

# Transport Note

Subject: **International Advanced Manufacturing Park – Area Action Plan**

Topic: **Matter 6: Infrastructure Transport and Access**

Item: **Final Response to WSP Review of Transport Technical Background Report**

Date: **05/06/2017**

## 1. Introduction

- 1.1 This Note has been produced to provide the Councils' concluding comments in response to the Review of Transport Technical Background Report (Update) ('Update Report') produced by WSP, dated May 2017.
- 1.2 The Update Report repeats items of contention previously raised within the first report dated April 2017. For ease of reading and comprehension, this Note does not extensively repeat text from the WSP report and only provides the Councils' final position and further clarity on items where it is considered necessary. Where this Note does not respond to a point raised in the Update Report it should not be implied that the Councils either agree with the comments raised by WSP, or concede their position. The Councils continue to stand by their original submission as set out in their note dated 10/04/2017. This Note does however take the opportunity to provide clarity on several items and highlight inaccuracies and misrepresentation within the Update Report so as to assist the Inspector.
- 1.3 The Councils maintain that the previous documents submitted as evidence to support the AAP are sound and the information is proportionate for the consideration of the AAP Policies.
- 1.4 Similar to our previous submission and that of WSP, this Note is structured around the headings of the transport evidence within the Proposed Submission Documents (PSD) and Supporting Documents (SD).

## 2. Transport Technical Background Report (PSD19)

### Items of Clarification

- 2.1 Within the Update Report it is claimed within para 2.1.20 that surveys conducted on 18<sup>th</sup> March are a departure from standard. However, within para 2.1.23 it states that traffic surveys commissioned during the period Monday 23<sup>rd</sup> – Thursday 26<sup>th</sup> March, would have successfully met the criteria set out within WebTAG<sup>1</sup>. Surveys during this period would not be WebTAG compliant, due it being the week immediately prior to Easter 2015.
- 2.2 For clarity, we would also highlight that it is not appropriate for the Update Report to compare the traffic flows presented within Table 2-1 with those presented in Table 2-2. These two sets of traffic data have been collected from two separate locations on the A19 (one source is located south of the A1290, the other source is located north of the A183) and are therefore not directly comparable, due to significant on/off traffic movements at the A19/A1231 junction located in-between these two

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<sup>1</sup> WebTAG is a transport analysis guidance published by the DfT and provides information on the role of transport modelling and appraisal.





sites. For example, using the same source of data to that presented in Table 2-2 results in typically 20,000 (approx.) fewer vehicles to those presented in Table 2-1.

#### **Councils' Concluding Response**

- 2.3 WebTAG consists of software tools and guidance on transport modelling and appraisal methods that are primarily used for the formulation of business cases to support highways and public transport interventions. The IAMP is not purely a highways and transportation scheme, but a development project with substantial highway interfaces, for which land is being allocated in the IAMP AAP. For developments such as this, analysis using WebTAG is best guidance and provides a useful modelling framework. The approach adopted complies with WebTAG and goes well beyond what is expected to support an AAP submission.
- 2.4 As outlined in our previous submission, the traffic surveys used to inform the S-Paramics model are considered to comply with the WebTAG guidance.
- 2.5 TAG Unit M1.2 Data Sources and Surveys states that they should be carried out during a 'neutral', or representative month. It further goes on to state that national experience suggests that late March and April excluding the weeks before and after Easter could be considered as neutral.
- 2.6 Within WebTAG the term 'late March' is not defined and it is our professional opinion that 18th March was an acceptable date for surveys - the analysis included in Appendix A of the Councils' previous response considers traffic data on the A19 over a one year period and demonstrates that the data is from a 'representative' month and is consistent with a typical, neutral, daily flow.
- 2.7 It is again reiterated that the date of the surveys was agreed with all relevant highway authorities, including Highways England. Surveys were conducted during a brief respite from roadworks in the vicinity to IAMP and prior to the A1 Western Bypass works, thereby avoiding any risk of traffic changing normal travel characteristics to avoid areas of the network subject to roadworks.
- 2.8 For the reasons outlined in the Councils' previous response and that provided within this response, the data used to inform the S-Paramics model is considered to be sound.
- 2.9 The Councils are confident that the use of a micro-simulation S-Paramics model is an appropriate and proportionate tool to inform the AAP Policies for a development of this scale. The Councils are also satisfied that the level of results presented within the original evidence, along with the additional results provided in our previous response are sufficient to inform the AAP Policies.

### **3. Base Modelling Approach (SD60)**

#### **Item of Clarification**

- 3.1 The Update Report interprets that the warm-up period is during peak hours, which is not correct. SD64 (Local Model Validation Report) states that the model periods are 07:00-10:00hrs and 15:00-18:00hrs with a half-hour warm-up period. WSP have interpreted this to mean the warm-up periods are 07:00-07:30hrs and 15:00-15:30hrs, however, the warm-up periods are in addition to the 3-hour model periods (i.e., from 06:30-07:00 and 14:30-15:00hrs). By the time the model period starts at 07:00hrs and 15:00hrs, the modelled road network is fully populated with traffic and can be used for assessment immediately, thereby including the local peak periods.

#### **Councils' Concluding Response**

- 3.2 The Councils' previous response on this item confirms the validity of the model against DMRB acceptability guidelines, as set out in SD64 (Local Model Validation Report). SD64 contains all the standard outputs and level of detail that would be expected from such a report.





- 3.3 It is again highlighted that not only have Sunderland City Council and South Tyneside Council reviewed the base model in operation and confirmed that it reflects the existing typical operations based on their operational experience of the network, so too have Highways England, the statutory body responsible for the Strategic Road Network. It has been explained previously and again above in Section 2 that there is no departure from standard with regard to the collection of traffic data.

## **4. Future Year Modelling (SD61)**

### **Councils' Concluding Response**

- 4.1 It is maintained that the approach to background traffic growth within the IAMP model is appropriate. The approach adopted by the Highways England modelling team considering the A19 Junction improvements and that used for the IAMP traffic modelling are both WebTAG compliant.
- 4.2 The previous response provided by the Councils regarding the use of TEMPro adjusted NTEM traffic growth for a 2018 scenario is clear. It sets out the rationale for the methodology adopted and it would be entirely inappropriate to apply a similar methodology for the 2028 scenario, as suggested by WSP - such an approach would grossly over-forecast traffic levels due to 'double-counting'.

## **5. Multi-Modal Trip Generation (SD62)**

### **Item of Clarification**

- 5.1 The Update Report references in para 2.4.23 discussions between WSP and Highways England in relation to the use of Council derived trip rates in the assessment of the A19/A1290 Downhill Lane junction for another exercise. The Councils are unable to offer comment on the suitability of trip rates discussed between WSP and Highways England in connection with other projects, and as such this statement should be disregarded as it goes to matters which fall outside of the consideration of the IAMP AAP.
- 5.2 During the production of the IAMP AAP, Highways England (HE) representatives attended monthly Stakeholder Meetings. HE were provided with a copy of the Technical Note (SD62) setting our approach to Multi-Modal Trip Generation and offered no objection. Regular meetings with HE representatives continue.

### **Councils' Concluding Response**

- 5.3 Within the Update Report, at para 2.4.20 (and elsewhere throughout the document), concern is raised as to the clarity of the Councils' own vision for the IAMP AAP. The Councils' wish to confirm that they are clear in their vision for the IAMP AAP, which remains unchanged.
- 5.4 Given that the final users at the IAMP are not yet confirmed, it is common best practice to use a modal split from other employment areas in close proximity, which is adopted in the evidence. It is also good practice to conduct a sensitivity test of trip rates against a range of different assumptions and the submitted evidence includes sensitivity testing of derived trip rates to confirm their suitability for future year assessments. It is also appropriate that the impact of the IAMP be considered for the peak network periods, when car-based employee trips represent the majority of traffic movements. Furthermore, the Councils consider their previous response satisfactorily addresses comments regarding the suitability of the trip generations used.



## 6. Vehicle Trip Distribution (SD63)

### Item of Clarification

- 6.1 The Update Report claims in para 2.5.13 that Technical Notes SD6 (Impact Study IAMP – Topic Paper: Skills) and SD12 (Impact Study IAMP – Topic Paper Update 2016: Skills) have not been made publicly available for consideration. This is incorrect – SD6 was made available in May 2016 and formed part of the schedule of documents for the publication Draft AAP consultation. SD12, the update which only contained minor amendments, was made available at the submission stage in February 2017.

### Councils' Concluding Response

- 6.2 The Councils' consider their previous response satisfactorily addresses comments regarding the distribution of traffic, which is informed by the findings of SD6 and SD12. Also, Highways England were provided with a copy of the Technical Note SD63 setting out our approach to Trip Distribution and offered no objection.

## 7. Local Model Validation Report (SD64)

### Item of Clarification

- 7.1 The comments offered by WSP in the Update Report appear to involve significant confusion between calibration and validation. Calibration is part of the model build process, where the operation of the modelled network is checked against the data used in that process. This typically includes a check that the traffic flows in the model match the surveyed values. Validation is an independent check carried out after the model is complete, where the results of the model are compared to independent data which was not used in the model build process.
- 7.2 The IAMP model calibrates well. In all 1-hour periods more than 85% of flows are within the link criteria set out in DMRB, as required. Also, in all 1-hour periods more than 85% of flows (the required standard) meet the GEH<sup>2</sup> criteria set out in DMRB.
- 7.3 Table 2-4 within the WSP update report is misleading. The first two rows are artificially separated – DMRB requires the criteria to be met for all flows, not separately for <700 and 700-2700vph. Within SD64 it is shown that these criteria are met for all modelled hours.
- 7.4 Line 4 of Table 2-4 refers to "GEH statistic: link flows : GEH<5". The meaning of this is uncertain since line 3 refers to individual flows. It seems likely this is meant to read "screenline flows" which are used when there are multiple parallel routes through an area. There are no screenlines within the IAMP model and therefore this criterion is not relevant to this modelled area. To apply red crosses throughout implies the model fails this check, which is extremely misleading.
- 7.5 Line 5 of Table 2-4 refers to journey times and it is acknowledged in SD64 (Local Model Validation Report) that some of the journey times do not meet the DMRB criteria, however this is discussed in detail within SD64.
- 7.6 Line 6 of Table 2-4 refers to queue lengths. It is well recognised that there are no standard criteria for validating (or calibrating) to queue lengths. In part this is because there is often a difference between when a model recognises that a vehicle is in a queue and when survey staff consider the

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<sup>2</sup> The GEH (Geoffrey E. Havers) Statistic is a formula used in traffic modelling to compare two sets of traffic volume.





same vehicle to be queuing and validation against queue lengths is therefore not recommended, although a check is often presented to support journey time results.

- 7.7 It is further noted within line 6 of Table 2-4 that WSP have created entirely arbitrary criteria for acceptability: “modelled queue lengths are generally within 85% of observed queue lengths on all approaches to a junction”. This has no basis in guidance and gives undue emphasis to small differences. As an example, a surveyed queue of 1 vehicle and a modelled queue of 3 vehicles gives a percentage difference of 200%, well outwith these criteria, but the difference in network operation is minimal – it is still a small to negligible queue.
- 7.8 Table 2-4 is summarised in para 2.6.18 by claiming that “the model fails to meet criteria in as many categories as it actually passes”. It is assumed that this judgement is based on the equal number of green ticks and red crosses within the table. However, since 15 of the red crosses are either entirely incorrect (screenlines and queues – as discussed above) or artificially separated (<700vph and 700-2700vph), this argument is without foundation.

#### **Councils’ Concluding Response**

- 7.9 The Councils maintain that the S-Paramics model is appropriately calibrated and validated against the DMRB acceptability guidelines and is suitable for determining AAP Policies. Highways England were provided with a copy of Local Model Validation Report (SD64) and offered no objection.

## **8. Washington Road Bridge Option testing (SD65)**

#### **Item of Clarification**

- 8.1 Within para 2.7.27 of the Update Report, it is claimed that Option 2A, the Highways England preferred layout for the A19 Downhill Lane junction, does not include the Washington Road Bridge. To provide a definitive answer on this issue, written confirmation has been sought from Arup, the Highways England transport consultants undertaking the strategic modelling of the A19 Testos and Downhill Lane junction improvements. The email correspondence included in Appendix A provides confirmation from Arup that the bridge is included within their modelling work.

#### **Councils’ Concluding Response**

- 8.2 The Update Report outlines in para 2.7.19 that the new Washington Road Bridge would encourage rat-running through the centre of the IAMP site. Para 2.7.19 then continues, raising potential road safety concerns for pedestrian, cycle and equestrian based IAMP generated trips. No evidence is submitted to support either of these claims.
- 8.3 The bridge will form part of the comprehensive IAMP design delivery scheme and will assist with connecting existing communities and some of the potential workforce with the IAMP. All highway infrastructure will be designed to the appropriate standards and Road Safety Audits will be undertaken to identify any road safety concerns, with appropriate measures developed to mitigate any identified concerns.
- 8.4 Within para 2.7.21 of the Update Report, concern is raised regarding assumptions made in relation to the proposed layout of the A19 Downhill Lane junction. In response, it is highlighted that the Councils have continuously worked in close liaison with Highways England throughout the production of assessment work to inform the IAMP AAP modelling work. Also, for background information, JMP (now SYSTRA) was previously commissioned by Highways England in circa 2013 to undertake an early options appraisal of potential layouts for the A19 Downhill Lane, which was then taken forward to



support the first 'Regional Investment Strategy' (RIS 1) bid, which was subsequently successful. As such, SYSTRA was well informed of the likely infrastructure requirements at this junction.

- 8.5 Within Section 8 of the Councils' previous submission, additional information and data has been submitted to further support the justification for the Washington Road Bridge, demonstrating that the road network experiences significantly greater queues without the bridge. The Councils' previous submission also clarifies the level of traffic using the Washington Road Bridge within the S-Paramics model, which is forecast to be circa 25% of eastbound movements on the A1290 Downhill Lane junction approach during AM and PM peak hours. This therefore confirms that the bridge is a significant component of the highway infrastructure, to ensure that the IAMP and the road network operate effectively.
- 8.6 The Councils maintain that the previous documents submitted as evidence to support the AAP provide a sufficient and proportionate level of information to support the AAP Policies.

## **9. Existing Network Trigger Point Assessment (SD66)**

### **Councils' Concluding Response**

- 9.1 As outlined previously, the use of TEMPro adjusted NTEM traffic growth for a 2018 scenario and not for the 2028 scenario is clearly explained in our previous submission and is considered a sound approach.

## **10. Location of Washington Road Bridge over A19**

### **Item of Clarification**

- 10.1 Within para 3.1.11 of the Update Report, despite acknowledging elsewhere within their report that 'Option 2A' is a reference used by Highways England for their preferred schemes, it is incorrectly assumed in this instance that 'Option 2A' refers to the Councils' considerations.

### **Councils' Concluding Response**

- 10.2 At the AAP Hearing it was queried why a bridge was previously considered to the south of the location currently proposed and justification sought to why this option was not pursued. It is considered that the information provided in the Councils' previous response to this query provides sufficient detail on the significant constraints, cost and environmental impacts on a bridge in this location and why a bridge in this location was not pursued.
- 10.3 Through continuous dialogue with Highways England, the Councils are fully aware of the requirements of the bridge to accommodate the A19 becoming 'Expressway' standard. The detailed design of the bridge is currently being progressed as part of the DCO application, with due consideration being given to the environmental impact on nearby residents.



## APPENDIX A

Confirmation email from Arup regarding Washington Road Bridge





## EDWARDS Shaun

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**From:** Matthew Sinnett <matthew.sinnett@arup.com>  
**Sent:** 31 May 2017 09:30  
**To:** EDWARDS Shaun  
**Subject:** RE: Testos & Downhill Lane Traffic Modelling

Hi Shaun

Yes I can confirm that the bridge is included within the traffic modelling for Option 2A.

Matt

**Matthew Sinnett**  
Associate | Transport Consulting

Arup  
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**From:** EDWARDS Shaun [mailto:[sedwards@systra.com](mailto:sedwards@systra.com)]  
**Sent:** 30 May 2017 16:09  
**To:** Matthew Sinnett  
**Cc:** Paul.Ahdal@highwaysengland.co.uk  
**Subject:** Testos & Downhill Lane Traffic Modelling

Matt,

As you are aware, as part of the proposed IAMP development, a new vehicular bridge over the A19 is proposed ("Washington Road Bridge").

Could you please confirm if the Washington Road Bridge is included within your strategic traffic model for Option 2A?

Many thanks, Shaun

**Shaun Edwards**  
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