructure alterations to the highway network have been removed from the model.

8.2.9. In respect of the 2021 with WMI scenario, WMI development traffic has been included within the model, based upon the development traffic distribution agreed with the Highway Authority's.

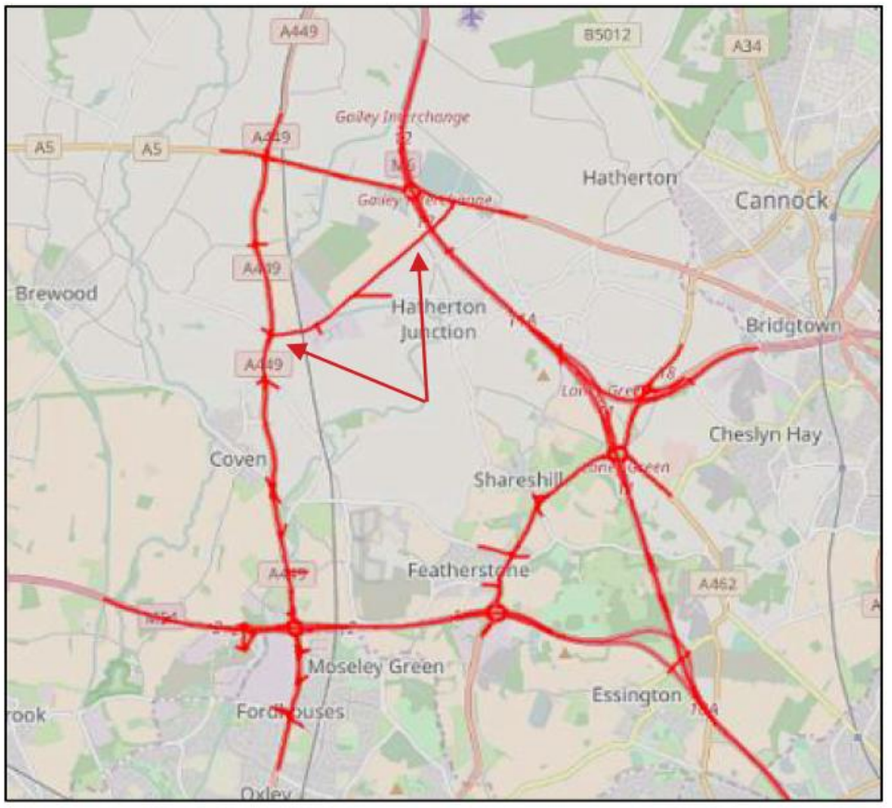
8.2.10. The model was also expanded to allow for the provision of the public route through the Site connecting the A5 and the A449.

8.3. South Staffordshire VISSIM Model

8.3.1. WSP instructed Systra to undertake a development impact assessment of West Midlands Interchange utilising the Highways England South Staffordshire VISSIM Model (SSVM). As specified above, the M54/M6/M6SM provided a parent model upon which the demand forecasting for which the VISSIM model has been based in order to allow a more refined local level traffic distribution to be identified.

8.3.2. The extent of the SSVM is shown in Diagram 8.2.

Diagram 8.2: Extent of South Staffordshire VISSIM Model



Source: Systra 2015/16 LMVR Feb 2017

8.3.3. The model commissioned involved updating the 2015 Base Year SSVM to include WMI development traffic, and public access through the internal road connecting the A449 and A5.

8.3.4. The original SSVM was updated by Systra on behalf of WSP to address the following for the 2021 Without WMI scenario: -

- Provision of validated queue lengths at A449 / Station Drive;
- Provision of validated queue lengths at A5 / Vicarage Road; and
- Identification of traffic travelling through both ends of Station Drive and Vicarage Road.

8.3.5. A Local Model Validation Report was carried out in February 2017 (Shown in Appendix O) detailing these updates to the original SSVM demonstrating that the SSVM was developed in accordance with the Highways England and Department for Transport modelling guidelines.

8.3.6. In respect of the 2021 With WMI scenario, the VISSIM model that was undertaken to inform the draft Transport Assessment that accompanied Stage Two Consultation was also expanded in order to reflect the highway infrastructure that would be delivered by WMI together with the associated traffic generation of the Proposed Development. In summary, the following highway infrastructure assumptions were included within the expanded SSVM model that supported Stage Two Consultation:

- Proposed Site access junctions with the A5, A449 and Vicarage Road;
- Provision of a public route through the Site between the A5 and the A449.
- Removal of the right turn from the A449 to Station Drive;
- Altering Crateford Lane to one way only in an east bound direction;

8.3.7. Following review of the SSVM that accompanied Stage Two Consultation, HE's retained Consultants advised of operational difficulties at M6 Junction 11 that in their view required mitigation. This was addressed through alterations to the timings of the traffic signals that operate at this junction. In addition, SCC requested that the SSVM models also include for the ban of HGV movements through Penkridge as per the proposed WMI HGV routing ban. Finally, a number of minor amendments were made to the model to address comments received from HE's Consultants, including revising the access arrangements shown to serve the Intermodal Terminal.

8.3.8. Together with the infrastructure described in Section 5, these changes were incorporated into the SSVM that has been undertaken in order to support DCO submission and which is reported within Section 9.

8.3.9. In addition, whilst the Vicarage Road Link will not be offered for adoption or open to the public at all times, HE requested that the availability of this route to public traffic be assessed so that any effects upon the operation of the SRN can be identified. This route has been included within a further iteration of the SSVM as a sensitivity test. This is also reported in Section 9.

9. TRANSPORT IMPACT ANALYSIS

9.1.1. This Section describes the impacts of the Proposed Development on the strategic and local highway network that serves the Site.

9.1.2. Transport modelling was undertaken in order to present result for the Stage Two Consultation. Since that Consultation some additional SSVM analysis has been undertaken as described in Section 8. This section will therefore report on all the completed modelling, presenting the following points:

- Traffic flows;
- Journey Times;
- Vehicle Speeds; and
- Queue Lengths.

9.1.3. As specified in Section 8, it has been agreed with HE and SCC that the assessment of the impact of the proposed West Midlands Interchange should be undertaken using the detailed SSVM with the demand forecasting being supplied from the 2021 M54/M6SM.

9.1.4. Whilst the SSVM provides an assessment to be made across a wide area, for the purpose of this document, the immediate road network around the Site will be defined as the study area and will include the following seven existing junctions, as shown in Figure 12.

- M6 Junction 12
- M6 Junction 11
- Gailey roundabout (A5/A449)
- A449/Gravelly Way/Crateford Lane/A449/A5 Link Road
- A449/Four Ashes Road/Station Drive

- A5/Vicarage Road
- Vicarage Road/Straight Mile

9.1.5. In addition, the operation of the proposed Site access junctions with the A5 and Vicarage Road will also be considered.

9.1.6. Following comments received from SCC to the Stage Two Consultation, details of the peak period operation of the development access junctions with the A449/A5 Link Road will be provided.

9.2. VISSIM Network Performance

9.2.1. Systra have provided details of the output of the VISSIM modelling which has been undertaken in order to account for WMI.

9.2.2. It should be noted that HE and SCC have confirmed that they consider that the traffic changes arising from WMI do not have a severe impact upon the operation of the SRN and county roads surrounding the Site. Consequently, agreement has been reached with both HE and SCC on the highway impact of the Proposed Development.

9.2.3. This Section provides a comparison between the 2021 without WMI and 2021 with WMI scenarios across the SSVM network. In summary, the SSVM indicates that:

- Average travel time and average distance travelled stayed the same in both the AM and PM periods;
- Average speed decreased from 71kph to 70kph in AM and 71kph to 67kph in the PM; and
- Average delay increased from 53 seconds to 55 seconds in the AM peak and from 59 to 76 seconds in the PM peak.

9.2.4. Detailed analysis of journey times, vehicle queue lengths and traffic flows are reported below.

Local Journey Time Results

9.2.5. Routes serving WMI were modelled through the SSVM to identify information on journey times on specific links. Figure 13 illustrates the links where these journey times have been identified.

9.2.6. The comparison of journey times between the 2021 Without WMI and 2021 With WMI scenarios during the AM and PM peak hours is shown in Table 28 below.

Table 28: Journey Time Comparisons between 2021 without WMI and 2021 with WMI

ROUTE DESCRIPTION	AM Peak (0800-0900)			PM Peak (1700-1800)		
	2021 (WITHOUT WMI) - SECONDS	2021 (WITH WMI) - SECONDS	DIFFERENCE - SECONDS	2021 (WITHOUT WMI) - SECONDS	2021 (WITH WMI) - SECONDS	DIFFERENCE - SECONDS
Route 1- East of Vicarage Road to West of Gailey Roundabout	281	262	-19	263	277	14
Route 1 - A5 from West of Gailey Roundabout to East of Vicarage Road	238	248	10	230	261	31
Route 2 - M6 South of J12 to A449 North of Gailey Roundabout	222	209	-13	210	225	15
Route 2 - A449 North of Gailey Roundabout to M6 South of J12	222	231	9	218	249	31
Route 3 - North of Gailey Roundabout to South of M54 J2	457	475	18	436	461	25
Route 3 - South of M54 J2 to North of Gailey Roundabout	455	462	7	559	617	58
Route 4 - A5 East of Vicarage Road to A449 South of M54 J2	680	682	2	644	685	41
Route 4 - South of M54 J2 to A5 East of Vicarage Road	650	663	13	761	836	75

ROUTE DESCRIPTION	AM Peak (0800-0900)			PM Peak (1700-1800)		
	2021 (WITHOUT WMI) - SECONDS	2021 (WITH WMI) - SECONDS	DIFFERENCE - SECONDS	2021 (WITHOUT WMI) - SECONDS	2021 (WITH WMI) - SECONDS	DIFFERENCE - SECONDS
Route 5 - M6 North of J12 to A449 South of M54 J2	690	703	13	654	708	54
Route 5 - South of M54 J2 to M6 North of J12	621	637	16	735	808	73
Route 6 - A5 East of Vicarage Road to A449 South of Station Drive	382	381	-1	359	394	35
Route 6 - South of Station Drive to A5 East of Vicarage Road	375	382	7	475	547	72
Route 7 - A5 East of Vicarage Road to A449 South of Station Drive (via Station Drive)	310	354	44	303	316	13
Route A - A5 East of Vicarage Road to A449 South of Station Drive **(via A449/A5 Link Road)**	-	381	-	-	218	-
Route A - A449 South of Station Drive to A5 East of Vicarage Road **(via A449/A5 Link Road)**	-	364	-	-	405	-
Route 7 - A449 South of Station Drive to A5 East of Vicarage Road **(via Station Drive)**	338	-	-	378	-	-

Source: Systra Technical Note October 2017

9.2.7. Table 28 shows the variance in journey times across the different routes assessed based on with and without WMI scenarios.

9.2.8. During the AM peak period, three routes experience an improvement in journey times when the 2021 with WMI scenario is compared against the 2021 without WMI Scenario. Route 1 between the A5 from east of Vicarage Road to west of Gailey roundabout shows a reduction of 19 seconds. Route 2 between the M6 south of J12 to A449 north of Gailey roundabout shows a reduction of

13 seconds, whilst Route 6 from A5 east of Vicarage Road, via Gailey roundabout to A449 south of Station Drive shows a reduction of 1 second.

9.2.9. It is considered that the observed reductions in travel times on these routes during the AM peak are a product of relieving congestion at the Gailey roundabout by providing the alternative route that will be provided by the A449/A5 Link Road.

9.2.10. With the exception of route 7 from A5 east of Vicarage Road to A449 south of Station Drive, which shows an increase in journey time of 44 seconds, any increases shown in travel times are relatively minor. In terms of the journey time shown for Route 7, an alternative would be provided for traffic wishing to travel in this direction via the A449/A5 Link Road. Any other increases are limited to a maximum of 18 seconds as shown on Route 3 from the north of Gailey roundabout to south of M54 J2.

9.2.11. Whilst journey times are shown to increase during the PM peak hour, the maximum increase is shown to be 75 seconds for Route 4 from south of M54 to east of the A5 / Vicarage Road junction. Generally during the PM peak with WMI, the largest increases in journey times are around 10 – 15% greater than the without WMI scenario and these concern routes via Gailey roundabout. However the provision of the A449/A5 Link Road will provide an alternative route for traffic in order to avoid this junction adding resilience to the highway network. It has been agreed with Highways England, based on the modelling and work carried out to date, that whilst journey times generally increase on the routes from the 2021 without WMI scenario to the 2021 with WMI scenario, these increases are not considered severe.

Queue Results

9.2.12. Average queue lengths at the key junctions around the Site were provided for the 2021 Without WMI and 2021 With WMI scenarios, and a summary of the difference in average queue lengths, by number of vehicles, is shown in Table 29.

Table 29: Summary of Average Vehicle Queue Lengths Per Arm: 2021 Without WMI and 2021 With WMI

JUNCTION	ARM	VEHICLE QUEUE LENGTH AM PEAK (08:00-09:00)			VEHICLE QUEUE LENGTH - PM PEAK (17:00-18:00)		
		2021 (WITHOUT WMI)	2021 (WITH WMI) -	DIFFERENCE – VEHICLES	2021 (WITHOUT WMI) –	2021 (WITH WMI) -	DIFFERENCE – VEHICLES
M6 Junction 12	M6 (N) J12	1	4	3	0	4	4
	A5 (E/SE)	2	2	0	1	2	1
	M6 (S) J12	1	1	0	1	4	3
	A5 (W)	1	2	1	1	4	3
M6 Junction 11	A460 (N/E)	3	3	0	10	7	-3
	A462 (S/SE)	1	1	0	1	1	0
	M6 (S) J11	2	2	0	8	9	1
	A460 (SW)	4	5	1	15	15	0
	M6 (N) J11	2	3	1	3	5	2
Gailey Roundabout (A5/A449)	A449 (N) Stafford Road	4	3	-1	1	4	3
	A5 E	22	3	-19	10	9	-1
	A449 (S) Stafford Road	10	5	-5	45	49	4
	A5 W	6	5	-1	1	1	0
A449/Gravelly Way/Crateford Lane	Gravelly Way	0	0	0	0	0	0
	Crateford Lane (West)	0	0	0	0	0	0
	A449 (N)	0	0	0	0	0	0
	A449) (S)	0	1	0	0	1	1
A449/Four Ashes Road/Station Drive	Stafford Rd (N)	5	5	0	4	4	0
	Stafford Rd (N) Right turn flare	0	0	0	0	0	0
	Station Rd	12	31	19	12	21	9
	Stafford Rd (S)	4	6	2	4	6	2
	Stafford Rd (S) Right Turn Flare	5	0	-5	4		-4
	Four Ashes Road	2	3	-2	1	1	0
A5/Vicarage Road	A5 Watling St (East)	2	1	-2	1	1	0
	Vicarage Road	3	1	-3	13	3	-10
	A5 Watling St (West)	1	1	-1	1	2	1
Straight Mile	Straight Mile	0	0	0	0	0	0

Source: Systra Technical Note October 2017

9.2.13. The addition of the A449/A5 Link Road through the Site has a positive impact on the Gailey roundabout during the AM peak with reductions in average queue lengths on all approaches, with the largest reduction seen on the A5 (East) approach where the average queue length reduces by 19 vehicles. During the PM peak, queues at Gailey roundabout with WMI are shown to be very similar to the position shown without WMI in 2021.

9.2.14. A reduction is also seen on the average queue lengths on all arms of the A5/Vicarage Road junction during the AM peak with the largest reduction of three vehicles on the Vicarage Road arm. In the PM peak there is a reduction of 10 vehicles on this approach. This can be attributed to the banned right turn at the A449/Station Drive junction preventing 'rat runners' from using this route.

9.2.15. There are some increases in queues at the A449 / Four Ashes/Station Drive junction. These concern the Station Drive arm of the junction but these queues do not impact on the operation of the SRN.

9.2.16. In terms of M6 Junction 12, no material queues are shown to form during either the AM or PM peak hours. Following the request from HE that M6 Junction 11 operation requires consideration during the PM peak, amendments have been incorporated to the SSVM providing fixed traffic signal timings that would be implemented during both the Without and With WMI scenarios. This has alleviated the concerns of HE and traffic can now be accommodated at this junction, through the application of fixed signal timings. Vehicle queue lengths can be accommodated within the M6 slip roads satisfactorily and queues on the A462 have been reduced from the position shown in the previous model iteration.

9.3. Site Access Operation

9.3.1. The SSVM has also reported the operation of the two new proposed junctions serving WMI. Given that the A449/Gravelly Way access is an existing junction, this has been previously reported in Table 29. Details of the average queue lengths obtained are provided in Table 30

Table 30: Average Vehicle Queue Lengths – Site Access Junctions

LOCATION REFERENCE	ARM	VEHICLE QUEUE LENGTH AM PEAK (08:00-09:00)	VEHICLE QUEUE LENGTH PM PEAK (17:00-18:00)
Vicarage Road Access	Vicarage Road (E)	0	0
	Vicarage Road Link Rd (S)	0	0
	Vicarage Road (W)	0	0
	Vicarage Road Link Rd (N)	0	0
A5 Access	A449/A5 Link Road	1	16
	A5 East	0	0
	A5 West	2	10

9.3.2. No queues are reported at the Vicarage Road access during either peak period. In respect of the A5 access, only minimal queues are reported during the AM peak hour. Whilst queues are shown to develop during the PM peak, these are not considered to reflect a severe impact and do not prevent traffic using the A449/A5 Link Road in order to avoid the Gailey roundabout.

9.3.3. Therefore from both Tables 29 and 30 it can be seen that acceptable forms of access can be provided in order to serve the Proposed Development.

9.4. Internal WMI Road Network Operation

9.4.1. In respect of the access to the Intermodal Terminal, comment has been made by HE on the proximity of this junction to the A449 roundabout. This concerns the potential for right turning traffic at the Intermodal Terminal access to block back towards the A449 roundabout. In addition, at the request of SCC as part of their Stage Two Consultation Response, consideration has been given to the operation of all the proposed junctions with the A449/A5 Link Road during the AM and PM peak periods. This information has also been obtained from the SSVM. The locations of the specific junctions are shown in Figure 14. Average queue lengths at the various junctions with the A449/A5 Link Road are set out in Table 31 below.

Table 31: Average Vehicle Queue Lengths – A449/A5 Link Road

LOCATION REFERENCE	ARM	VEHICLE QUEUE LENGTH AM PEAK (08:00-09:00)	VEHICLE QUEUE LENGTH PM PEAK (17:00-18:00)
1	Intermodal Terminal Link	0	0
	A449/A5 Link Road (W)	0	0
2	Development Access	0	0
	A449/A5 Link Road (E)	0	0
3	A449/A5 Link Road (E)	0	0
	Internal Road WMI Zone 3	0	0
4	A449/A5 Link Road (W)	0	0
	Bericote / SI Access	0	0
5	A449 / A5 Link Road (N)	0	0
	Vicarage Road Link	0	0
	A449 / A5 Link Road (S)	0	0

Source: Systra Technical Note October 2017

9.4.1. Table 31 shows that during peak periods, the internal road network operates without queuing on the A449/A5 Link Road arms or the minor arms serving development units. Queues are not shown to extend back to either the A449 or the A5 from the internal junctions with the A449/A5 Link Road; therefore the operation of the SRN will not be compromised and the new infrastructure that will be delivered by the Proposed Development is shown to operate satisfactorily.

9.5. SATURN & VISSIM Traffic Flow Output

9.5.1. Traffic data has been obtained from the two models and the results of these are summarised in traffic flow diagrams in Appendices P and Q. The diagrams in Appendix P show the wider area and include mainly data from the M54/M6SM. The diagrams in Appendix Q show the local area and include data exclusively from the SSVM.

9.5.2. The wider area flow diagrams show the changes in traffic flows during the AM (08:00-0900) and PM peak hours (17:00-18:00) when comparing the 2021 Without WMI with the 2021 With WMI scenarios.

9.5.3. The local area flow diagrams show the changes in traffic flows during the AM (08:00-0900) and PM peak hours (17:00-18:00) when comparing the 2021 Without WMI with the 2021 With WMI scenarios.

9.5.4. As previously explained, HE's M54/M6SM distributes WMI traffic to the wider highway network, with HE's SSVM then distributing it across the local highway network, more accurately reflecting the local conditions. Therefore, in terms of the distribution of traffic upon the local highway network, the SSVM provides the more accurate method of identifying traffic changes and the resulting conditions arising from the Proposed Development.

9.5.5. At the interface of the two HE models around the A5, between Junction12 and Cannock, there is a difference in traffic flow, specifically between the flows reported along Vicarage Road and Straight Mile / Four Crosses junction on the A5.

9.5.6. This difference between the models means that the reported impact on the two roads is slightly different in the south west direction on these roads. Although both models do not show Straight Mile is used by any development traffic, the M54/M6SM model records small increases of 68 and 83 vehicles per hour

during the AM and PM peak hours respectively. As the SSVM does not include the whole of Straight Mile, these increases in traffic are reflected on Vicarage Road instead. Hence if flows of up to 68 and 83 vehicles per hour during the AM and PM peak hours do use Straight Mile and Four Crosses Lane then the increased flows on Vicarage Road should reduce by a similar volume.

9.5.7. The model outputs also confirm that traffic associated with the Proposed Development is not predicted to use local routes to the north of the A5 at the junction with Four Crosses Lane, for example through the village of Hatherton.

Link Flows

9.5.8. From the VISSIM model, local link flows around the Site can be obtained for both the 2021 with and without WMI scenarios to assess the impact of the WMI development on traffic flows.

9.5.9. A comparison has been made between 2021 Without WMI and 2021 With WMI for AM (08:00 – 09:00) and PM (17:00-18:00) peaks and is shown in Table 32.

Table 32: Comparison of Two Way Link Flows

	AM PEAK (08:00-09:00)			PM PEAK (17:00-18:00)		
LINK	**2021 (WITHOUT WMI) – LINK FLOWS**	**2021 (WITH WMI) – LINK FLOWS**	**2021 DIFFERENCE IN FLOWS WITH WMI**	**2021 (WITHOUT WMI) – LINK FLOWS**	**2021 (WITH WMI) – LINK FLOWS**	**2021 DIFFERENCE IN FLOWS WITH WMI**
A5 Watling Street (East of Vicarage Road)	2067	2235	168	1962	2156	194
A5 (Between M6 Junction 12 &Vicarage Road)	1823	1954	131	1605	2196	591
A5 Between M6 Junction 12 and Site Access	1766	2373	607	1743	2653	910
A5 Between Site Access and Gailey Roundabout	1772	1620	-152	1743	1872	129
A5 West of Gailey Roundabout	1662	1730	68	1705	1810	105
A449 Stafford Rd (North of Gailey Roundabout)	2115	2179	64	2268	2362	94
A449 Stafford Road (Between A5 & Gravelly Way)	2017	1877	-140	1890	1828	-62
A449 Stafford Road (Between Gravelly Way & Station Drive)	2033	2796	763	1953	2627	674
A449 Stafford Road (South of Station Drive)	2871	3152	281	2686	3065	379
Station Drive	1130	990	-140	1061	811	-250
Vicarage Road	742	785	+43	532	754	+222

9.5.10. As would be expected, the largest change in traffic flows are shown to be on the link from the A5 site access towards M6 Junction 12. These increases in two way traffic flows are shown to amount to 607 and 910 additional vehicles during the AM and PM peak periods respectively. This situation is to be expected given that the origin / destination of the majority of traffic will be the M6. This situation is replicated to the east of Junction 12, where vehicles travelling to / from Vicarage Road show increases of 131 and 591 vehicles during the AM and PM peak hours.

9.5.11. To the east of the A5 junction with Vicarage Road, traffic changes are much less with increases of 168 and 194 vehicles during the AM and PM peak hours. This confirms that the M6 J12 is the primary origin / destination for traffic associated with the Site.

9.5.12. To the north of Gailey roundabout on the A449, traffic is shown to increase by 64 vehicles and 94 vehicles during the AM and PM peak hours. Similar changes in traffic flow are shown on the A5 west arm. Immediately to the south of the roundabout, traffic decreases during both the AM and PM peaks, with reductions of 140 and 62 vehicles. Table 34 shows that during the AM peak traffic to the east of Gailey roundabout would reduce by 152 vehicles. This confirms the positive effect of the introduction of the proposed A449/A5 Link Road. During the PM peak, to the east of the Gailey roundabout, an increase in traffic is shown on the approach, this being 129 vehicles. This increase is shown as the SSVM identifies this as a more attractive route for traffic than the A449/A5 Link Road. However, in the event of any operational difficulties occurring on this link, traffic wishing to travel from the east to the south would be able to divert to the A449/A5 Link Road. This confirms the added resilience the A449/A5 Link Road gives to the area given the additional route choice it would provide.

9.5.13. Due to the introduction of the banned right turn at the A449/Station Drive junction, traffic flows on Station Drive are shown to reduce. Here, traffic is shown to decrease by 140 and 250 vehicles during the AM and PM peak hours respectively. The diversion of traffic from Station Drive is reflected by the increases in traffic shown to the north of the A449/Station Drive junction which divert towards the A449 / A5 Link Road.

9.5.14. Overall, the results of this assessment show that with the proposed mitigation measures in place traffic will be directed and contained on the strategic and primary routes.

9.5.15. DMRB Volume 5 Section 1 Part 3 TA 79/99 Amendment No1 Traffic Capacity of Urban Roads, provides guidance on the capacities that can be achieved for different types of roads, based on the busiest directional flow. These are set out in Table 33

Table 33: Directional Link Flows for 2021 Without WMI and 2021 With WMI

LINK		2021 (WITHOUT WMI)		2021 (WITH WMI)	
	ROAD TYPE (CAPACITY)	BUSIEST AM LINK FLOW	BUSIEST PM LINK FLOW	BUSIEST AM LINK FLOW	BUSIEST PM LINK FLOW
A5 Watling Street (East of Vicarage Road)	UAP2 (1550)	1067	1070	1215	1169
A5 (Between J12 & Vicarage Road	UAP2 (1550)	932	820	1112	1224
A5 Between J12 and Site Access	UAP1 (1590)	906	971	1205	1336
A5 Between Site Access and Gailey Rdbt	UAP1 (1590)	898	971	882	1091
A5 West of Gailey Rdbt	UAP1 (1590)	844	1015	888	1067
A449 Stafford Rd (North of Gailey Rdbt)	UAP 2 (1550)	1117	1148	1173	1193
A449 Stafford Road (Between A5 & Gravelly Way)	UAP 2 (3200)	1093	1022	973	919
A449 Stafford Road (Between Gravelly Way & Station Drive)	UAP 2 (3200)	1054	1009	1520	1480
A449 Stafford Road (South of Stafford Road)	UAP 2 (3200)	1616	1356	1696	1613
Station Drive	UAP 2 (1020)	621	586	654	670
Vicarage Road	UAP 2 (1470)	425	409	625	412

9.5.16. From Table 35 it can be seen that the traffic flow expected during the AM and PM peaks for both the 2021 Without WMI and 2021 With WMI scenarios do not exceed the capacity of the road network as set out in the DMRB.

9.6. VISSIM Analysis - Complete WMI Road Network

9.6.1. The modelling and results presented above were based on the public highway once WMI is completed. This primarily reflects the provision of the A449/A5 Link Road. However, the WMI road network will also include a second internal road from the Link Road to Vicarage Road. This will not be a public highway and will be clearly signposted as a private estate road and will be subject to management and controls imposed by WMI. Nevertheless HE and SCC have raised concerns that other traffic may use this road and sought a sensitivity test as part of the modelling.

9.6.2. The results of this additional analysis indicate however that allowing public traffic to use the Vicarage Road Link as a through route does have a positive effect on the operation of the highway network.

9.6.3. In summary, the additional VISSIM analysis of the complete WMI network indicates that:

- Average travel time and average distance travelled stayed the same in both the AM and PM periods;
- Average speed decreased from 71kph to 70kph in AM and 71kph to 68kph in the PM; and
- Average delay increased from 53 seconds to 55 seconds in the AM peak and from 59 to 71 seconds in the PM peak.

9.6.4. In terms of traffic flows Table 34 reports two way flows along both Station Drive and Vicarage Road with the Vicarage Road Link closed and open to through traffic.

Table 34: 2021 Two Way Traffic Flows – Station Drive &Vicarage Road – With Vicarage Road Link Open / Closed

PEAK PERIOD	STATION DRIVE		VICARAGE ROAD	
	VICARAGE ROAD LINK CLOSED	VICARAGE ROAD LINK OPEN	VICARAGE ROAD LINK CLOSED	VICARAGE ROAD LINK OPEN
AM Peak	990	975	785	777
PM Peak	811	811	754	747

9.6.5. Table 34 shows that there will be little difference in traffic flows using both Station Drive and Vicarage Road in the event that public access via the Vicarage Road is permitted.

9.6.6. Therefore at times when the Vicarage Road Link may be open, it will not compromise operation of either the SRN or County roads. M6 Junction 12 – Merge / Diverge Assessment

9.6.7. Merge/diverge flows on the slip roads for the M6 Junction 12 have been deduced from the VISSIM Model and are based on the 2021 without WMI and 2021 with WMI scenarios. The Merge/diverge assessment is shown in Appendix R with the results summarised in Tables 35 and 36 below.

Table 35: Without WMI – M6 Junction 12 Flows

LOCATION	MAINLINE FLOW		MERGE/DIVERGE FLOW	
	AM PEAK	PM PEAK	AM PEAK	PM PEAK
Northbound on-slip (Merge)	4012	4509	562	561
Southbound off-slip (diverge)	4105	4613	664	595
Southbound on-slip (merge)	4110	4606	341	331
Northbound off-slip (diverge)	4044	4488	327	547

Table 36: 2021 with WMI – M6 Junction 12 Flows

LOCATION	MAINLINE FLOW		MERGE/DIVERGE FLOW	
	AM PEAK	PM PEAK	AM PEAK	PM PEAK
Northbound on-slip lip (Merge)	4014	4590	597	638
Southbound off-slip (diverge)	4100	4726	741	660
Southbound on-slip (merge)	4099	4710	461	638
Northbound off-slip (diverge)	4007	4578	564	853

9.6.8. The traffic volumes have been assessed against the requirements contained in DMRB Volume 6 Section 2 Part 1 – Chapter 2 of TD 22/06, with the associated merge/diverge arrangement provided in Table 39 below.

Table 37: 2021 Merge/Diverge Requirements for M6 Junction 12

LOCATION	CURRENT TYPE PROVIDED	2021 WITHOUT WMI REQUIREMENT		2021 WITH WMI REQUIREMENT	
		AM PEAK	PM PEAK	AM PEAK	PM PEAK
Northbound on Slip (merge)	B	A or D	A or D	A or D	A or D
Southbound off-slip (diverge)	A	A	A	A	A
Southbound on-slip (merge)	B	A or D	A or D	A or D	A or D
Northbound off-slip (diverge)	A	A	A	A	C

9.6.9. For the AM peak hour, Table 39 shows that the merge and diverge arrangements required for the 2021 without WMI scenario do not change with the addition of the development. During the PM peak with WMI, with the exception of the northbound off slip road, the merge / diverge requirements

also do not change. In respect of the northbound off slip road, there is a minor breach of the threshold that identifies the type of arrangement required. On the basis of the mainline M6 traffic flow identified, this breach of traffic using the northbound diverge equates to a traffic flow of 35 vehicles per hour.

9.6.10. It has been agreed with HE that this is not considered to be a material breach particularly when it is considered that there is not a requirement for different diverge arrangement types at other times of the day. In addition, the northbound exit at Junction 12 is shown to operate satisfactorily by way of the SSVM, where vehicle queues are not shown to extend back to the M6 mainline during the PM peak and no significant adverse issues in relation to the operation of the junction have been identified.

9.6.11. It has been confirmed by HE that the current diverge arrangements at M6 Junction 12 are sufficient to accommodate traffic changes arising from the Proposed Development and no mitigation is required.

9.7. Intermodal Terminal Access – Inter Peak Assessment

9.7.1. Whilst the SSVM has reported the position with respect to the peak hour operation of the Intermodal Terminal access, HE has requested clarification of the operation of this junction at other times of the day, specifically at the shift change in the middle of the day. This requires an alternative assessment of the operation of these junctions to take account of these timeframes. This has been reported to Stakeholders within Technical Note 31 which is provided at Appendix S. Appendix S also provides details of the traffic flows used for the assessment of the inter peak periods.

9.7.2. Using Junctions 8 modelling software, the roundabout of the A449 / Crateford Lane junction together with the priority junction within the Site serving the Intermodal Terminal has been assessed for queuing and capacity issues. This assessment was undertaken for the time periods either side of the shift change at 1400, based on 2021 traffic flows with the Proposed Development in place.

9.7.3. The full Junctions 8 analysis accounting for the minor changes requested by HE is provided with TN 31 provided at Appendix S and summarised in Tables 38 and 39 below.

Table 38: Junction Assessment of A449 /Crateford Lane/ A449 A5 Link Road

	1300-14:00			14:00-15:00		
ARM	**RFC**	**QUEUES (Vehicles)**	**DELAY (Seconds)**	**RFC**	**QUEUES (Vehicles)**	**DELAY (Seconds)**
A449/A5 Link Road	0.224	1	5	0.324	1	5
A449 Stafford Road (S)	0.50	1	4	0.490	1	3
Crateford Lane	0.035	1	6	0.036	1	6
A449 Stafford Road (N)	0.377	1	3	0.399	1	3

Table 39: Junction Assessment of A449/A5 Link Road to Intermodal Terminal Access

	1300-14:00			14:00-15:00		
ARM	**RFC**	**QUEUES (Vehicles)**	**DELAY (Seconds)**	**RFC**	**QUEUES (Vehicles)**	**DELAY (Seconds)**
A449/A5 Link Road (E)	0.187	1	11	0.093	1	11
Intermodal Terminal	0.258	1	27	0.361	1	29
A449/A5 Link Road (W)	0.074	1	8	0.171	1	13
Development Access	0.10	1	22	0.258	1	22

9.7.4. Tables 38 and 39 shows that the A449/Site Access roundabout and the A449/A5 Link Road/Intermodal junction would operate within capacity during the shift change inter peak periods. Vehicle queues are not shown to extend back from the Intermodal Terminal Access to the A449. Vehicle queues from the proposed A449 roundabout would not extend back to the Intermodal Terminal access.

9.7.5. Overall, this demonstrates that the access strategy to serve WMI will operate satisfactorily, and the shift change patterns will not impact upon the operation of the existing highway network.

9.8. M54 to M6/M6 Toll Link Road

9.8.1. Between 15 September 2017 and 13 October 2017, Highways England carried out a public consultation on their proposals for a new link road between the M54, M6 and M6 Toll Road. This set out three options (Option B West, Option C West and Option C East) for movements between the three motorways, whilst local access remains unchanged. The consultation document states that:

> *"Improving the link between the M54 and the M6/M6 Toll will:*
>
> - *relieve traffic congestion on the A460, A449 and A5, providing more reliable journey times*
> - *Support local economic growth for Telford, Shrewsbury, Wolverhampton, Cannock and Tamworth by improving traffic flow and enhanced east-west and north-south routes*
> - *keep the right traffic on the right roads by separating local traffic from long—distance and business traffic*
> - *enhance facilities for pedestrians, cyclists and equestrians."*

9.8.2. Four Ashes Limited have submitted positive representations to the consultation process. Whilst Four Ashes Limited does not have a preference, they fully support the HE scheme and consider, that when combined with WMI, the two projects will enhance the transport network in the Staffordshire and West Midlands area.

9.8.3. It should be reiterated that given the absence of a preferred route, and as agreed with HE, no allowances have been made for the HE scheme within the assessments. Although it is expected that the HE scheme would result in a reduction in traffic on the A449 and A5 in the vicinity of WMI.

9.9. 2036 Assessment

9.9.1. Highways England (HE) have requested an assessment of the future operation of the proposed junctions accessing the site that will be formed with the Strategic Road Network (SRN) at the A5 and A449.

9.9.2. An assessment has been carried out for a 15 year period from the opening of the scheme. This assessment is a requirement of the Design Manual for Roads and Bridges (DMRB) TD 37/93.

9.9.3. The assessment has been undertaken as agreed with the HE, and their term consultants, using the industry standard software 'Junctions 8'. It has utilised an agreed Tempro 7.2 growth rate that has been adjusted to reflect the level of planned growth identified within South Staffordshire between 2021 and 2036. In addition, and as requested by SSDC, an allowance for a further 1,100 dwellings was included within the growth assumptions utilised in order to identify the future year traffic flows.

9.9.4. Due to the uncertainty of the preferred route strategy for the M54/M6/M6 Toll Link Road this was not included as part of the assessment.

9.9.5. TN29 provided at Appendix T details the traffic flows used for the analysis of the new junctions that will be formed with the SRN at 2036 and provides full details of the assessments undertaken.

9.9.6. Tables 40 and 41 set out the results derived during the AM and PM peak periods, for the proposed three arm roundabout junction with the A5 and the proposed four arm roundabout junction of the A449/Crateford Lane/Gravelly Way respectively.

Table 40: 2036 Assessment of A5/Site Access Junction

	AM PEAK			PM PEAK		
ARM	**RFC**	**QUEUES (Vehicles)**	**DELAY (Seconds)**	**RFC**	**QUEUES (Vehicles)**	**DELAY (Seconds)**
A5 East	0.663	2	6	0.729	3	7
Site Access	0.375	1	5	0.655	2	10
A5 West	0.652	2	7	0.643	2	8

Table 41: 2036 Assessment of A449/Site Access Junction

	AM PEAK			PM PEAK		
ARM	**RFC**	**QUEUES (Vehicles)**	**DELAY (Seconds)**	**RFC**	**QUEUES (Vehicles)**	**DELAY (Seconds)**
Crateford Lane	0.080	1	10	0.018	1	8
A449 North	0.558	2	4	0.533	2	4
Gravelly Way	0.254	1	5	0.306	1	5
A449 South	0.663	2	5	0.693	3	5

9.9.7. From Tables 40 and 41 it can be seen that both junctions connecting the site with the SRN would operate within capacity at 2036. This position has been agreed by HE.

9.10. M6 Closures

9.10.1. Highways England will be represented on the TSG and WMI would be informed of any planned works on the M6. Such information would then be disseminated to warehouse operators. In the event of unplanned incidents, in the first instance drivers will be alerted through direct live data. Information will also be disseminated from the SWTPC to warehouse operators and to drivers via Variable Message Signs within the Site as a backup measure.

9.10.2. In the event of closure of the M6, there is capacity within WMI in order to allow HGVs to remain on site rather than join the M6. However, given the nature of the strategic and primary highway network that serves the site, there is resilience that provides a choice of routes to and from the site.

9.11. Assessment of Local Routes

9.11.1. From both the Stage 1 and Stage 2 consultations concern has been expressed that both WMI employees and HGVs could use some of the minor roads in the area to access the Site and not the strategic, primary or signed road network. This potential concern has not been identified in any of the local modelling nor specifically raised by HE or SCC, although some minor use of Straight Mile was identified in the wider strategic model amounting to small

increases of 68 and 83 vehicles per hour during the AM and PM peak hours respectively. Consequently, the potential use of local roads by WMI vehicles has been considered in order to consider the likelihood of some WMI traffic transferring to minor roads.

9.11.2. The comments at both Consultations were generally not specific however the concerns are recognised and therefore, although the local modelling does not identify the use of local roads, the attractiveness for vehicles to use local roads has been considered in more detail.

9.11.3. Whilst there is no specific guidance on carrying out such an assessment, a review has been undertaken on the basis of both travel times and the nature of the routes.

Journey Time Assessment

9.11.4. The travel time assessment has been carried out on the basis of typical journey times based on time of day relative to shift change over times and peak traffic periods. It should be reiterated that staff shift change times for WMI will generally avoid the peak times of demand upon the highway network, reflecting typical arrangements at SRFI and other strategic logistics operations.

9.11.5. HGV drivers will be given specific directional information prior to their arrival at WMI, as set out within the SWHGVMP, this will be supplemented by advanced directional signage and enforcement action along the A449 between the M6 Junction 13 and Gailey roundabout. In addition existing local restrictions prohibit or restrict HGVS from using minor roads as shown in Figure 3. Therefore this time assessment primarily considers worker trips to / from WMI as they are more likely to try and negotiate the minor roads.

9.11.6. Travel information for workers and visitors using private cars would be set out within the SWTP, this would include the list of signed routes for private vehicles to access WMI from all directions. Directional signage to WMI would be provided on the SRN and drivers would be advised to follow the signed routes.

9.11.7. Given the existing highway network that serves the site, logic suggests that there are only certain alternative routes available for use by traffic to travel to and from WMI. This therefore reduces the areas from where journeys using alternative routes could occur.

9.11.8. Due to the strategic location of the A5 access, between M6 Junction 12 and the Gailey roundabout no potential local routes have been identified to/from this access. In addition, on the basis of the indicative phasing, the A5 access will be the first access to be constructed. It is therefore likely that workers will be accustomed to using this access, and not seek to change their habitual routes to work once the Vicarage Road and A449 accesses are constructed.

9.11.9. Therefore the assessment has looked at access to WMI via the A449 for those residing to the west of the site and via the Vicarage Road access for those workers who reside to the south and east of the site; and where access to the local road network is a viable option. Therefore a route assessment has been carried out for journeys that may be made from the west, south and east of WMI to ascertain the volume of trips that would be made from or via the following four areas as shown on Figure 15.

- From North East Telford, via the A5;
- From Cannock via the A5/A4601 Roundabout;
- From Cheslyn Hay; and
- From Featherstone & Shareshill.

9.11.10. From these four locations, there are a number of routing options via local roads and villages. For example for those travelling from the North East Telford direction, they may either remain on the A5 or use local roads via Bishops Wood and Brewood. These options are shown in Figure 15.

9.11.11. Workers travelling from the Cannock direction rather than remaining on the A5, may use local routes via Great Saredon or Calf Heath.

9.11.12. The assessment undertaken considers travel times during peak periods given that at other times of the day, around shift change over times, journey times

using the strategic, primary and signed routes will be shorter due to lower background traffic volumes.

9.11.13. These journey times are based on workers arriving at WMI for 9am and departing WMI at 5pm and are set out in Tables 42 to 45 below, with the signed route shown first in each table.

Table 42 Journey Times (Minutes) between North East Telford and WMI (A449 Access)

	Arrive 9am	Depart 5pm
A5/A449 (signed route)	21	23
A5/Claygates Road/Crateford Lane/A449	22	N/A*
A5/Ivy House Lane/Four Ashes Road/Crateford Lane/A449	22	N/A*
A5/Ivy House Lane/Four Ashes Road/A449	24	23
A5/Ivetsey Bank Road/Kiddemore Green Road/Engleton Lane/Ivy House Lane/Four Ashes Road/A449	27	27

Postcode area used for Telford (TF2) * Not possible due to one way restriction

Table 43 Journey Times (Minutes) between Cannock and WMI (Vicarage Road Access

	Arrive 9am	Depart 5pm
A5/Vicarage Road Access (signed route)	7	9
A601/Wood Lane/Saredon Lane/Straight Mile/Vicarage Road	12	13
A5/Four Crosses Lane/Straight Mile/Vicarage Road	8	10
A5/Woodlands Lane/Stable Lane/Vicarage Road	9	10

Postcode area used for Cannock(WS11)

Table 44 Journey Times (Minutes) between Cheslyn Hay and WMI (Vicarage Road Access)

	Arrive 9am	Depart 5pm
Wolverhampton Road/M6/A5/Vicarage Road (signed route)	11	11
Saredon Road/A460/A461/Saredon Road/Straight Mile/Vicarage Road	11	11
Wolverhampton Road//A462/Mill Lane/New Lane/Latherford Lane/Straight Mile/Vicarage Road	14	14
Wolverhampton Road//A462/Mill Lane/New Lane/Saredon Road/Straight Mile/Vicarage Road	14	14

Postcode area used for Cheslyn Hay(W6)

Table 45 Journey Times (Minutes) between Featherstone and WMI (Vicarage Road Access)

	Arrive 9am	Depart 5pm
A460/M6/Vicarage Road (signed route)	8	8
New Road/A449/Vicarage Road	11	13
New Road/Featherstone Lane/Stafford Lane/Latherford Lane/Straight Mile/Vicarage Road	9	9
New Road/Old Stafford Road/A449 /Vicarage Road	10	13

Postcode area used for Featherstone(WV10)

9.11.14. As can be seen from these tables all journey times from all destinations are quicker using the primary or signed road network, in the AM peak with the exception of Cheslyn Hay which has the same journey time of 11 minutes via the M6 and Saredon Road routes. In the PM peak the main road network remains the quickest route to use, although the Cheslyn Hay route via Saredon Road and the A5 west route via Ivy House Lane and Four Ashes Road have the same journey time as the primary road route.

9.11.15. From the A5 West direction of North East Telford, remaining on the main road network remains the quickest way to travel to and from WMI during the AM and PM peak hours. As the Proposed Development seeks to prevent entry access to Crateford Lane from its junction with the A449, the journey from WMI to the A5 West via this route would not be possible. This would preclude the use of this route by WMI traffic in this direction, although east bound traffic would theoretically be able to arrive from this direction.

Route Assessment

9.11.16. A review has also been undertaken on the nature of the local routes in terms of the general character and whether they would be attractive for vehicles travelling to WMI. From each direction a number of local routes have been assessed these are shown in Figure 15 and described below

9.11.17. For those workers travelling from the North East Telford direction, there is potential they may deviate from the A5, and travel along Ivestey Bank Road via Bishops Wood and Brewood and gain access to the A449 via Crateford Lane or Four Ashes Road.

9.11.18. Alternatively drivers may use the A5/Ivy House Lane junction to bypass Brewood or additionally via the A5/Claygates Road junction. Ivy House Lane is rural in nature with a number of sharp bends and narrow sections of road where two way traffic would need to slow down to pass and which would make the route unattractive in comparison to the A5. In contrast, whilst Claygates Road is straighter, has a wider carriageway and centre line markings, it does require usage of Crateford Lane, which is narrow, with poor forward visibility and is therefore likely to be unattractive in comparison to the more direct route offered by the A5 and A449 for traffic arriving from this direction. The Crateford Lane one way section would prevent traffic leaving WMI from using this route.

9.11.19. From Cannock drivers may deviate from the A5 via the A4601, then turning right onto Wood Lane. For approximately one kilometre west of its junction with the A4601, Wood Lane is residential in nature. Footways and private dwellings with dropped kerbs are present on both sides of the carriageway. Street lighting is present through this section and the speed limit is 30mph. To the west of the residential section, Wood Lane becomes more rural with a national speed limit, before joining Saredon Lane. Whilst the majority of the route allows for two way passing of vehicles, there are sections within Saredon Lane where approaching vehicles would need to informally give way and use passing bays, which overall would make the route less attractive than remaining on the A5.

9.11.20. Drivers may prefer to remain on the A4601 and turn right onto Saredon Road, which although a rural route does have a marked centre line and allows for two way traffic. At the end of Saredon Road, a priority junction is formed with Saredon Lane to the north and Great Saredon Road to the south.

9.11.21. It should be noted that these routes are more convoluted than remaining on the eastern section of the A5, particularly when no operational difficulties are shown by the SSVM along this section of the highway network.

9.11.22. Alternatively drivers may stay on the A5, past the A5/A4601 junction and instead use the A5/Four Crosses Lane priority junction. Whilst Four Crosses Lane is of sufficient width to accommodate two way traffic, with a good level of forward visibility, no street lighting is present along the carriageway. This road is subject to a 50mph speed limit which decreases to 40mph within Calf Heath prior to joining Straight Mile. This is however a more convoluted and protracted route than the A5, where it is necessary to negotiate more junctions in order to reach the site, and it is considered makes this a less attractive route in comparison to the A5.

9.11.23. Another alternative local route for those travelling from the A5 east, prior to Vicarage Road would be to use the A5/Oak Lane junction and then use Woodlands Lane and Stable Lane to access Vicarage Road. Along Woodlands Lane forward visibility is good and the road is straight allowing for two way passing traffic for light vehicles. Woodlands Lane widens over the bridge across the M6 before reaching a priority junction with Stable Lane. No carriageway markings or street lights are present on Woodlands Lane and there a number of residential properties which have direct access onto the road. This is a less direct route for traffic than remaining on the A5.

9.11.24. Given these points, it is therefore considered unlikely that the potential traffic shown by the wider strategic model to use Straight Mile would choose to use this route when a more commodious route is available to WMI via Vicarage Road.

9.11.25. For workers travelling from the Cheslyn Hay direction, they may either use Wolverhampton Road and travel via the most direct route on the M6 or may exit M6 Junction 11 and continue onto Mill Lane and Latherford Lane, prior to reaching Straight Mile.

9.11.26. Alternatively traffic may use Saredon Road, this involves the use of the A460 and A4601, as the M6 Toll has dissected Saredon Road. Whilst Saredon Road provides an appropriate width for two way traffic, at approximately 5.5 metres, the adjoining roads, including Saredon Lane and Great Saredon Lane are more rural in nature and cannot accommodate two way passing traffic in places. This route does require a need to negotiate a number of junctions

which would make it more difficult when compared to remaining on the primary highway network.

9.11.27. From Featherstone there are two routes which utilise the primary road network, for those travelling from the west of Featherstone, drivers may use New Road to access the A449, and alternatively to the east of Featherstone, drivers may use the A460 and join the M6 at Junction 11.

9.11.28. Rather than using the main road network, there are alternative rural routes from Featherstone to WMI, for example through Featherstone Lane. This road has an approximate width of 3.5 metres making it impassable for two way traffic. Unofficial passing places have been created where drivers have been required to give way. Due to the hedge lines and bends on the road, forward visibility is poor which in turn should lead to lower speeds. The carriageway is poorly maintained with signs of deterioration and pot holes and which would, it is considered, dissuade drivers from using this route.

9.11.29. At the junction of Church Road, Featherstone Lane becomes Latherford Lane, which has similar road widths, visibility and carriageway surfacing as Featherstone Lane. Gated accesses to agricultural land and unmade roads are present along Leatherford Lane, prior to Calf Heath, where the speed limit changes to 30mph and the area becomes more residential. Whilst Deepmore Lane which runs parallel to Latherford Lane is shown on some local maps, it has a prohibition of vehicles except for local access and is not surfaced, so would not be a possible route for traffic. This route is therefore considered to be unattractive when more reliable options to travel to / from WMI from this area are available.

9.11.30. Whilst in general, the local routes may be used by workers who may reside within the local settlements and villages, they are not considered conducive for workers who drive to the Site to deviate from the main road network.

9.11.31. These routes are primarily rural in nature, with agricultural accesses and vehicles using the routes. In addition elements of these routes are poorly maintained and include a number of sharp bends, low levels of forward visibility and, in sections, informal passing places have been created because the narrow carriageway widths do not accommodate two way traffic. Where these highway conditions exist, it is considered that as a consequence, such routes will be less attractive to road users.

9.11.32. Where routes are of a better standard than other local routes, from the assessment undertaken, journeys to WMI become more convoluted which again would make them less attractive for those travelling to / from WMI, particularly when no operational difficulties are forecast on the primary highway network during peak traffic conditions.

9.11.33. On this basis, it is not considered necessary for WMI traffic to use routes that are not part of the strategic, primary or signed network in order to reach the Site. Nevertheless, the local concern is recognised and as a result WMI will provide a Contingent Traffic Management Fund. This Fund would be available to the TSG to consider and implement mitigation measures around the Brewood, Coven and Calf Heath areas, if it is demonstrated or deemed that there is unacceptable use of local roads by WMI vehicles.

9.12. Demand for Local HGV Parking

9.12.1. As part of the SWHGVMP (see Appendix I) and as requested by SSDC and SCC the demand for local HGV parking has been considered. It should be noted that it is only necessary for WMI to consider any potential increase in local HGV parking that arise from the Proposed Development.

9.12.2. This issue will be addressed by the implementation of an HGV Management Plan. As described in Section 5, all HGV trips arriving at WMI would be required to be pre-arranged and booked onto Site. Journeys would be pre-planned in order to make the best use of valuable driver time. However, in order to support the vehicle booking system and facilitate WMI driver rest periods around drivers' hours, early arrival bays and driver welfare facilities will be located at each warehouse facility. In terms of the provision of early arrival bays, each development plot will be required to provide a minimum of three and up to a maximum of one bay per 7,000 sqm.

9.12.3. Should drivers require a break prior to their arrival at WMI, it is likely that service stations or lorry parks located at least 20 kilometres away from the Site would be utilised. There are a reasonable number of lorry parks and service stations located between 20-60 kilometres from the Site. As these are spread across geographic locations, this will ensure that one service area is not disproportionately affected by an increase in vehicle numbers.

9.12.4. Contingent measures are proposed within the SWHGVMP in order to deal with changes in forecast HGV demand that may arise as a consequence of closures of the WCML and the Intermodal Terminal.

9.13. Assessment of Highway Operation – Pre A449/A5 Link Road

9.13.1. In order to facilitate the development of the site, it is proposed to introduce an element of warehousing prior to the completion of the A449/A5 Link Road and also the Intermodal Terminal. The maximum amount of floor area proposed to be delivered prior to the opening of the A449/A5 Link Road would amount to 186,000 sqm (2m sqft).

9.13.2. Highways England (HE) and Staffordshire County Council (SCC) have requested that this situation should be assessed in order to demonstrate the operation of the highway network. Consequently, a further iteration of the South Staffordshire VISSIM Model (SSVM) has been run in order to determine the impact on the local HE and SCC road networks.

9.13.3. WSP commissioned Systra to undertake a further VISSIM test allowing for the assumptions presented in Table 46. It should be noted that this scenario does not include for the provision of the Intermodal Terminal.

Table 46 Pre A449/A5 Link Road Test – Floor Area & Infrastructure Assumptions

SCENARIO	ACCESS	INFRASTRUCTURE ASSUMPTIONS
2021 Phase 1 Option A	140,000 sqm (1.5m sq ft) accessed via A5 46,000 sqm (0.5m sq ft) accessed via Vicarage Road	• Do Minimum Highway Network • No A449/A5 Link Road • No internal connection between development areas • Application of fixed timings at M6 J11 during PM peak • No other highway infrastructure intervention, such as northbound A449 right turn ban into Station Drive.

9.13.4. In order to consider the operation of the highway network under these conditions, a comparative assessment has been undertaken between the 2021 without WMI and an interim assessment of WMI at 2021, allowing for the development and infrastructure assumptions set out in Table 46.

9.13.5. As reported in Technical Note 28, provided at Appendix L specific trip characteristics have been identified in order to account for the fact that the initial quantum of floor area to be delivered would not be able to operate as rail served warehousing given that the Intermodal Terminal would not be operational. The approach taken in order to determine the trip characteristics of this initial phase of development has been agreed with both HE and SCC.

9.13.6. As with the assessment of the operation of the highway network for the full WMI scheme, a comparative assessment has been undertaken examining the differences between the 2021 without WMI and the interim 2021 with WMI. This comparative assessment provides details of changes in vehicle speeds, journey times and queue lengths. These are provided for the same assessment cordon as provided for the previous analysis of the full WMI site.

9.13.7. In summary, across the network as whole, the SSVM analysis of traffic conditions, pre-opening of the A449/A5 Link Road shows that:

- Average network travel time and average distance travelled stayed the same in both the AM and PM periods;
- Average network speed remains at 71kph in the AM and PM peak hours; and
- Average network delay reduces from 53 seconds to 52 seconds in the AM peak and increases from 59 to 60 seconds in the PM peak.

9.13.8. Consideration has been given to the trip impact upon the highway network in the event that 46,000 sqm of development is provided to be served via Vicarage Road, but before any development served via the A5 access is occupied. This quantum of floor area has not been the subject of assessment using the SSVM, but is considered in terms of trip impact.

9.13.9. On the basis of the agreed trip distribution methodology, assuming this quantum of floor area would be provided at Vicarage Road, some 50% of light vehicles and 70% of HGV's would reach the development via the M6. Any

trips that would need to use Gailey Roundabout under this scenario would be limited to HGV's travelling from the south, trips to and from the west and trips to/from Penkridge. Any light vehicles travelling from the south would be expected to utilise Station Drive. Therefore the trip impact at Gailey Roundabout would be limited to two way increases of six light vehicles and six HGV's during the AM peak. The corresponding trip changes during the PM peak would amount to six light vehicles and four HGV's. This equates to one extra vehicle every five minutes during the AM peak and every six minutes during the PM peak. This is not considered to reflect a material impact and as a consequence has not been considered further.

9.13.10. Detailed analysis of journey times and vehicle queue lengths identified by way of the Pre A449/A5 Link Road assessment are reported below.

Pre A449 / A5 Link Road - Local Journey Time Results

9.13.11. Figure 13 shows the links where journey times have been identified from the SSVM.

9.13.12. The comparison of journey times between the 2021 Without WMI and 2021 With WMI (Pre Link Road) for the AM and PM peak hours is shown in Table 47.

Table 47: Journey Time Comparisons between 2021 Without WMI and 2021 With Interim WMI (Pre Link Road)

ROUTE DESCRIPTION	AM Peak (0800-0900)			PM Peak (1700-1800)		
	2021 (WITHOUT WMI) - SECONDS	2021 (WITH Interim WMI) - SECONDS	DIFFERENCE - SECONDS	2021 (WITHOUT WMI) - SECONDS	2021 (WITH Interim WMI) - SECONDS	DIFFERENCE - SECONDS
Route 1- East of Vicarage Road to West of Gailey Roundabout	281	298	17	263	270	7
Route 1 - A5 from West of Gailey Roundabout to East of Vicarage Road	238	243	5	230	233	3
Route 2 - M6 South of J12 to A449 North of Gailey Roundabout	222	239	17	210	214	4
Route 2 - A449 North of Gailey Roundabout to M6 South of J12	222	229	7	218	221	3
Route 3 - North of Gailey Roundabout to South of M54 J2	457	462	5	436	436	0
Route 3 - South of M54 J2 to North of Gailey Roundabout	455	457	2	559	612	53
Route 4 - A5 East of Vicarage Road to A449 South of M54 J2	680	699	19	644	653	9
Route 4 - South of M54 J2 to A5 East of Vicarage Road	650	660	10	761	806	45
Route 5 - M6 North of J12 to A449 South of M54 J2	690	708	18	654	663	9
Route 5 - South of M54 J2 to M6 North of J12	621	632	11	735	779	44
Route 6 - A5 East of Vicarage Road to A449 South of Station Drive	382	399	17	359	367	8
Route 6 - South of Station Drive to A5 East of Vicarage Road	375	386	11	475	518	43

Route 7 - A5 East of Vicarage Road to A449 South of Station Drive (via Station Drive)	310	309	-1	303	294	-9
Route 7 - A449 South of Station Drive to A5 East of Vicarage Road (via Station Drive)	338	337	-1	378	367	-11

Source: Systra Technical Note November 2017

From the information shown in Table 47, it can be seen that journey times across the SSVM network would increase. However these increases need to be considered in context. In terms of the change in journey times shown during the AM peak hour, these are relatively minor, with the highest increase shown to be 19 seconds on the route assessed from the east of Vicarage Road to the south of M54 junction 2. Given that this route extends for a distance of approximately 10 kilometres, this is not considered a material increase.

9.13.13. In relation to the Gailey roundabout, the highest increases in journey time are shown to amount to 17 seconds. These increases are shown on the routes on the A5 from east of Vicarage Road to the west of Gailey roundabout and from the south of M6 J12 to A449 north of Gailey roundabout. Again, these are not considered to reflect material increases in journey times.

9.13.14. During the PM peak, journey times are shown to be similar to the position without WMI on nine of the assessed routes. However on four routes, greater increases in journey times are shown, all of which involve utilising Gailey roundabout. If the journey times for these specific routes are considered against the increases shown by the assessment of the full Site as set out earlier, it can be seen that the increases are of the same order. For these four link, Table 48 provides a comparison between the journey times of the interim assessment pre-opening of the A449/A5 Link Road and the position shown with the full quantum of development and highway mitigation.

Table 48: Journey Time Comparisons – PM Peak

ROUTE DESCRIPTION	Journey Time (Seconds)		
	2021 with WMI (Interim Assessment)	2021 with WMI (Full Development)	Difference
A449 from South of M54 J2 to North of Gailey Roundabout	612	617	+5
A5/A449 – South of M54 J2 to A5 East of Vicarage Road	806	836	+30
M6/A449 - A449 South of M54 J2 to M6 North of J12	779	808	+29
A5/A449 - A449 South of Station Drive to A5 East of Vicarage Road	518	547	+29

9.13.15. The comparison provided in Table 48 shows that these links do not result in greater journey times during the interim assessment than shown to occur with the full WMI scheme.

9.13.16. Therefore in terms of journey times during the PM peak, the position shown with the introduction of an initial 186,000 sqm of floor area and no link road is either similar to that shown with the full quantum of floor area, the A449/A5 Link Road and the Intermodal Terminal or is no worse. It has previously been acknowledged by HE that there is no one location where the full WMI scheme would have a severe impact in terms of journey times during the PM peak hour.

Pre A449/A5 Link Road - Queue Results

9.13.17. As with the assessment of the full WMI scheme, average queue lengths have been obtained. These are provided for the key junctions surrounding the Site together with the proposed access junctions with the A5 and Vicarage Road.

Table 49 below provides details of the average queue lengths identified. This considers both the without and with WMI scenarios.

Table 49: Summary of Average Vehicle Queue Length per Arm 2021 without WMI - 2021 with Interim WMI – Pre A449/A5 Link Road

		VEHICLE QUEUE LENGTH AM PEAK (08:00-09:00)			VEHICLE QUEUE LENGTH - PM PEAK (17:00-18:00)		
JUNCTION	**ARM**	**2021 (WITHOUT WMI)**	**2021 (Interim WMI)**	**DIFFERENCE – VEHICLES**	**2021 (WITHOUT WMI)**	**2021 (Interim WMI)**	**DIFFERENCE – VEHICLES**
M6 Junction 12	M6 (N) J12	1	1	0	0	0	0
	A5 (E/SE)	2	1	-1	1	1	0
	M6 (S) J12	1	1	0	1	1	0
	A5 (W)	1	1	0	1	1	+1
M6 Junction 11	A460 (N/E)	3	3	0	10	11	+1
	A462 (S/SE)	1	1	0	1	1	0
	M6 (S) J11	2	2	0	8	9	+1
	A460 (SW)	4	4	0	15	25	+9
	M6 (N) J11	2	2	0	3	4	-1
Gailey Roundabout (A5/A449)	A449 (N) Stafford Road	4	3	-1	1	2	+1
	A5 E	22	43	+21	10	11	+1
	A449 (S) Stafford Road	10	10	0	45	53	+9
	A5 W	6	9	+3	1	0	-1
A449/ Gravelly Way/ Crateford Lane	Gravelly Way	0	0	0	0	2	+2
	Crateford Lane (West)	0	0	0	0	0	0
	A449 (N)		0	0		0	0
	A449) (S)		0	0		0	0
A449/Four Ashes Road/ Station Drive	Stafford Rd (N)	5	5	0	4	3	-1
	Stafford Rd (N) Right turn flare	0	0	0	0	0	0
	Station Rd	12	13	+1	12	11	-1
	Stafford Rd (S)	4	4	0	4	4	0
	Stafford Rd (S) Right Turn Flare	5	3	-2	4	3	-1
	Four Ashes Road	2	4	+2	1	5	+4
A5/Vicarage Road	A5 Watling St (East)	2	2	0	1	2	+1
	Vicarage Road	3	3	0	13	20	+7
	A5 Watling St (West)	1	1	0	1	1	0
Straight Mile	Straight Mile	0	0	0	0	0	0

		VEHICLE QUEUE LENGTH AM PEAK (08:00-09:00)			VEHICLE QUEUE LENGTH - PM PEAK (17:00-18:00)		
JUNCTION	**ARM**	**2021 (WITHOUT WMI)**	**2021 (Interim WMI)**	**DIFFERENCE – VEHICLES**	**2021 (WITHOUT WMI)**	**2021 (Interim WMI)**	**DIFFERENCE – VEHICLES**
A5 Access	Site Access	0	0	0	0	0	0
	A5 (E)	0	0	0	0	0	0
	A5 (W)t	0	1	+1	0	0	0
Vicarage Road Access	Vicarage Road (N)	0	0	0	0	0	0
	Site Access (E)	0	0	0	0	0	0
	Site Access (W)	0	0	0	0	0	0
	Vicarage Road (S)	0	0	0	0	0	0

Source: Systra Technical Note November 2017

9.13.18. Table 49 shows that during the AM peak hour, average queue lengths shown with Interim WMI are generally similar to those shown without WMI. One notable exception is however the A5 approach to Gailey roundabout from the east, which does show an increase in queue length extending from 21 vehicles to 43 vehicles. Traffic increases along the approach to Gailey roundabout from the east are however relatively modest, amounting to an increase of 26 vehicles during the AM peak, or one extra vehicle every two minutes. Therefore considered against the context of the minor increase in vehicles along the A5 east approach to the Gailey roundabout and the minor increase in journey time along this route of 17 seconds, it is considered that this would not see a severe impact during the limited period of this scenario.

9.13.19. During the PM peak, average queue lengths are not shown to alter significantly, with no one link showing an increase in queue length greater than 10 vehicles.

9.13.20. On the basis of the above, it is considered that if an initial phase of development were introduced ahead of the opening of the A5/A449 Link Road, the operation of the highway network would not be materially affected, particularly when compared to the full WMI scheme. This position has been accepted by HE.

9.13.21. However, HE's concern that over time there could be more demand placed on the Gailey roundabout before the opening of the Link Road is recognised. It is therefore proposed that the following restrictions are placed on the initial implementation of WMI.

9.13.22. First, an initial occupation of no more than 46,000 sqm (0.5m sq ft) would be permitted. This would enable the site to be established within the prevailing economic circumstances. The A5 / A449 Link Road must be constructed and available for use by no later than 5 years after the occupation of more than 46,000 sqm (0.5m sq ft) floor space or prior to the occupation of more than 186,000 sqm (2m sq ft) of the rail served warehousing, whichever is sooner.

9.13.23. The application of the above requirements will ensure the successful implementation of WMI whilst protecting the operation of the highway network.

9.14. Pedestrian / Cycle Movement

9.14.1. Discussions with stakeholders have requested that consideration be given to the level of cyclist activity at the Gailey roundabout and pedestrian crossing movements at the proposed A449 site access roundabout, particularly with regard to any increased demand arising as a consequence of the Proposed Development.

9.14.2. At the Gailey roundabout, analysis of PIA data has identified a number of incidents involving collisions between vehicles and cyclists.

9.14.3. Provision is made to improve cycle facilities through the proposal to provide a shared use cycle footway to the north of the A5. This will connect to the shared use cycleway / footway to be provided adjacent to the A449/A5 Link Road, before joining the A449 to the south. Crossing facilities are proposed at the A5 access roundabout.

9.14.4. This facility will provide an alternative route for those cyclists who may wish to travel in a north – south direction and who may wish to avoid negotiating the Gailey roundabout.

9.14.5. In terms of future demand for cycle movement at the Gailey roundabout arising from WMI, on the basis of the agreed multi modal trip rates and the worker catchment (as set out in Section 6), in the order of 74 daily two way cycle trips are forecast to have the potential need to pass through the Gailey roundabout, these being workers from the general Penkridge area.

9.14.6. In terms of these additional movements, approximately 20% would be attracted towards the western element of the Site and for whom the most direct route to WMI would be to travel in a north – south direction via the

proposed A449 shared use cycle/footway. These equate to a figure of 15 daily cyclists two way. Over the day as a whole, this is not considered to be a significant increase in terms of the number of additional cycle movements that will be required to negotiate the Gailey roundabout. An alternative route is available via the A5 and the A449/A5 Link Road should choose not to pass through the Gailey roundabout.

9.14.7. On this basis, it can be seen that sufficient provision has been made in order to accommodate cycle movement to and from the Proposed Development as it relates to Gailey roundabout.

9.14.8. At the A449 / Gravelly Way junction, a signal controlled pedestrian crossing is present, this having been introduced as part of the works to convert this junction to traffic signal control in order to serve the consented Bericote scheme. The proposed site access strategy would see the replacement of the traffic signal junction with a roundabout and this would require the removal of the existing signal controlled pedestrian crossing, to be replaced by an uncontrolled pedestrian crossing facility on the southern arm of the junction. This crossing will link to the relocated bus stop to the west of the A449.

9.14.9. There is limited need for pedestrians to negotiate the A449 at this junction other than to reach the bus stops that are provided to the west. The proposed public transport strategy would see existing bus services divert into the site once the A449 / A5 Link Road has been fully introduced. These services would utilise the proposed bus stops that would be introduced adjacent to the A449/A5 Link Road.

9.14.10. These new bus stops are located in proximity to the main part of the Proposed Development and importantly, the existing and consented employment uses currently served via Gravelly Way. It would therefore be more convenient for most people who wish to travel by bus to the Site and its surrounding uses to utilise the proposed bus stops in order to access bus services rather than the use the replacement and relocated bus stops that are provided adjacent to the A449.

9.14.11. Any demand for usage of the A449 bus stops in the future would be limited to the areas of the Proposed Development provided to the west of the WCML, which is approximately 20% of the proposed floor area.

9.14.12. Provided below in Table 50 is a comparison of the forecast daily usage of the A449 crossing. This comparison considers the consented position allowing for the Bericote scheme and the position with WMI. The comparison assumes that any existing trips associated with Bericote would transfer to the new internal bus stops given that they would be located closer to the existing and consented employment uses.

9.14.13. Details are provided of the forecast usage allowing a baseline modal share and allowing for the modal shift arising from the SWTP. This is also reported in terms of the consented scheme, details having been obtained from the TA prepared for the consented Bericote development.

Table 50: Forecast Daily A449 Crossing Activity (Person Movements)

	BASELINE	WITH TRAVEL PLAN MODAL SHIFT
Consented	71	137
Future (with WMI)	51	94
Difference	-20	-43

9.14.14. Table 50 shows that with WMI, the level of pedestrian crossing demand towards the bus stop to the west of the A449 would reduce in comparison to the consented position.

9.14.15. Any pedestrian demand from the south wishing to reach either the existing and consented employment uses served via Gravelly Way or WMI would be able to utilise the existing pedestrian facilities provided adjacent to the A449. Should it be necessary to cross the A449, signal controlled pedestrian crossing facilities are present at the junction with Station Drive.

9.14.16. On this basis, it can be seen that the need to cross the A449 in order to reach the bus stops will reduce with WMI. Therefore there would be no net safety dis-benefit arising from the removal of the existing signal controlled crossing at the A449 / Gravelly Way.

9.15. Summary

9.15.1. The methodology adopted to assess the transport implications has been agreed with both HE and SCC. This includes the assessment of the full WMI scheme at the year of opening of 2021, together with an assessment of the new junctions that are proposed to be formed with the SRN at a future of 2036.

9.15.2. The future operation of the highway network that serves the site has been assessed using the Highways England SSVM, which incorporates the traffic associated with the Proposed Development together with the proposed infrastructure changes that have been identified to support the proposals.

9.15.3. In summary, it can be seen from the results of the traffic modelling and assessment that the provision of the A449/A5 Link Road provides an alternative route to the Gailey roundabout and which has the effect of providing resilience to the local highway network that serves the Proposed Development.

9.15.4. The local junctions that form the existing highway network and would serve WMI are shown to operate satisfactorily. This includes M6 Junction 12 and Junction 11. As agreed with HE and SCC, there would not be a severe impact in terms of the future operation of the SRN and county roads as a consequence of the changes in traffic arising from WMI.

9.15.5. The proposed Site access junctions are shown to operate satisfactorily at the 2021 and 2036 future years and this has been agreed with HE and SCC.

9.15.6. Any increases in journey times and queue lengths across the SSVM network are not considered to be severe. This has been agreed with HE and SCC.

9.15.7. The proposed A449/A5 Link Road would operate satisfactorily and the development access junctions connecting to this route would not impact upon the operation of the SRN during peak times.

9.15.8. Assessments of the operation of the access junction of the Intermodal Terminal and the A449/A5 Link Road during inter peak periods confirm that there would be no impact upon the operation of the SRN.

9.15.9. In terms of the arrangements connecting the mainline M6 with Junction 12, the existing situation is able to accommodate traffic changes arising from the Proposed Development. It has been agreed with HE that no mitigation works are required.

9.15.10. An assessment of the likelihood of traffic associated with WMI using local routes rather than the strategic, primary and signed network has been carried out. The assessment has shown that this is unlikely to occur because they do not provide a greater journey time savings time and there are generally of a rural and restricted character.

9.15.11. Through the HGV Management Plan, including the implementation of an HGV booking system and early arrival bays for HGV's, the Proposed Development would not increase demand at adjacent HGV parking areas.

9.15.12. It has been demonstrated that an initial quantum of floor area can be introduced at the Site prior to the opening of the A449/A5 Link Road which would not materially affect the operation of the local highway network.

9.15.13. Therefore, it is considered that on the basis of the WMI transport strategy, the traffic modelling and assessment, and the associated mitigation measures the Development can be accommodated without a material impact on the local and wider transport network.

10. SUMMARY & CONCLUSIONS

10.1. Summary

10.1.1. WSP has been appointed by Four Ashes Limited (FAL) to provide transport advice and prepare a Transport Assessment (TA) to be submitted with the Development Consent Order (DCO) application for a Strategic Rail Freight Interchange (SRFI) known as the West Midlands Interchange (WMI) in South Staffordshire. WMI will provide up to 743,200 sqm of warehousing along with a rail freight interchange and associated highway improvements on the surrounding road network.

10.1.2. Pre-application discussions have been held between WSP and the relevant highway authorities including Staffordshire County Council and Highways England. A Scoping Note was prepared in June 2016. In addition, a Stage 1 (non-statutory) consultation was carried out between 13 June and 24 July 2016. Details of discussions with Stakeholders are appended to this TA.

Existing Conditions

10.1.3. WMI is well located for an SRFI, being close to strategic road and rail infrastructure, within the Four Ashes area.

10.1.4. The Site is broadly bound by the A5 to the north, the A449 to the west and the M6 to the east. These trunk roads provide close connections with the, M6 (via Junction 12), M6 Toll, the M54 and other major trunk roads.

10.1.5. Footways run alongside both the A5 and A449 and this provides a direct link to Penkridge Railway Station, located 5km to the north of the Site. In addition to Penkridge, mainline rail stations are located at Cannock and Wolverhampton which are 7km and 10km from the Site respectively.

10.1.6. Existing bus stops are present along the A449 and the bus routes serving them connect the Site with Penkridge, Stafford, Wolverhampton and the i54 Employment Site.

Transport Strategy

10.1.7. The development is proposing new accesses into the Site from the A5 and A449. These will be connected through the A449/A5 Link Road through the Site. This will be adopted by the highway authority, providing an alternative route between the A449 and A5 being subject to a 30mph speed limit with a prohibition of waiting or stopping along this link. The implementation of the A449 / A5 Link Road will add resilience to the local highway network that serves the Site.

10.1.8. In addition, a new four arm roundabout from Vicarage Road will be constructed to provide access to the southern portions of the Site.

10.1.9. On the surrounding road network local traffic management measures will be introduced which include making Crateford Lane no entry from the A449 and implementing a no right turn into Station Drive from the A449.

10.1.10. Improvements would be introduced to existing pedestrian and cycle infrastructure through the provision of additional routes.

10.1.11. In addition to the physical infrastructure works, a Sustainable Transport Strategy and Site Wide Travel Plan have been produced to promote sustainable travel modes to the Site for employees, including the enhancement of public bus services and provision of bespoke services.

10.1.12. A Site Wide HGV Management Plan and Demolition and Construction Traffic Management Plan have also been produced in order to reduce this impact of the development on the area. This will include the banning of WMI HGV's through Penkridge (apart from those vehicles with specific business in the town), which will be enforced by a monitoring regime.

10.1.13. A Transport Steering Group will be established prior to the occupation of the scheme. This will be formed by representatives from FAL, the SWTPC, together with members of relevant local authority groups. The purpose of the group will be to effectively deliver and co-ordinate the measures specified in terms of the targeted site specific non car access via a proposed shuttle bus service, the SWTP and SWHGVMP. In the event traffic associated with WMI is shown to utilise inappropriate routes, the Transport Steering Group will if necessary implement local traffic management measures via a Contingent Traffic Management Fund.

Development Trip Generation and Distribution

10.1.14. Due to the unique nature of the SRFI, it was agreed at the scoping stage that vehicle trip generation rates for WMI would be based on surveys undertaken at the Daventry International Rail Freight Terminal (DIRFT). DIRFT is a comparable SRFI in terms of location and size. The DIRFT survey data was used to establish trip rates for both light vehicles and HGVs. Using the light vehicle trip rates, multi modal trip rates were produced based on existing travel mode shares from around the Site, adapted for the scale of WMI.

10.1.15. Trip Distribution has been based on national statistics including the Census and DfT Road Freight Statistics as well as gravity models for both light and heavy vehicle distribution. Approximately 18% of employees are expected to come from the local South Staffordshire area with 12% expected to come from Wolverhampton. Although WMI is expected to serve destinations nationally it is expected that approximately 60% of goods will stay within the West Midlands region.

Development Impact

10.1.16. Future traffic forecasts have been derived from the M54 / M6 link Road SATURN Model (M54/M6SM) and the South Staffordshire VISSIM Model (SSVM). The M54/M6SM covers a large area extending from Stafford in the north to Birmingham in the south. The SSVM covers a smaller area in more detail, extending from north on M6 Junction 12 to south of the M54. The M54/M6SM has been used to provide the growth assumptions and distribution of traffic to the wider highway network for the SSVM and the assessment of the development is based on the outputs of the SSVM, as agreed with the highway authorities.

10.1.17. Journey times, traffic flows and queue lengths have all been extracted from the SSVM in order to review the performance of the highway network with the Proposed Development. This data has demonstrated that, with the addition of the proposed highway improvements, the performance of roads around the Site does not deteriorate when compared to the scenario without WMI. In particular, the road connecting the A5 and A449 roundabouts will provide an alternative route for both existing road users and WMI traffic which will allow them to bypass the Gailey Roundabout. It will be available for use by public traffic at all times and would be a signed route between M6 Junction 12 and the A449. This choice of route means that in the future there will be added resilience to this area, whereby vehicles can vary their route as necessary.

10.1.18. Through the introduction of the necessary infrastructure improvements identified, there would not be a severe impact in terms of the future operation of the SRN and county roads as a consequence of the changes in traffic arising from WMI. Any increases in journey times and queue lengths across the SSVM network are not considered to be severe.

10.1.19. Overall, this document has demonstrated that there will be no adverse impacts in transport terms as a consequence of the Proposed Development.

10.2. Conclusion

10.2.1. It has been demonstrated that the objectives and aims of local and national policy can be met by the development of WMI and overall this Transport Assessment demonstrates that, with the introduction of specific and tailored highway improvements, the highway network can accommodate the additional traffic associated with the Proposed Development. Any impact will be further reduced by the implementation of a robust and specific Site Wide Travel Plan.

10.2.2. In conclusion, in accordance with the NPPF it has been demonstrated that the residual cumulative impacts of the Proposed Development would not have a 'severe' impact in terms of transport matters.