INTERNATIONAL ADVANCED MANUFACTURING PARK - AREA ACTION PLAN

REVIEW OF TRANSPORT TECHNICAL BACKGROUND REPORT (UPDATE)

FINAL DRAFT

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REVIEW OF TRANSPORT TECHNICAL BACKGROUND REPORT (UPDATE)

Town End Farm Partnership Limited

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1 INTRODUCTION

1.1 OVERVIEW OF THE TECHNICAL REVIEW

1.1.1 WSP was commissioned by Town End Farm Partnership Limited in March 2017 to conduct a technical review of transport documentation associated with the International Advanced Manufacturing Park (IAMP) Area Action Plan (AAP).

1.1.2 In accordance with the Planning and Compulsory Purchase Act 2004 (as amended) the Secretary of State has appointed a Planning Inspector (Malcolm Rivett BA(Hons) MSc MRTPI) to conduct an Examination in Public to determine whether the IAMP AAP is sound.

1.1.3 The original WSP technical submission was considered on Wednesday 5th April 2017, in addition to the Local Authority's transport evidence base as set out within the following documents:

- International Advanced Manufacturing Park Area Action Plan – Transport Technical Background Report **(PSD19)** *February 2017*
- Base Modelling Approach **(SD60)** *July 2015*
- Future Year Modelling **(SD61)** *July 2015*
- Multi-modal Trip Generation **(SD62)** *November 2015*
- Vehicle Trip Distribution **(SD63)** *November 2015*
- Local Model Validation Report **(SD64)** *December 2015*
- Washington Road Bridge Option Testing **(SD65)** *December 2015*
- Existing Network Trigger Point Assessment **(SD66)** *April 2016*

1.2 SYSTRA TRANSPORT NOTE

1.2.1 During the Examination in Public for the IAMP AAP, Mr Rivett offered the Local Authorities the opportunity to provide a formal written response to the original WSP technical submission and supply the additional supporting evidence base identified as lacking within the documents listed above. SYSTRA (acting on behalf of the Local Authorities and IAMP LLP) submitted the resulting Transport Note to the Planning Inspector in May 2017.

1.3 UPDATED REVIEW OF TRANSPORT TECHNICAL BACKGROUND REPORT

1.3.1 This current document has been prepared in order to provide an update to the original WSP submission, taking into account the additional information provided by SYSTRA within their May 2017 Transport Note. As with the original submission, each of the IAMP AAP transport documents are discussed in corresponding sections of this updated report. In order to document all pertinent information, each individual section is now structured as follows:

- WSP's original submission comments (for ease of reference).
- SYSTRA's corresponding response to WSP's original submission comments.
- WSP's updated response to SYSTRA's Transport Note.

1.4 TESTING IF THE LOCAL PLAN IS SOUND

1.4.1 WSP has significant experience of assisting Local Authorities in the development of Local Plans across the United Kingdom and it is our professional opinion that level of evidence which has been used to inform the development of policies contained within the IAMP AAP falls below the minimum standard that would generally be expected or considered reasonable. We consider that the evidence base presented does not allow for a robust assessment, which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of infrastructure required is reasonable and, therefore, the plan should be found to be **unsound** in accordance with the definition set out below.

1.4.2 In relation to the examination of Local Plans, the National Planning Policy Framework states at Paragraph 182 that:

"The Local Plan will be examined by an inspector whose role is to assess whether the plan has been prepared in accordance with the Duty to Cooperate, legal and procedural requirements, and whether it is sound. A local planning authority should submit a plan for examination which it considers is "sound" – namely that it is:

- ***Positively prepared** – the plan should be prepared based on a strategy which seeks to meet objectively assessed development and infrastructure requirements, including unmet requirements from neighbouring authorities where it is reasonable to do so and consistent with achieving sustainable development;*
- ***Justified** – the plan should be the most appropriate strategy, when considered against the reasonable alternatives, based upon proportionate evidence;*
- ***Effective** – the plan should be deliverable over its period and based on effective joint working on cross boundary strategic priorities; and*
- ***Consistent with national policy** – the plan should enable the delivery of sustainable development in accordance with the policies in the Framework."*

1.4.3 The comments made within the original submission, and this updated report, have been informed based upon the above test of soundness. A summary is, therefore, provided at the end of each section which concludes whether it is considered that the evidence base relating to transport matters is proportionate and sound. The findings of this updated review, continue to raise concerns in relation to the technical analysis that has been used to inform the approach and policies contained within the IAMP AAP.

2 REVIEW OF TRANSPORT EVIDENCE

2.1 TRANSPORT TECHNICAL BACKGROUND REPORT (PSD19)

ORIGINAL SUBMISSION

2.1.1 **PSD19** sets out evidence relating to transport matters and has been used to inform the approach to development of the IAMP AAP. It provides an overview of the proposals and sets out the approach adopted in traffic modelling exercises (with methodology established in supporting technical notes).

2.1.2 The report sets out that a micro-simulation model of the existing road network has been constructed and is informed by a comprehensive traffic data collection exercise which was undertaken on Wednesday 18th March 2015. National guidance in relation to the collection of traffic data is contained in WebTAG Unit M1.2 and states at Paragraph 3.3.6 that:

"Surveys should be carried out during a 'neutral', or representative, month avoiding main and local holiday periods, local school holidays and half terms, and other abnormal traffic periods. National experience is that the following Monday to Thursdays can be neutral:

- *late March and April – excluding the weeks before and after Easter;*
- *May - excluding the Thursday before and all of the week of each Bank Holiday;*
- *June;*
- *September – excluding school holidays or return to school weeks;*
- *all of October; and*
- *all of November – provided adequate lighting is available."*

2.1.3 Due to the timing of Easter (i.e. Friday 3rd to Monday 6th April) and the requirement to avoid one week durations either side of the school holiday period, late March did not technically form a neutral traffic month in 2015. It is considered that the decision to conduct such a wide ranging package of traffic surveys in the middle of March (i.e. a non-neutral traffic month) as appose to April (i.e. a neutral traffic month) may potentially have resulted in the collection of data, which is not representative of normal operational conditions on the highway network.

2.1.4 **PSD19** states that *"the scheduling of traffic surveys was discussed and agreed with Sunderland City Council, South Tyneside Council and Highways England, with all parties in agreement that traffic volumes and flows would reflect typical operations"*. No evidence is provided to indicate that subsequent checks were performed to ensure that this departure from standard was technically sound.

2.1.5 The report discusses the existing and future operational performance of the highway network (as informed by the micro-simulation model) and provides only a modest level of detail relating to queuing/congestion forecast during peak periods. No numerical data is provided, however, to support these claims or quantify the current operational performance of the network in terms of capacity.

2.1.6 The study assesses accessibility at the IAMP site and the potential for delivering sustainable development based upon existing infrastructure/recently recorded mode share statistics of employees based *"in and around the IAMP AAP area"*. The report concludes that sustainable modes of travel *"do not compare favourably with car journeys"* and that private motorised travel currently accounts for around 82% of existing journeys in the local area.

2.1.7 The report states that it will be important that the IAMP provides a permeable scheme for all modes of transport by providing additional links including a crossing to connect the site to residential areas east of the A19. Paragraph 5.4.2 states that:

"A new bridge over the A19 will be important for connecting the AAP area to land to the east. It will also however serve as an important link for the distribution of IAMP related traffic, providing an alternative route choice and avoid congested areas such as the A19 / A1290 Downhill Lane junction."

SYSTRA RESPONSE

Item raised by WSP|PB – Item 2.1 para 2.1.3

2.1.8 "Due to the timing of Easter (i.e. Friday 3rd to Monday 6th April) and the requirement to avoid one week durations either side of the school holiday period, late March did not technically form a neutral month in 2015. It is considered that the decision to conduct such a wide ranging package of traffic surveys in the middle of March (i.e. a non-neutral traffic month) as appose to April (i.e. a neutral traffic month) may potentially have resulted in the collection of data, which is not representative of normal conditions on the highway network."

Councils' Response

2.1.9 WebTAG is the Department for Transport's guidance on transport analysis. As outlined in WebTAG Unit M1.2 (para 3.3.6) surveys undertaken in late March, which exclude the weeks before and after Easter, are considered 'neutral'. In 2015, Easter Sunday was 5 April. The traffic surveys used to inform the model were undertaken in late March and prior to the week before Easter and as such, comply with the WebTAG guidance.

2.1.10 Furthermore, in discussion with Highways England (HE), Sunderland City Council (SCC) and South Tyneside Council (STC), surveys were conducted within an available window of opportunity when the likelihood of abnormal traffic behaviour associated with ongoing road improvement schemes in the region were minimal. It is important to again highlight that the operation of the 'existing base' model in Paramics has also been reviewed by highway officers of Sunderland City Council, South Tyneside Council and Highways England. All parties confirmed that the model reflected their perception of existing typical operations and network conditions, including the location of queues forming, their length and their approximate time of occurrence.

Item raised by WSP|PB – Item 2.1 para 2.1.4

2.1.11 "No evidence is provided to indicate that subsequent checks were performed to ensure that this departure from standard was technically sound."

Councils' Response

2.1.12 It has been shown above why there was no "departure from standard".

2.1.13 SCC maintains a number of continuous monitoring traffic counters across the city. Appendix A provides a comparison of traffic data for 2015, demonstrating that March is representative of a 'neutral' month. Also, included in Appendix A is a count data comparison note, which has been produced to confirm the suitability of the data.

2.1.14 Whilst some of the data used to inform the Paramics model was collected in March 2015, other survey data, such as that outlined in Appendix A have been conducted between 2012-2017 to provide confidence that the March 2015 data was valid.

2.1.15 The data used to inform the Paramics model is considered to be sound.

Item raised by WSP|PB – Item 2.1 para 2.1.5

2.1.16 "The report discusses the existing and future operational performance of the highway network (as informed by the micro-simulation model) and provides only a modest level of detail relating to queuing/congestion forecast during peak periods. No numerical data is provided, however, to support these claims or quantify the current performance of the network in terms of capacity."

Councils' Response

2.1.17 A micro-simulation Paramics model is an appropriate tool to inform AAP Policies for a development of this scale. Paramics allows the operation of the wider network to be assessed to understand the interaction between junctions and the consequence of re-evaluated route choices based on traffic conditions. Unlike macro traffic models however, a Paramics model does not produce numerical data relating to the capacity of junctions.

2.1.18 Data included within the Local Model Validation Report (SD64) provides data on existing operations. For example, Table 5.8 and Table 5.9 provide queue length results for 24 junctions within the network; Table 5.10 and Table 5.11 provide journey time results for 24 links on the network; and Table 6.1 and 6.2 provide traffic volumes at 22 different road links within the road network.

2.1.19 It is important to again highlight that the operation of the 'existing base' model in Paramics has also been reviewed by highway officers of Sunderland City Council, South Tyneside Council and Highways England. All parties confirmed that the model reflected their perception of existing typical operations and network conditions, including the location of queues forming, their length and their approximate time of occurrence.

WSP RESPONSE

2.1.20 It is considered that the Council's continued insistence that traffic surveys were conducted in accordance with the recommendations of WebTAG Unit M1.2 is fundamentally **incorrect** and that they have indeed relied upon a seemingly unnecessary **departure from standard** with regards the collection of data used to inform the approach and policies contained within the IAMP AAP.

2.1.21 Neutral traffic months for survey purposes were traditionally defined within DMRB Volume 13, Section 1, Part 4 as consisting solely of the months of April, May, June, September and October (avoiding weekends, national holiday periods, local school holidays and half terms). WebTAG Unit M1.2 now takes a slightly more flexible approach in permitting surveys to be conducted during late March (assuming that this does not conflict with the School Easter Holiday period), however, it is generally accepted that surveys should only be conducted during the final week of March if absolutely necessary to do so for some unforeseen reason.

2.1.22 The fact which the Council have neglected to acknowledge in their recent response, is that the package of traffic surveys were conducted during the **middle** of March and **not** in fact during late March 2015 as they continue to claim.

2.1.23 In 2015 schools across the country broke for the Easter holidays on Friday 27th March. If absolutely necessary to do so, traffic surveys could potentially have been commissioned during the period Monday 23rd - Thursday 26th March and have successfully met the criteria set out within WebTAG Unit M1.2, however, it is still considered that may have been unadvisable and had the potential to result in the collection of unrepresentative traffic flows.

2.1.24 It is generally accepted that non-representative traffic conditions can be experienced even during the week leading up to the start of major school holidays (or in fact the week immediately after) due to the fact that people without children often holiday either side of these periods to avoid inflated prices. It is, therefore, considered that the Council's decision to even consider commissioning traffic surveys in March 2015 to inform the development of an evidence base for an AAP of significant importance, was potentially unwise and most certainly **not** in accordance with the recommendations of either DMRB Volume 13, Section 1, Part 4 or WebTAG Unit M1.2.

2.1.25 In defending the timing of the traffic surveys Paragraph 2.3 of the recent SYSTRA Transport Note states:

"Furthermore, in discussion with Highways England (HE), Sunderland City Council (SCC) and South Tyneside Council (STC), surveys were conducted within an available window of opportunity when the likelihood of abnormal traffic behaviour associated with ongoing road improvement schemes in the region were minimal."

2.1.26 This statement appears to directly contradict Paragraph 2.4.4 of **PSD19** which discusses the scheduling of the traffic surveys and acknowledges that the traffic levels on Wednesday 18th March 2015 may have been influenced by upgrade works being undertaken on the strategic road network (such as the A1 Western Bypass). It clearly states that the Council consider that the disruption:

"…would have led to an increase in traffic volume on the A19 and, therefore, provide a robust assessment of operations."

2.1.27 The Council fail to provide any details within the recent SYSTRA Transport Note to clarify exactly how they believe the likelihood of abnormal traffic behaviour associated with on-going road improvement schemes in the region can be both minimal and yet at the same time also lead to an increase in traffic volumes subsequently resulting in a robust assessment of operations.

2.1.28 Appendix A of the recent SYSTRA Transport Note provides details of the Annual Average Daily Traffic (AADT) flows recorded by various Automatic Traffic Counters (ATC) located within close proximity of the IAMP AAP site and concludes that it *"provides a comparison of traffic data for 2015, demonstrating that March is representative of a 'neutral' month."* It is considered that this data actually proves quite the opposite and serves to demonstrate that the Council's decision to rely upon a seemingly unnecessary **departure from standard** has had the potential to **undermine the soundness** of the evidence base which has informed the approach and policies contained within the IAMP AAP.

2.1.29 The information provided at Table 2-1 below replicates data contained within Appendix A of the recent SYSTRA Transport Note and details the 24 hour two-way **average** traffic flows associated with the A19 to the south of Hylton Bridge (recorded during accepted neutral traffic months).

Table 2-1 24 Hour Two-way Average Traffic Flows on the A19 during Neutral Traffic Months in 2015

MONTH	24 HOUR TWO-WAY AVERAGE TRAFFIC FLOW
March (Non Neutral Traffic Month)	**81,209**
April *(Neutral Traffic Month Affected by Holidays)*	80,041 *
May*(Neutral Traffic Month Affected by Holidays)*	80,848 **
June	84,371
September	83,133
October	84,585
November	85,529
AVERAGE NEUTRAL TRAFFIC MONTH (ALL)	**83,085**
AVERAGE NEUTRAL MONTH (EXCLUDING PERIODS OF HOLIDAY DISRUPTION)	**84,405**

** Schools broke for the Easter holidays on Friday 27th March and returned on Monday 13th April 2015 resulting in lower non-representative AADT traffic flows being recorded and presented above.*

*** Early May Bank Holiday was Monday 4th May and Spring Bank Holiday was Monday 25th May 2015 resulting in lower non-representative AADT traffic flows being recorded and presented above.*

2.1.30 It is clear from the data presented that the Council's own evidence successfully demonstrates that average two-way traffic flows on the A19 recorded during March are significantly lower than those associated with an average neutral traffic month in 2015. It is, therefore, considered that the Council has adequately demonstrated that its decision to rely upon a seemingly unnecessary **departure from standard** has potentially **undermined the soundness** of the evidence base which has informed the approach and policies contained within the IAMP AAP.

2.1.31 Furthermore, it must also be highlighted that the Council has neglected to acknowledge within the recent SYSTRA Transport Note that ATC traffic lows can also be retrieved for specific days as appose to entire months, which are statistically more likely to skew the data presented by including non-neutral traffic periods. The Highways England maintained WEBTRIS database has been used to access ATC data recorded on the A19 immediately adjacent to Nissan Manufacturing UK (TMU Site 9346/1 for southbound traffic and TMU Site 9347/1 for northbound traffic). The information presented at Table 2-2 below details the 24 hour two-way **actual** traffic flows associated with the A19 on Wednesday 18th March 2015.

Table 2-2 24 Hour Two-way Actual Traffic Flows on the A19 on Wednesday 18th March 2015

MONTH	24 HOUR TWO-WAY TRAFFIC FLOW
March 18th 2015 (Non Neutral Traffic Month)	63,684

2.1.32 It is evident that the 24 hour two-way **actual** traffic flow associated with the A19 on Wednesday 18th March 2015 was 63,684 vehicles. When compared against the 24 hour two-way **average** traffic flows presented by the Council, March 18th represents approximately 78% of the average for March in 2015 and only 75% of the average associated with "representative" neutral traffic months in 2015.

2.1.33 It is concluded that this provides further evidence that the Council's decision to rely upon a seemingly unnecessary **departure from standard** and commission traffic surveys on Wednesday March 18th 2015 has potentially **undermined the soundness** of the evidence base which has informed the approach and policies contained within the IAMP AAP. The data used to inform the S-Paramics model is, therefore, **not** considered sound as claimed by the Council at Paragraph 2.8 of the recent SYSTRA Transport Note.

2.1.34 With regards the existing and future operational performance of the of the highway network (as informed by the micro-simulation model) and the provision of only a modest level of detail relating to the queuing/congestion forecast during peak periods, WSP requested at the Examination in Public that the evidence base relating to numerical data be released into the public domain for consideration by the Planning Inspector and Town End Farm Partnership.

2.1.35 Whilst it is acknowledged that summary tables of some modelling results were previously provided within Tables 5.2 / 5.3, 5.8 / 5.9 and 5.10 / 5.11 of **SD64**, no evidence has actually been appended to the Technical Notes to allow confirmation of the findings. In our professional opinion, without the benefit of detailed technical modelling input/output files, it is **impossible to determine the soundness of the evidence base** which the Council have relied upon to inform the approach and policies contained within the IAMP AAP.

2.1.36 In relation to the appropriateness of the modelling tools which the Council have relied upon to inform the IAMP AAP, Paragraph 2.10 of the SYSTRA Transport Note states that:

"A micro-simulation Paramics model is an appropriate tool to inform AAP Policies for a development of this scale. Paramics allows the operation of the wider network to be assessed to understand the interaction between junctions and the consequence of re-evaluated route choices based on traffic conditions. Unlike macro traffic models however, a Paramics model does not produce numerical data relating to the capacity of junctions."

2.1.37 It is accepted that an S-Paramics model is an appropriate tool to study the overall operation of the **wider network** and establish the interaction between junctions. The Council acknowledge that a micro-simulation model cannot produce numerical data relating to capacity of junctions and for this very reason, a micro-simulation model cannot be considered the most appropriate piece of software to facilitate the detailed modelling of a **key individual junction** used to justify the need for significant public investment in highway mitigation measures. It is simply **not correct** to imply that specialist traffic signal modelling packages are only appropriate for traffic assessments associated with planning application levels of detail.

2.1.38 In order to ensure that a **sound** evidence base is presented for consideration by the Planning Inspector, it would be expected that in addition to the micro-simulation model of the wider network to establish the interaction between junctions, that detailed modelling of the A19/A1290 Downhill Lane junction (using software such as LinSig or TRANSYT) would have also been conducted in parallel to assess the need for major infrastructure such as the dualling of the A1290 and construction of a Washington Road bridge over the A19 corridor.

2.1.39 Paragraph 2.12 of the SYSTRA Transport Note also states that:

"It is important to again highlight that the operation of the 'existing base' model in Paramics has also been reviewed by highway officers of Sunderland City Council, South Tyneside Council and Highways England. All parties confirmed that the model reflected their perception of existing typical operations and network conditions, including the location of queues forming, their length and their approximate time of occurrence."

2.1.40 As will be discussed in further detail later in this report, whilst we respect the Council's right to support the validation of their own model, it is **not** considered that data presented within **SD64** actually confirms that their opinion is in fact correct.

2.1.41 We maintain that, despite the Council's recent comments provided in the SYSTRA Transport Note, all of the points raised within the corresponding section of the original WSP submission remain valid concerns. In summary, these include:

- The traffic surveys were conducted during a non-neutral traffic month.
- Departure from standard with regards the advice contained within WebTAG Unit M1.2.
- Departure from standard with regards the advice contained within DMRB Volume 13, Section 1, Part 4.
- Confusion on the Council's part over the level of abnormal traffic behaviour associated with on-going road improvement schemes in the region.
- Average traffic flows demonstrate that March is not representative of an average neutral traffic month.
- Actual recorded traffic flows on the A19 corridor were lower on Wednesday March 18th 2015 than the Council's evidence suggests that they were during neutral traffic months.
- A micro-simulation model has been used to facilitate modelling of the wider network and also detailed analysis of the A19/A1290 Downhill Lane junction. This is an inappropriate piece of software for the task.
- Inadequate calibration and validation of the micro-simulation model relied upon to form policies within the IAMP AAP.
- The level of detail presented within this document does not allow for a robust assessment which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of infrastructure required is reasonable.
- Distinct lack of evidence or technical outputs appended to prove the soundness of the conclusions drawn within the document.
- The Planning Inspector specifically requested that the Council provide WSP with any evidence that it has relied upon to form policies within the IAMP AAP, however, this request has not been positively met.

2.1.42 Our professional opinion remains that the technical evidence which has been made publically available is not proportionate or sufficiently detailed enough to allow comprehensive consideration to be given to the full range of transport implications associated with delivery of the current IAMP AAP proposals.

2.1.43 In the absence of clarification regarding our concerns, we conclude that the evidence base presented does not allow for a robust assessment, which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of mitigation proposed and infrastructure required is reasonable.

2.1.44 In our recent experience of plan making by Local Authorities nationwide, the data which has been used to inform the development of policies contained within the IAMP AAP falls below the minimum standard that would generally be expected or considered reasonable. The policies informed by this data must, therefore, be considered **not** to be **sound** in accordance with the test set out in the National Planning Policy Framework.

2.2 BASE MODELLING APPROACH (SD60)

2.2.1 **SD60** provides an overview of the micro-simulation model construction that is discussed in greater detail within **SD64**. It provides a bar chart which illustrates the peak hours on the traffic network and identifies 07:00-08:00 / 16:00-17:00 as the AM / PM peaks respectively.

2.2.2 The report states that the tested periods within the S-Paramics model are 07:00-10:00 and 15:00-18:00 (with the first and last 30 minute segments forming effective warm-up and cool-down periods). As will be discussed in greater detail later in this report, it is considered that this approach has the potential to impact upon the calibration and overall validity of the model.

SYSTRA RESPONSE

Item raised by WSP|PB - Item 2.2 para 2.2.2

2.2.3 "The report states that the tested periods within the S-Paramics model are 07:00-10:00 and 15:00-18:00 (with the first and last 30 minute segments forming effective warm-up and cool-down periods)…It is considered that this approach has the potential to impact upon the calibration and overall validity of the model."

Councils' Response

2.2.4 The Local Model Validation Report (SD64) confirms at para 5.1 that the calibration process of the Paramics model was carried out using the criteria specified in Design Manual for Road and Bridges (DMRB), Volume 12, Section 2, Part 1: Traffic Appraisal in Urban Areas.

2.2.5 Within the DMRB criteria, individual link flows or turn flows are the key considerations in determining the calibration of the model. DMRB Volume 12 recommends 85% of the turns should match the criteria for flows and suggests individual link or turn flows should have a GEH3 of less than 5.0 in 85% of cases over a one hour period. A GEH of less than 5.0 is considered a good match between the modelled and observed hourly volumes.

2.2.6 As confirmed in Para 7.5 of SD64, an assessment of the turn flows against DMRBs criteria for flows indicates a high level of calibration with 94% of hourly turns in the AM and PM periods meeting the DMRB criteria. The model also calibrated well to the DMRB GEH criteria, with >85% of all modelled hourly turn counts, having a GEH value of less than 5.0 during the AM and PM periods.

2.2.7 As outlined in para 7.11 of SD64, the model calibrates well to the observed data and meets DMRB acceptability guidelines.

WSP RESPONSE

2.2.8 It is acknowledged that **SD64** does indeed make all of the claims documented in the SYSTRA Transport Note, it will once again be discussed in further detail later in this report that, whilst we respect the Council's right to support the validation of their own model, it is **not** considered that data presented within **SD64** presents a strong case which confirms that their opinion is in fact correct.

2.2.9 We maintain that, despite the Council's recent comments provided in the SYSTRA Transport Note, all of the points raised within the corresponding section of the original WSP submission remain valid concerns. In summary, these include:

- The micro-simulation model relies upon traffic surveys that were conducted during a non-neutral traffic month.
- Departure from standard with regards the advice contained within WebTAG Unit M1.2.
- Departure from standard with regards the advice contained within DMRB Volume 13, Section 1, Part 4.
- The micro-simulation model adopts a warm-up period which is during identified peak hours on the surrounding road network.
- The level of detail presented within this document does not allow for a robust assessment which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of infrastructure required is reasonable.
- Distinct lack of evidence or technical outputs appended to prove the soundness of the conclusions drawn within the document.
- The Planning Inspector specifically requested that the Council provide WSP with any evidence that it has relied upon to form policies within the IAMP AAP, however, this request has not been positively met.

2.2.10 Our professional opinion remains that the technical evidence which has been made publically available is not proportionate or sufficiently detailed enough to allow comprehensive consideration to be given to the full range of transport implications associated with delivery of the current IAMP AAP proposals.

2.2.11 In the absence of clarification regarding our concerns, we conclude that the evidence base presented does not allow for a robust assessment, which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of mitigation proposed and infrastructure required is reasonable.

2.2.12 In our recent experience of plan making by Local Authorities nationwide, the data which has been used to inform the development of policies contained within the IAMP AAP falls below the minimum standard that would generally be expected or considered reasonable. The policies informed by this data must, therefore, be considered **not** to be **sound** in accordance with the test set out in the National Planning Policy Framework.

2.3 FUTURE YEAR MODELLING (SD61)

2.3.1 **SD61** provides an overview of the methodology adopted in the forecasting and reporting of road network operations in future year scenarios. Section 2 of this documents states that:

"When considering the performance of the road network in future year scenarios, it is important that background traffic growth is included…Given the nature of the IAMP proposals, in that it represents a significant increase in employment in the area which is not included within the TEMPro assumptions, it is considered that the trips generated by IAMP will represent local traffic growth in its entirety, being equal or indeed greater than those that would be forecast by TEMPro. Consequently, all future years assessment scenarios will include IAMP generated traffic to represent background traffic growth."

2.3.2 Whilst it is acknowledged that the IAMP AAP will account for a significant level of employment development locally, it is considered that this approach has the potential to neglect the impact of other allocated residential and employment development sites, in addition to the wider Local Plan aspirations of the various Local Authorities between 2015-2028.

SYSTRA RESPONSE

Item raised by WSP|PB – Item 2.3 para 2.3.2

2.3.3 "Whilst it is acknowledged that the IAMP AAP will account for a significant level of employment development locally, it is considered that this approach [all future year assessment scenarios will include IAMP generated traffic to represented background traffic growth] has the potential to neglect the impact of other allocated residential and employment development sites, in addition to the wider Local Plan aspirations of the various Local Authorities between 2015-2028".

Councils' Response

2.3.4 The approach to background traffic growth within the IAMP model is consistent with that adopted by the Highways England team assessing the A19 junction improvements (which each form separate Development Consent Order applications).

2.3.5 It is important to again emphasise that traffic growth and the way in which future traffic routes on the network will be notably influenced by the development of IAMP and the Highways England junction improvements for Testos and Downhill Lane.

WSP RESPONSE

2.3.6 The Council's insistence that their *"approach to background traffic growth within the IAMP model is consistent with that adopted by the Highways England team assessing the A19 junction improvements"* does **not** make it correct or ensure that a **sound** evidence base is provided for consideration by the Planning Inspector.

2.3.7 It is acknowledged that *"local traffic growth and the way in which future traffic routes on the network"* **will** more than likely be notably influenced by the development of IAMP and the Highways England junction improvements for Testos and Downhill Lane. This does not, however, mean that whilst the IAMP AAP will account for a significant level of employment development locally, the modelling approach is **sound** if it neglects to consider the impact of other allocated residential and employment development sites, in addition to the wider Local Plan aspirations of the various Local Authorities.

2.3.8 The SRN is responsible for the movement of traffic on a national level and to make the assumption that IAMP generated trips will form the only source of regional traffic growth on this section of the local and/or strategic road networks between 2015-2028 will **not** result in robust analysis of future operational performance.

2.3.9 Furthermore, it also considered that the Council neglect to adequately justify their reasoning for not applying TEMPro adjusted NTEM traffic growth within this assessment, however, it then contradicts its own approach in **SD66** by deeming that background traffic growth is necessary (in addition to IAMP generated development traffic) to accurately simulate future conditions on the highway network in 2018. It remains our professional opinion that for the evidence base to be considered **sound**, a consistent approach must be applied to the forecasting of background traffic growth and the pro-rata delivery of IAMP development on the site in both 2018 and 2028.

2.3.10 We maintain that, despite the Council's recent comments provided in the SYSTRA Transport Note, all of the points raised within the corresponding section of the original WSP submission remain valid concerns. In summary, these include:

- The non-application of TEMPro adjusted NTEM traffic growth neglects to consider the impact of other allocated residential and employment development sites, in addition to the wider Local Plan aspirations of the various Local Authorities.
- The level of detail presented within this document does not allow for a robust assessment which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of infrastructure required is reasonable
- Distinct lack of evidence or technical outputs appended to prove the soundness of the conclusions drawn within the document.
- The Planning Inspector specifically requested that the Council provide WSP with any evidence that it has relied upon to form policies within the IAMP AAP, however, this request has not been positively met.

2.3.11 Our professional opinion remains that the technical evidence which has been made publically available is not proportionate or sufficiently detailed enough to allow comprehensive consideration to be given to the full range of transport implications associated with delivery of the current IAMP AAP proposals.

2.3.12 In the absence of clarification regarding our concerns, we conclude that the evidence base presented does not allow for a robust assessment, which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of mitigation proposed and infrastructure required is reasonable.

2.3.13 In our recent experience of plan making by Local Authorities nationwide, the data which has been used to inform the development of policies contained within the IAMP AAP falls below the minimum standard that would generally be expected or considered reasonable. The policies informed by this data must, therefore, be considered **not** to be **sound** in accordance with the test set out in the National Planning Policy Framework.

2.4 MULTI-MODAL TRIP GENERATION (SD62)

2.4.1 **SD62** provides an overview of the methodology adopted in the derivation of development traffic flows likely to be generated by the IAMP development. Section 3 states that the TRICS database has been utilised, in line with the principles of the TRICS Good Practice Guide 2013, to extract average trip rates representing B1 and B2 uses on the site, excluding sites located in town centres (which may not provide a representative sample, in light of the location of the IAMP site).

2.4.2 The report states that trip rates associated with B8 uses have not been extracted due to the lack of representative sites contained within the database. It must, therefore, be concluded that the TRICS database does not contain an appropriate sample of sites which are adequately representative of the global form of development proposed within the IAMP AAP. In light of this fact and the previously discussed low level of public transport accessibility, the use of average trip rates may underestimate the level of traffic likely to be generated by the IAMP site. Best practice, in circumstances such as this, would be to consider the use of 85th Percentile trip rates (as a minimum) to ensure that a robust assessment is achieved.

2.4.3 The report states that full TRICS outputs are appended to the rear of the document, however, no such information appears to have been released into the public domain and as such further scrutiny of the selected sites is not possible.

2.4.4 Given the nature of the proposed IAMP site (i.e. an extension to existing Nissan supply chain operations) it is considered that traffic surveys could have been conducted of representative units currently operating locally to inform the development of bespoke trip rates which would likely have been more representative than sites contained within the TRICS database.

2.4.5 Average total person trip rates have been extracted and mode-split data (recorded during a 2009 survey of Nissan employees) used to calculate the likely number of staff based vehicular trips which the IAMP site may generate, which is recorded at 75.5% of the total movements. As discussed previously, **PSD19** states that Sunderland City Council conducted a 2014 travel to work survey of employees working adjacent to the IAMP AAP which concluded that vehicle trips currently account for 82% of total movements in the area. It is not considered that the use of 2009 surveys (five years older than the 2014 data) which report lower reliance upon the private car, results in the presentation of robust technical analysis.

2.4.6 The study calculates the total number of staff based vehicular trips, however, it does not appear to consider the generation of commercial trips associated with operational aspects of the development. It is considered that the application of heavy goods vehicle movements to/from the IAMP site is critical in order to fully assess the traffic impact of the development proposals.

SYSTRA RESPONSE

Item raised by WSP|PB – Item 2.4 para 2.4.2

2.4.7 “The report states that trip rates associated with B8 uses have not been extracted due to the lack of representative sites contained within the database. It must, therefore be concluded that the TRICS database does not contain an appropriate sample of sites which are adequately representative of the global form of development proposed within the IAMP AAP. In light of this fact and the previously discussed low level of public transport accessibility, the use of average trip rates may underestimate the level of traffic likely to be generated by the IAMP site.”

Councils' Response

2.4.8 The proportionate split between B2 (General Industrial) and B8 (Storage and Distribution) within IAMP will be determined by occupier requirements. As outlined in SD62 in para 3.4, the use of B2 uses for trip generation, rather than B8 is considered robust, given that the trip generation of B2 uses typically generate higher trip rates. Furthermore, B2 uses will likely be more akin to the anticipated end users of IAMP.

Item raised by WSP|PB – Item 2.4 para 2.4.3

2.4.9 "The report states that full TRICS outputs are appended to the rear of the document, however, no such information appears to have been released into the public domain and as such further scrutiny of the selected sites is not possible."

Councils' Response

2.4.10 The appendices for SD62, which provide the full TRICS outputs, were made available prior to the EiP Hearing. This includes sensitivity testing of a wider range of industrial uses for comparison and confirms they are broadly comparable and suitable for the intended purposes.

Item raised by WSP|PB – Item 2.4 para 2.4.4

2.4.11 "Given the nature of the proposed IAMP site (i.e. an extension to the existing Nissan supply chain operations) it is considered that traffic surveys could have been conducted of representative units currently operating locally to inform the development of bespoke trip rates which would likely have been more representative than sites contained within the TRICS database."

Councils' Response

2.4.12 It is not appropriate to use bespoke trip rates for IAMP, as the aspirations for IAMP are that it will offer a wide range of advanced manufacturing industrial uses which may not be directly linked to Nissan operations. It is therefore necessary to consider trip rates from other industrial uses from the TRICS database.

2.4.13 To ensure that the trip rates used to inform the AAP policies were appropriate, sensitivity testing of a wider range of industrial uses was undertaken and compared. This sensitivity testing is included within the appendix of SD62 and confirms they are broadly comparable.

2.4.14 The trip rates used to inform the traffic modelling work for the AAP are considered to be sound.

Item raised by WSP|PB – Item 2.4 para 2.4.5

2.4.15 "Average total person trip rates have been extracted and mode-split data (recorded during 2009 survey of Nissan employees) used to calculate the likely number of staff based vehicular trips which the IAMP site may generate, which is recorded at 75.5% of the total movements...It is not considered that the use of 2009 surveys (five years older than the 2014 [travel to work] data) which report lower reliance upon the private car, results in the presentation of robust technical analysis."

Councils' Response

2.4.16 This interpretation is not correct. Whilst para 4.8 of SD62 outlines a 'person trips' methodology to determine IAMP vehicle trip generation and the suggested modal split percentages outlined above, this methodology was not taken forward for assessment. As outlined in para 5.1 and para 6.1 of SD62, 'vehicle trip rates' are determined and used within the assessments.

Item raised by WSP|PB – Item 2.4 para 2.4.6

2.4.17 "The study calculates the total number of staff based vehicular trips, however, it does not appear to consider the generation of commercial trips associated with operational aspects of the development. It is considered that the application of heavy goods vehicle movements to/from the IAMP site is critical to fully assess the traffic impact of the development proposals."

Councils' Response

2.4.18 This interpretation is not correct. The trip generation calculations are not exclusively staff based trips. Whilst para 3.6 of SD62 presents a methodology based on total staff, as outlined in para 4.10 of SD62, trip generation is based on the gross floor area schedule. All vehicle types and trip purposes (such as commercial trips and heavy goods vehicles) are included within the traffic modelling and assessment.

WSP RESPONSE

2.4.19 With regards the subject of trip rates associated with the IAMP AAP, the Council state at Paragraph 5.6 of the recent SYSTRA Transport Note that:

"It is not appropriate to use bespoke trip rates for IAMP, as the aspirations for IAMP are that it will offer a wide range of advanced manufacturing industrial uses which may not be directly linked to Nissan operations. It is therefore necessary to consider trip rates from other industrial uses from the TRICS database."

2.4.20 This statement appears to raise some concerns as to the clarity of the Council's own vision for the IAMP AAP, which it previously described at Paragraphs 1.2.1 - 1.2.3 of **PSD19** in the following manner:

"The International Advanced Manufacturing Park (IAMP) represents a unique opportunity for the automotive sector in the UK. Located next to Nissan UK's Sunderland plant, the UK's largest and most productive car manufacturing plant, the IAMP will provide a bespoke, world class environment for the automotive supply chain and related advanced manufacturers to innovate and thrive, contributing significantly to the long-term economic success of the North East of England and the national automotive sector.

"The proposal is for a 260,000 sq m Gross Internal Area (GIA) development aimed primarily at the automotive, advanced manufacturing and related distribution sectors. The IAMP will be located on land to the north of the existing Nissan car manufacturing plant, to the west of the A19 and to the south of the A184. This location benefits from its close proximity to Nissan and excellent transport links with opportunities for integrated connectivity provided by the surrounding Strategic Road Network, rail and port infrastructure.

"Development of the IAMP will underpin the continued success of the automotive and advanced manufacturing sectors in the United Kingdom and North East of England."

2.4.21 The appendices associated with **SD62**, which provide the full TRICS outputs used by the Council, were made available shortly before the Examination in Public and an interrogation of this data has revealed that many of the individual sites selected are **not representative** of the form of development likely to be realised at IAMP (regardless of which of the two definitions above is actually adopted).

2.4.22 A study of the TRICS output files has revealed that the B2 uses on the site are all represented by general industrial estates located across the United Kingdom, none of which appear to have any relevance to either the automotive supply chain or related advanced manufacturing and distribution sectors. The B1 uses on the site are composed of an even more inappropriate and **unrepresentative** mix of development; with an RMPI office, a construction company, a land registry facility, Council offices, an accountant, a pharmaceuticals firm, a development agency, a housing company, a television production facility, etc, used to forecast trip rates associated with ancillary office space related to the automotive supply chain and related advanced manufacturing/distribution units.

2.4.23 Furthermore, during recent discussions with Highways England in relation to a junction modelling exercise associated with the operation of the A19/A1290 Downhill Lane junction, WSP was specifically advised not to use the Council derived vehicular trip rates presented in **SD62** on the grounds that the TRICS database is an inappropriate tool for the derivation of trip rates associated with development of this nature. Representatives of Highways England requested that traffic surveys be conducted of representative units currently operating locally to inform the development of bespoke trip rates which were considered far more representative than the obscure collection of development sites selected by the Council from within the TRICS database.

2.4.24 In our professional opinion, it is extremely concerning that the highway authorities for the strategic and local road networks, have such vastly differing opinions relating to the derivation of trip rates associated with the IAMP AAP. It must be emphasised once more, that WSP is also firmly of the opinion that use of the sites selected by the Council from the TRICS database are **not representative** of the form of development likely to be realised at IAMP and has potentially **undermined the soundness** of the evidence base which has informed the approach and policies contained within the AAP.

2.4.25 With regards the derivation of total person and vehicular trip rates, WSP previously raised concerns that average total person trip rates had been extracted and mode-split data (recorded during a 2009 survey of Nissan employees) used to calculate the likely number of staff based vehicular trips which the IAMP site may generate. It was also discussed that **PSD19** states that Sunderland City Council conducted a 2014 travel to work survey of employees working adjacent to the IAMP AAP which concluded that vehicle trips for a higher proportion of movements than those recorded five years earlier. In response to this the Council state at Paragraph 5.10 that:

"This interpretation is not correct. Whilst para 4.8 of SD62 outlines a 'person trips' methodology to determine IAMP vehicle trip generation and the suggested modal split percentages outlined above, this methodology was not taken forward for assessment. As outlined in para 5.1 and para 6.1 of SD62, 'vehicle trip rates' are determined and used within the assessments."

2.4.26 We can confirm that WSP's interpretation is in fact **correct**. The Council provide a number varying possible approaches to the derivation of trip generation figures and compare the results associated with total person and vehicular trip rates, calculated on the basis of trips per employee and per $100m^2$ of GFA. In the two examples based upon total person trip rates, Paragraphs 3.8 and 4.8 clearly state that:

"In the first instance, and for assessment purposes, it is considered reasonable to envisage that the mode share derived from the most recent NMUK travel survey (February 2009) is representative of likely travel patterns at the proposed IAMP development."

2.4.27 These assessments are then compared against the alternative methodology using vehicular trip rates to calculate the total number of IAMP generated movements. A conclusion is drawn, on this basis, that the use of vehicular trip rates is the most robust approach and this methodology is then subsequently utilised within the modelling approach used to inform the approach and policies contained within the AAP. However, it is not considered that this conclusion can be **soundly** drawn, until the Council adopts robust and representative mode split data in the first instance to ensure that a "like for like" comparison is made between total person and vehicular trip rates.

2.4.28 Furthermore, this approach also raises additional concerns as to the clarity of the Council's own vision for the IAMP AAP. The Local Authority has previously stated that it is **not** appropriate to assume that trip rates associated with IAMP may be comparable with Nissan operations, however, they do consider that it is "*reasonable to envisage that the mode share derived from the most recent NMUK travel survey (February 2009) is representative of likely travel patterns at the proposed IAMP development."* In our professional opinion, it is extremely concerning that the Council appears to consider Nissan operations are both representative and simultaneously unrepresentative of its IAMP AAP proposals.

2.4.29 WSP previously raised concerns that the study calculates the total number of staff based vehicular trips, however, it does not appear to consider the generation of commercial trips associated with operational aspects of the development. We stated that it is considered that the application of heavy goods vehicle movements to/from the IAMP site is critical to fully assess the traffic impact of the development proposals. In response to this, the Council state at Paragraph 5.12 of the recent SYSTRA Transport Note that:

"This interpretation is not correct. The trip generation calculations are not exclusively staff based trips. Whilst para 3.6 of SD62 presents a methodology based on total staff, as outlined in para 4.10 of SD62, trip generation is based on the gross floor area schedule. All vehicle types and trip purposes (such as commercial trips and heavy goods vehicles) are included within the traffic modelling and assessment."

2.4.30 It would appear that the Council have been unable to comprehend the nature of the concerns raised previously. It is widely acknowledged that a TRICS derived vehicular trip rate accounts for all vehicle types and trip purposes such as commercial trips and heavy good vehicles. This is common sense and we acknowledge that the Council has accounted for the basic generation of all vehicle movements into and out of the site using these trip rates, however, our concerns relate to the level of **consideration** which has actually been given to the nature of this traffic once derived.

2.4.31 It is of particular concern to us that the Council have taken a single set of trip rates for B1 and B2 development, before applying a single distribution profile to both car and commercial vehicle movements. The rationale consistently uses 2011 Census travel to work data to establish the origin/destination profile of **all** vehicular movements to/from IAMP. Whilst we appreciate what the Council was trying to achieve in using this methodology (even if we do not agree with its **soundness**, as will be discussed in greater detail later in this report) it is only appropriate for car based employee trips. It is **not best practice** to assume that the origin/destination profile of commercial traffic will be the same as car based trips (unless the Council is absolutely certain that freight movements between IAMP and local residential areas is actually realistic).

2.4.32 For this reason it is considered that the collection of recent bespoke data associated with existing operations in the area and the application of this information to multi-modal trip rates would have allowed the Council to facilitate separate trip generation profiles for cars and commercial traffic. These trips could then have been assigned to the local and strategic road networks in association with equally realistic distribution profiles, rather than relying upon the **substandard** approach adopted by the Council in its development of policies contained within the IAMP AAP

2.4.33 We maintain that, despite the Council's recent comments provided in the SYSTRA Transport Note, all of the points raised within the corresponding section of the original WSP submission remain valid concerns. In summary, these include:

- Average TRICS trip rates used instead of 85th percentile trip rates.
- Selection of unrepresentative sites from the TRICS database.
- TRICS trip rates which are not supported by Highways England.

- No consideration given to the collection of traffic data to prepare bespoke trip rates.
- Aging mode share data used to compare multi-modal and vehicular trip rate methods.
- Inadequate consideration given to the processing of base vehicular trip rates, resulting in the assignment of commercial trips based upon an employee journey to work data.
- The level of detail presented within this document does not allow for a robust assessment which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of infrastructure required is reasonable.
- Distinct lack of evidence or technical outputs appended to prove the soundness of the conclusions drawn within the document.
- The Planning Inspector specifically requested that the Council provide WSP with any evidence that it has relied upon to form policies within the IAMP AAP, however, this request has not been positively met.

2.4.34 Our professional opinion remains that the technical evidence which has been made publically available is not proportionate or sufficiently detailed enough to allow comprehensive consideration to be given to the full range of transport implications associated with delivery of the current IAMP AAP proposals.

2.4.35 In the absence of clarification regarding our concerns, we conclude that the evidence base presented does not allow for a robust assessment, which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of mitigation proposed and infrastructure required is reasonable.

2.4.36 In our recent experience of plan making by Local Authorities nationwide, the data which has been used to inform the development of policies contained within the IAMP AAP falls below the minimum standard that would generally be expected or considered reasonable. The policies informed by this data must, therefore, be considered **not** to be **sound** in accordance with the test set out in the National Planning Policy Framework.

2.5 VEHICLE TRIP DISTRIBUTION (SD63)

2.5.1 **SD63** provides an overview of the methodology adopted to derive a gravity model associated with distribution of IAMP generated traffic onto the highway network. The study uses 2011 Census travel to work data to establish the origin/destination profile of employees likely to access the IAMP site. This method relies upon data, which will be 17 years old by the time development is complete and, therefore, is unlikely to result in a representative gravity model.

2.5.2 The study does not appear to have given consideration to the existing labour market or staffing arrangements at Nissan (including their adjacent supply chain). Details relating to the origin/destination profile of existing employees would have provided valid evidence, which would likely have been more representative than the use of data recorded during the 2011 Census.

2.5.3 The IAMP development is intended to allow companies forming part of the existing Nissan supply chain to relocate closer to the heart of manufacturing operations. No consideration appears to have been given to the strategic reassignment or removal existing trips from the network to reflect this fact, which may result in a bias towards traffic generation on one part of the network as appose to another.

SYSTRA RESPONSE

Item raised by WSP|PB – Item 2.5 para 2.5.1 & para 2.5.2

2.5.4 "…The study uses 2011 Census travel to work data to establish the origin/destination profile of employees likely to access the IAMP site. This method relies upon data, which will be 17 years old by the time development is complete and, therefore, is unlikely to result in a representative gravity model."

2.5.5 "The study does not appear to give consideration to the existing labour market or staffing arrangements at Nissan (including their adjacent supply chain). Details relating to the origin/destination profile of existing employees would have provided valid evidence, which would likely have been more representative than the use of data recorded during the 2011 Census."

Councils' Response

2.5.6 SD63 outlines that the distribution of IAMP employees has been based on the findings of SD6 (Impact Study IAMP – Topic Paper: Skills) and SD12 (Impact Study IAMP – Topic Paper Update 2016: Skills), which considers the likely origin of the IAMP workforce throughout the region, including the local labour market. Census data has only been used to refine distribution assumptions in areas closer to IAMP where there is a greater variability of origin – the Ward areas of Washington and Sunderland (North, South, East and West).

2.5.7 The distribution assumptions used to inform the AAP are therefore considered to be sound.

Item raised by WSP|PB – Item 2.5 para 2.5.3

2.5.8 "The IAMP development is intended to allow companies forming part of the existing Nissan supply chain to relocate closer to the heart of manufacturing operations. No consideration appears to have been given to the strategic reassignment or removal [of] existing trips from the network to reflect this fact, which may result in a bias towards traffic generation on one part of the network as appose to another."

Councils' Response

2.5.9 Firstly, as outlined previously, whilst some Nissan suppliers may locate to IAMP, the aspirations for IAMP are that it will offer a wide range of advanced manufacturing industrial uses, which may not be directly linked to Nissan operations.

2.5.10 The Paramics model uses a dynamic assignment for traffic on the road network, the future year modelling scenarios reflect strategic re-distribution changes resulting from changes to the road network (such as the Testos and Downhill Lane junctions).

2.5.11 Other strategic reassignment or removal of existing trips will be more applicable during the road network off peak periods when operations/deliveries will be more frequent. The traffic modelling focuses on the network performance during the road network peak periods, when congestion is more likely to occur as a result of employees arriving/departing.

WSP RESPONSE

2.5.12 **SD63** clearly establishes that the Council has relied upon the use 2011 Census travel to work data to generate the origin/destination profile of employees likely to access the IAMP site, which is unlikely to result in a representative gravity model. The Council state at Paragraph 6.3 of the recent SYTRA Transport Note that:

"SD63 outlines that the distribution of IAMP employees has been based on the findings of SD6 (Impact Study IAMP – Topic Paper: Skills) and SD12 (Impact Study IAMP – Topic Paper Update 2016: Skills), which considers the likely origin of the IAMP workforce throughout the region, including the local labour market. Census data has only been used to refine distribution assumptions in areas closer to IAMP where there is a greater variability of origin – the Ward areas of Washington and Sunderland (North, South, East and West)."

2.5.13 The Council's own website provides *"copies of the Transport related papers submitted as part of supporting evidence for the IAMP AAP Examination in Public"* and neither Technical Notes SD6 nor SD12 have been made publically available for consideration. During the Examination in Public hearing on Wednesday 5th April 2017, the Planning Inspector specifically requested that the Council provide WSP with any evidence that it has relied upon. This request has not been positively met and without the benefit of these documents it is **impossible to determine the soundness of the evidence base** which the Council have relied upon to inform the approach and policies contained within the IAMP AAP.

2.5.14 WSP previously raised concerns that the IAMP development is intended to allow companies forming part of the existing Nissan supply chain to relocate closer to the heart of manufacturing operations, however, no consideration appears to have been given to the strategic reassignment or removal [of] existing trips from the network to reflect this fact, which may result in a bias towards traffic generation on one part of the network as appose to another. In response to this comment, the Council states at Paragraph 6.6 of the SYSTRA Transport Note that:

"Firstly, as outlined previously, whilst some Nissan suppliers may locate to IAMP, the aspirations for IAMP are that it will offer a wide range of advanced manufacturing industrial uses, which may not be directly linked to Nissan operations."

2.5.15 This statement confirms the concerns raised previously with regards the clarity of the Council's own vision for the IAMP AAP, which it has previously described as providing 260,000 m^2 of development aimed primarily at the **automotive** and **related** advanced manufacturing/distribution sectors.

2.5.16 We maintain that, despite the Council's recent comments provided in the SYSTRA Transport Note, all of the points raised within the corresponding section of the original WSP submission remain valid concerns. In summary, these include:

- Distribution of IAMP generated trips based upon aging journey to work data.
- Inadequate consideration given to the use of existing employee origin/destination profiles to facilitate the generation of a bespoke gravity model.
- Inadequate consideration to the reassignment of existing trips associated with suppliers anticipated to relocate to the IAMP AAP site.
- The level of detail presented within this document does not allow for a robust assessment which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of infrastructure required is reasonable.
- Distinct lack of evidence or technical outputs appended to prove the soundness of the conclusions drawn within the document.
- The Planning Inspector specifically requested that the Council provide WSP with any evidence that it has relied upon to form policies within the IAMP AAP, however, this request has not been positively met (specifically in relation to technical notes SD6 and SD12).

2.5.17 Our professional opinion remains that the technical evidence which has been made publically available is not proportionate or sufficiently detailed enough to allow comprehensive consideration to be given to the full range of transport implications associated with delivery of the current IAMP AAP proposals.

2.5.18 In the absence of clarification regarding our concerns, we conclude that the evidence base presented does not allow for a robust assessment, which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of mitigation proposed and infrastructure required is reasonable.

2.5.19 In our recent experience of plan making by Local Authorities nationwide, the data which has been used to inform the development of policies contained within the IAMP AAP falls below the minimum standard that would generally be expected or considered reasonable. The policies informed by this data must, therefore, be considered **not** to be **sound** in accordance with the test set out in the National Planning Policy Framework.

2.6 LOCAL MODEL VALIDATION REPORT (SD64)

2.6.1 **SD64** provides an overview of the methodology adopted to validate the micro-simulation model, previously discussed within **SD60**. The modelling exercise was informed by traffic surveys conducted on Wednesday 18th March 2015. This technical note, however, states that the full package of results was not received from the survey company and that certain traffic flows were synthesised using alternative sources such as the TRADS database. Full details are not provided, however, it is considered that this may have had the potential to undermine the credibility of the baseline traffic data at certain intersections within the model.

2.6.2 It has been previously established that the peak hours on the traffic network were identified as 07:00-08:00 / 16:00-17:00 as the AM / PM peaks respectively This report states that the tested periods within the S-Paramics model are 07:00-10:00 and 15:00-18:00 (with the first and last 30 minute segments forming effective warm-up and cool-down periods). It is considered that constructing a micro-simulation model in which the warm-up period actually forms the initial 30 minutes of an identified network peak hour, has the potential to impact upon the calibration and overall validity of the model.

2.6.3 Section 5 of the report provides details of the model calibration exercise and establishes that guideline acceptability criteria contained within DMRB Volume 12 Section 2 Part 1 should be used to establish validity. Statistics presented within Tables 5.2 / 5.3, 5.8 / 5.9 and 5.10 / 5.11 demonstrate that turn flow, queue length and journey time calibration at the higher trafficked, major intersections within the model fail to meet minimum acceptability criteria by a significant margin during the critical network morning peak period of 07:00-08:00 and 15:00-16:00 (which coincides with the Nissan afternoon shift change and hence the localised peak period associated with intersections of strategic importance such as the A19/A1290 Downhill Lane).

2.6.4 Paragraph 5.36 attempts to justify the performance of the model by stating that *"the difference between modelled and observed journey time validation appears to be the result of variation in traffic between the survey day for the journey time and queue data."* It is noted, however, that paragraphs 2.13 and 2.14 state that both the journey time and queue length surveys were conducted simultaneously on Wednesday 18th March 2015.

2.6.5 Despite the apparent issues experienced in relation to validation of the micro-simulation model during critical network and localised peak periods of assessment, it does not appear that further calibration was conducted in order to achieve more refined levels of performance, prior to documenting traffic analysis which informs the conclusions drawn within **PSD19**.

SYSTRA RESPONSE

Item raised by WSP|PB – Item 2.6 para 2.6.1 – 2.6.5

2.6.6 "SD64 provides an overview of the methodology adopted to validate the micro-simulation model, previously discussed within SD60. The modelling exercise was informed by traffic surveys conducted on Wednesday 18th March 2015. This technical note, however, states that the full package of results was not received from the survey company and that certain traffic flows were synthesised using alternative sources such as the TRADS database. Full details are not provided, however, it is considered that this may have had the potential to undermine the credibility of the baseline traffic data at certain intersections within the model."

2.6.7 "It has been previously established that the peak hours on the traffic network were identified as 07:00- 08:00 / 16:00-17:00 as the AM / PM peaks respectively. This report states that the tested periods within the S-Paramics model are 07:00-10:00 and 15:00-18:00 (with the first and last 30 minute segments forming effective warm-up and cool-down periods). It is considered that constructing a micro-simulation model in which the warm-up period actually forms the initial 30 minutes of an identified network peak hour, has the potential to impact the calibration an overall validity of the model."

2.6.8 "…Statistics presented within Tables 5.2 / 5.3, 5.8 / 5.9 and 5.10 / 5.11 demonstrate that turn flow, queue length and journey time calibration at the higher trafficked, major intersections within the model fail to meet minimum acceptability criteria by a significant margin during the critical network morning peak period of 07:00-08:00 and 15:00-16:00 (which coincides with the Nissan afternoon shift change and hence the localised peak period associated with intersections of strategic importance such as the A19/A1290 Downhill Lane)."

2.6.9 "Despite the apparent issues experienced in relation to validation of the micro simulation model during critical network and localised peak periods of assessment, it does not appear that further calibration was conducted in order to achieve more refined levels of performance, prior to documenting traffic analysis which informs the conclusions drawn within **PSD19**."

Councils' Response

2.6.10 As outlined in the response to Item 2.1 and Item 2.2 - Para 7.11 of SD64 confirms that the model calibrates well to the observed data and meets DMRB acceptability guidelines.

2.6.11 Again, highway officers of Sunderland City Council, South Tyneside Council and Highways England have all confirmed that the model reflects their perception of existing typical operations and network conditions, including the location of queues forming, their length and their approximate time of occurrence.

WSP RESPONSE

2.6.12 WSP previously raised concerns that whilst the Council established that the peak hours on the traffic network were 07:00-08:00 / 16:00-17:00 during the AM / PM respectively, the evidence base stated that the tested periods within the S-Paramics model were 07:00-10:00 and 15:00-18:00 (with the first and last 30 minute segments forming effective warm-up and cool-down periods). Concerns were also raised that constructing a micro-simulation model in which the warm-up period forms the initial 30 minutes of an identified network peak hour, has the potential to impact the calibration an overall validity of the model.

2.6.13 We identified that statistics presented within Tables 5.2 / 5.3, 5.8 / 5.9 and 5.10 / 5.11 demonstrate that turn flow, queue length and journey time calibration at the higher trafficked, major intersections within the model fail to meet minimum acceptability criteria by a significant margin during the critical network morning peak period of 07:00-08:00 and 15:00-16:00 (which coincides with the Nissan afternoon shift change and hence the localised peak period associated with intersections of strategic importance such as the A19/A1290 Downhill Lane).

2.6.14 Concerns were raised that despite the apparent issues experienced in relation to validation of the micro simulation model during critical network and localised peak periods of assessment, it does not appear that further calibration was conducted in order to achieve more refined levels of performance, prior to documenting traffic analysis which informs the conclusions drawn within **PSD19**. In response to these comments the Council state at Paragraph 7.5 of the recent SYSTRA Transport Note that:

"As outlined in the response to Item 2.1 and Item 2.2 - Para 7.11 of SD64 confirms that the model calibrates well to the observed data and meets DMRB acceptability guidelines."

2.6.15 It is acknowledged that **SD64** confirms that the calibration process of the S-Paramics model was carried out using the criteria specified in Design Manual for Road and Bridges (DMRB), Volume 12, Section 2, Part 1: Traffic Appraisal in Urban Areas. The validation of micro-simulation models is, however, a subjective matter and in our professional opinion the Council's continued insistence that the S-Paramics model was adequately calibrated is questionable at best.

2.6.16 The Local Authority acknowledge that the acceptability criteria used to assess the level of success recommends that for a model to be considered validated, as an absolute minimum, at least 85% of the intersections modelled should meet the tests established at Table 2-3 below.

Table 2-3 Council Adopted Minimum Acceptability Criteria

CRITERIA AND MEASURE	ACCEPTABILITY
Individual flows (flows<700vph) - within 100vph	85% of all cases
Individual flows (flows 700-2700vph) - within 15%	85% of all cases
GEH statistic: individual flows : GEH < 5	85% of all cases
GEH statistic: link flows : GEH < 5	85% of all cases
Modelled Journey Times within 15% (or 1 minute if higher)	85% of all cases

2.6.17 The previously discussed data which is presented within Tables 5.2 / 5.3, 5.8 / 5.9 and 5.10 / 5.11 of **SD64** clearly demonstrate that the supposedly calibrated and validated S-Paramics model either passes or fails these tests as illustrated at Table 2-4 below.

Table 2-4 DMRB Hourly Performance of the Model in Relation to Minimum Acceptability Criteria

CRITERIA AND MEASURE	07:00	08:00	09:00	15:00	16:00	17:00
Individual flows (flows<700vph) - within 100vph	✓	✓	✓	✓	✓	✓
Individual flows (flows 700-2700vph) - within 15%	×	✓	×	×	✓	✓
GEH statistic: individual flows : GEH < 5	✓	✓	✓	✓	✓	✓
GEH statistic: link flows : GEH < 5	×	×	×	×	×	×
Modelled Journey Times within 15% (or 1 minute if higher)	×	✓	✓	×	×	✓
Queue Lengths *	×	×	×	×	×	×

**No criteria for queue length validation was defined by the Council, so to adopt a consistent approach, they have been considered to pass if modelled queue lengths are generally within 85% of observed queue lengths on all approaches to a junction.*

2.6.18 The information presented at Table 2-4 clearly demonstrates that across the total test period, the S-Paramics model fails to meet minimum criteria thresholds in as many categories as it actually passes.

2.6.19 Of perhaps even greater concern is the performance of the model during the two identified peak hours of operation at the A19/A1290 Downhill Lane junction (i.e. 07:00-08:00 / 15:00-16:00) which form the basis of the modelling exercise used to justify the requirement for a Washington Road bridge, based solely on a comparison of queue lengths at this intersection. The information presented at Table 2-4 clearly demonstrates that during these two peak hours, the S-Paramics model **fails to meet minimum criteria thresholds** in 4 out of 6 categories.

2.6.20 Tables 5.8 / 5.9 of **PSD19** adequately serve to demonstrate that modelled queue lengths at the A19/A1290 Downhill Lane junction validate extremely poorly, particularly on the critical A1290 Downhill Lane approach (i.e. the arm principally used to justify the requirement for significant public investment in dual-carriageway upgrades and a new vehicular bridge) with modelled queues only representing between 43% and 69% of the actual observed queue lengths.

2.6.21 Whilst Paragraph 7.6 of the recent SYSTRA Transport Note states that "…highway officers of Sunderland City Council, South Tyneside Council and Highways England have all confirmed that the model reflects their perception of existing typical operations and network conditions, including the location of queues forming, their length and their approximate time of occurrence", it is our professional opinion that the results summary presented at Tables 5.8 / 5.9 of **PSD19** does **not** appear to support the Council's perceived knowledge of its own road network.

2.6.22 Furthermore, it is noted that the Council claim at Paragraph 7.11 of **SD64** that the model calibrates well with observed data and meets DMRB acceptability guidelines, however, they also previously state at Paragraph 5.35 of the same document that:

"Table 5.10 and Table 5.11 show that in both peak periods, AM and PM in the first hour criteria has not been met. This issue is caused by the fact that within first hour delay on the network has to build up, thus it does not represent fully journey time observed in the modelled area."

2.6.23 It is considered that this statement confirms the legitimacy of our previously raised concerns that constructing a micro-simulation model in which the warm-up period forms the initial 30 minutes of an identified network peak hour, has the potential to impact the calibration and overall validity of the model. Especially when the very same peak hour performance of this model is then used to justify the requirement for significant public investment in a new vehicular bridge.

2.6.24 We maintain that, despite the Council's recent comments provided in the SYSTRA Transport Note, all of the points raised within the corresponding section of the original WSP submission remain valid concerns. In summary, these include:

- The traffic surveys were conducted during a non-neutral traffic month.
- The micro-simulation model adopts a warm-up period which is during identified peak hours on the surrounding road network.
- Inadequate calibration and validation of the micro-simulation model used to inform the policies within the IAMP AAP, which fails to meet minimum acceptability criteria (especially during network peak periods associated with key intersections adjacent to Nissan UK).
- Queue lengths from an inadequately calibrated and validated model used to inform the requirement for significant public spending to provide associated infrastructure to offset the impact of the IAMP AAP site.
- The level of detail presented within this document does not allow for a robust assessment which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of infrastructure required is reasonable.

- Distinct lack of evidence or technical outputs appended to prove the soundness of the conclusions drawn within the document.

- The Planning Inspector specifically requested that the Council provide WSP with any evidence that it has relied upon to form policies within the IAMP AAP, however, this request has not been positively met.

2.6.25 Our professional opinion remains that the technical evidence which has been made publically available is not proportionate or sufficiently detailed enough to allow comprehensive consideration to be given to the full range of transport implications associated with delivery of the current IAMP AAP proposals.

2.6.26 In the absence of clarification regarding our concerns, we conclude that the evidence base presented does not allow for a robust assessment, which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of mitigation proposed and infrastructure required is reasonable.

2.6.27 In our recent experience of plan making by Local Authorities nationwide, the data which has been used to inform the development of policies contained within the IAMP AAP falls below the minimum standard that would generally be expected or considered reasonable. The policies informed by this data must, therefore, be considered **not** to be **sound** in accordance with the test set out in the National Planning Policy Framework.

2.7 WASHINGTON ROAD BRIDGE OPTION TESTING (SD65)

2.7.1 **SD65** provides an overview of micro-simulation modelling conducted to demonstrate the requirement for a new bridge over the A19, which it is stated will be necessary to *"serve as an important link for the distribution of IAMP related traffic."*

2.7.2 **SD62**, however, indicates that in the region of 4% of traffic generated by the IAMP is expected to use this route (which only equates to an average of approximately 1 vehicle per minute, even during the heaviest periods of traffic generation at the site).

2.7.3 Information relating to the hourly traffic flows anticipated to use the proposed new bridge are presented at Table 4.1 and appear to primarily constitute existing traffic movements on the wider highway network (travelling between Downhill Lane and Washington Road) which are assumed to reassign and use the IAMP site as a "rat-run" to avoid the A19/A1290 Downhill Lane junction. Whilst it is accepted that the proposal may result in an element of traffic reassignment if uncontrolled, it is not considered that the scheme will *"serve as an important link for the distribution of IAMP related traffic"* based upon the volume of trips presented in **SD65** and is, therefore, unlikely to be necessary to make the development acceptable in planning terms.

2.7.4 **PSD19** states that the operation and capacity benefits of the new bridge on the road network are demonstrated within the traffic modelling work, summarised in **SD65**, which considers a future year scenario (post IAMP) with/without the proposed bridge and identifies a significant difference in queue length at key junctions between the two scenarios. It is not considered, however, that either operation or capacity benefits are demonstrated within this technical note.

2.7.5 Once again, the note provides only a modest level of detail relating to the operational performance of the A19/A1290 Downhill Lane junction, with no numerical data presented to support the claims or quantify forecast levels of reserve capacity available with and without the provision of a new bridge link.

2.7.6 Only forecast queue lengths are tabulated, which do not provide an adequate indication of junction performance in isolation and should be related to corresponding relative degrees of saturation on each approach arm to provide operational context to the situation. Furthermore, it must be emphasised that concerns previously raised in relation to traffic data, growth assumptions, adopted trip rates, distribution of generated traffic and model validation all have the potential to impact upon the analysis presented within this technical note.

SYSTRA RESPONSE

Item raised by WSP|PB – Item 2.7 para

2.7.7 "…Whilst it is accepted that the proposal may result in an element of traffic reassignment if uncontrolled, it is not considered that the scheme will "serve as an important link for the distribution of IAMP related traffic" based upon the volume of trips presented in SD65 and is, therefore, unlikely to be necessary to make the development acceptable in planning terms."

Councils' Response

2.7.8 Firstly, the Washington Road Bridge over the A19 is an important link for all forms of IAMP traffic, not just cars. The new bridge would provide a routing option for buses and will also play an important role for pedestrian traffic, equestrian users and cycle traffic; it links IAMP to the Sustrans cycle link on the eastern side of the A19 for example.

2.7.9 The data in Appendix B of this Note demonstrates that without the inclusion of the bridge, traffic queue lengths are excessive, with queues reaching approximately 350 metres in both the AM and PM periods on the A1290 Downhill Lane northbound approach to the A19 (compared to approximately 70 metres and 160 metres in the AM and PM periods respectively, with the bridge). Queue lengths without the bridge would block back to adjacent junctions and cause operational difficulties. Also, such instances give rise to road safety concern due to restricted manoeuvrability and increased driver frustration leading to reduced gap acceptance.

2.7.10 Within Appendix B is also the results of a sensitivity test, to consider the resilience of each network layout (with and without new bridge) to accommodate a combined IAMP and Nissan shift change-over peak. The results demonstrate that queues are significantly greater without the bridge, most notably at the A19 Downhill Lane junction.

2.7.11 In addition to demonstrating the queue length benefits of the new bridge over the A19, the results in Appendix B also demonstrate the reduction in traffic on the A1290 and faster average traffic speeds on the network with the inclusion of the bridge.

Item raised by WSP|PB – Item 2.7 para 2.7.5 & para 2.7.6

2.7.12 "Once again, the note provides only a modest level of detail relating to the operational performance of the A19/A1290 Downhill Lane junction, with no numerical data presented to support the claims or quantify forecast levels of reserve capacity available with and without the provision of a new bridge link."

2.7.13 "Only forecast queue lengths are tabulated, which do not provide an adequate indication of junction performance in isolation and should be related to corresponding relative degrees of saturation on each approach arm to provide operational context to the situation."

Councils' Response

2.7.14 A micro simulation model, such as Paramics, is the most appropriate modelling tool to assess the impact of IAMP on the wider road network. Paramics does not however provide levels of reserve capacity at junctions. Such information is derived from junction assessment packages which are typically included within a Transport Assessment, submitted at the stage of an application for development consent or planning permission.

2.7.15 For the avoidance of doubt, it is confirmed that the traffic modelling work being undertaken by Highways England for the A19 Testos and Downhill Lane junction includes the new IAMP bridge over the A19 in future year modelling scenarios.

WSP RESPONSE

2.7.16 WSP previously raised concerns that despite claims made by the Council in **SD65** that the proposed Washington Road bridge will be necessary to *"serve as an important link for the distribution of IAMP related traffic"* information presented in **SD62** clearly indicates that only in the region of 4% of traffic generated by the IAMP is actually expected to use this route (which only equates to an average of approximately 1 vehicle per minute, even during the heaviest periods of traffic generation at the site). The Council's response to these concerns is set out at Paragraph 8.2 of the recent SYSTRA Transport Note and states that:

"…the Washington Road Bridge over the A19 is an important link for all forms of IAMP traffic, not just cars. The new bridge would provide a routing option for buses and will also play an important role for pedestrian traffic, equestrian users and cycle traffic; it links IAMP to the Sustrans cycle link on the eastern side of the A19 for example."

2.7.17 The Council's response does **not** disagree with our concerns that only an extremely modest level of IAMP generated traffic is actually forecast to use the bridge. The statement appears to attempt to deflect attention away from the modest level of usage by IAMP traffic forecast to use the bridge, by highlighting the important multi-modal role that the crossing will play. With regards the anticipated mode share aspirations for the IAMP AAP site, **SD62** states that:

"…it is considered reasonable to envisage that the mode share derived from the most recent NMUK travel survey (February 2009) is representative of likely travel patterns at the proposed IAMP development."

2.7.18 This survey documented a modest level of walking and cycling associated with existing operations at the adjacent site, which are currently catered for by the fully segregated pedestrian/cycle bridge connecting Washington Road to either side of the A19. It is considered that this bridge provides a far more appropriate "desire line" for trips originating to/from the residential areas identified by the Council and is, therefore, likely to continue to form the primary crossing point even if a newly proposed bridge is constructed to serve IAMP.

2.7.19 The Council continues to maintain its stance that the requirement for a new vehicular bridge over the A19 is proven by the results of the S-Paramics modelling exercise, with supposedly unacceptable levels of queuing traffic forecast without the new structure in place to allow reassignment of existing trips by encouraging rat-running through the centre of the IAMP site. It is considered that this approach raises potential road safety concerns for the pedestrian, cycle and equestrian based IAMP generated trips that the Council seek to encourage to use this proposed route in the future.

2.7.20 With regards the micro-simulation model and the proposed upgrade to the A19/A1290 Downhill Lane junction which has been coded into S-Paramics, Paragraph 2.1 of **SD65** clearly states that:

*"For the purposes of assessment, it is considered that the preferred Highways England option for the Downhill Lane junction improvements **will broadly comprise** of the construction of a new bridge to the south of the existing bridge to create a raised roundabout above the A19 and construction of new slip roads connecting to the A19 and Testos junction."*

2.7.21 It is considered extremely alarming that the Council appear to have made broad assumptions in 2015 about the assumed form of the proposed junction upgrade, rather than establishing current detailed design schematics prior to coding the new intersection into the micro-simulation model. This approach raises **serious concerns** with regards the legitimacy of the Council's modelling approach contained within **SD65** and the subsequent infrastructure requirements formed as a result.

2.7.22 In addition to the point raised above, it is also considered that the S-Paramics model used to inform infrastructure requirements was poorly calibrated originally and is in fact not as well validated as the Council would like to claim. Of particular concern is the performance of the model during the two identified peak hours of operation at the A19/A1290 Downhill Lane junction (i.e. 07:00-08:00 / 15:00-16:00) which form the basis of the modelling exercise used to justify the requirement for a Washington Road bridge, based solely on a comparison of queue lengths at this specific intersection. The information presented previously, has demonstrated that during these two peak hours, the S-Paramics model typically **fails to meet minimum criteria thresholds** in a number of different categories.

2.7.23 As discussed previously, Tables 5.8 / 5.9 of **PSD19** adequately serve to demonstrate that modelled queue lengths at the A19/A1290 Downhill Lane junction validate extremely poorly, particularly on the critical A1290 Downhill Lane approach (which the Council seek to dual based upon results of a poorly validated model) with modelled queues only representing between 43% and 69% of the actual observed queue lengths.

2.7.24 During the Examination in Public hearing on Wednesday 5th April 2017, WSP requested that the Council provide technical outputs to support the claims made with regards the results of the micro-simulation modelling exercise. In response to this, the Planning Inspector specifically requested that the Council provide WSP with any evidence that it has relied upon. The Council claim that Appendix B of the recent SYSTRA Transport Note provides modelling results, however, scrutiny of the data reveals that the Council have merely provided a modest excel summary and a few bar graphs. This request has not been positively met and without the benefit of actual evidence to support the results summaries it is **impossible to determine the soundness of the evidence base** which the Council have relied upon to inform the approach and policies contained within the IAMP AAP.

2.7.25 In order to justify the lack of information provided within **SD65** the Council state at Paragraphs 8.8 and 8.9 of the recent SYSTRA Transport Note that:

"A micro simulation model, such as Paramics, is the most appropriate modelling tool to assess the impact of IAMP on the wider road network. Paramics does not however provide levels of reserve capacity at junctions. Such information is derived from junction assessment packages which are typically included within a Transport Assessment, submitted at the stage of an application for development consent or planning permission."

"For the avoidance of doubt, it is confirmed that the traffic modelling work being undertaken by Highways England for the A19 Testos and Downhill Lane junction includes the new IAMP bridge over the A19 in future year modelling scenarios."

2.7.26 It is accepted that an S-Paramics model is an appropriate tool to study the overall operation of the **wider network** and establish the interaction between junctions. The Council acknowledge that a micro-simulation model cannot produce numerical data relating to capacity of junctions and for this very reason, a micro-simulation model cannot be considered the most appropriate piece of software to facilitate the detailed modelling of a **key individual junction** used to justify the need for significant public investment in highway mitigation measures. It is simply **not correct** to imply that specialist traffic signal modelling packages are only appropriate for traffic assessments associated with planning application levels of detail.

2.7.27 It is noted that the Council have confirmed that the traffic modelling work being undertaken by Highways England for the A19/A1290 Downhill Lane junction improvements includes the new IAMP bridge over the A19 in future year modelling scenarios. Town End Farm Partnership raised the question during the Examination in Public hearing on Wednesday 5th April 2017 following our correspondence with the Project Manager for the Highways England Regional Investment Programme which confirmed that their Option 2A is currently the preferred scheme and that the strategic traffic model used by Highways England to assess the wider benefits and operational capacity of the proposal ***"has been run without the inclusion of the Washington Road Bridge."*** It is considered that it may be prudent to seek a definitive answer to this question prior to drawing firm conclusions relating to infrastructure requirements which would necessitate significant levels of public funding to be achievable.

2.7.28 Option 2A was selected for development over various other possibilities presented at a public consultation exercise in 2016, two of which (provisionally named Option E and Option F) provided road infrastructure on the IAMP AAP site. This infrastructure followed the same broad alignment of the Council's proposed Washington Road bridge and supporting tie in roads, however, they were subsequently discarded on the grounds that the proposal *"requires a significant area of land which is earmarked for development."*

2.7.29 In order to ensure that a **sound** evidence base is presented for consideration by the Planning Inspector, it would be expected that in addition to the micro-simulation model of the wider network to establish the interaction between junctions, that detailed modelling of the A19/A1290 Downhill Lane junction (using software such as LinSig or TRANSYT) would have also been conducted in parallel to assess the need for major infrastructure such as the dualling of the A1290 and construction of a Washington Road Bridge over the A19 corridor.

2.7.30 We maintain that, despite the Council's recent comments provided in the SYSTRA Transport Note, all of the points raised within the corresponding section of the original WSP submission remain valid concerns. In summary, these include:

- The new bridge over the A19 has not been proven to serve as an important link for the distribution of IAMP related traffic, with only 4% of site generated trips likely to use the link (i.e. approximately 1 vehicle per minute even during peak periods).
- Provision of the bridge link will encourage rat-running through the IAMP AAP site, which raises road safety concerns for the pedestrian, cycle and equestrian based IAMP generated trips that the Council seek to encourage to use this proposed route in the future.
- Pedestrian and cycle movements are currently catered for by the fully segregated bridge connecting Washington Road to either side of the A19. It is considered that this bridge provides a far more appropriate "desire line" and is, therefore, likely to continue to form the primary crossing point even if a newly proposed bridge is constructed to serve IAMP.
- The traffic surveys were conducted during a non-neutral traffic month.
- The micro-simulation model adopts a warm-up period which is during identified peak hours on the surrounding road network.
- Inadequate calibration and validation of the micro-simulation model used to inform the policies within the IAMP AAP, which fails to meet minimum acceptability criteria (especially during network peak periods associated with key intersections adjacent to Nissan UK).

- The Council appear to have made broad assumptions in 2015 about the assumed form of the proposed junction upgrade associated with the A19/A1290 Downhill Lane, rather than establishing current detailed design schematics prior to coding the new intersection into the micro-simulation model.

- Queue lengths from an inadequately calibrated and validated model used to inform the requirement for significant public spending to provide associated infrastructure to offset the impact of the IAMP AAP site.

- A micro-simulation model has been used to facilitate modelling of the wider network and also detailed analysis of the A19/A1290 Downhill Lane junction. This is an inappropriate piece of software for the task.

- Confusion over the inclusion of the proposed Washington Road bridge in Highways England's modelling work should be resolved prior to drawing firm conclusions relating to infrastructure requirements which would necessitate significant levels of public funding to be achievable.

- Highways England discarded proposed schemes that followed the same broad alignment of the Council's proposed Washington Road bridge and supporting tie in roads on the grounds that the proposals would require a significant area of land which is earmarked for development to be sterilised.

- The level of detail presented within this document does not allow for a robust assessment which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of infrastructure required is reasonable.

- Distinct lack of evidence or technical outputs (particularly modelling outputs to allow scrutiny of the assessment work which has informed the results summary tables) appended to prove the soundness of the conclusions drawn within the document.

- The Planning Inspector specifically requested that the Council provide WSP with any evidence that it has relied upon to form policies within the IAMP AAP, however, this request has not been positively met.

2.7.31 Our professional opinion remains that the technical evidence which has been made publically available is not proportionate or sufficiently detailed enough to allow comprehensive consideration to be given to the full range of transport implications associated with delivery of the current IAMP AAP proposals.

2.7.32 In the absence of clarification regarding our concerns, we conclude that the evidence base presented does not allow for a robust assessment, which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of mitigation proposed and infrastructure required is reasonable.

2.7.33 In our recent experience of plan making by Local Authorities nationwide, the data which has been used to inform the development of policies contained within the IAMP AAP falls below the minimum standard that would generally be expected or considered reasonable. The policies informed by this data must, therefore, be considered **not** to be **sound** in accordance with the test set out in the National Planning Policy Framework.

2.8 EXISTING NETWORK TRIGGER POINT ASSESSMENT (SD66)

2.8.1 **SD66** provides an assessment of the available capacity on the existing road network in the vicinity of the IAMP site. The study provides an interim assessment of the quantum of development that the local highway network can accommodate without the requirement for highway mitigation measures being implemented.

2.8.2 It documents the results of a 2018 sensitivity test using the micro-simulation model and principles established in previous technical notes. **SD66**, however, contradicts the approach to the application of no background traffic growth (established within **SD61)** and deems that Tempro adjusted NTEM growth factors are necessary (in addition to IAMP development traffic) to accurately simulate future conditions on the highway network. It must be considered that if this approach is required to forecast conditions in 2018, then it must also be necessary to forecast conditions in 2028 (for reasons previously discussed in this review).

2.8.3 These traffic flows are used to inform further micro-simulation modelling and, once again, it must be emphasised that concerns previously raised all have the potential to impact upon the analysis presented within **SD66**.

2.8.4 It is noted, however, that the S-Paramics model presented in **SD66** appears to have been updated to include a 30 minute warm-up and cool down period either side of the 07:00-10:00 and 15:00-18:00 assessment windows (which are documented as 06:30-10:30 and 14:30-18:30). Justification is not provided within the technical note, however, in light of concerns raised previously, it is considered that this may provide an indication that further calibration was considered desirable. If this is the case, then the same principle should have also been applied to the model used to inform the remainder of the study, with the main body of technical work being revisited to ensure more refined calibration of the baseline traffic position.

SYSTRA RESPONSE

Item raised by WSP|PB – Item 2.8 para 2.8.1 & 2.8.2

2.8.5 "SD66 provides an assessment of the available capacity on the existing road network in the vicinity of the IAMP site…It documents the results of a 2018 sensitivity test using the micro-simulation model and principles established in previous technical notes. SD66, however, contradicts the approach of no background traffic growth (established within SD61) and deems that Tempro adjusted NTEM growth factors are necessary (in addition to IAMP development traffic) to accurately simulate future conditions on the highway network. It must be considered that if this approach is required to forecast conditions in 2018, then it must also be necessary to forecast conditions in 2028 (for reasons previously discussed in this review)."

Councils' Response

2.8.6 It should be made clear that SD61 considers the resultant traffic impact from a full build-out of IAMP (in 2028), whereas the purpose of SD66 was to determine the level of IAMP related traffic capable of being accommodated on the existing road network, without improvement (in 2018).

2.8.7 The development of IAMP in full, will result in significant traffic growth locally and a redistribution of traffic movements on the network will also occur. The creation of over 5,000 jobs on the land to the north of Nissan will see a concentration in traffic growth in this area and it is therefore not appropriate to also include further Tempro4 background traffic growth; an approach to modelling also adopted by Highways England in their assessments of the Testos and Downhill Lane junction improvements.

2.8.8 However, if a smaller proportion of IAMP were to be operational in 2018, this level of traffic generation would not be significant enough to represent traffic growth on the wider road network. It is therefore appropriate that Tempro background traffic growth is included within the assessment.

WSP RESPONSE

2.8.9 WSP previously raised concerns that **SD61** and **SD66** provide similar assessments of the available capacity on the existing road network following delivery of partial and full IAMP development (at 2018 and 2028 respectively). In terms of the phased delivery of development at the IAMP AAP site, there is fundamentally no difference between tests at 2018 and 2028 in terms of IAMP and its relationship to background traffic growth. It must therefore be considered that it is **not best practice** to adopt different approaches to the application of TEMPro adjusted NTEM growth factors (in addition to IAMP development traffic) between the two forecasts, to simulate future conditions on the highway network. In responding to these concerns, the Council state at Paragraphs 9.2 - 9.4 that:

"It should be made clear that SD61 considers the resultant traffic impact from a full build-out of IAMP (in 2028), whereas the purpose of SD66 was to determine the level of IAMP related traffic capable of being accommodated on the existing road network, without improvement (in 2018).

"The development of IAMP in full, will result in significant traffic growth locally and a redistribution of traffic movements on the network will also occur. The creation of over 5,000 jobs on the land to the north of Nissan will see a concentration in traffic growth in this area and it is therefore not appropriate to also include further Tempro4 background traffic growth; an approach to modelling also adopted by Highways England in their assessments of the Testos and Downhill Lane junction improvements.

"However, if a smaller proportion of IAMP were to be operational in 2018, this level of traffic generation would not be significant enough to represent traffic growth on the wider road network. It is therefore appropriate that Tempro background traffic growth is included within the assessment."

2.8.10 It is acknowledged that *"local traffic growth and the way in which future traffic routes on the network"* **will** more than likely be notably influenced by the development of IAMP and the Highways England junction improvements for Testos and Downhill Lane. This does not, however, mean that whilst the IAMP AAP will account for a significant level of employment development locally, the modelling approach is **sound** if one assessment neglects to consider the impact of other allocated residential and employment development sites, in addition to the wider Local Plan aspirations of the various Local Authorities.

2.8.11 The SRN is responsible for the movement of traffic on a national level and to make the assumption that IAMP generated trips will form the only source of regional traffic growth on this section of the local and/or strategic road networks between 2015-2028 will **not** result in robust analysis of future operational performance in one of the assessments. It remains our professional opinion that for the evidence base to be considered **sound**, a consistent approach must be applied to the forecasting of background traffic growth and the pro-rate delivery of IAMP development on the site in both 2018 and 2028.

2.8.12 We maintain that, despite the Council's recent comments provided in the SYSTRA Transport Note, all of the points raised within the corresponding section of the original WSP submission remain valid concerns. In summary, these include:

- Inconsistent approach to the application of TEMPro adjusted NTEM traffic growth factors, when compared to previous assessments which neglected to consider the impact of other allocated residential and employment development sites, in addition to the wider Local Plan aspirations of the various Local Authorities.

- The level of detail presented within this document does not allow for a robust assessment which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of infrastructure required is reasonable

- Distinct lack of evidence or technical outputs appended to prove the soundness of the conclusions drawn within the document.

- The Planning Inspector specifically requested that the Council provide WSP with any evidence that it has relied upon to form policies within the IAMP AAP, however, this request has not been positively met.

2.8.13 Our professional opinion remains that the technical evidence which has been made publically available is not proportionate or sufficiently detailed enough to allow comprehensive consideration to be given to the full range of transport implications associated with delivery of the current IAMP AAP proposals.

2.8.14 In the absence of clarification regarding our concerns, we conclude that the evidence base presented does not allow for a robust assessment, which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of mitigation proposed and infrastructure required is reasonable.

2.8.15 In our recent experience of plan making by Local Authorities nationwide, the data which has been used to inform the development of policies contained within the IAMP AAP falls below the minimum standard that would generally be expected or considered reasonable. The policies informed by this data must, therefore, be considered **not** to be **sound** in accordance with the test set out in the National Planning Policy Framework.

2.9 CONCLUSIONS

2.9.1 This review concludes that the technical evidence which has been made publically available is not proportionate in relation to the scale of analysis which has informed the reporting contained within **PSD19**.

2.9.2 It is considered that the level of technical information contained within the documents reviewed is not sufficiently detailed enough to allow comprehensive consideration to be given to the full range of transport implications associated with delivery of the current IAMP AAP proposals.

2.9.3 Traffic flows anticipated to use the proposed new bridge, appear to primarily constitute existing movements on the wider highway network. It is not considered that the scheme will *"serve as an important link for the distribution of IAMP related traffic"* based upon the volume of trips forecast and is, therefore, unlikely to be necessary to make the development acceptable in planning terms.

2.9.4 It is also considered that in the absence of clarification regarding concerns raised in relation to traffic data, growth assumptions, adopted trip rates, distribution of generated traffic and model validation, these points have the potential to undermine the credibility of the technical analysis which has been used to inform the development of policies contained within the IAMP AAP.

SYSTRA RESPONSE

Comment raised by WSP|PB – Item 3.1 para 3.1.2 & 3.1.2

2.9.5 "It is considered that the level of technical information contained within the documents reviewed is not sufficiently detailed enough to allow comprehensive consideration to be given to the full range of transport implication associated with delivery of the current IAMP proposal."

2.9.6 "…It is not considered that the scheme will "serve as an important link for the distribution of IAMP related traffic" based upon the volume of trips forecast and is, therefore, unlikely to be necessary to make the development acceptable in planning terms."

Councils' Response

2.9.7 Whilst no new items are raised within this section, it is interesting to note the apparent contradiction in these conclusions. Despite the initial paragraph concluding that insufficient detail is provided to allow comprehensive consideration to be given on transport implications, the subsequent paragraph is clear in its opinion that the proposed new bridge is not necessary to make the development acceptable.

WSP RESPONSE

2.9.8 WSP would like to categorically state for the record that there is absolutely **no contradiction** in our conclusions drawn previously. Our comments relate to the entire package of supporting documents which the Council has relied upon to inform the development of policies contained within the IAMP AAP.

2.9.9 The International Advanced Manufacturing Park Area Action Plan – Transport Technical Background Report (**PSD19**) is supported by 7 technical notes which supposedly form the "evidence base" for the conclusions drawn within the main document. These technical notes are typically between 3-8 pages in length and provide an **extremely modest level of information** for the consideration of the AAP proposals by the Planning Inspector. Furthermore, it must be stressed that with the exception of TRICS database outputs (which were not originally released into the public domain for consideration) and a summary of the turn count comparisons (supposedly used to calibrate the micro-simulation model) no technical appendices have been provided to support the Council's drawn conclusions.

2.9.10 It is common practice for technical outputs to be appended to any transport analysis submission, as they form the actual **evidence** which support the various modelling exercises, results summary tables and conclusions drawn within the technical reports. In our professional opinion, without the benefit of the detailed supporting **evidence** which support the conclusions drawn within these technical notes, it is **impossible to determine the soundness of the evidence base** which the Council have relied upon to inform the approach and policies contained within the IAMP AAP.

2.9.11 Our comments that the Washington Road bridge us **unlikely** to "serve as an important link for the distribution of IAMP related traffic" based upon the volume of trips forecast in **SD65**, are themselves made in light of the alarming **lack of evidence** submitted by the Council to support its traffic reassignment assumptions. The Council's response at Paragraph 10.3 of the recent SYSTRA Transport Note states that our supposedly contradictory statement is *"clear in its opinion that the proposed bridge is not necessary to make development acceptable."*

2.9.12 It is apparent from our objective assessment of the Council's submitted evidence base which has been made publically available, that it is not proportionate in relation to the scale of analysis which has informed the reporting contained within **PSD19**. It is still considered that the level of technical information contained within the documents reviewed is not sufficiently detailed enough to allow comprehensive consideration to be given to the full range of transport implications associated with delivery of the current IAMP AAP proposals.

2.9.13 We maintain that, despite the Council's recent comments provided in the SYSTRA Transport Note, all of the points raised within the corresponding section of the original WSP submission remain valid concerns. In summary, these include:

- The traffic surveys were conducted during a non-neutral traffic month.
- Departure from standard with regards the advice contained within WebTAG Unit M1.2.
- Departure from standard with regards the advice contained within DMRB Volume 13, Section 1, Part 4.
- Confusion on the Council's part over the level of abnormal traffic behaviour associated with on-going road improvement schemes in the region.
- Average traffic flows demonstrate that March is not representative of an average neutral traffic month.
- Actual recorded traffic flows on the A19 corridor were lower on Wednesday March 18th than the Council's evidence suggests that they were during neutral traffic months.
- Average TRICS trip rates used instead of 85th percentile trip rates.
- Selection of unrepresentative sites from the TRICS database.
- TRICS trip rates which are not supported by Highways England.

- No consideration given to the collection of traffic data to prepare bespoke trip rates.
- Aging mode share data used to compare multi-modal and vehicular trip rate methods.
- Inadequate consideration given to the processing of base vehicular trip rates, resulting in the assignment of commercial trips based upon an employee journey to work data.
- Distribution of IAMP generated trips based upon aging journey to work data.
- Inadequate consideration given to the use of existing employee origin/destination profiles to facilitate the generation of a bespoke gravity model.
- Inadequate consideration to the reassignment of existing trips associated with suppliers anticipated to relocate to the IAMP AAP site.
- The micro-simulation model relies upon traffic surveys that were conducted during a non-neutral traffic month.
- The micro-simulation model adopts a warm-up period which is during identified peak hours on the surrounding road network.
- Inadequate calibration and validation of the micro-simulation model used to inform the policies within the IAMP AAP, which fails to meet minimum acceptability criteria (especially during network peak periods associated with key intersections adjacent to Nissan UK).
- Queue lengths from an inadequately calibrated and validated model used to inform the requirement for significant public spending to provide associated infrastructure to offset the impact of the IAMP AAP site.
- A micro-simulation model has been used to facilitate modelling of the wider network and also detailed analysis of the A19/A1290 Downhill Lane junction. This is an inappropriate piece of software for the task.
- The new bridge over the A19 has not been proven to serve as an important link for the distribution of IAMP related traffic, with only 4% of site generated trips likely to use the link (i.e. approximately 1 vehicle per minute even during peak periods).
- Provision of the bridge link will encourage rat-running through the IAMP AAP site, which raises road safety concerns for the pedestrian, cycle and equestrian based IAMP generated trips that the Council seek to encourage to use this proposed route in the future.
- Pedestrian and cycle movements are currently catered for by the fully segregated bridge connecting Washington Road to either side of the A19. It is considered that this bridge provides a far more appropriate “desire line” and is, therefore, likely to continue to form the primary crossing point even if a newly proposed bridge is constructed to serve IAMP.
- The Council appear to have made broad assumptions in 2015 about the assumed form of the proposed junction upgrade associated with the A19/A1290 Downhill Lane, rather than establishing current detailed design schematics prior to coding the new intersection into the micro-simulation model.

- Queue lengths from an inadequately calibrated and validated model used to inform the requirement for significant public spending to provide associated infrastructure to offset the impact of the IAMP AAP site.

- A micro-simulation model has been used to facilitate modelling of the wider network and also detailed analysis of the A19/A1290 Downhill Lane junction. This is an inappropriate piece of software for the task.

- Confusion over the inclusion of the proposed Washington Road bridge in Highways England's modelling work should be resolved prior to drawing firm conclusions relating to infrastructure requirements which would necessitate significant levels of public funding to be achievable.

- Highways England discarded proposed schemes that followed the same broad alignment of the Council's proposed Washington Road bridge and supporting tie in roads on the grounds that the proposals would require a significant area of land which is earmarked for development to be sterilised.

- Inconsistent approach to the application of TEMPro adjusted NTEM traffic growth factors, when compared to previous assessments which neglected to consider the impact of other allocated residential and employment development sites, in addition to the wider Local Plan aspirations of the various Local Authorities.

- The level of detail presented within submitted documents does not allow for a robust assessment which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of infrastructure required is reasonable.

- Distinct lack of evidence or technical outputs appended to prove the soundness of the conclusions drawn within the submitted documents.

- The Planning Inspector specifically requested that the Council provide WSP with any evidence that it has relied upon to form policies within the IAMP AAP, however, this request has not been positively met.

2.9.14 Our professional opinion remains that the technical evidence which has been made publically available is not proportionate or sufficiently detailed enough to allow comprehensive consideration to be given to the full range of transport implications associated with delivery of the current IAMP AAP proposals.

2.9.15 In the absence of clarification regarding our concerns, we conclude that the evidence base presented **does not allow for a robust assessment**, which meets the objectively assessed requirements necessary to allow the Planning Inspector to conclude that the level of mitigation proposed and infrastructure required is reasonable.

2.9.16 In our recent experience of plan making by Local Authorities nationwide, the data which has been used to inform the development of policies contained within the IAMP AAP falls below the minimum standard that would generally be expected or considered reasonable. The policies informed by this data must, therefore, be considered **not** to be **sound** in accordance with the test set out in the National Planning Policy Framework.

3 POINTS DISCUSSED DURING THE EIP

3.1 LOCATION OF WASHINGTON ROAD BRIDGE OVER THE A19

3.1.1 During the Examination in Public conducted on Wednesday 5th April 2017, Town End Farm Partnership discussed with the Council a number of concerns relating to the evidence base which has informed the policies contained within the IAMP AAP. The Council has elected to only respond to verbal comments relating to the development of the Washington Road bridge over the A19 and has failed to make comments on any of the other issues raised verbally during the hearing.

3.1.2 The subject of the Washington Road bridge proposals were discussed with the Council and concerns were raised that the full package of design options considered, had not been released into the public domain for consideration. We requested that **all** potential designs and alignments be provided, along with any supporting cost assumptions, etc. The Planning Inspector specifically requested that the Council provide WSP with any evidence that it has relied upon to the policies contained within the IAMP AAP.

3.1.3 One conceptual design was provided at Appendix C of the recent SYSTRA Transport Note, with an accompanying narrative to justify the reasons for discarding this option (as discussed in greater detail below).

SYSTRA RESPONSE

Item raised by Town End Farm Partnership

3.1.4 An alternative location for the bridge was previously considered to the south of the location currently proposed. Justification is sought to why this option was not pursued.

Councils' Response

3.1.5 Upon confirmation of the requirement for a bridge over the A19 in early 2015, suitable locations were considered.

3.1.6 The new bridge should be sufficiently wide enough to accommodate an upgrade of the A19 to three lanes in both directions. The bridge must be located along the eastern boundary of IAMP and sufficiently far south of the A19 Downhill Lane junction to not conflict with operations.

3.1.7 The drawings in Appendix C were produced during 2015 and 2016 as part of the initial construction feasibility process, when consideration was being given to the bridge being located along the alignment of Washington Road on the western side of the A19 and landing near the Ferryboat Lane Junction.

3.1.8 Several constraints to design and deliverability were identified for this location. The deliverability issues identified for this location were:

- The existing footbridge in this location is well used and the new bridge should allow the existing bridge to retain its use throughout construction. This results in implications on the alignment of any new vehicular bridge.
- A Gas Governor Housing unit is located at the Ferryboat Lane / Washington Road junction which would need to be relocated to allow construction of the bridge in this location; a cost in the order of £250,000 would be associated with its relocation, along with considerable lead-in times.

- The residential bungalows fronting onto Washington Road and Ferryboat Lane are at a lower level than the carriageway. Considerable visual impact would be experienced if the bridge was built in this location due to required retaining structures to tie in with existing road level.

- Horizontal and vertical re-alignment of Ferryboat Lane would be required, resulting in access difficulties to residential properties to be overcome within the design. A viable solution was not identified and any such solution would likely have significant environmental impacts for residents, such as noise, visual and air quality.

- Due to the alignment of the tie-in roads on either side of a bridge in this location and the limited space available, the design speed will require to be set as the minimum permissible to allow a suitable vertical bridge alignment to be achieved.

- Woodland would require removal if the bridge is to be in this area.

3.1.9 When the above constraints are considered collectively, this would result in significant cost and environmental impacts on the local area. For these reasons, the location of the bridge in a more northern location was pursued.

3.1.10 The detailed design of this bridge is currently being progressed as part of the DCO application and is being informed by continuous dialogue with Highways England and AutoLink, the DBFO operator for the A19 in this area.

WSP RESPONSE

3.1.11 As discussed previously, one conceptual design was provided at Appendix C of the recent SYSTRA Transport Note, with an accompanying narrative to justify the reasons for discarding this option. **SD65** refers to the preferred scheme as Option 2A and, as such, it is assumed that various different proposals for both an Option 1 and Option 2 must have been considered at some point historically. It was, therefore, anticipated that a greater level of additional information would be provided, above and beyond that contained at Appendix C. Unless otherwise confirmed by the Council that no other options were ever considered, it must be considered that the request has not been positively met and that all **evidence** which the Council have relied upon to inform the approach and policies contained within the IAMP AAP has not been made publically available.

3.1.12 With specific regard to the information provided, it is noted that the Council state that *"upon confirmation of the requirement for a bridge over the A19 in early 2015, suitable locations were considered."* Highways England, however, did not hold consultation on the preferred option until December 2016, which again raises questions over what broad assumptions have been coded into the Council's micro-simulation model to represent the A19/A1290 Downhill Lane junction upgrade.

3.1.13 The Council acknowledge that several constraints to design and deliverability issues were identified for a location to the south of the IAMP AAP site boundary, which are discussed in greater detail below. There is a requirement to retain the existing footbridge over the A19 and the construction of this proposed infrastructure should allow the existing bridge to remain usable, which results in implications for the alignment of any new vehicular bridge. It is acknowledged that a requirement of this nature may influence the alignment of a new bridge, however, it is not considered that it necessitates a relocation as far north as is currently proposed or tie in roads that effectively sterilise a prime parcel of development land. This opinion is consistent with Highways England's reasons for discarding various options for the A19/A1290 Downhill Lane upgrades which would have a similarly unnecessary impact.

3.1.14 A Gas Governor Housing unit would require relocation to facilitate construction of a bridge to the southern boundary of the IAMP AAP site. It is considered that the Council's own drawing at Appendix C successfully illustrates that Washington Road can be realigned to retain the Gas Governor Housing unit, with technical notes on this schematic stating **Carriageway aligned to avoid the sub-station**. It is, therefore, unclear how the council have concluded that the infrastructure must be relocated at a cost of £250,000 resulting in considerable lead-in times.

3.1.15 Residential properties fronting onto Washington Road and Ferryboat Lane are at a lower level than the carriageway, therefore, visual impact would be experienced if a bridge is constructed (requiring retaining structures to tie in with existing road level) to the south of the IAMP AAP site boundary. Furthermore, the horizontal/vertical re-alignment of Ferryboat Lane would also be required resulting in environmental impacts such as noise/visual/air quality and the removal of an area of woodland.

3.1.16 It is accepted that this may be the case, but it is considered that in order to construct a bridge in the currently proposed location, over a widened A19 Expressway standard three-lane dual-carriageway highway link and successfully land the structure on the eastern side of the SRN, that Washington Road would also require horizontal/vertical re-alignment. This would likely result in similar environmental impacts to properties fronting Baltmore Avenue (such as noise/visual/air quality) and the removal of an area of woodland which currently acts as a visual screen for these properties.

3.1.17 If a bridge is proposed to the southern boundary of the IAMP AAP site, the alignment of the tie-in roads on either side of a bridge and the limited space available, will require that the design speed is set as the minimum permissible to allow a suitable vertical bridge alignment to be achieved. It must be noted, however, that vehicular speeds are currently low at this location due to the horizontal alignment of Washington Road and the signalised nature of the intersection with Ferryboat Lane.

3.1.18 Additionally, it is noted that the Council's response acknowledges that a new bridge should be sufficiently wide enough to accommodate an A19 Expressway standard, three-lane dual-carriageway highway link. A visual inspection of the most recent design, made publically available, appears to demonstrate that the proposed bridge structure will only cater for the existing A19 two-lane, dual-carriageway alignment and configuration. It is considered that it will be challenging to accommodate both a new bridge structure and future A19 widening to accommodate 6 lanes, a central reserve and the required clearances to the bridge structure in the currently proposed location.

3.1.19 We maintain that, despite the Council's recent comments provided in the SYSTRA Transport Note relating to the bridge design proposals and alignment, that significant additional work is required to ensure that a proposal is achievable. It must also be reiterated that our professional opinion remains that the Council's technical analysis which has been made publically available does not provide sufficient evidence to actually prove that a new bridge structure is even required. It may be prudent for the Council to ensure that **deficiencies in the supporting evidence base** are resolved prior to further consideration being given to the exact location of infrastructure, which may not be required to facilitate the effective delivery of the IAMP AAP site.