Technical Note 5002596/126

Wolverhampton Airport Expansion

Transportation Review

October 2004

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<th>DOCUMENT REF: Technote FINAL Oct 04.doc</th>
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Revision

Purpose Description

ATKINS
INTRODUCTION

Atkins Transport Planning have been commissioned by the Highways Agency and Staffordshire County Council to undertake a review of the Transport Assessment (TA) prepared by Capita Symonds Ltd in support of the June 2004 planning application for the provision of a new runway, engine testing facility (ETF) and removal of condition to enable jet aircraft to use Wolverhampton Business Airport. The TA forms chapter 7 of the supporting submission. Note that Atkins has also been appointed by South Staffs District Council to review the Environmental Impact Assessment submitted in support of the proposals. This Technical Note has also been provided to the District Council.

The proposals would expand the operation of the airport to handle 0.5 million commercial passengers per annum (0.25 million arrivals/0.25 million departures), with an assumed opening of the expansion proposals in Spring 2006.

Wolverhampton airport is located in a rural local location south of Halfpenny Green and north east of Bobbington in South Staffordshire. The airport was constructed in the late 1930’s for military use and has been used for private flying since the 1960’s. The airport currently operates as a fully functional airport to meet the business and recreational needs of the area.

This review is referenced to section numbers in the Capita Symonds report and elements of data are reproduced in this note.

TRANSPORT POLICY CONTENT (TA Section 7.2)

The TA provides a factual review of all relevant policy. Although no overall conclusion is drawn the review implies a general support of the expansion of the airport. Atkins has undertaken an independent review of planning policy background, set out below with highly relevant statements underlined.


The Government White Paper ‘The Future of Air Transport’ makes reference to development of Wolverhampton airport, stating that any proposal to develop Wolverhampton business airport should be determined locally.

Paragraph 9.30 of the White Paper states that “Wolverhampton airport should continue its role of serving business and general aviation and that it could be capable of delivering
commercial services on a limited scale, but should only do so in line with regional planning and transport priorities, and the scale of the development at the site must take into account the constraints imposed by the lack of strategic road access”.

In 2002, prior to the White Paper the Government undertook consultation on the potential expansion of airports in the Midlands. Published in December 2003, “The Future Development of Air Transport in The UK: A Report on the General Public Responses to the government’s consultation” reported that of the total 137,000 responses and petition signatures received more than 27,000 (including some petitions) were in respect of Wolverhampton Business Airport. The consultation report states “There was fierce resistance to further development.”

The Airport White Paper states that any proposal to develop Wolverhampton Airport should be determined locally.

Regional Planning Guidance (RPG 11) for the West Midlands

At a regional level Policy T14 (airports) of RPG Note for the West Midlands states that “The further development of other airports and airfields in the Region providing complementary services to those at Birmingham International Airport, including Coventry Airport, will be supported providing environmental impacts are minimised and proposals can be justified following rigorous environmental assessment.”

In RPG 11 paragraph 9.87 in discussing the general aviation needs of the Region consideration is given to the use of smaller airfields across the Region “…which are generally located in rural areas. Development of these facilities will need to be accompanied by appropriate access improvements and controls”.

Panel Report of the RPG Examination in Public (EIP) - October 2002:

In October 2002 a Panel Report on the RPG Examination in Public was produced considering how Policy T14 should be worded with respect to issues arising from regional airports planning and makes specific reference to Wolverhampton Business Airport:

The report concluded that “In relation to Wolverhampton Business Airport, we are concerned by the rural location of this airport, which might result in long journeys for users and employees; and its distance from regular public transport services which would increase reliance on the private car. In our view it is not clear that Wolverhampton Business Airport could fulfil a regionally significant role in a sustainable manner, and therefore it should not be referred to specifically in draft RPG. The retention of a reference to other airports and airfields in Policy T14 would be sufficient to cover future development at Wolverhampton Business Airport.”

PPG13


Annex B states that “new connections to trunk roads or the intensified use of existing ones will be limited to junctions with other main roads, service areas, maintenance compounds and other major transport infrastructure facilities such as airports”.

The Highways Agency, in line with its strategic aim to maintain, operate and improve the trunk road network in support of the Governments integrated transport and land use policies, will work in active partnership with Government Offices, regional planning bodies, local
authorities, and transport providers to promote integration with other modes and encourage sustainable transport options. In particular, the Highways Agency will:

1. "Encourage local planning authorities to consider public transport alternatives to access to new developments by car"; …

South Staffordshire Local Plan – Deposit Plan November 2003:

Chapter 6 of the South Staffordshire Local Plan (November 2003), discusses the requirements of a Central Government consultation document which would be likely to include a formal environmental impact assessment.

Policy TR11 (Airports) states that proposals for the development of new airports, proposals relating to the use of existing operational airfields or heliports, and the provision of new or expanded facilities for private business and recreational flying will be considered in relation to an assessment of:

a) the compatibility and or conflict with other policies in the Local Plan;

b) the impact on the character and amenity of the countryside;

c) the impact on the amenities of nearby residents and local settlements;

d) the impact on the landscape and nature conservation;

e) the impact on the safety and capacity of the local road system;

f) the economic and employment advantages;

g) access from the main population and employment centres in the District and County and neighbouring areas; and

h) the existence of suitably located alternative flying facilities.

In Chapter 2 – Green Belt and Open Countryside, outlines the policies that will apply to the Wolverhampton Airport Policy Area, these are designated as WA1-WA5 and deal with the use of buildings, new building and the use of land should the airfield close.

Atkins Conclusion

The raft of policy background all recognises the opportunity for growth in air transport but as part of a fully integrated transport strategy. It is evident from the consultation process that there is little support in the West Midlands for further development at the Wolverhampton Airport. Policy also recognises the difficulties of the location in terms of providing good accessibility and it is fair to say that at present the only viable means of access would be via car. Access by public transport would be limited to bus however, the physical constraints within the existing approach roads raises concerns for both modes.

However, policy does not dismiss the potential for expansion and places the determination on the local authorities (White Paper). It is however clear from policy that expansion should only be permitted if the accessibility issues and environmental impact of the proposals can be properly addressed.
LOCAL HIGHWAY NETWORK (TA Section 7.3)

The site is located in a rural area to the west of Wombourne and north of Kidderminster. Figure 1 below show the location of the site in relation to the local highway network.

The nearest national strategic route is the A449 non core Trunk Road (north-south to the east of the site). The nearest local strategic network is the A454 (north east – south west to the north of the site) and the A458 (north west – south east to the south of the site). The B4176 also runs north west – south east to the north of the site.

![Figure 1 – Local Highway Network](image)

Local Highway Network (TA Section 7.4 - see also ‘Route Assignment’ 7.7.6 to 7.7.11)

Atkins has visited Wolverhampton Airport and the surrounding area and made a qualitative (at this stage) assessment of the highway network. The airport is located within a primarily rural area, situated to the west of the A449 and to the south of the A454 close to the small villages of Bobbington and Halfpenny Green. The highway network surrounding the airport site is, with the exception of the B4716 unclassified country lanes of varying standard, with narrow section of carriageway bounded by established hedgerows and vegetation.

Access to the airport is currently gained off Crab Lane, which is a single carriageway road subject to the national speed limit. The road is double yellow lined along the length of the airport site. Entrance to the airport site is gained via a single priority access, which is identified in the TA as having substandard visibility, therefore as part of the proposals a new access with ghost island priority is proposed. The existing entrance is shown in the Figure 2 below.
The TA identifies four primary routes to the airport. In Section 7.7 of the TA these are allocated in terms of attractiveness to each catchment zone determined through a gravity modelling exercise. Atkins has undertaken an initial assessment of these routes, in order to establish the viability of the existing roads to sustain an intensification of traffic in terms of safety considerations and any traffic management measures that may be required, as discussed in the conclusions to this document.

**Route 1** (from north) – South along B4176, west along Tom Lane, west along Six Ashes Road, south onto Crab Lane, airport access.

**Route 2** (from east) – West along B4176, west along Tom Lane, west along Six Ashes Road, south onto Crab Lane, airport access.

**Route 3** (from south east) – West on A458, north on Chester Road, north on Highgate Road, west on Crab Lane, airport access.
DEVELOPMENT PROPOSALS (TA Section 7.5)

A planning application for the provision of a new runway, engine testing facility (ETF) and removal of condition to enable jet aircraft to use Wolverhampton Business Airport was submitted to South Staffordshire Council on 11 June 2004.

Wolverhampton airport currently operates as a fully functional airport to meet the business and recreational needs of the area. The proposal is to implement a limited passenger service with landing and take off for jet aircraft; however this requires the airport to be brought to CAA standard. The proposal therefore comprises the construction of a new runway to the immediate north east of the existing runway 16-34. The new runway would be 1657 metres in length, of which 492 metres would comprise the runway end safety area and the emergency distance required by the CAA. The width of the new runway would be 45 metres. The existing runway would be closed once the new runway is fully operational. Part of the new runway would be sited within a triangular shaped area of land to the south, currently outside the airport boundary.
TRAFFIC GENERATION (TA Section 7.6)

The proposed expansion will provide capacity for 0.5 million passengers per annum. It is anticipated that that from the proposed aircraft movement profile that there would be 1840 passengers per day arriving or departing the airport.

Modal split used for the purpose of the TA has been based on the existing modal split for Bristol International airport, which is of similar size, access constraints and distance from the nearest urban conurbation. The assumed modal split is:

**TA Table 7-1: – Modal Split**

<table>
<thead>
<tr>
<th>Mode</th>
<th>Passengers</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private car</td>
<td>73%</td>
<td>85% (single occupancy)</td>
</tr>
<tr>
<td>Car share</td>
<td>0%</td>
<td>11%</td>
</tr>
<tr>
<td>Hire car</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Taxi</td>
<td>16%</td>
<td></td>
</tr>
</tbody>
</table>

Airport Staff

Based on the proportion of staff currently employed at Bristol International Airport it is anticipated that 229 staff will be employed at Wolverhampton airport.

Based on the modal split illustrated above this equates to 194 single occupancy vehicular trips and 25 shared vehicular trips. It has been assumed that 80% of staff will arrive/depart during the airport peak periods and the remaining 20% will arrive/depart outside of the airport peaks.

The maximum two way generation from the airport (passengers and staff) is predicted to be 123 two way trips between 18:00 and 19:00. Between 08:00 – 09:00 81 two way trips would be generated and between 17:00 – 18:00 75 two way trips would be generated.

TRAFFIC ASSIGNMENT (TA Section 7-7)

In order to identify the potential catchment area for the airport, Capita Symonds produced a one hour isochrone to/from Wolverhampton airport based on drive profiles obtained from Microsoft AutoRoute Express 1998. The catchment area was then divided into 13 zones and proportions of total trips generated were assigned to each of the zones based on distance from the airport and the area covered by urban development in each zone.

Trips were assigned as set out in TA Table 7-5 reproduced overleaf.
TA Table 7-5: Trip Assignment

<table>
<thead>
<tr>
<th>Reference</th>
<th>Name</th>
<th>Trip Assignment (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Wolverhampton</td>
<td>35%</td>
</tr>
<tr>
<td>B</td>
<td>Birmingham Central</td>
<td>17%</td>
</tr>
<tr>
<td>C</td>
<td>Burton-upon-Trent</td>
<td>5%</td>
</tr>
<tr>
<td>D</td>
<td>Birmingham East</td>
<td>12%</td>
</tr>
<tr>
<td>E</td>
<td>Leamington Spa</td>
<td>8%</td>
</tr>
<tr>
<td>F</td>
<td>Cheltenham</td>
<td>3%</td>
</tr>
<tr>
<td>G</td>
<td>Worcester</td>
<td>5%</td>
</tr>
<tr>
<td>H</td>
<td>Ludlow</td>
<td>2%</td>
</tr>
<tr>
<td>I</td>
<td>Stanton Long</td>
<td>1%</td>
</tr>
<tr>
<td>J</td>
<td>Shrewsbury</td>
<td>4%</td>
</tr>
<tr>
<td>K</td>
<td>Market Drayton</td>
<td>2%</td>
</tr>
<tr>
<td>L</td>
<td>Stafford</td>
<td>3%</td>
</tr>
<tr>
<td>M</td>
<td>Stoke-on-Trent</td>
<td>3%</td>
</tr>
</tbody>
</table>

Traffic within Zone A (airport) was further subdivided into five zones and assigned as follows:

TA Table 7-6: Local Trip Assignment

<table>
<thead>
<tr>
<th>Reference</th>
<th>Name</th>
<th>Trip Assignment (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Telford</td>
<td>20%</td>
</tr>
<tr>
<td>b</td>
<td>Wolverhampton</td>
<td>65%</td>
</tr>
<tr>
<td>c</td>
<td>Dudley</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Kidderminster</td>
<td>10%</td>
</tr>
<tr>
<td>e</td>
<td>Bobbington</td>
<td>5%</td>
</tr>
</tbody>
</table>

YEAR OF ASSESSMENT & TRAFFIC GROWTH (TA Section 7.8)

Traffic growth used in the TA has been based on TEMPRO traffic growth forecasts. The proposed airport improvements are assumed for completion by 2006. Based on 15 year forecast, assessments for 2006 and 2021 have been carried out. For the A449/B4176 assessment has also been carried out for 2011 and 2016.

The tables presented in Appendix 7-6 show that the TEMPRO growth rate has been applied to all ATC and manual count data collated as part of the TA. Our table overleaf shows the growth rates that have been applied.
TEMPO Growth Rates

<table>
<thead>
<tr>
<th></th>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>1.021</td>
<td>1.019</td>
</tr>
<tr>
<td>2021</td>
<td>1.097</td>
<td>1.104</td>
</tr>
</tbody>
</table>

It is our opinion that the unclassified roads surrounding the airport will, in practical terms have only limited opportunity for traffic growth without significant improvement. Such improvements coupled with the impact on the rural community resulting from increased traffic could be unacceptable in environmental terms.

As a sensitivity test for the Highways Agency the A449/B4176 junction should also be assessed using NRTF central growth factors.

TRAFFIC IMPACT (TA Section 7.9)

The TA provides details of the predicted traffic increase on each link for the daily peak hour on each link. The TA reports comprehensive traffic surveys carried out in March 2004; a mixture of automatic counts and manual turning counts at key junctions (TA Section 7.9.2)

Link Capacity (TA Section 7.9.5)

The surveys carried out by Symonds are the basis for capacity assessments on links calculated using TA 46/97 ‘Traffic Flow Ranges for use in Assessment of New Rural Roads’. (TA Table 7-7 reproduced at the end of this section). We would question the application of this standard as this relates to the design of new Trunk Road links. Whilst the assessment may have some relevance to the B4176 as a classified road with centre line is not appropriate for unclassified roads which do not conform to DMRB standards in terms of geometry or visibility. Note 2 of TA 46/97 Appendix D states that the calculation of ‘width factor’ is not appropriate for roads of less than 5.5 metres as is the case on Tom Lane (TA 7.4.7), Highgate Road (TA 7.4.15), and Six Ashes Road (TA 7.4.17).

Paragraph 7.9.5 of the TA refers to the Institution of Highways and Transportation “Guidelines for Traffic Impact Assessment” stating that where two way flow increase by more than 10% on a non congested link or 5% on a congested link there is a material impact. Again this general guidance on material impact does not take account of the environmental and safety issues that could arise from relatively small increases in traffic on these country lanes.

The TA shows that the proposed development will result in significant impact on the B4176/Tom Lane/Six Ashes Road/ Crab lane route (route 2) particularly west from the B4176. Improvements to the A449/B4176 signalised junction and White Cross crossroads are also identified. The TA does, however, acknowledge that improvements to the network are required and have yet to be determined with Staffordshire County Council.

<table>
<thead>
<tr>
<th>Ref</th>
<th>Location</th>
<th>Direction</th>
<th>Capacity</th>
<th>Proposed Maximum Flows</th>
<th>% of Capacity Used</th>
<th>% Increase in Flows</th>
</tr>
</thead>
</table>

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### Junction Assessments (TA Section 7.9.11)

#### A449/B4176 signalised junction

The traffic assignment presented in the TA shows that 80% of development trips would be routed through the A449/B4176 signalised junction. A LINSIG assessment has been carried out for 2006, 2011 and 2021 based on a manual classified turning count carried out on 23/03/04. It is not clear from the TA which assessment period has been reported (TA Table 7-8 and Appendix 7-9). In view of the profile of the airport arrivals and departures it may be appropriate to assess several periods through the day. We require clarification of the assessment period reported in TA Table 7-8. The following comments therefore relate only to the results as reported.

In 2006 without development the junction is at or exceeding theoretical capacity on all arms with a practical reserve capacity of -1.2%, and a maximum queue of 43.0 PCUs on the B4176 eastbound. All arms of the junction are at theoretical capacity.

The practical reserve capacity increases to -17.2% in 2021 without development. The degree of saturation is 98.8% and 103% on the A449 southbound and northbound approaches respectively, with a maximum queue of 43.8 PCUs on the A449 southbound.

The 2006 assessment results presented in Table 7-8 are questioned; queues on the B4176 eastbound are significantly higher in 2006 than in 2011, 2016 and 2021 respectively. In order to...
to verify the assessments full LINSIG outputs are required along with an explanation of the periods analysed.

The addition of development traffic results worsens the situation increasing the RFC on all arms. In order to mitigate this impact a number of improvement measures have been considered. Figure 7-9 of the TA illustrates the proposed improvements which would appear feasible.

The TA states that the proposed junction improvements will result in improvement to the operation of the junction with the addition of development traffic however no tabulation of results is provided. Full LINSIG outputs are required in order to carry out a full audit of these proposals. As a Trunk Road and in accordance with Circular 4/2001 the improvements will be required to maintain the capacity of the junction at the assessment horizon of 2021 to the same level as without the development.

**B3176/Tom Lane priority junction**

PICADY assessment of the B3176/Tom Lane priority junction has also been carried out. Appendix 7-9 of the TA states that with the addition of development traffic the junction will operate with a maximum RFC of 0.814 on the B4176 east, with a queue of 4.5 vehicles. Full PICADY outputs are required in order to carry out a full audit of this assessment.

**HIGHWAY SAFETY (TA Section 7-10)**

As raised throughout this note; In terms of safety visibility at a number of junctions in close proximity to the airport site is substandard and the geometry of the links questionable.

Existing geometries at several junctions would mean that turning movements for larger vehicles would be restricted and passing points for larger vehicles would also be a problem.

The TA reports three years of personal injury accidents in the network surrounding the airport. In Paragraph 7.10.2 Symonds recognise the need to improve the highway to address the evident poor safety record although no improvements are suggested. These are to be agreed with Staffordshire County Council and to be secured through planning obligation (we would suggest these would be better secured through Section 278 of the Highways Act rather than the Planning Act as stated in the TA).

**PARKING (TA Section 7-11)**

The TA calculates the anticipated parking requirements for the site. The parking requirement is assessed as being:

- 675 passenger parking spaces
- 125 staff parking spaces
- 800 total parking spaces

Appendix 7-10 provides details of the accumulation calculations, which assume that 73% of passengers will travel by car (assumed occupancy of 2 people). The calculations assume that there will be on average 930 passenger arrivals and departures per day and that 25% of these trips will return in the same day and will not park overnight.

The parking accumulations have been derived from the figures for Bristol Airport (hand calculations in TA Appendix 7-10). The emphasis of the calculations is on the only currently viable access to the airport which is by car. The Airport will be attractive for taxi links to the surrounding area but access by bus directly into the airport is unlikely to be practical without significant highway improvements.
PUBLIC TRANSPORT (TA Section 7.12)

Public transport information provided in the TA shows that the number 585 currently operates a service between Wolverhampton and Bobbington. Timetables provided in Appendix 7-11 show that the service operates every 2 hours between 07:46 and 15:25 (from Bobbington). Given that this service operates infrequently and on a weekday only, justification for the assumed percentage of trips (appendix 7-10 assumes 73% vehicular trips) by non car modes needs to be provided.

Services 260 and 256 operate between Wolverhampton and Merry Hill and Stourbridge respectively. Service 256 and 260 operate Monday to Friday every 20 minutes. Both these services stop in Wombourne located approximately 3.5 miles from the airport.

Significant expansion of these services, to include connection with the airport site directly would be required in order to make this service a viable alternative mode for airport staff and passengers.

WALKING AND CYCLING (TA Section 7.13)

The TA states that few trips would be made to the site on foot, although a significant number of staff live within 8km therefore cycling to work may be feasible. Paragraph 7.13.3 states that it is “…feasible that a significant number of employees could cycle to work”. Further details of the feasibility and justification for this modal share should be provided, as given the rural nature of the routes and the provision of parking on site it seems unlikely that a large number of trips to/from the site would be made by bicycle.

Overall we would conclude that the site is not sustainable in Transport terms and that significant highway improvements and commitment will be required to improve accessibility. This may need to be linked with a restriction on the available parking spaces at the airport to encourage travel by more sustainable modes.

CONSTRUCTION TRAFFIC (TA Section 7.14)

The TA states that construction traffic would comprise HGVs delivering and exporting materials to the site.

Given the rural nature of the unclassified routes surrounding the airport site and the narrow carriageways, access for HGV traffic will be problematic. The TA provides no details of improvements required for HGV traffic either associated with construction works or associated with increased passenger movements at the airport (i.e. delivery vehicles etc.).

A number of existing key junctions surrounding the site are wholly unsuitable for intensification of usage by HGV traffic. In addition to this proposed improvements at White Cross show that a small roundabout is being proposed with an ICD of 28m. This will be a key route into the site for all vehicular traffic, including HGVs however swept path analysis of this roundabout has not been provided.

The TA refers to the need for highway improvements to support the proposed expansion. If the Authority is minded to approve the expansion we would advise that these improvements should be carried out before any construction is started in order to offset the safety concerns set out in this review which would be exacerbated by the movement of heavy construction vehicles.

PROPOSED MITIGATION (TA Section 7-15)

Highway Improvements

Highway improvements are proposed at the following junctions:
- A449/B4176 signalised junction
- B4176/Tom Lane/Six Ashes Road/ Crab Lane (route 2).

The TA recognises that details of the improvements required to route 2 are to be determined with the County Council. The TA also states that a review of signage will be required. It is proposed that signing would extend from the airport to Stourbridge to the south-east, Wolverhampton to the north-east and Bridgnorth to the west. Construction traffic would also be routed along these routes.

The TA for the proposed airport expansion details potential vehicle routeings to and from site. Improvements will change the nature of these routes and it is unlikely that they will remain as country lanes in the true sense. We suggest that, should the principle of the airport expansion be accepted, all network improvements (including Public Transport access) must be developed as part of a comprehensive and cohesive access strategy in partnership with the County Council.

The Campaign to Protect Rural England (CPRE) has produced a document entitled ‘Guide to Quiet Lanes’. The guidance forms part of CPRE’s Safer Country Lanes campaign which seeks to protect country lanes and villages from the adverse effects of speeding traffic by calling for lower speed limits and widespread designation of quiet lanes.

As part of this strategy we would recommend that reference is made to the CPRE guidelines to help to ensure that nature of other minor rural roads surrounding the airport, which are not proposed as potential airport routes, are protected from the potential adverse impacts of traffic impact that could result from airport traffic seeking alternative routes. ‘Quiet Lanes’ can help make country lanes feel safer, pleasant and less intimidating to pedestrians, cyclists, horse riders and all who enjoy them, by aiming to reduce the risk of collisions and reclaim their tranquility and local character.

Measures can be taken to help deliver the aims of Quiet Lanes but these should be kept in keeping with the local character of the area. Examples include varying verge maintenance, soft landscaping, removal of road signs, road surface treatments or even planting grass in the middle of the road. Traditional traffic calming measures such as speed cushions, humps and highly visible signs may not be appropriate being more an urban area solution.

**ATKINS CONCLUSIONS**

The TA is not an easy document to interpret and there are several areas where information is not clear, disjointed, or results not fully reported.

Whilst the potential for the expansion of Wolverhampton Business Airport is recognised in the Governments Air transport White Paper and Regional Planning Guidance the difficulties of access to and sustainability of the site are clearly recognised as a concern. Determination of the proposals are clearly set out as a local issue however Policy also clearly recognises the need for accessibility and environmental issues to be addressed before the principal of expansion at the airport is considered acceptable.

Whilst the TA sets out capacity assessments and mitigation measures at junctions we will require the full model outputs before making conclusive comments on these. The TA concludes that the junctions can be improved to accommodate additional traffic generated by the expansion.
The TA does not, however make reference to the existing standard of the lanes in terms of the DMRB TD 9/93 “Highway Link Design or the suitability of alignments; a key safety consideration. Routes into and out of the airport for heavy construction and service vehicles will be particularly sensitive, as the immediate roads around the site are narrow and are unsuitable as heavy vehicles routes. Visibility at key junctions is limited and is not in line with current highway design standards. The TA does however recognise that improvements are required and that these are to be developed following consultation with the county Council.

The site is not located close to any regular public transport services; therefore the primary mode of access to the airport will be by private car. Sustainability of the site is a concern and improvements to encourage a shift to more sustainable modes would also need to be developed as part of an overall access improvement strategy.

Overall, the intensification of demand for access to the site would be problematic. From observations on site we are concerned that the increase in traffic in this rural location and the proposals necessary to accommodate this safely would have a very high impact on the highway environment (Note that Atkins has also reviewed the Environmental Impact Assessment on behalf of South Staffs Council and concluded that more work is required).

**ATKINS CONCLUSIONS SPECIFIC TO HIGHWAYS AGENCY**

Assessment of the A449/B4176 junction suggests that the junction will be close to capacity in 2006 although it is not clear what assessment period has been reported in the TA Figure 7-9 of the TA sets out a feasible improvement to the junction (summarised below) and the TA reports that this would improve capacity at the 2021 assessment horizon; however, the TA does not make clear what periods has been assessed at 2021 and the results of the assessment of the improved junction are not reported. Conclusive comments can only be made following submission of the assessment details including LINSIG output, and a clear indication of the assessment periods considered. All improvements should be shown to mitigate the impact of the development in accordance with Circular 4/2001. Analysis is based on TEMPRO growth factors; we would suggest that the Agency request a sensitivity assessment of the A449 junction based on NRTF central growth to a 2021 assessment horizon.

**Summary of Trunk Road improvements:**

- Provision of a left turn lane on the A449 northbound approach;
- Amendment to the road markings on the A449 northbound approach to reduce the length of the right turn lane and increase the length of the two lane straight on approach; and
- Provision of an indicative green arrow on the B4176 eastbound approach.

**ATKINS CONCLUSIONS SPECIFIC TO STAFFORDSHIRE COUNTY COUNCIL**

The proposed airport expansion will have a significant effect on the rural highway network and community surrounding the site as access is via unclassified lanes. Intensification of usage on these routes will have a significant impact and highway safety is a concern. Improvements to the network will be required, including assessment of HGV routes to the airport, which is currently not considered as part of the TA although it is recognised that these are to be developed with the County Council. We suggest that the feasibility of improvement and the resulting environmental impact should be fully explored and justified before the principal of the airport expansion is accepted.
We would also recommend that network improvements to be worked up with the County should be developed as part of a comprehensive and cohesive access strategy to include, public transport accessibility and traffic management to protect some lanes around the airport.

The TA proposes improvements to White Cross junction, with the provision of a mini roundabout. This solution does not appear to be wholly suitable for this location, and would be more suited to an urban location with speed limits less than or equal to 30mph. The speed limit on the approach routes is currently D-restricted.

The addition of airport traffic will have an impact on the junction of Chester Road/A458 located to the south of the site. Using the trip assignment provided in the TA it can be assumed that as a minimum Zones F G and H will leave the site via the Chester Road/A458 junction therefore some 10% of traffic will route through this junction. This will have an impact on the operational capacity therefore an assessment of the junction should be required.