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INTRODUCTION

1 South Bedfordshire Friends of the Earth and Aylesbury Vale Friends of the Earth have asked me to comment on the following aspects of the traffic appraisal of the A418 Improvements from Hulcott Crossroads to the A418/A505 Roundabout, as carried out by Jacobs Babtie for Buckinghamshire County Council:

- the fitness for purpose of the traffic assignment model;
- the fitness for purpose of the variable demand modelling used to estimate induced traffic;
- the effects on the traffic appraisal of adjacent improvements to the Aylesbury to Milton Keynes Strategic Route;
- the treatment of the proposed housing developments in the traffic forecasts;
- the adequacy of the considerations given to addressing the problems (which the A418 Improvements are intended to address) by non-road building means, including public transport alternatives (in the light of the Department for Transport's guidance on major scheme appraisal);
- the need for an assessment of the robustness of the scheme appraisal in the context of a national road pricing scheme; and
- the need for consideration of measures to 'lock in' the benefits of the scheme.

2 I have been provided with a comprehensive set of Jacobs Babtie's documentation[1]. In the short time available to me, I have not been able to review all these documents and I have **selected** the following reports for **partial** examination based on their titles and contents pages:

[1] All these documents have been prepared by Jacobs Babtie for Buckinghamshire County Council, and have the generic title of "A418 Improvements: Aylesbury to Milton Keynes Strategic Route: Hulcott Crossroads to A418/A505 Roundabout".

- Local Model Validation Report, April 2005;
- Development of Routes for Consultation Report, Volume 2, Traffic Model Revisions, May 2006;
- Stage 2 Traffic and Economic Assessment Report, May 2006;
- Development of Routes for Consultation Report, Volume 1, Main Report, May 2006; and
- Stage 2 Technical Appraisal Report, Volume 1, Main Report, June 2006.

3 In my comments below, I have made clear the sections of these documents which I have read and to which I am referring when making my comments. I reserve the right to modify my views in the light of any further reading or any further relevant information brought to my attention.

4 I present my conclusions next and I follow these with my more detailed comments.

SUMMARY OF CONCLUSIONS

The Fitness for Purpose of the Traffic Assignment Model

5 The development of the model appears to have followed generally standard procedures and the quality of the model calibration and validation appears to be good. However, it appears that:

- junction modelling may not have been applied sufficiently widely, to include all the routes from which significant traffic diversions to the scheme would be expected, such as the A413;
- the interactions between junctions have not been taken into account; and
- out-of-date speed/flow relationships have been used instead of the better researched COBA relationships which it is normal to use.

The Fitness for Purpose of the Variable Demand Modelling Used to Estimate Induced Traffic

6 It appears that:

- induced traffic has been modelled in accordance with the guidance published at the time that the work was undertaken;
- however, no checks have been reported on the extent to which established demand elasticities with respect to fuel costs were reproduced by the demand elasticities with respect to generalised cost which were used and the accuracy of the induced traffic effects is therefore unclear; and
- the guidance has now changed with the consequence that the elasticity method used is no longer recommended as a means of forecasting induced traffic, although it may still be used to assess the need for more fully specified variable demand modelling.

The Effects on the Traffic Appraisal of Adjacent Improvements to the Aylesbury to Milton Keynes Strategic Route

7 The proposed Links from Hulcott Crossroads to Aylesbury (via Stocklake) and to the A41, and the Aylesbury Distributor Roads, could make the scheme from Hulcott Crossroads to the A418/A505 Crossroads more attractive and it would be useful to produce traffic forecasts, including induced traffic estimates, with the whole of the improvements, from the A41 to the A505, included in the model.

The Treatment of the Proposed Housing Developments in the Traffic Forecasts

8 TEMPRO 5.2 was published in July 2006, since the A418 appraisal being reviewed here was undertaken, and my understanding is that this update of TEMPRO includes the current position with regard to the draft and approved Regional Spatial Strategies. At some stage in the future, it will therefore be appropriate to revise the traffic forecasts using the latest version of the TEMPRO traffic growth data.

The Adequacy of the Considerations Given to Addressing the Problems by Non-Road Building Means, Including Public Transport Alternatives

9 Guidance to Local Authorities seeking DfT funding for transport schemes, issued for consultation in April 2006, says in paragraph 1.5.4: "*For highway schemes there should be a consideration of different link/junction standards and other alternatives to address the problems in the area, such as public transport provision, demand management policies, traffic management measures and strategies. We would expect authorities promoting highway schemes to consider at least one public transport alternative and to undertake an appropriate level of analysis on it.*". The covering letter makes it clear that this is draft guidance but says that "*Authorities submitting **new** major scheme bids should do so in accordance with the provisions of this guidance…*".

10 I am uncertain as to whether this scheme would be regarded as "new" and therefore whether the full rigour of the draft guidance would apply.

11 However, on the assumption that the draft guidance does apply, I would have analysed the traffic using the A418 and A413 to understand the purposes for which the journeys were being made and the pattern of origins and destinations. This information would have enabled me to assess the merits of alternatives to the single occupant car, such as better bus and rail services, park-and-ride, demand-responsive services, and car sharing. Based on my experience of analysing traffic on roads of this nature, my expectation is that these analyses would have shown very dispersed patterns of traffic made up of large numbers of movements which are each of low volume. Whether any alternatives to the car could have been devised to cater for the movements along the A418 and A413 would have then become readily apparent. If alternatives could have been identified, then my reading of the draft guidance suggests that they should have been developed in sufficient detail for (a) their impacts on road traffic in the scheme corridors to be identified, and (b) the case for the alternative to be established.

12 In summary, it appears that:

- the approach outlined in the TAR appears generally to support the view that potential solutions to road traffic problems should be considered in the following order:
    - measures to reduce the number of motorised journeys, especially by car,
    - measures to increase use of alternatives to the car, including public transport improvements,

  - measures to make best use of the available road capacity; and, as a last resort,
  - infrastructure schemes to provide new road capacity,

- however, analyses of the nature of the traffic using the A418 and A413 are not presented and therefore it is hard to see whether the arguments presented about the limited effectiveness on traffic flows in these corridors of travel reduction measures and public transport improvements are correct.

The Need for an Assessment of the Robustness of the Scheme Appraisal in the Context of a National Road Pricing Scheme

13 In the light of the Government's general interest in developing a national road pricing system, it would be prudent, in my view, to consider the impacts of such a system on the case for the proposed A418 Improvements **-** in order to consider whether the costs of providing infrastructure which may, in the event of road pricing, prove to be unnecessary, could and should be avoided. This would be consistent with the undertaking given by the Government in relation to road schemes emerging from the Multi-Modal Studies.

The Need for Consideration of Measures to 'Lock In' the Benefits of the Scheme

14 The Department for Transport's commitment to the policy of 'locking in' the benefits of road schemes is confirmed in The Future of Transport, in paragraph 3.10, which says: "*We do not want to lose the benefits of this extra capacity, so we have started to consider how best to implement demand management policies – see Managing Our Roads.*". While this statement applies specifically to the Highways Agency's roads programme, I would expect the Government to argue that the concept of locking in benefits should apply also to local authority major highway schemes, such as the A418 Improvements.

MORE DETAILED COMMENTS

Fitness for Purpose of the Traffic Assignment Model

15 The Local Model Validation Report (LMVR), dated April 2005, is concerned solely with the traffic assignment model. A later report, Development of Routes for Consultation Report, Volume 2, Traffic Model Revisions, documents some enhancements to the April 2005 model. I will deal with the April 2005 model first and come to the revisions later.

16 The development of the model appears to have followed generally standard procedures and the quality of the model calibration and validation, as presented in the April 2005 LMVR, appears to be good. However, I have one or two points to make about the way in which congestion has been modelled.

17 Paragraph 2.2.3 explains that the inherited modelled network had two parts: a study area within which the restraining effects of capacity were modelled; and an external area where speeds were assumed to remain fixed irrespective of the assigned flows in relation to the capacity available. While this approach is often used, there are two aspects which could influence the accuracy of the benefit estimates (and therefore the case for the scheme):

- the extent to which congestion on all reasonable alternatives to the existing A418 and A413 roads and the proposed scheme has been represented; and

- the way in which congestion has been modelled.

18 Figures 4.2 and 4.4 show the extended study area and this (reasonably) includes Leighton Buzzard, and therefore many (but possibly not all) of the routes on which traffic and congestion could be affected by the proposed scheme.

19 Paragraph 4.4.1 explains that delays at the junctions shown in Figure 4.5 were modelled explicitly (instead of being subsumed by the speed/flow relationships) and paragraph 4.5.1 goes on to explain that, on links entering modelled junctions, the speed/flow curves were adjusted to avoid double-counting of delays. The realism of the modelled congestion, and therefore the realism of the modelled traffic forecasts, will depend on, inter alia, the following:

- whether junction modelling has been applied sufficiently widely;
- whether the interactions between junctions have been modelled, and especially whether the flow metering effects of bottlenecks have been taken into account; and
- the accuracy of the speed/flow relationships.

20 Figure 4.5 shows that the modelled junctions include those on the outskirts of Leighton Buzzard and Milton Keynes. While congestion at other junctions in the model will, in principle, have been represented by the speed/flow relationships, this approach is much less accurate than explicit junction modelling. Thus, if the scheme were materially to affect traffic using roads where junctions have not been modelled explicitly, some inaccuracies in the assignment and benefits may have occurred. Looking at Figure 4.5 in the LMVR, it appears that junctions on the A413, which it is intended should be relieved by the scheme, have not been modelled, so there may well be some inaccuracies in the level of relief of the A413 being forecast.

21 The particular software used for this model, TRIPS, does not, in my opinion, adequately model the interactions between junctions, namely the metering of flows downstream from a bottleneck junction and the blocking back of queues upstream from a bottleneck junction. This software does not represent the way in which traffic would be held back in the network at critical junctions and so leads to over-assignment and over-estimation of the delays and, as a result, the benefits of the scheme may also be incorrectly estimated.

22 Paragraph 4.5.1 states that the speed/flow curves used are those specified in DoE Advice Note 1A (1971). I find it curious that these very old speed/flow relationships[2], which (to my understanding) were not founded on much research or empirical data, have been used in preference to the much better researched and empirically based speed/flow curves in the COBA Manual (which are normally used in traffic models of this kind).

23 From the information available to me, however, I cannot tell whether these issues will have had any material effect on the robustness of the case for the scheme. There is no evidence in the LMVR (not unusually, I accept) about the performance of the modelling in forecasting, specifically the plausibility of the forecasts of traffic that would occur with the scheme.

24 **In summary,** it appears that:

[2] A 'speed/flow relationship' enables the average traffic speed to be estimated from the traffic flow, the proportion of heavy vehicles and the physical characteristics of the road. In general terms, these relationships show decreasing speeds with increasing flows. In some cases, the slope of the line remains constant but, in other cases, the slope increases as capacity is approached. The specification of the speed/flow curves used in COBA and recommended by the Department for Transport for traffic modelling can be found in the Design Manual for Roads and Bridges, Volume 12, Section 2 Part 1 (Traffic Appraisal In Urban Areas), Appendix E.

- junction modelling may not have been applied sufficiently widely, to include all the routes from which significant traffic diversions to the scheme would be expected, such as the A413;

- the interactions between junctions have not been taken into account; and

- out-of-date speed/flow relationships have been used instead of the better researched COBA relationships which it is normal to use.

Fitness for Purpose of the Variable Demand Modelling Used to Estimate Induced Traffic

25 The Stage 2 Traffic and Economic Assessment Report (TEAR) explains, in paragraphs 2.3.4 to 2.3.8, the initial assessment undertaken of induced traffic. This Stage 2 report is dated May 2006 but, given the reference to VaDMA (Variable Demand Modelling Advice) which was published in June 2003, I suspect that the assessment of induced traffic given in these paragraphs was carried out earlier than this, and before WebTAG Units 2.9.1-2 and 3.10.1-4, dated June 2005, were issued for consultation in October 2005. (As will be noted below, this June 2005 version has now been superseded.)

26 If my reading of the TEAR is correct, that the initial induced traffic assessment reported here was carried out **before** October 2005, then I would conclude that the approach adopted was generally consistent with the guidance published at the time that the work was undertaken (the June 2005 version). At that time, elasticity methods, while recognised as being approximate, were still considered appropriate for schemes of this nature. During 2005, however, in the preparation of the June 2005 WebTAG Units (published in October 2005), research revealed that these methods could produce misleading results, with the consequence that the June 2005 Units advised against their general use for variable demand modelling.

27 One check which is not mentioned in the TEAR and which may not have been done (and which was not sufficiently emphasised in VaDMA (of June 2003)) is to assess whether or not the demand elasticity with respect to fuel cost which is output by the model accorded with established values. If the output elasticity lay outside the established range, the demand elasticity with respect to generalised cost should have been adjusted until the output elasticity fell within that range. If the output demand elasticity with respect to fuel cost is too low, the demand elasticity with respect to generalised cost will be too low and the forecasts of induced traffic, and the adverse impacts on the economic benefits, will also be too low.

28 The issue of induced traffic is also reported in the Development of Routes for Consultation Report, Volume 2, Traffic Model Revisions, also dated May 2006. Section 6 of this report confirms that the elasticity approach had been used in the initial assessments, as the new guidance had not been released at the time. Section 6 goes on to explain that the Department also released a version of a variable demand modelling program called DIADEM, but that this was not compatible with TRIPS (the software used for the assignment model) and could not therefore be used. The section also acknowledges that the June 2005 WebTAG Unit 3.10.3 advises, in paragraph 1.2.3, that "*pending further research, it is recommended that simple elasticity models are not used to model the full effects of variable demand*".

29 As also acknowledged in Section 6, paragraph 1.3.5 in WebTAG Unit 3.10.1 specifies two criteria for assessing the importance of induced traffic and advises, in paragraph 1.3.4, that an elasticity model may be used for this assessment. Section 6 then reports the results of the elasticity modelling against the WebTAG criteria and concludes that the use of a fixed trip matrix is likely to be sufficient in this case.

30 All this seems to be strictly in accordance with the guidance that was available **at the time**, with the exception of the question of whether the demand elasticities with respect to generalised cost used gave appropriate output demand elasticities with respect to fuel cost[3].

31 Most recently, the final version of the variable demand modelling advice has been posted on WebTAG, in the same Unit numbers as previously, but now dated June 200**6**. This confirms, in paragraph 1.3.5, that an elasticity model may be used to assess the **need** for variable demand modelling, but the criteria used to assess whether variable demand modelling is required have been removed. The line now taken is that it is up to the modeller to prove that induced traffic can be safely ignored. On the basis stated in Section 6 of Volume 2 of the Development of Routes for Consultation Report, that the time saving benefits would be increased by 0.11% in 2013 and reduced by 0.87% in 2028, it seems reasonable to conclude that ignoring induced traffic would not seriously affect the case for the scheme – assuming that the demand elasticities with respect to generalised cost used do yield an appropriate output demand elasticity with respect to fuel cost. Note that the advice in paragraph 1.2.3 of WebTAG Unit 3.10.3 is retained (that "*pending further research, it is recommended that simple elasticity models are not used to model the full effects of variable demand*").

32 Elasticity models have long been recognised as an approximate way of modelling induced traffic[4]. More sophisticated models include separate sub-models or stages to estimate explicitly the changes in trip frequency (including not making a trip at all), mode (between car and public transport), time of travel (macro shifts between periods as opposed to micro shifts giving rise to peak contraction), destination (and origin), and route (including change of public transport sub-mode). Other recognised responses include change of car occupancy (or choosing to travel as a car passenger in the mode choice stage) and micro-time-shifting (leading to peak contraction), although the inclusion these in operational models is much less common.

33 Elasticity models of road trips will approximate the changes in trip frequency, mode, and time period but will not realistically represent changes in destination or origin. (Route choice is represented by the assignment model.)

34 The importance of the deficiencies of elasticity models may be judged by considering what is currently known about the sensitivity of each of the components of induced traffic to changes in generalised cost. The currently available evidence is set out in WebTAG Unit 3.10.3, Section 1.11. This suggests that the order of increasing sensitivity is: change in trip frequency (least sensitive), main mode choice (between car and public transport), macro-time-period choice, destination choice, micro-time-shifting, and route choice (most sensitive). The significant point here is that people, when faced with a generalised cost change, are more likely to change their destination than their mode of travel, not only for

[3] A 'demand elasticity with respect to generalised cost' is usually the percentage change in the number of trips which would arise from a percentage change in generalised cost, where 'generalised cost' is the time and money costs of travelling, with the money costs being converted to units of time using values of time. A 'demand elasticity with respect to fuel cost' is the percentage change in trips or traffic (vehicle-kilometres) which would arise from a percentage change in fuel cost. Thus, a 'car use elasticity with respect to fuel costs' of -0.3 (for example) would mean that, for a 10% reduction in fuel cost, a 3% increase in traffic (car use) would be expected. (Note that fuel costs, in terms of pence per kilometre, are forecast by the Department for Transport to decrease quite markedly, in spite of rising oil costs, due to assumptions about improvements in engine efficiency and increasing use of diesel engines.)

[4] See Chapter 14 in the 1994 Report of the Standing Advisory Committee on Trunk Road Assessment on Trunk Roads and the Generation of Traffic.

discretionary trip purposes such as shopping but also for travel to and from work (people are more willing to change jobs nowadays than change their mode of travel)[5].

35 **In summary,** it appears that:

- induced traffic has been modelled in accordance with the guidance published at the time that the work was undertaken;
- however, no checks have been reported on the extent to which established demand elasticities with respect to fuel costs were reproduced by the demand elasticities with respect to generalised cost which were used and the accuracy of the induced traffic effects is therefore unclear; and
- the guidance has now changed with the consequence that the elasticity method used is no longer recommended as a means of forecasting induced traffic, although it may still be used to assess the need for more fully specified variable demand modelling.

The Effects on the Traffic Appraisal of Adjacent Improvements to the Aylesbury to Milton Keynes Strategic Route

36 There is one further point to mention in relation to induced traffic. The A418 Improvements between Hulcott Crossroads and the A418/A505 Roundabout is only part of the improvements planned for the whole Strategic Route between Aylesbury and Milton Keynes. The sections between the A418/A505 Roundabout and Milton Keynes have been either completed (A416 Fenny Stratford Bypass and Stoke Hammond and Linslade Western Bypass Northern Link) or are currently under construction (Stoke Hammond and Linslade Bypass Western Bypass) and, presumably, these schemes were included in the do-minimum network. The schemes near Aylesbury (Links from Hulcott Crossroads to Aylesbury (via Stocklake) and to the A41, and the Aylesbury Distributor Roads), however, are not as advanced and are unlikely to have been included in the do-minimum networks. Nevertheless, these latter schemes could make the other schemes from Hulcott Crossroads to Milton Keynes more attractive and, in my view, it would be useful to produce traffic forecasts, including induced traffic estimates, with the whole of the improvements, from the A41 to the A505, included in the model. This would, of course, require further modelling work.

The Treatment of the Proposed Housing Developments in the Traffic Forecasts

37 Section 4 of the Development of Routes for Consultation Report, Volume 2, Traffic Model Revisions, explains that traffic growth rates have been derived from the Department for Transport's TEMPRO data base, version 4.3, dataset 16. This was probably the most up-to-date source of traffic growth forecasts available at the time. In Section 5.3, the point is made that: "*…updates to the TEMPRO datasets and hence the assumptions of growth in the MKSM Sub Regional Strategy occur at regular intervals, this means that over the life of the A418 Improvements Scheme there are likely to be further revisions*.". Indeed, TEMPRO 5.2 was published in July 2006, since the A418 appraisal being reviewed here was undertaken, and my understanding is that this update of TEMPRO includes the current position with regard to the draft and approved Regional Spatial Strategies. At some stage in the future, it will therefore be appropriate to revise the traffic forecasts using the latest version of the TEMPRO traffic growth data.

[5] Further evidence of these phenomena can be found in a Report prepared by the Town and Country Planning Association for the DETR in 1999, entitled "The People: Where Will They Work?".

The Adequacy of the Considerations Given to Addressing the Problems by Non-Road Building Means, Including Public Transport Alternatives

38 The problems that the proposed scheme is designed to ameliorate are explained in the Stage 2 Technical Appraisal Report (TAR), Volume 1, Main Report, dated June 2006. They are presented in Table 1-1 of that report as the following set of local objectives which the scheme is intended to address:

- to improve links to and from Aylesbury with other areas of economic growth, including regional hubs at Luton and Milton Keynes;
- to reduce congestion, including that which is incident-related, on the A418 and within the village centres of Wing and Rowsham;
- to improve the collision record on the A418 throughout the study area and to improve collision clusters and the tortuous characteristics of the A418;
- to promote and enhance business opportunities in Aylesbury and Milton Keynes;
- to reduce community severance in Wing and Rowsham;
- to improve the quality of life for communities in and around Wing and Rowsham;
- to promote and enhance Conservation Areas and their settings and other areas of Conservation Value;
- to improve safety within the villages of Wing and Rowsham;
- to promote the safe movement of children to and from schools;
- to promote improvements to the existing bus service between Aylesbury and Milton Keynes, whilst maintaining existing services in Aylesbury Vale, Milton Keynes and intervening locations;
- to promote cycling, walking and equestrian activities within and between the communities of Wing and Rowsham.

39 In my opinion, the implications of Government policy for the development of solutions to road traffic problems are that potential solutions should be considered **in the following order**[6]:

- measures to reduce the number of motorised journeys, especially by car;
- measures to increase use of alternatives to the car, including public transport improvements;
- measures to make best use of the available road capacity; and, **as a last resort**,
- infrastructure schemes to provide new road capacity.

40 The approach outlined in the TAR appears generally to support this view, although the analyses are not set out quite in this strictly logical manner.

[6] My analysis of the Government documentation which supports this view is provided in Appendix A.

41 With regard to **travel reduction** initiatives, paragraph 1.2.21 of the TAR states that: "*The County Council has within its LTP a number of initiatives to reduce the need for travel. However most of the benefits from this programme are likely to be experienced within the main urban areas of Buckinghamshire and impacts on inter urban traffic are unlikely to be significant. Hence no specific reduction has been made to the traffic predictions for the scheme.*". While this judgement may be correct, no evidence is either given or referred to in the TAR to support the contention.

42 In order to give proper consideration to travel reduction measures, I would have started my analyses by identifying the problems in the A418 and A413 corridors in some detail. Importantly, I would also have sought to understand the **causes** of the problems before turning my attention to particular solutions. This is the approach recommended in paragraph 1.3.14 in the Department's WebTAG Unit 2.1. This kind of analysis has not been reported in the documentation that I have examined.

43 In order to investigate ways in which travel might be reduced, especially travel by car, I would have analysed the traffic using the A418 and A413 to understand the purposes for which the journeys were being made and the pattern of origins and destinations. This information would have enabled me to assess whether demand management or traffic restraint measures were likely to reduce traffic sufficiently that the problems in these corridors would be ameliorated to an acceptable degree.

44 If I had been able to identify measures that would have the desired effects, I would have prepared an Appraisal Summary Table and Supporting Analyses (in accordance with the Department for Transport's WebTAG advice) in order to identify all the main impacts, beneficial and adverse, and so assess the value for money and feasibility of the measures. This approach would have enabled the effectiveness and drawbacks of the travel reduction options to be clearly displayed.

45 With regard to public transport improvements, it is instructive to consider what the Department for Transport's guidance says.

46 Guidance to Local Authorities seeking DfT funding for transport schemes, issued for consultation in April 2006, says in paragraph 1.5.4: "*For highway schemes there should be a consideration of different link/junction standards and other alternatives to address the problems in the area, such as public transport provision, demand management policies, traffic management measures and strategies.* ***We would expect authorities promoting highway schemes to consider at least one public transport alternative and to undertake an appropriate level of analysis on it.*** *Assessment of detailed option designs should form part of the sensitivity analysis in determining the optimum configuration of the scheme.*". The covering letter makes it clear that this is draft guidance but says that "*Authorities submitting* ***new*** *major scheme bids should do so in accordance with the provisions of this guidance, although as part of the consultation we would welcome views on the requirements that should apply in future.*".

47 This is stronger than the guidance in paragraph 2.9.2 in WebTAG Unit 1.4 which says: "*For highway schemes there should be a consideration of different link/junction standards and other alternatives to address the problems in the area, such as public transport provision, demand management policies, traffic management measures and strategies. Assessment of detailed option designs should form part of the sensitivity analysis in determining the optimum configuration of the scheme.*". The difference is the emboldened sentence in the previous paragraph: **"***We would expect authorities promoting highway schemes to consider at least one public transport alternative and to undertake an appropriate level of analysis on it.".*

48 I expect that the new draft guidance will have come out very late in the process of preparing the A418 scheme documentation. In any case, I am uncertain as to whether this scheme would be regarded as "new" and therefore whether the full rigour of the draft guidance would apply. However, on the assumption that the draft guidance does apply, I would have expected to see the following kind of analyses.

49 The analyses suggested earlier, which were designed to investigate ways in which travel might be reduced, would also have enabled me to assess the merits of alternatives to the single occupant car, such as better bus and rail services, park-and-ride, demand-responsive services, and car sharing. Based on my experience of analysing traffic on roads of this nature, my expectation is that these analyses would have shown very dispersed patterns of traffic made up of large numbers of movements which are each of low volume. Whether any alternatives to the car could have been devised to cater for the movements along the A418 and A413 would then have become readily apparent. If alternatives could have been identified, then my reading of the draft guidance suggests that they should have been developed in sufficient detail for (a) their impacts on road traffic in the scheme corridors to be identified, and (b) the case (in terms of the costs and benefits which would be included in an Appraisal Summary Table) for the alternative to be established.

50 The consideration given to public transport is outlined in the TAR, in paragraphs 1.2.15 to 1.2.20. The treatment of the impacts of the East-West Rail scheme and the new express bus service between Aylesbury and Milton Keynes on the road traffic forecasts seems appropriate to me. I can also believe that neither of these schemes would provide a solution to the problems in the A418 and A413 corridors. However, that there are no other alternatives to the proposed new road infrastructure is not evident from the TAR.

51 **In summary,** it appears that:

- the approach outlined in the TAR appears generally to support the view that potential solutions to road traffic problems should be considered in the following order:
    - measures to reduce the number of motorised journeys, especially by car,
    - measures to increase use of alternatives to the car, including public transport improvements,
    - measures to make best use of the available road capacity; and, as a last resort,
    - infrastructure schemes to provide new road capacity,
- however, analyses of the nature of the traffic using the A418 and A413 are not presented and therefore it is hard to see whether the arguments presented about the limited effectiveness on traffic flows in these corridors of travel reduction measures and public transport improvements are correct.

The Need for an Assessment of the Robustness of the Scheme Appraisal in the Context of a National Road Pricing Scheme

52 While I can appreciate that the local authority is not yet ready to promote congestion charging in Aylesbury, Leighton Buzzard and Milton Keynes, the Government is considering moves towards a national road pricing system, as is made clear in paragraph 3.31 of The Future of Transport: A Network for 2030, published by the Department for Transport in July 2004.

53 In the light of this general policy interest on the part of Government, it would be prudent, in my view, to consider the impacts of a national road pricing system on the case for the proposed A418 Improvements - in order to consider whether the costs of providing

infrastructure which may, in the event of road pricing, prove to be unnecessary, could and should be avoided. This would be consistent with the undertaking given by the Government in relation to road schemes emerging from the Multi-Modal Studies: "*We will ensure that the case for road schemes taken forward following the Multi-Modal Studies is robust even if a decision is taken to introduce road user charging in the future." (*see The Government's Response to the Transport Select Committee's Report Jam Tomorrow?: The Multi-Modal Study Investment Plans, June 2003, page 7).

54 The Department for Transport has very recently, in July 2006, posted guidance on WebTAG on the design, modelling and appraisal of road pricing schemes (Units 2.12 and 3.12.1-4). The notion of the kind of assessment I am suggesting here can be found in paragraph 1.2.7 of Unit 2.12 which says "*Sensitivity tests of the impact of road pricing may also be required as part of the analysis of some major highway and other schemes.*". Unit 3.12.2 specifies the way in which a pricing system based on marginal social costs should be modelled and appraised, in order to provide a benchmark against which more practical systems may be judged.

The Need for Consideration of Measures to 'Lock In' the Benefits of the Scheme

55 The concept of 'locking in' the benefits of new road capacity was set out by the Department for Transport in its discussion paper entitled Managing Our Roads, published in July 2003 following the Secretary of State's considerations of some of the Multi-Modal Studies which recommended such a policy. The Department's commitment to this policy of 'locking in' the benefits is confirmed in The Future of Transport, in paragraph 3.10, which says: "*We do not want to lose the benefits of this extra capacity, so we have started to consider how best to implement demand management policies – see Managing Our Roads.*". While this statement in this White Paper applies specifically to the Highways Agency's roads programme, I would expect the Government to argue that the concept of locking in benefits should apply also to local authority major highway schemes, such as the A418 Improvements.

56 The concept of 'locking in' benefits is intended to hand more control to the highway authority over the use of any increased highway capacity. The idea is not to restrict all future growth necessarily, but to control how the increased capacity may be used – for instance, it may be decided that the new capacity is intended to provide fairly permanent improved levels of service as opposed to allowing people to travel further and more often. The most effective way of providing this kind of control is through area-wide road user charging. For an area such as the A418 and A413 corridors, an area-wide road user charging scheme is some way off in the future, so other measures ought to be considered which would, in effect, 'lock in' or re-allocate the benefits of the new road infrastructure. In this corridor, one obvious way would be to introduce traffic management measures on the relieved roads to ensure that the environmental and safety gains materialise as predicted. There is evidence that this kind of approach is being considered for Wing in section 5.4 in the Development of Routes for Consultation Report, Volume2, Traffic Model Revisions. However, I suggest that measures be considered for other roads expected to be relieved by the scheme, such as the A413.

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APPENDIX A: AN ANALYSIS OF THE IMPLICATIONS OF GOVERNMENT POLICY IN RELATION TO NEW ROAD INFRASTRUCTURE

57 The implications of Government policy for the development of solutions to road traffic problems are that potential solutions should be considered **in the following order**:

- measures to reduce the number of motorised journeys, especially by car;
- measures to increase use of alternatives to the car, including public transport improvements;
- measures to make best use of the available road capacity; and, **as a last resort**,
- infrastructure schemes to provide new road capacity.

The following Government documents may be cited in support of this approach.

58 **Planning Policy Statement No 1 (PPS1): Delivering Sustainable Development**, published by the Office of the Deputy Prime Minister in 2005 is a source of the idea of generally reducing the need to travel, as the following quotations show.

59 Paragraph 13 (ii) of PPS1 under "Key Principles" says:

"*Regional planning bodies and local planning authorities should ensure that development plans contribute to global sustainability by addressing the causes and potential impacts of climate change4 – through policies which reduce energy use, reduce emissions (for example, by encouraging patterns of development which reduce the need to travel by private car, or reduce the impact of moving freight), promote the development of renewable energy resources, and take climate change impacts into account in the location and design of development.*".

60 Paragraph 23 (vii) of PPS1 under "Sustainable Economic Development" says:

"*Ensure the provision of sufficient, good quality, new homes (including an appropriate mix of housing and adequate levels of affordable housing) in suitable locations, whether through new development or the conversion of existing buildings. The aim should be to ensure that everyone has the opportunity of a decent home, in locations that reduce the need to travel;*".

61 Paragraph 27 (v) and (vii) of PPS1 under "Delivering Sustainable Development" introduces the idea of promoting the use of alternatives to the car, as well as reinforcing the idea of reducing the need to travel. It says:

"*(v) Provide improved access for all to jobs, health, education, shops, leisure and community facilities, open space, sport and recreation, by ensuring that new development is located where everyone can access services or facilities on foot, bicycle or public transport rather than having to rely on access by car, while recognising that this may be more difficult in rural areas.*

(vii) Reduce the need to travel and encourage accessible public transport provision to secure more sustainable patterns of transport development. Planning should actively manage patterns of urban growth to make the fullest use of public transport and focus development in existing centres and near to major public transport interchanges.".

62 **Planning Policy Guidance Note 13 (PPG13): Transport**, published in March 2001 also has advice about the need to reduce travel. Paragraphs 3 and 4 say:

"*Land use planning has a key role in delivering the Governments integrated transport strategy. By shaping the pattern of development and influencing the location, scale, density, design and mix of land uses, planning can help to reduce the need to travel, reduce the length of journeys and make it safer and easier for people to access jobs, shopping, leisure facilities and services by public transport, walking, and cycling. Consistent application of these planning policies will help to reduce some of the need for car journeys (by reducing the physical separation of key land uses) and enable people to make sustainable transport choices. These policies are therefore part of the Governments overall approach to addressing the needs of motorists, other road and public transport users, and business by reducing congestion and pollution and achieving better access to development and facilities. They will also help to promote sustainable distribution. In this way, planning policies can increase the effectiveness of other transport policies and help maximise the contribution of transport to improving our quality of life."*

"The objectives of this guidance are to integrate planning and transport at the national, regional, strategic and local level to:

1. promote more sustainable transport choices for both people and for moving freight;

2. promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling; and

3. reduce the need to travel, especially by car.".

63 And paragraph 74 of PPG13 links the idea of providing better public transport with reducing the need to travel by car. It says:

"*In preparing their development plans and determining planning applications, local authorities, in conjunction with work on the local transport plan, should:*

1. identify the key routes for bus improvements and priority measures, and the measures that will be taken;

2. ensure, so far as is practicable, that traffic management measures do not impede the effectiveness of public transport services;

3. explore the potential, and identify any proposals, for improving rail travel, in liaison with the SRA, including the reopening of rail lines, or creation of new stations on existing rail lines, light rail or guided bus routes (giving due consideration to the funding and value for money of such proposals);

4. identify the potential for improved interchange between different transport services and between public transport and walking and cycling;

5. negotiate for improvements to public transport as part of development proposals, in order to reduce the need to travel by car and the level of parking at such sites, and

6.work with transport operators and other organisations to improve personal security across the whole journey.".

64 These quotations from current Government policy documents support the idea that reducing the need to travel by car and promoting the use of alternatives to the car should be considered **before** additional road capacity is considered. That traffic management should be considered before new infrastructure is supported by paragraph 3.123 in **A**

New Deal for Transport: Better for Everyone, published by the DETR in July 1998. This says:

"*The days of 'predict and provide' are over – we will give top priority to improving the maintenance and management of existing roads before building new ones.*".

65 The proposition that new road building should be a measure of last resort is supported by the **Guidance on the Methodology for Multi-Modal Studies (GOMMMS)** which was prepared by the DETR to guide the conduct of the programme of Multi-Modal and Roads-Based Studies initiated following the review of the trunk road and motorway programme in 1998 (A New Deal for Trunk Roads in England, DETR, July 1998). The relevant paragraph is 1.1.7 which says:

"*In seeking solutions to the problems to be addressed in the study, the contributions of all modes should be considered, including walking, cycling, air transport, shipping and pipelines, as well as roads, railways, buses and other forms of public transport. Solutions may also relate to non-transport policies, for example land-use, health and education. Although the genesis of the initial programme of Studies lies with problems on the trunk road network, the focus of the Studies will not primarily be on ways of providing additional road capacity. However, proposals for road improvements, whether through better management, widening or new alignments, are not ruled out and could be an output if such a solution were shown to be the most appropriate in the circumstances. Indeed, some schemes put on hold by the Roads Review have specifically been remitted for the Studies to consider in more detail.*".

66 The implications of this paragraph are that the provision of additional road capacity is, in principle, a legitimate outcome, **but only providing that** other non-road building options have been considered first.

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