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KENT SCIENCE PARK,
SITTINGBOURNE

Transport Considerations

Client: The Five Parishes Opposition Group

Project No. 09-023
August 2009

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SITTINGBOURNE**

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DOCUMENT CONTROL SHEET

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1 INTRODUCTION

1.1 This report has been prepared by Odyssey Consulting Engineers (OCE) on behalf of The Five Parishes Opposition Group. It has been produced subsequent to a review of OCE's "*Transport Appraisal Summary and Critique*", by JMP Consultants, entitled "*Response to OCE Critique*" produced in May 2009, together with the preparation of a revised Travel Plan.

1.2 As suggested by its title, the OCE report referred to above constituted a review, on highways and transportation grounds of supporting documentation for two planning applications at the existing Kent Science Park (KSP) in Sittingbourne, Kent, namely the "4 Hectare" site expansion and the "Phase Two Technology Units" development. The JMP report, comprised a rebuttal of the OCE report.

1.3 This report assessed whether JMP have satisfactorily addressed all of the concerns raised in our critique. In our view they have not done so and a number of concerns remain valid.

1.4 In line with the above, **Section 2** of this report considers the following key issues in more detail:

- Impact on the local highway network;
- Pedestrian/ cycle/ bus linkages to the KSP site;
- Travel Plan measures and modal shift targets;
- Policy compliance.

2 TRANSPORT APPRAISAL – KENT SCIENCE PARK

Impact on the Local Highway Network

Broad Oak Road junction with Ruins Barn Road

2.1 OCE's March 2009 critique made reference to Tables 7.6 and 7.15 of the TA for the KSP application, which set out the results of capacity analysis for the 2013 traffic flow scenario at the Ruins Barn Road / Broad Oak Road junction, both with and without the addition of development traffic. It was evident from the PM peak results that the ratio of flow to capacity (RFC) on the minor arm of the junction (i.e. Broadoak Road) was 1.111 at the base scenario and 1.408 at the "with development" scenario. The resultant queue, presented in passenger car units (PCU) indicated that queues of 36 PCU's would be present at 2013 without development, rising to 139 PCU's with development. The OCE report contended that the above increase in delay at the junction constituted a material change and that in the absence of any mitigatory measures at the junction it would be reasonable to assume that many drivers would, when confronted with a 140-odd vehicle queue, simply turn right out of the site access and filter through the country lanes to the south and east of KSP, in effect "rat-running". The OCE report pointed out that the nature of the roads in question were narrow, having limited visibility and with typically high speed limits, which made them unsuitable for any significant intensification of traffic levels from a road safety and environmental view point.

2.2 The JMP rebuttal on this issue highlighted the fact that the capacity analysis software utilised for the assessment of the priority junction in question, namely PICADY, is recognised as becoming "unstable and difficult to predict once an RFC of 1 is exceeded by a significant margin". As such, JMP contend that the queue value of 139 PCU's should not be considered a precise reflection of the number of vehicles which would materialise. The rebuttal also queries OCE's contention that owing to the excessive delays due to the queue at the considered junction, that a proportion of drivers would likely proceed in a southerly direction from the Science Park (via a right turn

from the site access), in order to avoid the excessive queue. We deal with these issues, in order, below.

2.3 Whilst it is accepted that the queue lengths, presented by TRL junction capacity analysis software PICADY and ARCADY, do experience rapid growth at RFC values in excess of 1, the results in this case clearly indicate to the engineer that the junction would be overloaded with the addition of development traffic. If the degree of overload predicted by PICADY is disputed by the parties, it is deemed appropriate to consider the potential delays at the junction considered here owing to the development proposals, from first principles.

2.4 The PM peak traffic generation at the KSP, owing to the existing operations plus development proposals, is presented in the original TA as 664 two-way movements, with 596 vehicles departing the site and 68 arriving during this peak period.

2.5 It is accepted that all movements allocated to a peak hour period are not uniformly spread across the hour. It is for this reason that PICADY and indeed other traffic modelling software, synthesize a peak within the considered period to reflect "real conditions". PICADY, assumes that 27.5% of hourly traffic movements occur respectively during the second and third quarters of the considered hour, whilst the first and fourth quarters each accommodate 22.5% of the total hourly traffic. Application of this scenario to the 596 departing vehicle movements at the KSP during the PM peak, results in the following traffic movements per considered period:

- 1st and 4th quarter: 134 vehicles/ 15 minute period;
- 2nd and 3rd quarter: 164 vehicle/ 15 minute period.

2.6 Consideration of the peak period flows presented above, namely 164 vehicles per quarter, results in the following "flow values":

- 11 vehicles per minute;
- 1 vehicle every 5.5 seconds.

2.7 We can establish from the PICADY analysis already carried out by JMP for the base (without development) PM peak scenario that the predicted delay per vehicle turning right into Ruins Barn Road during the busiest 15 minute period is 3.96 minutes. Even if the precise results of this test are now disputed by JMP it nonetheless gives us a good indication of anticipated delay during peak conditions. It is common sense therefore that an input rate of 5.5seconds/ vehicle and an output rate of 3.96 minutes/ vehicle would lead to the rapid build up of queuing traffic at this junction. We contend therefore that in the absence of a significant improvement in the capacity of the junction, the proposed development would lead to either a worsening of roads safety conditions due to drivers taking additional right turning risks or an increase in rat running traffic, or both.

Junction of Ruins Barn Road/ Cromer Road/ Tunstall Road/ Woodstock Road

2.8 The original TA, in addition to providing capacity assessment results for the above junction, assessed the operation of an additional 8 junctions in the vicinity of the Science Park. The baseline flows for the considered junctions were extracted from the 2003 Sittingbourne SATURN model, which presented the results of future assessments relevant to 2011, 2016 and 2021.

2.9 The SATURN model was validated in 2007 via the collection of traffic survey data at key junctions included within the modelled area. As reported in the TA, the results of that exercise “demonstrated that the predictions of the SATURN model were sufficiently consistent with those from the new data for the model to be considered robust.”

2.10 It is our understanding that the Sittingbourne “do minimum” SATURN model has been developed to reflect traffic conditions with the Local Plan development assumptions added and without the Northern Relief Road. Whilst the precise dates of the model may not precisely reflect actual implementation dates, it nonetheless represents network conditions with future “planned” development in place, and is therefore in our view relevant.

2.11 2013 flows, utilised in the capacity analysis for the TA, were derived by means of the 2011 SATURN flows, which were factored up by means of TEMPRO.

2.12 Two Technical Notes, dated 16th and 22nd July 2009, have subsequently been prepared by JMP which re-address the analysis of the junction considered here, by utilising flows obtained by means of a turning count survey conducted during the AM peak period on the 10th July 2009. As highlighted by the Notes, the survey recorded significantly lower flows than that predicted by the SATURN model. Not surprisingly, use of the 2009 survey results in the capacity analysis, yielded significant improvements relating to the operation of the assessed junction, where a maximum RFC of 0.689 relevant to Cromer Road, was recorded over this assessment period.

2.13 It is our contention that the above methodology is flawed, owing to the reasons set out below:

- The SATURN model has been developed to take into account relevant “local” growths in traffic, as well as the effects of such additional traffic on routeing within the modelled area. As such the fact that existing/observed flows do not reflect the flows predicted in the wider traffic model needs to be treated with caution, particularly in view of the 2007 validation of the model previously referred to in this report. It is additionally correct to note that the SATURN model takes into account development aspirations over a period of time, which even if not realised within the predicted period of the model, likely only represents a delay in the assumptions, and hence predicted flows.

Rat Running

2.14 In the response to the suggestion made by OCE, that the delay arising from the above considered queues at the junction of Ruins Barn Road and Broad Oak Road would encourage drivers to use the existing network of rat runs to the south of the site, via narrow country lanes, JMP have indicated

that no evidence has been offered to support this assertion, “other than the view that drivers will not wish to wait” at the junction in question.

2.15 Whilst OCE have not performed a technical analysis or survey relating to the extent of rat-running on the rural lanes in the vicinity of the KSP, it is relevant to again note that the Highway Authority’s concerns relating to this issue were highlighted in the OCE critique, based on minuted comments made by KCC officers as part of JMP’s scoping discussions for the proposed expansion at the site. These comments were reported in the minutes contained in the JMP TA, where advice was sought from the Highway Authority relating to *“whether a proposed scheme which improved flow to and from the minor arms would be compatible with KCC policy in that it would in principle make journeys easier for “rat runners” using the rural lanes to the east and west to avoid the town centre”*.

2.16 Nonetheless, consideration has been given to the potential length of the delay caused by the operational restrictions at the junction of Broad Oak and Ruins Barn Road. The consideration of the PICADY analysis presented for this junction has indicated that the Mean Arriving Vehicle Delay during the last quarter of the PM peak hour can be expected to be in excess of 16 and a half minutes. Although it has been asserted by JMP that the PICADY analysis results for this junction is likely to present an overestimate of the queues, it is considered that even a delay of significantly less than the time presented above will be sufficient to cause drivers to consider an alternative route to that presented in the TA, that is, via Ruins Barn Road. In order to test the reasonableness of this assumption, alternative routes have been considered below in terms of journey time.

2.17 For drivers proceeding towards Sittingbourne, the alternative option exists to proceed from the site, via a right turn, in a south-easterly direction towards the junction of Broad Oak Road and Bottom Pond Road, and then in a northerly direction towards Sittingbourne via Highsted Road, and Bell Road. A consideration of the distances to Sittingbourne Town Centre (measured to High Street) are as follows:

- Via Ruins Barn Road: 3.4km;
- Via Bottom Pond Road: 5.7km.

2.18 It is also relevant to note the distance via each of the above routes to the junction of Bell Road and Highsted Road, which is where these routes converge. These are as follows:

- Via Ruins Barn Road: 2.4km;
- Via Bottom Pond Road: 5.1km.

2.19 Although observed on site, details of the existing traffic conditions on Bottom Pond Road as well as Highstead Road are not known. It is reasonable to assume, based on the existing traffic values presented in the JMP TA for Ruins Barn Road, that these semi-rural lanes would enable an average speed of 25Mph. This journey, would therefore have a duration of approximately 7 minutes, which when viewed in light of the previously discussed delay at the junction of Broad Oak and Ruins Barn Road, would make the longer route attractive at peak periods for certain commuters.

2.20 As such, it is deemed reasonable to assume that when faced with the significant delay caused at the Broad Oak Road / Ruins Barn Road junction owing to development traffic that it is a viable, and indeed attractive option for drivers to proceed via alternative routes towards Sittingbourne.

Footway and Cycle Linkages to KSP

2.21 It has been acknowledged, both in the original TA as well as the subsequent rebuttal document, that "limited" (or indeed non-existent) pedestrian linkages exist at KSP, both in terms of existing facilities, as well as post-development, with no facilities available in the southern section of Ruins Barn Road or Broad Oak Road. The JMP rebuttal, at paragraph 2.42 admits that "walking is unlikely to play a significant role in modal shift at KSP". It nonetheless goes on to report, based on recent employee post code surveys, that 4.5% of employees at KSP live within the generally recognised 2km maximum walking distance cordon of the site. It remains our contention that

even this relatively small proportion of employees at KSP does not in reality represent the “potential base” for this mode of travel, owing to the lack, or indeed complete absence, of pedestrian facilities linking the surrounding urban areas and the KSP. Both the original TA, as well as the rebuttal document highlight the pedestrian provision within the boundaries of the KSP, which are deemed to be at best irrelevant in terms of access to the site via this sustainable means of transport as required by national, regional and local policy.

2.22 In terms of cycle linkages to the site, the rebuttal refers to improvements on Ruins Barn Road and Broad Oak Road which are designed to manage traffic speeds, which in turn would “provide benefits to cyclists and potential cyclists, for whom safety concerns are known to be a significant factor in the decision to cycle or not.” Based on the above, OCE’s comment in the critique, that the development did not commit to any improvements to cycle facilities, is refuted.

2.23 It is recognised that safety concerns do have a bearing on the decision of some cyclists regarding their mode of travel, and as such any significant improvements to the relevant roads in terms of safety could be viewed as a positive factor in influencing a shift to this mode of travel. The proposals set out in the TA, which seek to manage traffic speeds in Ruins Barn Road to the south of the junction with Cromer Road and Tunstall Road are as follows:

- Provision of a vehicle activated sign displaying the 30mph maximum speed limit, approximately 400m to the south of the junction with Cromer Road and Tunstall Road;
- The provision of 30mph gateway signs as well as appropriate carriageway markings, as well as the relocation of the existing 30mph transition point, to a point 50m further south.

2.24 In addition to the above, the TA proposed improvements at the existing junction of Ruins Barn Road/ Cromer Road and Tunstall Road, in the form of road markings which formalise the turning facilities at the junction. The proposals also recommend the provision of a pedestrian refuge island to the

north of the junction. It is not evident from the TA, what the extent of works on Broadoak Road are, as referred to in the rebuttal.

2.25 Subsequent to consideration of the proposed improvements presented in the TA (and summarised above), in terms of the improvement of cycle linkages to the site, it remains the contention of OCE, that cycling remains an unattractive option for employees. This is owing to the lack of cycle facilities in the form of dedicated cycle lanes linking the site to the main trip originating areas as well as the fact that cyclists would have to make use of narrow lanes, in conjunction (and potential conflict) with motor vehicles, in order to access the site. Furthermore, congestion at the Broad Oak junction would make conflict worse for cyclists.

2.26 In view of the above, the fact that approximately 31.0% of existing staff live within the recognised 5km “cycle catchment” of the site does not, in our opinion, constitute a reasonable base when considering a potential shift to this mode at the site. This is borne out by the existing modal share of 1.7% for cyclists as recorded by the May 2007 staff survey (which assessed a sample of 116 staff). Subsequent surveys undertaken in January 2009 at the site access indicated that 0% and 0.8% of all movements recorded between 7AM and 7PM were respectively via pedestrian and cycle modes of travel.

2.27 The fact has previously been highlighted, in the OCE critique, that buses serving the development will be subjected to significant delays at the Broad Oak junction. It remains our contention that this will be the case and that no alternative route exists for these services.

Travel Plan Targets

2.28 It is at this stage interesting to note that the modal share target presented in the TP for the KSP, relevant to “sustainable modes (walking, cycling bus and train)” has been set as 10% for staff and 15% for visitors. This is in addition to the proportion of KSP staff which the Travel Plan indicates are earmarked to shift from Single Occupancy Vehicle (SOV) to car-sharing, which is as follows:

- % of employees registered with Kent Car Share: >25%;
- % of employees who “actively” car share: >10%.

2.29 Whilst we recognise the positive effect that a well prepared and relevant travel plan can have on travel behaviour at an employment site, it is our contention that the targets across all modes remain optimistic.

Policy Compliance

2.30 Although general sustainable transport policy is quoted in detail in the OCE report, specific reference is also made to Policy B25 of the Swale Local Plan 2008, which states that the full potential for expansion of the site will need to be “*considered in detail by, and set out in, a Master Plan to be agreed by the Council.*” This Master Plan would address the following matters:

- The overall development footprint and phasing of expansion;
- A schedule of uses that will be permitted on the current and expanded site;
- Implementation of works to improve the transport network, as identified by a completed Transport Assessment together with a Travel Plan to minimise car journeys and maximise use of other transport modes.

2.31 As additionally highlighted in the OCE critique, Policy B25 goes on to state that pending the preparation of the Master Plan, that planning permission will be granted for “limited expansion” of the site outside of the current site boundary provided that it is demonstrated that “*the proposed development is not more appropriately undertaken within the existing boundaries of the site*”, and that the “*proposed development can be satisfactorily served by the existing transport network and any necessary improvements to that network as identified by a Transport Assessment together with a Travel Plan to minimise car journeys and maximise use of other transport modes.*”

2.32 No reference to this policy is made by the rebuttal, and as such it is assumed that no master plan exists for the site. It is considered that this is a significant oversight and it therefore remains our view that the above quoted criteria have not been met.

3 CONCLUSIONS

3.1 This report has been prepared by Odyssey Consulting Engineers (OCE) on behalf of The Five Parishes Opposition Group in order to critically review the JMP report entitled "*Response to OCE Critique*" produced in May 2009.

3.2 It is considered that fundamental concerns relating to each of the considered issues, listed below, still remain:

- Impact on the local highway network;
- Pedestrian/ cycle/ bus linkages to the KSP site;
- Travel Plan measures and modal shift targets;
- Policy compliance.

3.3 In view of the above, it is our contention that the development proposals at the KSP will have a detrimental effect on the surrounding highway network, and are in conflict with sustainable transport policy. As such the proposals should be resisted.