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## West Midlands Interchange

### Critical Examination of the West Midlands Interchange Application Documents relating to Highway and Transportation

Technical Note: Prepared on behalf of Stop the WMI

Project Ref: 19-053, January 2019

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#### Introduction

This Technical Note will report key findings from a critical review of documents relating to highways and transportation matters as submitted by Four Ashes Limited regarding the proposed West Midlands Interchange (WMI). The following documents were considered within the review (date descending):

- Consultation Report: The West Midlands Interchange- Copper Consultancy - (July 2018);
- Document 6.2 Technical Appendix 15.1 - Transport Assessment (TA)- WSP – (July 2018);
- Environmental Statement - Vol 1 - Chapter 15: Transport and Access- WSP – (July 2018);
- Technical Appendix H – Site Wide Travel Plan- WSP – (July 2018);
- Appendix G: Technical Note 19 Sustainable Transport Strategy- WSP – (May 2018);
- Appendix 7.8 – WSP WMI Transport Technical Note (September 2017);
- Transport Assessment Preliminary Scoping Report - WSP – (June 2016); and
- Appendix K: Technical Note 5 (HGV And Non-HGV Trip Generation).

The report will provide a critical commentary on the sustainability of the WMI regarding connections to and from the site to surrounding conurbations. The report will also recommend topics that would benefit from further exploration within the submitted planning documentation.

#### Proposed Development

It is understood that the development, known as the WMI, will include an intermodal freight terminal, rail served warehousing up to 743,200 sqm and ancillary service buildings. The WMI and the intermodal freight terminal will operate 24 hours a day - 7 days a week. 70% of employees are anticipated to be on a shift pattern of 0600-1400, 1400-2200 and 2200-0600. 30% of employees would attend the site during regular office hours (0900-1700).

Vehicle movements to the WMI will be a mixture of HGVs, light goods vehicles, employee vehicles. and visitors. It is also acknowledged that the delivery of WMI will be phased over a 15-year development period from 2021 to 2036. Based on indicative phasing plans, it is understood that all highway infrastructure will have been introduced by the end of indicative phase one.

It is acknowledged that as part of the application, the following highway improvement works are proposed to mitigate highway impact:

- Construction of new roundabouts on the A5, A449 and Vicarage Road;
- a new adopted road connecting the A5 and A449 between these two new junctions (known as the A449/A5 Link Road);
- alterations to the junction layout at the A449 / Station Drive junction with a banned right turn to reduce through traffic;

- alterations to the layout of Crateford Lane to make it one-way in a west to east direction to reduce through traffic; and
- the construction of an HGV turning area on Station Drive, to the west of the existing low bridge.

It is stated within the Transport Assessment- Document 6.2 Technical Appendix 15.1 (referred to as "TA" hereafter), that *"The new adopted road connecting the A5 and A449 would always be available for use by public traffic and would be a signed route between M6 Junction 12 and the A449"*.

It is noted that the construction of the new adopted road would have a positive effect on the surrounding highway network as all north and south bound traffic would be able to bypass the Gailey Roundabout, decreasing pressure on this junction.

## Sustainability of the WMI

### Planning Policy

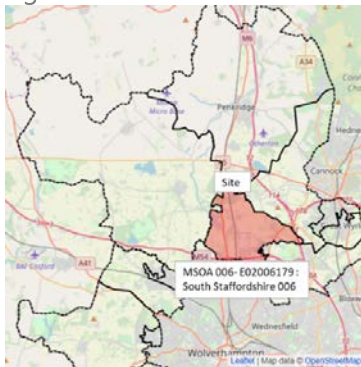
The NPPF introduces a presumption in favour of sustainable development, summarised in paragraph 14 of the document. It is stated *"At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking."* The NPPF also states as an objective to "focus significant development in locations which are or can be made sustainable".

As such, along with a critical examination of items raised within the planning submission documents regarding sustainable transport, this section will also comment on the fundamental sustainability of the WMI scheme.

### Proposed Employee Mode Share of the WMI

In order to estimate a baseline for the level of sustainability in the local area, the TA notes that MSOA 006 is used to derive the existing mode share within the area, and this is accepted as the best MSOA to estimate the location of potential employees to the site. An extract from Nomis is included in Figure 1.

Figure 1- Location of MSOA 006



### Adjusted WMI Base Mode Share

Within the census calculation section of the TA used to calculate an 'adjusted base mode share', 4.5% of walking trips are removed from the mode 'walking'. This is accepted due to the site's location being isolated from surrounding conurbations, however, this reduction of mode share from walking is then distributed onto car passenger, bicycle and train, preserving the car at 83%. It could be argued that MSOA 006 is more connected than the actual site location as it contains a large proportion of the northern suburban fringe of Wolverhampton and as a result, the MSOA as used could be expected to have a higher bicycle and train mode share than the anticipated mode share of the WMI.

It is also stated in para 6.2.3 of the TA that *"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"*. Yet, upon adjusting the proposed WMI travel to work mode share, residents using the bicycle are doubled from 2%, as listed in the MSOA, to 4%. As such, the application of the adjusted 'Base WMI Mode Share' within the TA should be revisited.

Furthermore, the interim 'Site Wide Travel Plan' (Technical Appendix H) proposes a target of a 10% reduction in car driver journeys to work during peak periods at WMI, (as displayed in Table 1), with the 10% reduction evenly applied onto car passenger (+5%) and bus (+5%). This adjustment is entirely based on proposed Travel Plan measures and 'sustainable transport package' that would be implemented as part of the WMI development proposal.

**Table 1- Anticipated Mode Share Based on WMI Travel Plan Measures**

Travel Mode	Proposed Adjusted WMI Travel to Work Mode Share based on Table 14 of TA	Target Mode Share based on Travel Plan Measures	Percentage Change
Car Driver	83%	73%	-10%
Car Passenger	7.5%	12.5%	5%
Bus	3%	8%	5%
Bicycle	4%	4%	0%
Train	1%	1%	0%
Motorcycle	1%	1%	0%
Walking	0.5%	0.5%	0%

This anticipated change in mode share is not considered feasible, as multiple generic 'soft' approaches are listed within the strategy (car sharing, guaranteed lift home etc), without implementing effective, large scale measures that one would expect to be included within development of this scale, particularly as the area currently has noticeably inadequate sustainable transport links.

As such, it is recommended that the mode share breakdown, used to distribute trips on individual modes within the TA, is queried to support the argument that the proposed sustainable transport infrastructure could support 8,550 employees.

By scaling the number of anticipated employees to the modal split breakdown provided within the TA the person trips by mode of transport can be assumed, as detailed in Table 2.

**Table 2- Breakdown of Anticipated Employee Trips based on Mode Share at WMI**

Mode Share	Proposed WMI Travel to Work Mode Share based on Table 14 of TA	Employees per 24hr period based on 8,550 Employees	Anticipated (two-way) trips per 24hr period based on 8,550 Employees
Car Driver	83%	7,097	14,194
Car Passenger	7.5%	641	1,282
Bicycle	4%	342	684
Bus	3%	257	514
Train	1%	86	172
Motorcycle	1%	86	172
Walking	0.5%	43	86

From observing Table 2, alongside the pedestrian and cycle catchments indicated within Figures 7 and 8 of the TA App G- 'Sustainable Transport Package', it can be argued that there is a low chance of 342 employees cycling to and from the WMI, resulting in 684 estimated daily cycle trips.

The cycle catchment displayed in Figure 8 displays three catchment areas from the centre of the WMI:

- 0m-2.7km - up to 10-minute cycling distance at 16kph;
- 2.7km-5.3m - 10-20-minute cycling distance at 16kph; and
- 5.3km-8km - 20-30-minute cycling distance at 16kph.

It is noted that the only catchment area within Figure 8 featuring any substantial employee conurbations (Penkridge and Cannock) is the 5,333m to 8,000m segment, and although 'Creating Growth, Cutting Carbon' (DfT, 2011) mentions that cycling is achievable up to 8km.

The quoted 16kph speed to reach 8km catchment in 30 minutes is considered unrealistic, given the poor available cycling infrastructure including fragmented routes and the regular requirement to cross busy roads.

Also, as 70% of employees are quoted within the TA to start work outside regular office hours and consequently, outside of daylight hours for a large proportion of the year, this is an additional influencing factor that must be considered.

It is also noted that the pedestrian catchment in Figure 7 does not provide access to any amenities or surrounding residential conurbations and as such, there is also a very low chance of 43 employees walking (86 reported estimated daily walking trips).

Also, there is a very low chance of 86 employees using the train (172 reported estimated daily trips). The topic of public transport is discussed below.

### **Proposed Public Transport Improvements**

In order to cater for the 3% of employees that are anticipated to travel to the WMI by bus (8% as indicated by the Travel Plan target), it is proposed to enhance the existing hourly Service 54 to provide a half hourly service between Wolverhampton and the WMI. It is also proposed that new shuttle bus services would be provided between the WMI and various collection points nominally in Cannock Chase, Walsall and the wider Wolverhampton urban area.

Providing the shuttle bus will serve the areas of highest forecast employee numbers and trip demand as approximately 32% of future workers are estimated to reside in these areas. This indefinite comment about the implementation of a shuttle bus service has no accompanying description, frequency or operator and is not considered to be enough to comprehensively mitigate the reliance on private car to access the site.

Notwithstanding this, the calculation also assumes that 68% of future workers will originate from other areas and thus, cannot benefit from the proposed shuttle bus service. It is not outlined within the Travel Plan how public transport would service the remaining 68% of 8,550 employees to deter travel by private car and enable the WMI to achieve the 8% quoted Travel Plan target.

### **Proposed Improvements to Cycle Links**

The A449 (north of the Gailey Roundabout) is currently inappropriate for commuter cycling as the route on the west side of the road is a c.1m wide existing shared cycle / footway that cannot accommodate two passing cyclists or a cyclist passing a pedestrian. It is noted that Penkridge is the most accessible conurbation to the WMI, but the TA references no proposed improvement works to the existing infrastructure, except for retaining the canal towpath as indicated in Figure 4 of the 'Sustainable Transport Strategy'. This unlit and unsurfaced canal towpath is inappropriate for commuter cyclists, although may be acceptable for leisure trips.

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### Sustainable Transport Strategy

A sustainable transport strategy has been proposed within Appendix G: Technical Note 19 Sustainable Transport Strategy - WSP - (May 2018) and is included within the Travel Plan.

Within this document, three train stations have been identified as possible transport interchange points. Penkridge, Cannock and Wolverhampton Stations (located approximately 7km, 8km and 10.5km respectively from the site) are cited as locations where employees will have the opportunity to switch from rail travel to other sustainable modes such as bus or bicycle to travel to WMI by way of a combined journey.

The Chartered Institution of Highways and Transport (CIHT) guidance 'Providing for Journeys on Foot' states that two kilometres is considered an acceptable walking distance for a variety of pedestrian trips. It is also stated that cycling is generally considered to be a reasonable option for day to day trips up to 5km. As such, it is not accepted that 1/100 employees (1% or 86 employees based on anticipated mode share) will commute in via train to Penkridge, Cannock and Wolverhampton Stations and then commute a further 7km, 8km or 10.5km as distances stated within the TA. It is also not considered likely that 1% of employees will use a train / bus linked trip to commute to work as the shuttle pick up / drop off points are not yet confirmed (and may be inaccessible from the railway stations) and the Service 54 / 54A only runs to Wolverhampton, Penkridge and Stafford.

Furthermore, using local evidence from the i54 Business Park as an example to base the success of potential improvements of sustainable accessibility as detailed within Technical Appendix H - 'Site Wide Travel Plan will need further exploration. i54 Business Park has far superior geographical benefits regarding accessibility as it is located on the northern fringe of Wolverhampton and is far better served by public transport and is connected to local residential estates. Using this as evidence for sustainable measures is not a robust comparison as the WMI is of rural character, without any local residential estates.

The WMI is isolated from surrounding conurbations with limited sustainable travel options. Even with the proposed improvements to the bus service network, most trips will be via private, single occupant car, with a slight minority of trips being by bus. Trips by train would be very rare, and it cannot be assumed that the existing footway on the north side of the A5 or the A5 carriageway can be used by cyclists and the majority of 'advisory cycle routes' listed within Figure 4 of the of the 'Sustainable Transport Strategy' are unlit and rural in character.

### Sustainable Transport Strategy Summary

The offering of an improved 54/54A bus service (proposed half hour service from an existing hourly service) to the site from Wolverhampton, coupled with a proposed new shuttle bus service between the site and various collection points nominally in Cannock Chase, Walsall and the wider Wolverhampton urban area is not compelling enough to argue a case for sustainable accessibility. The Trip Generation as established within Appendix K: Technical Note 5 should be adjusted to suit the site as appropriate, as all modelling of the proposed development impact is derived from applying a mode share split to total people development trips.

### Proposed Parking

It is identified that there is no parking amount specified within the TA or any attempt to estimate future demand for parking. Instead, it is stated that "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".

With 8,550 estimated employees and operational requirements for 743,200 square metres of warehouse accommodation and an intermodal freight terminal, the level of required parking would be vast. Parking is a topic that one would expect to be explored in more detail within a TA.

It is noted that within the Design and Access Statement (Doc 7.5) that the following amount of parking would be required:

- 1 HGV parking space per 372 sqm of warehouse GIA- (equates to 1,998 HGV parking Spaces);
- 1 car parking space per 30 sqm of office GIA (no mention of office accommodation in TA); and
- 1 car parking space per 100 sqm of warehouse GIA (equates to 7,432 car parking spaces).

The level of proposed car parking based on the Design and Access Statement (7,432) is broadly in line with the estimated level of private car drivers, using the applied 83% mode share (7,097 employees driving to the site). However, the level of proposed parking actually seems to be too high based on the proposed daily shift breakdown whereby not all employees will be on site at the same time.

## WMI Traffic Impact

### Assumed Shift Patterns

The shift patterns identified in Section 4.4 of the TA are recognised as general shift patterns for commercial warehouse premises, however, as no occupiers or potential tenants or occupiers are published (only 'warehousing' is supplied as a description), the exact shift times would be required as the present assumption of a 30% (Office) / 23.3% (Dayshift) / 23.3% (Backshift) / 23.3% (Nightshift) split, if modified at a later date based on the type of potential tenant, could influence the development trip peaks associated with the site, and in turn, influence the impact on the local highway network. This is because an increase in the proportion of regular office hours shift time would introduce additional vehicles into the highway network at the typical AM and PM peak hours.

It is stated within the planning documents that "70% of staff are anticipated to travel to and from the WMI outside regular working hours and therefore outside traditional peak periods of travel demand on the highway and public transport networks."

To prove this assumption, evidence that potential tenants will abide to the 30% office hours / 70% dayshift, backshift and nightshift shift patterns would need to be produced as any movement from these fixed hours would have an impact on the local highway network at sensitive times, especially if the proportion of employees working normal office hours is increased. The shift times for existing tenants from the DIRFT site would also need to be analysed and compared to the proposed type of tenants of the WMI to ensure that employee trips between the site used for traffic surveys and the proposed site would be comparable and experience the same daily fluctuations.

### Proposed Trip Generation

The proposed development trip generation has been derived using trip rates based on Manual Classified Traffic Count and 24hr Automatic Number Plate Recognition (ANPR) survey surveys (classified into light and heavy vehicles) undertaken at Daventry International Rail Freight Terminal (DIRFT) on the 22/06/2016 (Wednesday) and 23/06/2016 (Thursday). It is accepted that the DIRFT is a fundamentally comparable site, with the number of employees being broadly similar to the proposed WMI and situated in a similarly unsustainable location with limited opportunities for sustainable development.

Junction turning surveys were undertaken at the road access of each warehouse, or group of warehouses if more than one warehouse is accessed from a road. This method appears to be an acceptable approach, undertaken on 'neutral days' and does not coincide with any recorded school holiday period.

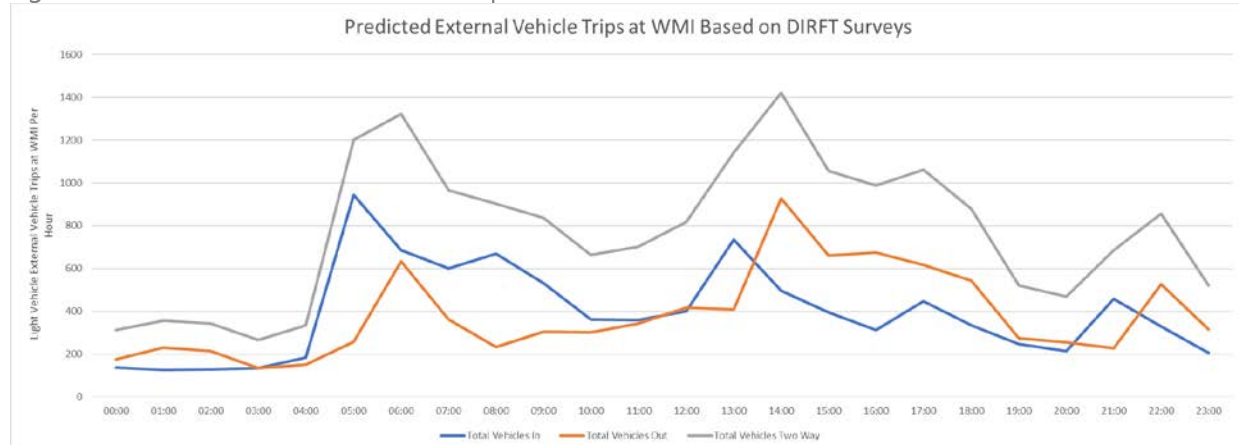
As a check, the recorded external traffic counts undertaken in June 2016 have been compared to the traffic counts undertaken in March 2011 during the planning application submitted for the 3rd phase of DIRFT. The daily trip rate patterns from the March 2011 surveys appear to be broadly similar to the June 2016 without any identifiable anomalies in the dataset. A breakdown of estimated external hourly vehicle trips at the WMI, derived from observed traffic counts at the DIRFT is displayed in Table 3.

**Table 3- External Vehicle Trips at WMI Based on DIRFT Survey Trip Rates**

Hour	Light Vehicle Trips Per Hour			Heavy Good Vehicle Trips Per Hour			Total Vehicle Trips Per Hour			
	Car / LGV In	Car / LGV Out	Two Way	HGV In	HGV Out	Two Way	In	Out	Two Way	
00:00	31	108	139	107	66	173	138	174	312	
01:00	41	144	185	85	87	172	126	231	357	
02:00	54	146	201	74	68	142	128	214	343	
03:00	59	69	128	74	64	138	133	133	266	
04:00	114	70	184	69	81	150	183	151	334	
05:00	842	167	1009	102	91	193	944	258	1202	
<b>06:00</b>	<b>551</b>	<b>519</b>	<b>1070</b>	<b>136</b>	<b>116</b>	<b>252</b>	<b>687</b>	<b>635</b>	<b>1322</b>	AM Dev PEAK
07:00	477	263	740	125	100	225	602	363	965	
<b>08:00</b>	<b>531</b>	<b>91</b>	<b>622</b>	<b>138</b>	<b>142</b>	<b>281</b>	<b>669</b>	<b>233</b>	<b>903</b>	AM Network PEAK
09:00	362	145	508	170	160	329	532	305	837	
10:00	188	145	333	173	157	330	361	302	663	
11:00	190	166	356	168	177	345	358	343	701	
12:00	210	221	431	191	196	386	401	417	817	
13:00	572	239	811	162	169	331	734	408	1142	
<b>14:00</b>	<b>286</b>	<b>765</b>	<b>1051</b>	<b>210</b>	<b>161</b>	<b>371</b>	<b>496</b>	<b>926</b>	<b>1422</b>	PM Dev PEAK
15:00	192	468	660	204	193	397	396	661	1057	
16:00	147	501	648	166	175	341	313	676	989	
<b>17:00</b>	<b>300</b>	<b>438</b>	<b>738</b>	<b>147</b>	<b>178</b>	<b>325</b>	<b>447</b>	<b>616</b>	<b>1063</b>	PM Network PEAK
18:00	221	394	615	114	148	262	335	542	877	
19:00	103	145	248	143	130	273	246	275	521	
20:00	94	141	235	119	115	234	213	256	469	
21:00	352	112	465	105	116	221	457	228	686	
22:00	200	445	645	128	83	211	328	528	856	
23:00	80	203	282	125	112	238	205	315	520	

It is identified that the typical peaks associated with the WMI occur at 06:00-07:00 and at 14:00-15:00. These are separate to the network peaks of 08:00-09:00 and 17:00-18:00 respectively. Figure 2 provides a graphical interpretation of the external vehicle trips at WMI displayed in Table 1.

Figure 2- Breakdown of External Vehicle Trips at WMI Per Hour



**Proposed Trip Generation for Pre A449/A5 Link Road Assessment**

A TRICS assessment was undertaken in para 6.2.15 of the TA to identify estimated traffic for use within the VISSIM model that would be generated from an initial 185,000sqm of warehousing proposed to be constructed prior to the completion of the A449/A5 Link Road and rail terminal as the trip rates reported from the DIRFT surveys would not accurately reflect the actual rates.

Although this is a standard approach for the initial phase of standard commercial warehousing, the trip rate output from the TRICS database was generated using only 3 individual surveys:

- A book publishing warehouse in Grantham, Lincolnshire (32,300sqm GFA);
- Commercial warehousing in Felixstowe, Suffolk (22,270sqm GFA); and
- An Asda distribution centre in Washington, Tyne and Wear (31,000sqm GFA).

It is noted that the Commercial warehousing in Felixstowe is in a suburban area and does not specifically meet the requirements of the WMI primary filtering parameters.

Using 3 surveys does not provide enough evidence to produce a reliable trip rate value upon which to provide an accurate estimation of vehicles output. However, it is acknowledged that the number of surveys within TRICS using the required specific parameters is limited and the analysis undertaken used the best available dataset within the TRICS database.

**Trip Distribution for Post A449/A5 Link Road Assessment**

The approach to trip distribution is considered sound, using Journey to Work Census Data and an extended Gravity Model for the Middle Layer Super Output Area (MSOA) containing potential catchment areas of employees for WMI.

The national HGV trip distribution was calculated based on the 'DfT Road Freight Statistics 2015' and this approach is considered robust, accompanied by a HGV distribution exercise within West Midlands to establish local trips. It is summarised that 61% of HGV movements remain in the West Midlands and the methodology adopted to forecast both HGV and non-HGV trip generation has been agreed with Highways England (HE) and Staffordshire County Council (SCC).

**Baseline Traffic Surveys**

In addition to the DIRFT traffic surveys undertaken, traffic surveys were also carried out during 2013 and 2015 in the area surrounding the site to establish the baseline traffic flows and in order to validate the



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Highways England South Staffordshire VISSIM micro simulation traffic model against 2015 baseline conditions.

### **Growth Rates applied to Traffic Surveys**

TEMPRO growth rates were applied to the 2013 survey data to apply a common factor in order to identify 2015 traffic flow values. Future traffic forecasts have then been derived from Highways England transport models, namely the M54 / M6 link Road SATURN Model (M54/M6SM) and the South Staffordshire VISSIM Model (SSVM). A critical analysis of the SATURN and VISSIM Model is provided within this Technical Note.

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.

Journey times, traffic flows and queue lengths were all been extracted from the SSVM in order to review the performance of the highway network with the proposed development.

## **Modelling Methodology**

The modelling platforms utilised to assess the impact of the proposed development are the M54 / M6 / M6 Toll Link Road SATURN Model (M54/M6SM) and the South Staffordshire VISSIM Model (SSVM).

The SATURN Model (regional modelling) and VISSIM Model (local modelling) are both widely used methodologies and the traffic flow outputs have been checked as part as part of this instruction for errors / inaccuracies.

### **The SATURN Model**

The SATURN Model used a 2012 Base Year and forecast years of 2021 and 2036, with two scenarios selected as follows:

- Do Minimum (including committed development); and
- Do Something (including committed development and the WMI proposed development).

The following committed developments were incorporated into the SATURN Model:

- 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).

It should be noted that the 2036 assessment makes no allowance for traffic changes arising from the M54/M6/M6 Toll link, which is generally anticipated to reduce traffic volumes along the A449 and the A5 in the vicinity of the site.

### **South Staffordshire VISSIM Model**

Systra was commissioned to undertake the development impact assessment on a local scale using the SSVM. It is understood that 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. Also, it is understood that highway infrastructure assumptions were included within the expanded SSVM model following comments received from consultation, including alterations to the timings of the traffic signals following identified operational difficulties at M6 Junction 11.

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It is noted that the A449 Stafford Road/Four Ashes Road/Station Drive junction was re-calibrated using the new 2016 traffic count data from the initial 2013 data. This calibration is contained within Appendix O of the TA.

The VISSIM model focused on the following junctions:

- 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; and
- Vicarage Road/Straight Mile.

Local journey time changes during the AM and PM peaks were reported as 'relatively minor', with certain routes producing an improvement in journey times when the "with WMI" scenario is compared against the "without WMI" Scenario due to the new adopted road connecting the A5 and A449. This is accepted as the implementation of the public link road would increase the capacity of the local highway network.

Much like journey times, queue lengths are also estimated to be positively impacted by the link road with reductions in average queue lengths observed on all approaches on the Gailey roundabout. Increases in queues at the A449 / Four Ashes/Station Drive are observed from the VISSIM output, although not severe enough to cause concern.

### Shift Change Analysis

Using the Junctions8 assessment package, assessments were performed at the identified time of shift change during the main part of the day on end of the 0600-1400 shift and the start of the 1400-2200 shift on:

- The proposed four arm roundabout junction of the A449/Crateford Lane/ A449/A5 Link Road; and
- The proposed Intermodal Terminal Access staggered junction on the A449/A5 Link Road (east of the A449/Crateford Lane/Gravelly Way roundabout).

Assessments were undertaken during the hours of 1300-1400 and 1400-1500 and it is noted that there is a noticeable delay at the development plot access roads, however it is accepted that as the RFC values are relatively low, the resultant delay is not considered significant.

The Junctions8 modelling used the forecast year of 2021, although both the SATURN and SSVM modelling undertaken uses a forecast year of 15 years, (2032) by applying a Tempro growth rate. It seems that the shift change assessment does not apply the growth rate and this could affect the resulting RFCs. There is an analysis undertaken of the proposed four arm roundabout junction of the A449/Crateford Lane/ A449/A5 Link Road, factoring the results to 2032 as included within Appendix T: Technical Note 29 (2036 Assessments), however this incorporates traffic network peaks and does not assess the development peak as associated with the changing of shifts.

It is appreciated that there will be reduced through traffic flow on the proposed four-arm roundabout due to the proposed new Link Road, however traffic turning onto the road from the south has been assumed. Further analysis on how this proportion of traffic split was derived is required, as this would have a significant affect the operation of the main access onto the A5.

## Summary

The NPPF states as an objective to “focus significant development in locations which are or can be made sustainable”. In brief, the WMI is situated in an area that is isolated from surrounding conurbations and the existing site, as it stands could be considered to be fundamentally unsustainable for a proposed development that is estimated to support c.8,550 employees.

Although measures are proposed to improve the sustainability, the descriptions of improvements to public transport (with the exception the enhanced Service 54 / 54A to Wolverhampton and Penkridge) are vague and further details are required regarding the shuttle service to claim acceptable sustainability.

Linking with the topic of sustainability, the mode share values used for the estimation of trip generation would require revisiting. The number of private car drivers is considered unrealistic with regard to the location of the WMI, especially whilst considering the projected 10% reduction in car drivers as a mode share with the implementation of the Travel Plan measures.

The provision of a bus service that could sustain 3% of employees (forecasted to rise to 8%) would require more improvements. More detail should be provided regarding the operation of the proposed shuttle service and how the remaining 68% of the 8,550 employees that would reside outside the identified shuttle bus pick up / drop off areas could access sustainable transport.

Penkridge provides the best opportunity for cycling trips to and from the site as the most local conurbation, and yet the existing cycleway / footway on the A449 is proposed to be retained with no identified improvement. On observation, both the A449 cycleway and the proposed canal path are considered inappropriate for commuter trips.

Within the ‘Sustainable Transport Strategy’, it is not considered that the i54 Business Park is comparable to the WMI as evidence of the success of sustainable measures, and therefore further undermines the assumption that an additional 10% of employees would not drive to the site.

Regarding the modelling undertaken, the methodology is considered robust, although the shift change assessment contained within Technical Note 29 would benefit from the application of the same 2036 growth rate as the other modelling and this could affect the resulting RFCs. Also, the assumed shift patterns could strongly influence the calculated traffic impact of the WMI, more description / evidence is required about potential occupiers of the WMI to provide evidence for the assumed 30%/23%/23%/23% shift split.

In overall summary, the methodology applied to the assessment of the impact of the WMI appears sound, but the inconsistencies, lack of evidence and fundamental flaws in the assumptions used within it means the conclusions drawn cannot be considered acceptable.