Daws Hill, High Wycombe Transport Strategy Review 30 August 2012

1 Introduction

1.1.1 Buckinghamshire County Council (BCC) has consulted the public and interested stake-holders on the proposed Southern Quarter Transport Strategy (SQTS) for High Wycombe. It is understood that the SQTS may not have any planning status but will be used to inform pre-application discussions for developments in in the southern part of High Wycombe.

1.1.2 In advance of their Neighbourhood status being confirmed by Wycombe District Council (WDC), Daws Hill Residents Association (DHRA) appointed WSP to review the emerging SQTS to:

- Identify the robustness of the transport strategy
- Identify any network constraints that might affect the development potential of surrounding sites
- Where possible, consider potential alternatives
- If practical, identify material considerations that maybe identify a physical, environmental or economic constraint which might in-turn affect development in the area.

1.1.3 Despite DHRA's and WSP's reasonable endeavours to obtain information from BCC and WDC, a comprehensive package of information has not been made available to WSP to be able to complete all of the tasks identified and thus this Technical Note considers only those issues that it is able to consider.

2 Background

2.1 Local Development Framework

2.1.1 The Local Development Framework (LDF) includes an evidence base, *some* of which is available from the Council's website. Wycombe District Council has a published *Draft* Core Strategy which was programmed for Examination in Public (EiP), and subject to modifications, considered sound by an Inspector for the Department of Communities & Local Government on behalf of the Secretary of State (SoS). WSP were not present at the EiP for DHRA therefore any comments are taken as a factual record of the inspectors Report.

2.1.2 At the EiP the Inspector was presented with information from the Transport model and opined[1] that changes be made to the Core Strategy, amongst other things recognising that the 'aspiration' to achieve reductions in town centre traffic will require (3.24) "…further traffic modelling work…" which will be monitored during the plan period. He was satisfied that (3.33)"…*by imposing requirements for scrutiny of proposals for their impact on local roads, including the complex and heavily used Handy Cross junction*." That housing allocations in the Daws Hill area could be made sound.

2.1.3 The Core Strategy was subsequently adopted in July 2008.

2.2 Local Transport Plan & Strategies

2.2.1 The Local Transport Plan (LTP) for the area embraces a Transport Strategy building on local and regional evidence, in partnership with adjacent authorities and transport operating companies. The over-arching strategy is based on a 'TRIM' approach to deliver more sustainable travel trends.

- T - Transfer
- R – Re-route
- I – Intercept
- M – Manage demand

2.2.2 The LTP has been supported with a Strategic Environmental Assessment (SEA), considering complementary strategies and measures.

2.2.3 Within the sub-region there have been a number of traffic and transport models developed for different purposes. The CONTRAM and VISUM models provide a strategic overview of land use decisions and can be used inform transport strategies. In each case the strategic models embrace information from more detailed junction and localised network /corridor models which have been tested in the past. The various model platforms serve differing purposes, with strategic models helping to inform the scale of traffic reassignment and mode shift.

[1] Report on the Examination of the Wycombe Core Strategy Development Plan document (DPD), May 2008

2.2.4 Following on from earlier Multi-Modal Studies options, Strategic transport improvements were considered. The Strategic Road Network (SRN) includes the M40 corridor where a public transport 'hub' is proposed to 'intercept' and 'transfer' car trips on various corridors, including the A404 into High Wycombe, the interchange is intended to replace an existing Park & Ride (P&R) and provide a M40 corridor and the wider Thames Valley Coachway

Coachway

2.2.5 A Major Scheme Business Case (MSBC) has been developed with planning consent granted in 2010 to enable proposals to advance in the near future. The recent Local Economic Partnership funding allocation will enable completion of the scheme by 2015.

2.2.6 The MSBC is forecast to achieve some journey time benefits and additional coach revenue offering still positive balances with impacts on bus / coach operating costs and rail revenue. Depending on the scale of investment and take-up the MSBC acknowledges that "*There is a real risk that the lower patronage levels expected at a limited facility would discourage some operators to the extent that they* [coach operators] *would not actually serve the site at all; this is indeed something that coach operators have demonstrated*…" It is unclear at this juncture if the recent funding allocation could be sufficient to deliver the higher service providing planned in the MSBC and thus may undermine the viability of the Coachway and bus based Park & Ride (P&R).

2.2.7 The MSBC was developed based on the earlier 2006 CONTRAM model supported by the 2007 Local Model Validation Reoprt (LMVR). It provides information in terms of geographic zones, trip forecasting, traffic surveys (typically May 2006) and mode share estimates. It suggests that the base model reflects a car mode share around 80% for commuting and over 44% for escort education trips[2].

2.2.8 The MSBC model assumes that car parking availability is constant and charges remain level with inflation. Forecast 'stress testing' was applied adopting +10% variations of the generalised cost for car and public transport. Validation of public transport travel was based on a survey of nearly 3,600 passengers. The calibration of the public transport element of the model failed during the inter-peak period for buses and during the PM peak for rail travel.

[2] MSBC Vol.2, Annex T Table 4

2.2.9 Whilst the inter-peak periods validate well "…*the GEH criteria were increased…*" to ensure the AM & PM Peak periods were adequate. Normally such an approach would only be acceptable in exceptional circumstances. Notably the Handy Cross junction validation passed within acceptable tolerances with variable results on the A404 corridor.

2.2.10 The base surveys for the MSBC LMVR were undertaken between 22 May 2006 and 5 June during a neutral period. During this time-period some of the senior pupils would be undertaking exams, potentially under-representing education trips for the secondary schools in the Marlow Hill area. This might contribute to variations in the model validation.

2.2.11 As these MSBC LMVR results were considered acceptable it is likely that decision makers considered the strategic function of the model was sufficient as the model was intended to inform proposals for the SRN.

2.2.12 The MSBC LMVR reports the peak period link flow validation at Appendix C. The location of the Marlow Hill Road Side Interview appears to be north of the gyratory thus it would suggest that flows on the A404 were around 37,000 AADT and specifically:

- 2006 AM Peak hour, 2976 vph (2-way) at Marlow Hill
- 2006 PM Peak hour, 2789 vph (2-way) at Marlow Hill

2.2.13 The MSBC[3] considers 'Do Minimum' and 'Do Something' scenarios, whilst it is not possible to verify the differences in the scenario tests, the forecast Average Annual Daily Traffic Total (AADT, 24 hour, 2-way) on the A404 corridor is as follows:

- 2013 AADT, circa 39900-40500 north of the A404 / Daws Hill junction
- 2013 AADT, circa 48900-49600 south of the A404 / Daws Hill junction
- 2026 AADT, circa 40900-41500 north of the A404 / Daws Hill junction
- 2026 AADT, circa 50700-50200 south of the A404 / Daws Hill junction

2.2.14 The SEA for the current LTP considers salient issues, it notes that the provision of new pedestrian crossings as part of the MSBC works will reduce adjacent community severance and records recent improvements in air quality amongst other

[3] MSBC Volume 2, Annex G

things.

2.2.15 The MSBC considers associated implications acknowledging that congestion will remain a problem. It records the TUBA Assessment reveals net benefits arising from mode shift to more sustainable transport modes, mainly from car to bus and coach travel. It is less clear how these benefits are reflected in High Wycombe and notably the Daws Hill area where congestion will remain, with vehicle speeds forecast to reduce.

2.2.16 Whilst the MSBC purports to improve conditions, the most recent P&R study[4] available suggests that, the existing High Wycombe site P&R site generated nearly 48,000 passenger journeys in 2005/06. It also records that the High Wycombe P&R is one of the most expensive sites in the UK, averaging £3.77 / Trip and thus relying on a significant on-going subsidy.

2.2.17 Based on other evidence it is likely that this level of P&R demand has remained fairly stable or fallen slightly reflecting economic conditions. Given the increase in fuel and other operating costs it is likely that the P&R is less viable than in previous years. In 2005/06 P&R patronage was around 220 passengers per day. Based on the MSBC public transport validation this reflects around 30 passengers during the peak hour. Effectively the P&R can be assumed to capture around 35 vph from the network or around 2% of town centre journeys. If the MSBC conclusions are correct it would be helpful to understand the quantum of trips transferred to bus on the A404 corridor and the value for money offered by the Coachway proposals.

2.2.18 The MSBC does not identify any significant bus priority measures and offers limited information changes to parking control / charges within the town centre. Without marked increases in the generalised cost of car travel or reduction in corresponding bus trips it is unclear if the P&R will ever become viable. Based on the MSBC findings the reliance on coachway operators is equally uncertain in the long-term, from the evidence available, it is likely that supporting infrastructure will be necessary to retain the P&R in the medium-term.

Summary

2.2.19 The LTP adopts a logical approach to tackling travel demand in High Wycombe, adopting a holistic approach to transport. With complimentary land-use, infrastructure and transport service decisions the approach can deliver an

[4] Park & Ride Great Britain, TAS 2007

acceptable solution for the long-term.

2.2.20 The Major Scheme Business Case appears to be marginal and unlikely to deliver long-term success without further 'pump priming' funding. The viability of the Park & Ride is very unlikely to be sustained beyond the medium-term if supporting measures are not delivered. Unless complementary measures are developed within 2-3 years of opening it is equally unlikely that coach operators will serve the site and the potential of the coachway to deliver mode shift will rapidly diminish.

2.3 High Wycombe Transport Model

Local Model Validation Report (LMVR)

2.3.1 The LMVR records a series of key factors relevant but also omits certain information:

- It reports that validation and calibration of the VISUM model has been undertaken in accordance with Government Guidance, using WebTAG.
- The model has been developed from the 2006 CONTRAM model, which includes"…*household survey and planning data, and from the land-use trip rates and a gravity model for synthesised trips*." It is unclear how these trip rates were synthesised and no accuracy parameter is offered.
- The VISUM model has been constructed using junction characteristics and link flow / speeds in a traditional approach. It is reported that (4.2.1) "*The resulting modelled speed on all links is dependant upon the volume of traffic using the link.*"
- The majority of surveys around the Southern Quarter were undertaken near the end of June 2010 (Table 3-A). Whilst June is a neutral month the number of schools in the area, with Students in exam periods during this time, will affect the accuracy of the data.
- Traffic surveys including journey times have been subject to validation across the study area, where the GEH meets the required standard (typ +/- 15%, Appendix D and Table 7-F / 7-G). It is important to note however that of those survey, screen-line and journey-time validation failures the vast majority appear in the north / south direction either frequently on the A404 corridor or through Handy Cross Junction, with significant variations.
- It is unclear if the VISUM model is intended to provide a multi-modal component for the assessment of trips by public transport. If this is intended, no calibration or validation has been offered.

2.3.2 The LMVR (Appendix D) records that observed traffic flows in 2010 were:

- 2010 AM Peak A404 Marlow Hill – 1293 Northbound / 1494 Southbound (2787 vph, 2-way)
- 2010 PM Peak A404 Marlow Hill – 1323 Northbound / 1830 Southbound (3153 vph, 2-way)

2.3.3 Compared to the 2006 observations it would suggest that traffic flows on the corridor have remained stable or have dropped, the scale of change is not consistent in the area. Compared to the previous MSBC 2013 forecasts around 25% of forecast growth has not occurred.

2.3.4 Whilst traffic flows and growth forecasts[5] may have reduced, due to economic conditions, it is unclear how confident one can be that the High Wycombe Transport Model will be adequate for anything other than strategic transport decisions. WSP accept that a VISUM model is entirely suited to the strategic function of the model and could be used for the production of localised VISSIM (micro-simulation models) of parts of the local highway network. This may be relevant for future assessments of Handycross junction, the A40 / A404 town centre gyratory and the A404 corridor. Nevertheless it is unclear how well an array of different model platforms can be employed to inform a revised model or ostensively new model.

2.3.5 In summary the base model appears to follow the correct approach to deliver an acceptable standard of validation and calibration. It would be reasonable to consider that further work has been done to refine traffic modelling in the area, to meet the Inspectors requests. These exercises highlight a number of new questions that suggest the model may be less acceptable for forecast scenarios with or without development and some 'stress' testing should be undertaken to identify the validity of the model.

Forecast Report

2.3.6 The Forecasting Report predicts traffic flows to 2022 during the AM & PM peak hours for a 'Do Minimum' Development Scenario. It is described as 'committed sites' either with planning permission or having been approved in principle subject to planning obligations, referencing Appendix B. It is unclear if this scenario includes any highway / transport improvements that might be associated with these proposals although it is reasonable to assume these are included in the scenario.

[5] TEMPRO versions 5 & 6.

2.3.7 Appendix B reports forecast trips for the committed developments. Where these are not taken from the Transport Assessment of approved planning applications these have been based on the TRICS database. In most cases these reflect broadly 'average' trip generation rates.

2.3.8 Taken from Appendix C the A404 corridor appears to reflect the following forecast traffic flows.

- 2022 'Do Minimum' AM Peak north of the A404 / Marlow Hill junction (links 108/109) – 3846 vph
- 2022 'Do Minimum' PM Peak north of the A404 / Marlow Hill junction (links 108/109) – 4215 vph

2.3.9 The MSBC model appears to adopt the Regional Spatial Strategy land use forecasts for 2026, which includes significant increases in travel demand for the sub-region. Whilst revised plans are being developed, typically for lower housing numbers, it is less clear from the latest High Wycombe forecasting report what is incorporated in the 2022 forecast year. It should be reasonable to assume that some of these developments will incorporate mitigation measures but it is unclear if these have been incorporated into the model test scenario.

2.3.10 Based on the forecast traffic flows it would be reasonable to assume that traffic flows on the A404 corridor will rise to around 44-52,000 AADT, broadly similar to the MSBC. Whilst these are broadly consistent with the 2026 Coachway MSBC forecasts, the changes in traffic between 2006 and 2010 might suggest that:

- Some land uses are vacant or
- Some land uses may be generating lower levels of trips than their respective permitted use

In each case existing land use could be re-used to its full extent at any time or may be supported for redevelopments where such permitted use may be accepted as no material increase and therefore not requiring any or at least less mitigation.

2.3.11 Given the similarities between the 2026 and 2022 forecasts it is likely that parts of the network will reach capacity before 2022 resulting in greater levels of redistribution, peak spreading and mode shift. Research indicates that travellers divert or re-time their trip before considering alternative modes thus forecast conditions would suggest that greater levels of peak spreading will occur resulting in longer periods of congestion.

Southern Quadrant Transport Model Traffic Forecasts

2.3.12 Notwithstanding the requests for more comprehensive information from the High Wycombe Transport Model, some additional information has been provided by Jacobs, on behalf of BCC. The comparison between the 'Do Something' (No Strategy) and 'Do Minimum' *difference plots* reveal small changes in forecast traffic flows as a result of the SQTS generally these can be considered material:

- Along Daws Hill Lane, east of the A404 corridor;
- Along the A404 corridor from the proposed P&R to the Daws Hill Lane junction
- Along the Coronation Road, Lancaster Road and Desborough Avenue corridors.

2.3.13 It is not entirely clear from the information provided what scenario is being presented. One would normally expect this to be clearly defined referencing development and infrastructure commitments, reflecting scenario tests for each of the following:

- 'Do Nothing' (forecast network traffic growth *without* development, incorporating existing committed developments, infrastructure and service improvements);
- 'Do Minimum' (forecast network traffic growth with all development, incorporating existing and proposed developments *without* development mitigation in terms of infrastructure and service improvements); and
- 'Do Something' (forecast network traffic growth with development, incorporating existing and proposed developments with *all* infrastructure and service improvements (SQTS)).

2.3.14 It is unclear from the evidence available whether the traffic flow changes on the Desborough Avenue arise from changes to the P&R provision or general redistribution of traffic from the A404 corridor. The traffic flow changes on the Daws Hill corridor suggest that the network to the north is operating at or over capacity therefore signs of model reassignment onto the Abbey Barn Lane corridor are apparent. Taken together these patterns reveal potential opportunities to improve other parts of the network to reduce delay and the adverse environmental impacts of traffic on the A404 corridor. Without greater access to information and the model we consider that any alternative improvement options must be considered preliminary.

2.3.15 It is likely that any model reassignment of trips will occur due to increased delays at the A40 / A404 gyratory, it may therefore be practical to consider reducing the scale of development or providing improvements to the Daws Hill Lane / Abbey Barn Lane corridors to assist with the reassignment of other trips between areas in the southwest and northeast of the settlement. The extent to which other improvements

might be regarded as *beneficial* is also unclear.

3 South Quadrant Transport Strategy (SQTS)

3.1.1 The Councils' have engaged with the local community over approximately 12 months to inform pre-application discussions relating to the redevelopment of RAF Daws Hill and a Transport Strategy for surrounding area.

3.1.2 BCC developed the SQTS and invited public consultation feedback following exhibitions from 27 June 2012. As the LMVR was completed in June 2012 and the Forecasting Report was completed in July 2012, it would be fair to suggest that SQTS has been developed concurrently.

3.1.3 Consistent with the Localism Agenda DHRA are keen to play an active role in preserving and enhancing their community and shaping changes the meet the needs of its expanded community. It is accepted that the Councils must develop a transport strategy to inform future proposals based on robust and credible evidence. Given the status of the emerging SQTS we consider it unwise to adopt a strategy at this juncture.

3.1.4 The emerging SQTS does not consider a number of material considerations in terms of direct and indirect environmental impacts of transport. The strategy appears to contribute to some reductions in traffic compared on the A404 corridor. Whether or not these mitigate the development impact is unclear and requires further examination – potentially as part of further pre-application discussions.

3.1.5 Based on the High Wycombe Transport Model it is evident that:

- Unlike the earlier CONTRAM model the GEH has not been increased to validate the (whole) model however validation of the A404 corridor and Handycross junction does not validate to the required GEH and should be refined further.
- From the LMVR it appears that generic speed / flow curves have been adopted, however the 'breakpoint', where vehicle speeds decline above a certain volume, will vary by road type and environment. This is likely to affect the validation of journey times through the model and through refinement may improve validation.
- The LMVR appears to be based on a generic approach to junction capacity. Similarly references are made to the use of other TRANSYT and Paramics models. In both cases these are likely to be acceptable where the GEH is within acceptable ranges but should be refined particularly around the Marlow Hill area.

- Sample surveys during the Autumn period should be undertaken to verify the validation June periods
- No validation has been undertaken of ????
- No 'stress testing' has been undertaken of forecast scenarios to ensure that the network is performing as expected
- A review of vacant commercial property should be undertaken to assess the need for additional travel demand in the forecasting scenarios
- Further clarification is required to ensure that all proposed land use allocations within the sub-region are considered in forecasts
- Development forecasting should consider sensitivity tests of above and below inflation increases in generalised travel costs

3.1.6 The SQTS purports to have considered alternative options, including variations of improvements at Marlow Hill. These have *not* been presented in any detail to inform a fair comparison of the options.

3.1.7 The SQTS identifies improvements to the A404 / Daws Hill Lane junction incorporating an increased flare on the approach to the existing left-turn only signal. This should enhance the proportion of 'green-time' offered to A404 traffic and generally improve capacity at this junction. It is unclear if the full capacity of this flare can be realised as the junction visibility splay at the adjacent Daws Hill Lane / Marlow Hill junction are already poor and would be set back further as part of the works.

3.1.8 Proposals to enhance safe routes to school and reduce on-street parking close to the school are outlined in the SQTS. Evidence in some studies suggests that increasing number of car based trips occur for escort education beyond 500m from the home. The escalation of demand is apparent when one considers the return walking trip of circa 1km. The repositioning of parking is only practical if regular enforcement is taken. The SQTS offers no evidence that such steps will be taken.

3.1.9 If a micro-simulation model is not developed for the A404 corridor, including Handycross and the A40/A404 Gyratory, then the above refinements to the existing model must be undertaken to ensure it is sufficient to inform future development proposals. If this is the case we would recommend the following should be considered:

- If the VISUM model is to be used to inform future planning applications, the Guidance for Transport Assessment (GTA) clearly states that 'baseline conditions need to be established accurately' and that any assessment be developed based on the "*identification of the critical links and junctions on the highway network, with calibrated tests to reflect existing conditions*;" For the Daws Hill area it is apparent that the existing model does not meet this requirement and requires further validation and calibration.

- The GTA suggests that "*trip rates should be derived on the basis of site-specific details of the proposed development*" and goes on to suggest that "*If sites with comparable accessibility as well as scale and location cannot be found….85th percentile trip generation rates should be considered as a starting point*…" From discussions with officers it is understood that some local surveys have been undertaken but have not been made available. From a survey of Keep Hill Road it is evident that the trip generation rate used for residential dwellings in the area are significantly lower than similar local sites.

3.1.10 Before the SQTS is adopted it is essential that a SEA is undertaken, it should review how the proposed SQTS would address the following material considerations:

- The scale of traffic flows forecast on the A404 corridor will exceed 30% of existing levels and thus worthy of a more detailed assessment. The forecast traffic volumes would normally correspond with noise levels *in the order of* 72 dBA L_{Aeq} adjacent to the A404 corridor. Such levels are likely to exceed the accepted noise exposure for dwellings and the amenity of parklands to the northwest. Whilst parts of the corridor are in cutting the existing retaining structures contribute to a reflection of noise emissions and may require amelioration;
- The scale of traffic flows forecast on the A404 corridor will exceed 5% of existing levels and thus worthy of a more detailed assessment. The traffic volumes on a 40mph design speed road are likely to result in a reduction of vehicle speeds and therefore a material increase in emissions on this route. Any proposals may require complementary measures to monitor and reduce harmful emissions; and,
- When traffic flows exceed 16,000 AADT community severance[6] conditions can be considered *severe.* The need for mitigation must consider the Local Transport Strategy to foster more sustainable travel patterns. No pedestrian / cycle improvements are proposed north of A404 / Marlow Hill junction. Taking account of local topography mitigation measures might include at-grade crossings and bridges over the A40.
- The significant increase in traffic flows on the A404 corridor is likely to materially increase personal injury accidents on the corridor. Whilst traffic speeds might reduce the forecast traffic density is likely to contribute to increased collision levels
- The surrounding network is forecast to be operating at or above capacity. Taking account of the driving environment, conditions for driver stress and delay[7] can be expected to worsen indirectly contributing to decreasing standards of driving and a corresponding increase in collisions.
- The proposed pedestrian / cycle / bus route through Daws Lea to the Coachway is intended to improve accessibility and deliver some bus priority. The impact on residential amenity and the loss of trees relative to the Area of Outstanding Natural Beauty to the south will need to be considered along with any effect of mitigation measures

3.1.11 The Daws Lea link may be subject to a Compulsory Purchase Order (CPO) Inquiry thus appropriate assessments will be necessary should the SQTS advance. The value of a pedestrian / cycle link from RAF Daws Hill to the Cressex Business Park is quite apparent, taking account of some topographical issues. It should be possible to deliver this improvement through the loss of verge adjacent to Daws Lea and the

[6] Pedestrians, cyclists and equestrians and community effects, Design Manual for Roads & Bridges (DMRB), Vol.11, Sect 3, Pt. 8.
[7] Vehicle Travellers, DMRB, Vol.11, Sect 3, Pt. 9.

formation of a route through the wood, with nominal tree loss and a garage at one property. For this route to achieve its potential a further link would be desirable through John Hampden School.

3.1.12 The value of the bus route through Daws Lea is less clear. It will result in the loss of a dwelling or changes to the road and adjacent dwellings. Given the current and forecast levels of bus use, the provision of a bus route could easily be reviewed with a sensitivity test of bus services using the refined model.

3.1.13 The SQTS incorporates very limited bus priorities, beyond the Daws Lea link. The difference plots provided by Jacobs suggest that the proposals deliver little if any mode-shift on the corridor. Without additional priority measures significant changes in the car parking supply / charges in High Wycombe will be necessary, otherwise the proposals cannot be expected to accommodate additional travel demand.

4 Alternative Transport Strategies

4.1.1 It is accepted that any alternatives to the SQTS that might be considered will be based on insufficient information, at this juncture. The strategy highlights some existing network constraints including the A404 / Marlow Hill and A404 / Daws hill junctions. Taking account of these constraints and initial findings from the transport models, Figure 1 indicates a potential alternative which is based on the following:

- Improvements are already proposed on the northbound approach to the A404 / Marlow Hill junction. It may be possible to widen the carriageway into the central reserve and thereby accommodate forecast flows whilst delivering the (pre-signal) bus priority incorporated into Coachway proposals, as well as delivering pedestrian / cycle crossings.
- The A404 carriageway offers a right-turning lane into Daws Hill Lane. This carriageway could be reallocated to widen the A404 southbound from this junction to 3-lanes, effectively delivering a lane gain from Daws Hill Lane and offering sufficient weaving length at 40mph between this junction and Marlow Hill.
- The right-turn into Daws Hill Lane can be grade separated (north to east, one way) using school land to the west, delivering an additional / alternative pedestrian / cycle crossing, and making best use of the topography in this area (see image below).
- This will involve:
  - The loss of the existing bus layby, re-provided within the landscaped area of the school
  - the loss of some trees at this boundary but subject to replanting within the informal open space within the southwest quadrant of the school
  - a better school drop-off / pick-up facility, which will reduce disruption to network traffic primarily on Marlow Road.

- The current proposals to modify the A404 / Daws Hill Lane junction can be modified, turning the junction into a simple left-in / left-out junction, closing the central reserve and improving safety in the form of a compact grade separated junction.

4.1.2 It is considered that such an arrangement would substantially remove traffic from the A404 / Daws Hill Lane junction. Subject to a more detailed review of other network constraints this option could help redistribute traffic from the A404 corridor to the north improving traffic flows and delay. With modest adverse impacts on Daws Hill Lane the resultant bridge earthworks would help form part of a noise barrier for residential areas to the east.

4.1.3 To enhance the potential of the P&R and deliver a more viable bus service

- A pre-signal / pedestrian / cycle crossing could be introduced at Wordsworth Road junction thereby 'gating' traffic flows at the edge of the town centre. This would reduce community severance and could support a parallel bus route to the A404 corridor.
- With the above pre-signal crossing it may be practical to use the northbound grade separated route and a bus / cycle route via Tennyson Road, with less tree loss than the area near Daws Lea, thereby achieving northbound bus priority past much of the traffic on the corridor.

- Subject to network constraints elsewhere it may be practical to permit buses to operate through Wycombe Hospital, turning left into Barracks Road. In collaboration with the Hospital's Travel Plan it should be possible to *intercept* car trips to the hospital and *transfer* these to bus journeys, whilst potentially enhancing journey time reliability for bus services into the town centre.
- Consideration should be given to more onerous parking restrictions and more draconian enforcement arrangements. Together with an escalation of parking charges above inflation and the hypothecation of these increases the combined changes on generalised cost of travel into the town centre could support P&R services into the future.

4.1.4 At this juncture the developers' of RAF Daws Hill are promoting an alternative transport strategy. Based on the measures identified these appear unlikely to deliver sufficient mitigation to deliver a *nil-detriment* impact however until the High Wycombe model is supplemented or improved it would be unfair to draw any conclusions

4.1.5 It is anticipated that a strategic development will provide a robust Travel Plan to reduce travel demand at the development. It would be reasonable to assume that any infrastructure mitigation consider the effects with and without a Travel Plan outlining measures appropriate in scale and kind to the resultant change should the plan fail to deliver these. The production of an independent monitoring report of the Travel Plan objectives would ensure that conditions can be preserved or enhanced.

4.2 Conclusions

4.2.1 To reflect the Inspector's intention a level of scrutiny is required to ensure that the transport model is robust and the resultant strategy is sufficient. This technical note tries to review the available material, draw some conclusions and offer recommendations.

4.2.2 The SQTS offers some helpful proposals to improve accessibility in the surrounding area. In our opinion the level of mitigation appears to be insufficient however further evidence is necessary to demonstrate how these can and indeed will preserve or enhance the existing environment in the Daws Hill area.

4.2.3 From our inspection of the BCC model evidence it is our opinion that the model is not sufficiently robust to inform a Transport Strategy in the area. It is unclear why the model has been developed concurrently and what evidence there may be to support the current SQTS does not suggest the proposed improvements will sufficiently mitigate the impact of planned development in the area.

4.2.4 The A404 corridor is forecast to operate at or above capacity. A series of physical and environmental constraints will inhibit traffic growth and may adversely affect the economic growth of the town and financial viability of bus services on or near the corridor. Without viable public transport it is very likely that higher levels of peak spreading will occur beyond 2020 therefore a more thorough review of the environmental impact is necessary before a strategy is adopted.

4.2.5 If the intended purpose of the VISUM model is to inform the transport impacts of development along with any associated mitigation measures, then we consider that further validation is required. A more constructive approach would be to develop a micro-simulation model of the SQTS area where the results would offer a more transparent medium for community and Member consultation.