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Date: 10th October 2019
Your ref: DMPA/2019/0948
Our ref: 19168-2019

Dear Sir or Madam,

Ref: Objection – Planning Application DMPA/2019/0948 Axis 50 (Formerly known as Burnaston Cross), Land at SK2929 1430, Etwall Road, Willington, Derby

On behalf of Willington Parish Council, Connect Consultants has reviewed the Transport Assessment (TA) and associated information prepared by BSP Consulting, submitted by Brackley Property Development Ltd as part of the planning application for development of 'Axis 50', near Willington, South Derbyshire.

This is with the aim of ensuring that the traffic and transport impacts of the proposed development have been comprehensively assessed and that there is sufficient information to demonstrate that the operation and safety of the highway network will not be severely affected.

This review is undertaken in the context of the National Planning Policy Framework (NPPF), which states at paragraph 108,

"In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b) safe and suitable access to the site can be achieved for all users; and

c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree."

NPPF paragraph 109 states,

"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."

In terms of local transport planning policy, as set out in the BSP TA paragraph 2.15, South Derbyshire Local Plan Policy INF2 states,

"i) Planning permission will be granted for development where: a) travel generated by development, including goods vehicle movement, should have no undue detrimental impact

upon local amenity, the environment, highway safety, the efficiency of transport infrastructure and the efficiency and availability of public transport services."

Our review has identified a number of areas of concern; these matters form the basis of the formal objection to the planning application, on the basis that the proposed development has not been sufficiently considered nor adequately assessed.

In particular the impact of the proposed development on the village of Willington has not been sufficiently or comprehensively assessed, and the proposed mitigation of that impact is not adequate to make the proposed development acceptable.

The remainder of this letter sets out our concerns.

1) Development Traffic Attraction

The predicted number of additional vehicle trips through the village of Willington is not reliable or realistic because the traffic attraction of the proposed development traffic is underestimated in the TA.

The TA refers to the industry-standard TRICS database to predict the number of vehicle trips that will be attracted to/from the proposed development; for the proposed 25,000sqm of B1c/B2 land uses, the TA uses the TRICS land-use category *C - Industrial Unit*.

The TRICS definition of this category is "*Single industrial building, used by one organisation. May be light or general industry.*" The trip rates for this category are derived from survey sites comprising single units occupied by a single organisation.

A more appropriate TRICS category, which would better represent the proposed 25,000sqm of B1c/B2 land uses, is *D - Industrial Estate*, which is defined by TRICS as "*A number of industrial buildings at the same site*". Category *D - Industrial Estate* typically has higher trip rates than category *C - Industrial Unit*.

It is noteworthy that during the applicant's pre-application scoping discussions with Highways England (HE) and Derbyshire County Council (DCC), as provided in TA Appendix B, the first *Transport Assessment and Travel Plan Scoping Note (BC-BSP-ZZ-XX-RP-D-0001-Scoping_Note)*, written by BSP, proposed to use the TRICS category *D - Industrial Estate*. In *Scoping Note 02 - Trip Generation & Distribution*, BSP changed the category to *C - Industrial Unit* without explanation or justification, and the TA was completed on that basis.

In addition, BSP has not filtered the TRICS survey sites to ensure that the data is representative of the proposed development in terms of the local population surrounding the site.

Within one mile of the development site there is little more residential land than the village of Willington, with a 2011 Census population of 2,864. Within a five-mile radius of the site, the land is predominantly undeveloped rural land.

The trip-rate data used in the TA is drawn from TRICS survey sites with populations of up to 25,000 within one mile, and up to 500,000 within five miles, i.e. a much greater local population than the proposed development.

As the proposed development site has a small local population, it is likely that many of the site's future employees will travel greater distances than those recorded in the TRICS data, which they will be more likely to do by driving, and therefore the proposed development will likely attract more vehicular trips than the TA's TRICS data suggests.

At paragraph 6.4 of the TA, BSP states that the total proposed development (25,000sqm B1c/B2 plus 75,000sqm B8) will generate a total of 279 vehicular trips in the AM peak hour and 199 vehicular trips in the PM peak hour.

Connect Consultants has undertaken its own TRICS multi-modal trip rate assessment, using category *D - Industrial Estate* to represent the proposed 25,000sqm of B1c/B2 land uses, and filtering the survey data to remove sites with large local populations, to better reflect the local population characteristics of the proposed development.

The results of this more representative TRICS assessment are predicted vehicular trips of 391 in the AM peak hour and 297 in the PM peak hour, an increase of 112 (40%) and 98 (49%), respectively, from the vehicle trip numbers used in the TA.

2) Development Traffic Distribution

The predicted distribution of the proposed development traffic, being the roads on which the development traffic is expected to travel, is derived from 2011 Census data of the origins and destinations of local residents' commuting journeys.

The TA is ambiguous and potentially incorrect in this respect, in that it states at paragraph 6.12;

"...in accordance with existing origin-destination travel to work information for car drivers from the 2011 Census for the Middle Layer Super Output Area (MLSOA) 'South Derbyshire 003', which contains the proposed development site."

The origin-destination data should be used in this case to identify the likely origins of car drivers travelling to the proposed development, not car drivers from the local MLSOA, as stated in the quote from the TA above.

Notwithstanding the above, the MLSOA South Derbyshire 003, which contains the proposed development site, is predominantly rural, with only small areas of residential land uses within it.

A far more representative MLSOA is South Derbyshire 001, which lies adjacent to the proposed development site and which includes the Toyota site; a major industrial employment site. Data from South Derbyshire 001 would provide a more reliable indicator of the prevailing travel patterns to a large employment site which uses the same travel node (A38/A50 junction) as the proposed development would do.

3) Junction Modelling

Willington

The TA acknowledges that there are existing capacity concerns in the village of Willington at the double mini-roundabout junctions of the B5008 / A5132, and Chapter 7 of the TA includes a junction capacity assessment to assess the impact of the proposed development traffic on its operation.

The assessment is based on traffic turning count surveys undertaken on 1st May 2018, the raw data from which is included in the TA appendices.

The junction comprises two mini-roundabouts only 15m apart, with zebra crossings on the road linking the roundabouts, and on the A5132 only 18m west of the junction.

The Junctions 9 computer software has been used to assess the development traffic impact in both 2020 and 2028.

While Junctions 9 is the industry-standard software for assessing the capacity and delay at roundabout junctions, and while it includes a module for assessing mini-roundabouts, it is not a suitable tool for modelling a junction as complex as this one.

Junctions 9 is not sophisticated enough to be able to model the interaction of the queues between these two junctions, with the potential for large vehicles blocking flow through the railway arch, nor is Junctions 9 capable of modelling how the zebra crossings impact on the capacity, flow and delay of traffic through the junctions, especially given the proximity of Willington train station and the likely heavy and spiked pedestrian flows associated with it.

This limitation of the software is identified in the Junctions 9 modelling output reports which are provided at TA Appendix P, which highlight a warning about the reliability of the results:

"If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled."

Furthermore, the May 2018 traffic survey data, on which the junction modelling is based, does not include queue length surveys, nor does it include a survey of pedestrian movements across the junction's zebra crossings.

Without these two pieces of information, there is no way of knowing whether the computer model of the junctions accurately reflects the real-life operation of the junctions. The impact of the addition of the proposed development traffic in comparison to the 'without development' scenarios cannot be relied upon.

A38/A50

This junction, which is approximately 1.2km north of Willington, is shown in the TA to receive significant levels of traffic growth and committed development traffic.

The assessment of the A38/A50 junction has been undertaken using VISSIM microsimulation modelling.

The modelling results, which are included in a Technical Note in TA Appendix M, contain errors, for example errors in the reporting of the 'warm-up' period and AM peak. This casts doubt over the reliability of the modelling inputs, and consequently the overall modelling results.

Notwithstanding the doubt over the modelling inputs/outputs, the results show that the junction will be over capacity in 2020 with and without the proposed development, with queue lengths on some approaches predicted to extend beyond their 500m modelled length. This indicates that there is 'unreleased' traffic within the model, being traffic that is prevented by capacity constraints from entering the modelled road network.

The number of unreleased vehicles is omitted from the TA, nonetheless, in such circumstances it is likely that drivers will reroute/divert via other routes to avoid the A38/A50 junction, and given its proximity, this is likely to have an impact on Willington village.

The TA states that future improvements to the A38/A50 junction will result in consequential improvements in the centre of Willington, but there is no evidence for this because the VISSIM model does not include Willington.

4) Proposed Mitigation of Traffic Impact

Notwithstanding the underestimation of the development traffic attraction, the potentially unrepresentative traffic distribution, and the inadequate modelling of the development traffic impact in Willington, the TA proposes mitigation of the development traffic impact in Willington village only via 'soft measures' in the proposed Framework Travel Plan.

The Framework Travel Plan optimistically estimates that a 10% reduction in single-occupancy car traffic through Willington will be realised by way of its measures and initiatives, however, the effectiveness and results of travel plans are never guaranteed or enforceable.

Paragraphs 7.43 and 7.44 of the BSP TA state that the applicant is committed to improving bus services to help reduce traffic through Willington, but there is no detail or commitment offered as to how this will be delivered, nor how future employees and existing local residents will be incentivised to use the bus to travel through a congested network rather their own cars.

Further, the email correspondence between BSP and the local bus operator, provided in TA Appendix I, does little to provide assurance that the proposed service improvements can or will be delivered.

Even if a 10% reduction of the TA's underestimated development traffic is achieved, let alone 10% of a more realistic traffic assessment, that would not remove the severe impact on the already heavily trafficked junctions in Willington with known capacity problems.

The TA makes reference in paragraph 7.38 to traffic modelling/assessment of a potential improvement scheme in Willington using traffic signals. However, in the same paragraph, the signalisation scheme is dismissed as being not effective, without providing any evidence or justification for not offering it as a mitigation measure.

The BSP TA states that the applicant has agreed with Highways England that the development traffic impact at the A38/A50 requires mitigation, and that the details of the mitigation scheme can be dealt with at a later stage via a 'pre-occupation' planning condition.

This is a surprising agreement, which leaves the safety and operation of this major junction on the Strategic Road Network in a vulnerable position. If, in the fulness of time, it transpires that the required mitigation cannot be delivered, the village of Willington will likely bear the brunt of the future traffic rerouting via its roads.

In the interest of ensuring that this junction is not compromised by the impact of the proposed development, suitable, effective mitigation must be secured before the development can be commenced.

Summary

1. The predicted number of additional vehicle trips through the village of Willington is not reliable or realistic because the traffic attraction of the proposed development traffic is underestimated in the TA. A more representative TRICS land-use category should be used, and the data should be filtered to remove sample sites with a large local population.
2. The predicted distribution of the proposed development traffic is derived from 2011 Census data from South Derbyshire 003, an area that is not representative of the proposed development. Data from South Derbyshire 001 would provide a more reliable indicator of the prevailing travel patterns to a large employment site
3. The development traffic impact on the double mini-roundabouts in Willington village has been modelled in inadequate computer software, without pedestrian flow data, and without validation against observed queue lengths. The reported impact of the proposed development traffic is therefore unreliable.

The VISSIM microsimulation modelling report of the A38/A50 roundabout contains errors, casting doubt over the reliability of the results. Nonetheless, the results show excessive queue lengths on the junction approaches, which will likely result in traffic rerouting via Willington. The TA states that future improvements to the A38/A50 junction will result in consequential improvements in the centre of Willington, but there is no evidence for this because the VISSIM model does not include Willington.

4. The applicant proposes mitigation of the development traffic impact in Willington village only via 'soft measures' in the proposed Framework Travel Plan, the effectiveness and results of which are never guaranteed or enforceable.

A potential improvement scheme in Willington using traffic signals is acknowledged, but is dismissed as being not effective, without providing any evidence or justification.

The development traffic impact on the A38/A50 junction is proposed to be addressed at a later stage via planning condition.

To ensure that the A38/A50 junction and the village of Willington are not compromised by the impact of the proposed development, reliable and robust modelling must be undertaken, and suitable, effective mitigation must be secured before the development can be commenced.

Conclusion

Willington Parish Council wishes to make a formal objection on the basis that the proposed development has not been sufficiently considered nor adequately assessed.

An inadequately assessed traffic impact from this scheme could have wider implications on Willington and the surrounding villages, and on the Strategic Road Network.

We consider that South Derbyshire Council cannot make a sound and informed decision on this planning application based on the submitted information, and that further information is required from the applicant to demonstrate that the proposal satisfies the NPPF and Policy INF2 of the Local Plan.

To ensure that the traffic and transport impacts of the proposed development have been comprehensively assessed, and that suitably effective mitigation is provided, the applicant must provide additional information, including the following:

- The traffic analysis must be revisited with more realistic trip rate data and more robust distribution assumptions.
- The modelling of the double mini-roundabout junctions in Willington must be undertaken using software that is capable of modelling the complex interaction of traffic flows, queues, and uncontrolled pedestrian crossings, and it must take account of traffic rerouting from the A38/A50 junction. This should be undertaken using an extended version of the A38/A50 VISSIM model, and it should be based on robust and representative traffic survey data.
- Mitigation measures should be revisited in light of more realistic modelling results, including detailed and transparent consideration of engineering solutions in addition to travel plan measures.

Yours faithfully

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