

Appendix 1 - Detailed Comments on AECOM Transport Modelling

1. The comments below follow the order of the document “Transport Model Testing of the WBC Local Plan, August 2021”, undertaken by consultants AECOM in Manchester. AECOM have previously produced the Warrington Multi Modal Transport Model 2016 (WMMTM16).
2. The AECOM modelling work has been used to provide supporting evidence in the development of the Local Plan Review. This latest AECOM report analyses changes made to Warrington Borough Council’s Spatial Strategy, and the transport impacts of PSVLP21.
3. The AECOM document acknowledges in para 1.7 that “the PSVLP21 is expected to impose significant pressure (my underlining) on the existing transport network”, and that it “will be particularly important that soundly based evidence justifies the associated transport strategy.....prior to an Examination in Public”.
4. It is crucial to note that the transport modelling tests-out the Draft Plan exactly as published. Some of the key contents of this Draft Plan are being challenged head-on by the local community and by consultees. The modelling therefore does not reflect the quite different housing and employment scenarios being put forward by the local community in opposition to the published Local Plan.
5. Therefore - and this is no criticism of AECOM, who could only report on testing of exactly what they were given by the Council - significant elements of AECOM’s model conclusions should be challenged.
6. The modelling addresses the following inputs:
 - 2,695 housing completions that have taken place during 2016-21 (in other words, giving an update on the 2016 base).
 - 74 hectares of employment land completions, 2016-21.
 - The proposed 17,163 new homes for the period 2021-38, divided between existing urban land (71%) and urbanisation of hitherto-protected Green Belt land (29%).
 - The proposed 305 hectares of new employment land for the period 2021-38, divided between existing urban land (just 13%) and the major taking-over of formerly protected Green Belt land (87%).
 - Overall, between 2016 and 2038, the difference that the modelling is taking account of is no less than 19,858 new homes and an area of 379 hectares of new employment land.
7. The AECOM modelling then attempts to:

- Assess the transport impacts of the pattern and scale of the proposed 2021-38 developments (including what has taken place 2016-21, since earlier modelling).
- Understand the benefit of the associated transport infrastructure and policy interventions proposed by WBC.
- Understand (assess) the future operation of the highway network, based upon the full delivery of (1) the Local Plan, but crucially (2) the Local Transport Plan 4 as published in December 2019.
- Identify any (policy) areas required for further consideration.

8. The AECOM modelling covers:

- Car
- Rail
- Bus (but not school bus)
- Freight (LGV, HGV)
- Active modes of cycling and walking.

9. The problem with the AECOM modelling approach is that, whilst it is relatively straightforward to credibly model the “hard” elements of LTP4, such as the provision of a new link road, it is highly speculative to attempt to model “soft” issues such as bus service provision, bus service reliability, actual bus service use, actual cycling use, and actually walking use, in the precise context of South and South East Warrington.

10. For examples of likely future confounding factors that may render AECOM’s modelling significantly-inaccurate:

- bus use will almost certainly be depressed by high car ownership. On new housing estates in a reasonably-affluent town, in an era of low-emission vehicles, bus use is unlikely to be significant, apart from key flows such as schoolchildren.
- bus use will be depressed by increased congestion. If congestion is even marginally higher than forecast, the impact upon bus services - which are already unreliable due to existing congestion and other day to day factors - may become even more significant, and patronage reduce further.
- bus use is sometimes affected by unreliability due to staff shortages (as is occurring severely in late 2021).

- bus use has already declined by about half in the past 10-15 years (even without COVID). This forms an ominous reality-check to speculative claims of future increased use
- bus reliability is adversely affected by roadworks (there are always roadworks under way at some locations at any given time). It is understood that roadworks are not allowed for in AECOM's modelling - the unrealistic assumption is that there are none whatever.
- bus reliability is adversely affected by Manchester Ship Canal swing bridge openings, which are broadly unpredictable. This, too, is not taken account of in AECOM modelling, a further unrealistic assumption. Bridge openings may be unpredictable time-wise, but are still a material influence.
- cycling levels have risen and fallen over years/decades. They reflect local topographical factors, safety factors (and accident rates), fashion/culture changes, theft risk, personal security risk, quality of highway/cycleway maintenance, daylight availability varying by season, and (critically) the weather varying day-to-day (rain/wind). This makes accurate forecasting of cycle use - regardless of cycle-priority provision - difficult.
- walking, too, is affected by safety/personal security concerns, by seasonal variations in daylight, by day-to-day weather variations and by quality of footway maintenance and vegetation trimming-back

11. My key concern therefore is that there is inbuilt "optimism bias" in AECOM's work, with the latter unrealistically-assuming that buses always run to time, and that cycling and walking (in permanently-fine weather and continual daylight) are always available as attractive "green" travel options.

12. It is also noted that the AECOM modelling has used observed data from the base year 2016 and then applied changes in land use, population and infrastructure. This may be highly questionable post-COVID. The 2019-22 (or longer?) pandemic has hugely upset normal transport use and it is still far too early to be confident that a stable "new normal" has been arrived-at.

13. In particular:

- Peak-period car commuting may return to normal pre-COVID levels, or may be permanently, if marginally, depressed by working from home, especially on Fridays.
- Peak car use may actually become permanently elevated as working from home declines (other than on, say, Fridays), reflecting a lasting switch to cars on health-safety grounds at the expense of buses and rail.

- Continued heavy demand for second-hand or leased new cars. COVID/post-COVID travel patterns may become permanently embedded, even after the pandemic ceases, on change-of-habit grounds. Once bought, cars will be used, at marginal cost.
- Car use may remain elevated off-peak, again mirroring reduced bus and rail use.
- After increased cycling and walking for day to day needs, due to COVID, active-travel patterns and levels may remain elevated due to the appreciation of their health benefits, or may part-reduce towards former levels as COVID concerns wane, or may almost-completely revert to former low (in terms of travel-to-work, shops, schools) levels.
- There has also been an abrupt increase in car fuel prices. The duration is uncertain. There has also been strong growth in second-hand car prices. Again, the likely duration is uncertain.
- These sharp and sometimes-opposing trends have to be set against further “known unknowns” such as the price of electric cars and the price of their batteries, plus the latter’s longevity.
- Further electric-car issues are the technical advances that could crucially increase their range between chargings and, again crucially, the availability of charging points, including points at workplace and retailing car-parks. Another issue is whether charging will be free or payable in public car parks and at workplaces. There is a further particular “known unknown” in relation to charging cars that are parked on-street as opposed to within property boundaries.
- Home shopping for food, and on-line shopping generally, received a major boost during the COVID pandemic. Obviously, these trends have a potential transport impact, reducing car trips to shops but significantly-increasing trips by LGVs in particular. The precise long-term trend is still unclear.
- COVID, and the preceding on-line shopping boom, have also impacted upon the geographical distribution of retailing floorspace. Precise effects vary from town to town, but could be summed up as (1) markedly-reduced retailing in cities (2) reduced retailing in town centres such as Warrington (3) possibly-permanently increased retailing in district centres such as Stockton Heath (4) relatively-stable retailing in out-of-town “sheds”, possibly including (in Warrington’s case) Winwick Road and Gemini, and the increased on-line retailing referred to above.

14. A further confounding factor is that there are regular, or rather irregular, delays on the M6, M56 and M62 motorways, and that these very significantly impact upon Warrington’s local roads. For example, in mid-October 2021 a lorry fire on the Thelwall Viaduct caused major congestion in Warrington. Such random incidents are far from rare. Some proper assessment should be made of their frequency and scale, and, as with the swing bridge openings and the roadworks that move-about, their effects factored into the assessment of Warrington’s highway capacity. To do otherwise is seriously misleading.

15. Further confounding factors are:

- Emissions, and present and future emission legislation to achieve carbon-reduction and air-quality targets.
- Possible tax-raising changes, reflecting the carbon agenda.
- The possibility of clean air zones (including inner Warrington).
- The effectiveness or otherwise of Government programmes such as switching freight from HGVs to rail with local LGV deliveries.
- Other legislative impacts such as stricter (or, much less likely but still possible, less strict) driving-licence exams and MoT testing.
- Public opinion regarding the above factors, affecting public behaviour.

16. The above factors throw-open many questions about future transport use and in particular the likely modal split between cars, public transport and (for very local trips) walking and cycling, plus in the case of on-street vs on-line retailing, whether shopping trips will take place at all.

17. The overall result, with factors working in concert or neutralising each other (an overall “unknown”) combine to produce undoubtedly the most unstable and unpredictable transport modal split scenario since the 1970s, and possibly even the 1940s. It is therefore not possible to accept the AECOM modelling as accurately reflecting likely modal shares for the period 2021-25, and arguably further. It is very clear that the 2021 modelling will have to be updated after post-COVID trends emerge. And even these may not be stable, for some of the reasons referred to above.

18. In short, a wide range of transport scenarios is needed, not an artificially-precise prediction. This profound forecasting uncertainty has not been acknowledged either by AECOM or by Warrington Borough Council.

19. The use of local data, rather than a TAG core scenario using NTEM2 growth rates, does not overcome these objections in any way. The claim in para 4.6 of the AECOM report that “observed local data has been used as much as possible so the trip rates and distribution of trips applied to the (housing and employment) developments take account of the observed patterns”, whilst factually correct, is thus deeply misleading in that it implies a near-certainty in the forecasting that is simply not justified in present and immediately-foreseeable circumstances.

20. It is also understood (from the Warrington Transport Model - Model Validation Report 2017 that the modelling regards June as a typical month, and that forecasting is based around this. This assumption is hereby challenged head-on. June is a month when many people (other than those families with children of school age) are on holiday, either

elsewhere in the UK or outside it, depressing urban traffic flows (although there is minor offsetting due to the increased propensity to make local leisure trips in good weather). June is also a good month for reliability on buses, and obviously an attractive month for cycling and walking.

21. There is thus significant bias in AECOM's modelling. The AECOM work, in its modelling and validation work, should have considered months such as October, when holidaying is at a low level, and arguably other months such as November/December when there is increased shopping and the weather is adverse. It should also allow for dark mornings/evenings, when travel is more difficult for various reasons, rather than opting for a (usually) fine-weather month with maximum daylight hours.
22. The areas of housing growth identified in the Local Plan (PSVLP21) are the Town Centre, the Waterfront, the South East Warrington Urban Extension, the South East Warrington Employment Area, the Fiddlers Ferry redevelopment from a brownfield function, and additional smaller outlying developments throughout the Borough. My comments on the modelling relate particularly to South East Warrington, but are applicable to the entire Borough modelling.
23. Table 4.1 in the AECOM report apportions trips between:
 - SEWUE (South East Warrington Urban Extension), the housing schemes south of Grappenhall/Stockton Heath.
 - Fiddlers Ferry
 - Outlying Settlements
 - West Warrington
 - "Urban Area Extension" (?). It is not clear what is meant here by "Urban Area Extension". It is assumed that this latter refers to the South East Warrington Employment Area, or SEWEA.
24. Table 4.1 confirms that the proposals would have a significant traffic impact upon the town centre and surrounding highway network, particularly the radial roads such as the A50, A5061 and A49. The table confirms that:
 - From the South East Warrington Urban Extension estates, 56% (rounding to the nearest per cent) of trips would be to/from "Other Warrington" plus a further 9% of trips to/from the Town Centre, rounded total 64%, or roughly two-thirds.
 - From the (quote) "Urban Area Extension", which as noted is taken to mean the South East Warrington Employment Area, 47% of trips would be to/from "Other Warrington" plus a further 10% to/from the Town Centre, total 56%.

25. The two figures above point to a relatively sharp increase in traffic flows on the South East Warrington/South Warrington highway network that lies between (and includes) the A50/A5061 and the A49. The A49 through Stockton Heath and Wilderspool Causeway (including the Stockton Heath swing bridge), and the A50 through Grappenhall and the A5061 Knutsford Road swing bridge, cannot be improved in capacity to dual-2. Increased congestion is inevitable.
26. Significantly, it is acknowledged by AECOM that, to adhere to NTEM-constrained Traffic Growth forecasts, it would require either:
- Reducing the local Warrington growth to levels lower than considered in the Local Plan (PSVLP21), or
 - Reducing external growth to levels below NTEM forecasts.
27. It is admitted by AECOM that neither option is desirable, and that the AECOM modelling does not (their underlining) incorporate the NTEM constraint. The AECOM report goes on to admit that “any subsequent scheme evaluations using the model may require separate forecasts to be prepared in accordance with TAG Unit M4 if they are to be subject to funding support from Central Government”.
28. This is a tacit admission that scheme funding for major highway schemes in Warrington, for schemes designed to try and cope with the increased congestion emanating from the new residential and employment developments, will struggle to meet national Government criteria, and thus approval, and thus (crucially) finance. The Government - any Government - is not in the business of funding highway schemes to promote car commuting.
29. Table 4.3 suggests a number of locally-derived 12-hour 2-way trip rates for cars, relating to:
- Home based work - attraction, trip rate 0.00900
 - Home based employers business - attraction, trip rate 0.00100
 - Non home based employers business - attraction, trip rate 0.00135
 - Non home based other - attraction, trip rate 0.00171
30. It is suggested that all these rates now require revisiting and possibly amendment, post-COVID. The continuation of COVID may require all forecasts for the next few years to be treated with extreme caution.
31. Table 4.4 lists 12-hour 2-way trip rates (all vehicles) using the TRICS industry-standard database, giving the following rates:
- Business park, 8.3 trips per 100 square metres.

- Industrial units, 5.7 trips per 100 square metres.
- Warehousing, 2.4 trips per 100 square metres.

32. And again, in Table 4.5, it is stated that Daily Trip Rates by Purpose break down into Commuting (proportion 0.308), Business 0.041 and Other, 0.651. The extreme accuracy of these numbers is wholly misleading, and arguably, post-COVID, completely spurious.
33. For the three tables, 4.2, 4.3 and 4.4, for reasons detailed previously, it is therefore very strongly suggested by this Response that all these rates require revisiting in a post-COVID environment where the prevailing policy drivers are going to be related to health-damaging emissions and legally-binding international targets. It is simply inadequate to use past industry standards, whatever the details of future policy are. They are self-evidently out of date. Their precision lacks all credibility.
34. Tables 4.6 and 4.7 in the AECOM report give details of time periods of trips. The figures, as earlier, may need revision in a post-COVID environment. In some ways, the split between “Work/Commute”, “Business” and “Other” is unhelpful, even if it is standard practice. It is notable that no less than 52% of the AM peak (1.5hrs) trips are “Other”, and for the PM Peak “Other” accounts for no less than 62%. These percentage shares are far too large to be meaningful.
35. In particular, it would be helpful to differentiate clearly between peak trips conveying schoolchildren and other non-work non-business purposes, as “the school run” creates localised congestion that could be expected to worsen significantly if the 2021 Local Plan goes ahead un-amended. It is also noted that the AECOM modelling excludes school bus flows. This, too, is unhelpful.
36. It is stated in Table 4.8 and para 4.28 that the effective average 12-hour trip-rate per household over the period 2016-38 is 2.83. But the same table confirms that trip rates 2016-31 are expected to be 2.80 whereas from 2031-38 they will grow to 2.90. This appears to confirm (if the forecast proves correct) an almost 4% increase in trip rates per household even based on 2031 estimates.
37. It is notable that the NTEM 7.2 database gives respective trip rates of 2.49 and 2.50 respectively, whilst the TRICS database gives (according to AECOM) a figure of 7.20 trips per household, and the National Travel Survey for Warrington/Cheshire gives a rate of 3.70. The very wide range of these estimates suggests that there are potentially-major margins of error. Even with the TRICS figures discounted, as AECOM has done, the range for 2031-38 is between 2.50 and 3.70, 48% higher.
38. Even with both the TRICS and NTS database discounted (as AECOM has done) the conclusion is that Warrington’s Local Transport Plan and Local Plan should respect this uncertainty, and make it transparent to the public. Assurances of very modest trip growth, and congestion growth, should carry a health warning.

39. Table 4.10 compares 2016 and 2031 (not 2038) vehicle trips by model time period:

- In the AM peak, car trips 2016-31 are up by 8% (all quoted percentages have been rounded).
- In the inter-peak and the PM peak they are up 9%.
- In the AM peak and the inter-peak, LGV (van/pickup) trips are up no less than 20%.
- In the PM peak, they are up by 21%.
- In the AM peak and inter-peak for HGVs, there is a fall of just 1%, and no change for the evening peak. This is extremely surprising, and is strongly questioned here, given the nature of the huge proposed South East Warrington Employment Area alongside the M6 and M56. It would seem certain that at least a small proportion of HGVs accessing the proposed site would arrive/depart via the Warrington local road network.

40. For the forecast year of 2038, only seven years later and only just over a decade and a half away, the forecasts are yet more disturbing:

- In the AM and PM peaks, car trips 2016-38 are up by 14%, a very significant rise.
- In the inter-peak, they are up even higher, 15%.
- In the AM peak, LGV trips are up by a very significant 32%. For every three vans, there will be four. For the inter-peak and evening peak periods, the increase is almost as great, 32%.
- Again, for HGVs the difference is 1% up for the AM peak and inter-peak, and 2% up for the evening peak. Again, these figures do not appear credible in the circumstances, although it must be acknowledged that a variety of influences will affect HGV movements, including road/rail split, lorry size, lorry operating costs, carbon taxing and other policies.

41. It should be noted that the relationship between trips and congestion is sometimes not a linear one, and that an increase in (say) car trips of 20% can produce an increase in congestion - especially when increased fly-parking, such as around schools and shops, is taken into account - of well above that figure.

Table 4.12 sets out predicted growth 2016-31 in daily vehicle-trips by matrix area. This table confirms that:

- For cars internal-to-external (cordon) trips will increase 2016-31 from 101,700 to 112,000, a rise of 10%.

- For cars internal-to-internal trips, the increase will be from 215,800 to 244,400, a rise of 13%.
- For LGVs, the comparable rises internal-external will be from 10,700 to 13,400, a rise of no less than 25%, and internal-internal will be from 27,000 to 32,000, a rise of 19% (rounded).
- For HGVs, there will be an internal-external increase from 7,100 to 7,200, a rise of only 1%, which seems implausibly low, and for internal-internal there would actually be a fall of over 7%, which appears even more surprising and non-credible.

42. The increases 2016-38 are of course even more steep (other than for HGVs):

- For cars, internal-external, there is an increase from 101,700 to 118,400, or 16%, which appears too conservative.
- For internal-internal, the increase is from 215,800 to 259,600, a steep increase of 20%
- For LGVs, there is an increase internal-external from 10,700 to 14,800, or no less than 38%.
- For LGVs internal-internal, the increase is 27,000 to 34,900, an increase of 29%.
- For HGVs, again the data appears implausible, particularly for internal-external HGV movements, which are forecast to increase by just over 4%. The internal-internal increase is again a decrease, again a very implausible, of 4%.

43. Table 5.2 sets out the Committed Infrastructure, in other words, schemes built, 2016-21. There are 15 completed schemes and three schemes yet to be implemented (Omega Phase 3, Warrington Western Link and M6 Smart Motorway junctions 21A-26 (the latter is nationally controversial)).

44. It is noteworthy that of the 18 listed schemes, only the Centre Park Link has any impact upon South East Warrington, where the greatest Local Plan residential development and the vast majority of industrial land development, 2021 onwards, is scheduled to be concentrated. This is remarkable. No significant attempt is being made to precede developments with infrastructure.

45. The AECOM report crucially notes that (based on TAG Unit A2.2 in the Department for Transport) "If additional traffic can be accommodated by the (transport) network without significant increases in the costs of travel for existing users, then the network can be assumed to provide a reasonable level of service." Costs, in this quote, include user time and convenience costs as well as monetary costs. The AECOM report notes that TAG does not define "reasonable level of service".

46. The impact of the significantly-greater number of vehicles that would accompany the very large scale of both residential and industrial development proposed for South East Warrington would inevitably be very considerable. It would take the form of:

- Delays to car, LGV and HGV movements due to extended traffic queues
- Greater unpredictability of car, LGV and HGV journey times due to unpredictable stress in the network (itself triggered by minor accidents, poorly parked vehicles, roadworks and occasionally-displaced heavy motorway flows, leading to residents and commuters having to allow more time to ensure punctual arrivals.
- Disruption to the travel of key workers such as emergency vehicles, routine police patrols, NHS staff, essential drivers such as bus crews and HGV drivers signing-on, and carers moving from appointment to appointment.
- Unpredictable delays to bus services, damaging patronage and encouraging modal switch to private cars.
- Greater stress for less confident drivers, such as L-drivers, new or less experienced drivers and older (over 75) drivers.
- Greater difficulty for households on busy which have to reverse cars into driveways, and increased pressure on on-street parking at locations such as TESCO on Grappenhall Road due to heavier flows and increased custom.
- Increased difficulty in crossing roads for parents with buggies, for schoolchildren, for people with learning difficulties or disabilities such as poor sight, or people with less agility such as older people.
- A commensurate increase in traffic accidents.
- Increased vehicle engine, exhaust and tyre noise, and (subject to the switch to electric vehicles) increased emissions. Note that electric vehicles still generate brake and tyre particulates.
- An overall sense of reduced quality of life (the early-2020 pandemic lockdown unexpectedly reminded residents how traffic noise, intrusion etc was a surprisingly-significant quality of life “negative”).

47. It is clear from the AECOM report that only a small minority of the above factors have been taken into account, principally the first-mentioned (delays to vehicles). This fails to reflect real-world values, preferences and judgements.

48. The AECOM report identifies (Table 5.4) a number of additional highway schemes in South and South East Warrington that it regards as “needed by” 2031 or 2038:

- Warrington South Strategic Infrastructure - Existing Junction Upgrades (2031)
- Warrington South Strategic Infrastructure - New Link Stretton Road to A49 Phase 1 (2031).
- Warrington South Strategic Infrastructure - New Link Stretton Road to A49 Phase 2 (2038).
- Warrington South Strategic Infrastructure - the "D" - Witherwin Avenue/Dipping Brook Link (2031).
- Warrington South Strategic Infrastructure - New Link to Grappenhall Lane and Barleycastle Lane Upgrade (2031).

49. It is likely that a large proportion, or even (in extremis) all, of the costs of these five schemes could be borne by developers. However, all five in total will not solve the problems of increased congestion in South and South-East Warrington. For example:

- The three junction improvements on the A49 will come at a cost (in congestion terms) to traffic on the A49 itself, due to the resultant constraints on green-time on the A49 (against a background of increased A49 traffic flows) needed to accommodate increased flows on feeder roads.
- The busier improved junctions, because of increased flows, will need to have pedestrian phases built into them. There will also be an increased need for signal-controlled pedestrian crossings at other (non-junction) locations.
- The three junction improvements, and the other two schemes, will have minimal impact on containing the increased congestion in Stockton Heath high street, Stockton Heath swing bridge, and at other locations such as Lumb Brook bridge.
- The planned Western Link will have minimal effect on reducing A49 flows.
- No improvements are planned for the A50 between J20 of the M6 and the A50/A56 junction at Grappenhall.
- No improvements would be possible (with destructive impacts on the townscape, loss of trees, loss of parking etc) on the A50 through Grappenhall.
- No improvements are physically possible for either the Knutsford Road swing bridge or the Latchford gyratory system.
- Over the entire South Warrington/South East Warrington area, as previously pointed out, there will be a general increase in difficulties in crossing roads, exiting side-roads (particularly if a right turn is involved), reversing into residential driveways, parking etc. The five listed schemes will not help these aspects in any way.

50. The AECOM report then goes on to consider two potential policy interventions:
- LTP4’s “Mass Transit Package” (as yet undefined, but understood to be either bus priorities or bus priorities plus guided busway sections (as per the successful Leigh Guided Busway) or a lightweight rail-based system (as being considered for Coventry) or a conventional tram system (as per Metrolink).
 - LTP4’s Cycling Strategy.
51. The AECOM report notes that Warrington Borough Council has approved the development of a “Mass Transit” system but that the proposal has not been sufficiently developed to enable it to be modelled at the (August 2021) reporting stage. The assumption is for a six-corridor system attracting a 20% market share of trips (assumed to mean 20% of car plus bus trips, but this is not clear in the AECOM report). AECOM has assumed an average additional 6 seconds of red time at all affected signalled junctions. It is not known how realistic this is. Experience in Manchester with Metrolink may offer a guide.
52. Fig 5.3 in the AECOM report depicts two of the six Mass Transit corridors operating south of the Mersey, one south-westwards to the Walton area and one south-eastwards towards Grappenhall Heys and Appleton Thorn. There is no explanation as to how the latter Transit corridor would cross the Manchester Ship Canal, where very high clearance would be required, with approach viaducts, or the Bridgewater Canal, where clearance requirements would be much more modest but where an approach incline would be impossible without significant visual and residential intrusion.
53. Whatever the merits of transit systems, it is in my professional view seriously irresponsible to optimistically-moot dramatic transport concepts in this way as part of what is meant to be a serious public planning consultation exercise without addressing the obvious practical, let alone financial and cost-benefit, difficulties. This is particularly the case given that (a) it is unclear whether the Mass Transit concept is “low-tech” such as merely additional bus lanes, or “high-tech” as with a low-floor transit system such as Nottingham or Sheffield, or something in between (b) what timescale might see such a system delivered, and (c) how realistic a funding package, which would certainly need very significant Central Government support, might be secured, particularly in an era of financial stringency.
54. It is notable that no transit system route is mooted for the busy A49 and A50 corridors, where there are existing high-axle-load and vehicle-weight crossings of the Manchester Ship Canal (the Stockton Heath and Knutsford Road swing bridges. This is very surprising. It is assumed that any Walton corridor uses the Chester Road swing bridge.
55. For the Cycling Package - which is very much welcomed - this is detailed in the Warrington Borough Council Local Cycling and Walking Package, which proposes a rolling delivery strategy. Again, AECOM has to acknowledge that the proposed network “has not yet been developed to an extent to enable detailed modelling at this stage” (para 5.27).

56. AECOM state that the Cycling Strategy assumes that segregated cycle corridors would be created “to serve the main corridors in Warrington” (para 5.28). However, to achieve this will require the significant or even complete remodelling of several major junctions, such as Bridge Foot A49/A5061, A57/Lovely Lane/A5061, A49/Dial Street/Church Street and A57 Lythgoes Lane/Manchester Road. There are no schemes in the programme to address these remodelling needs. Until there are, most cycle routes into Warrington are going to end at one or more of these four hazardous, car-dominated gyratory systems (these junctions are also user-unfriendly to buses and HGVs, as well as inexperienced and older car drivers).
57. It is noted that the new junctions at Fiddlers Ferry (three junctions), Peel Hall Farm and the huge proposed South East Warrington Employment Area (two junctions) are all proposed to be roundabouts, which as a generalisation are pedestrian- and cycle-unfriendly compared with signalled junctions with pedestrian phases, or even without pedestrian phases.
58. The AECOM report assumes a further reduction, presumably additional to that required for Mass Transit) in green time at junctions, implying further vehicular congestion.
59. The AECOM study concludes that cycle modal share will increase from the current 2% (assumed by AECOM) to 6.2%. This may be realistic for certain corridors in summer/fine weather, but may prove over-optimistic for winter/poor weather and for corridors with particular traffic hazards such as swing bridges and Latchford gyratory. It may also prove over-optimistic for routes that involve hills, which primarily means South and South East Warrington where so much proposed development is ironically concentrated.
60. The AECOM report considers the South East Warrington Urban Extension (SEWUE), including:
- A North Delivery Area of 1,008 new homes by 2038.
 - A Central Delivery Area of a further 720 new homes by 2038.
 - A South Delivery Area of a further 720 homes by 2038.
61. The AECOM report notes that “a sensitivity test will be undertaken to test the impacts of an additional 1,800 new homes within the Plan period” (para 5.34). It notes that the SEWUE enabling infrastructure, which differs from that previously modelled, includes:
- An upgrade to the existing A49/Lyons Lane signalled junction and the (further south) A49/Longwood Road junction (currently a roundabout).
 - A new link between the A49 London Road and the B5356 Stretton Road, south of the existing connection, with a new signalled junction on the A49 and the closure of Stretton Road at its existing A49 junction (immediately south of the Cat & Lion inn).

- A new link between Witherwin Avenue and Dipping Brook Avenue (referred to as “the D” in the report).
- A new link between that latter location and Grappenhall Lane, with an additional junction improvement at Barleycastle Lane.
- Traffic enforcement (details unspecified) within Appleton Thorn village to deter rat-running through the village.

62. Again, none of the above would appear to fundamentally address the obvious likely overheating points at Stockton Heath high street, Stockton Heath swing bridge, Lumb Brook bridge, Knutsford Road bridge and Latchford gyratory system, or other locations where increased congestion would be damaging, such as the A50 through Grappenhall.

63. The AECOM modelling concedes that the WMMTM16 model produces useful levels of detail but (quote) “is not appropriate when seeking to take a high-level view on the relative impacts of different (development) scenarios”. AECOM have therefore developed Key Performance Indicators for their development scenario testing:

- Delays. Looking at a combination of factors including change in total vehicle hours delay and delays on links and at nodes.
- Travel time: Looking at a combination of factors including change in total vehicle hours and changes in travel and speeds/time along key routes.
- Flows: total car-based flows across the inner and outer cordon and the impact of additional links.
- Demand impacts: impact of changes in demand across the network.

64. AECOM caution that “policy intervention impacts are not assessed for 2031 as their Scenario 3 (see later) was not considered fully deliverable in this time-frame.

65. For “Delays”, Table 7.4 sets out changes in total vehicle-hours delay on the future local network, relative to the 2016 base year. The conclusion is that, following infrastructure investments (detailed earlier) 12-hour daily delays increase just 3.5% in Scenario 1 (2031) and only 2.7% in Scenario 2 (2031.. However, this masks higher increases in the AM peak, or 5.0% in Scenario 1 and 3.1% in Scenario 2.

66. Comment: it is suggested that these figures are optimistic. Also, they are network wide (Warrington-wide) and not area-specific (eg the A49 between the M56 and the Town Centre). Also, no allowance has been made for the protracted roadworks that would be necessary during construction. They are also being made against a highly-optimistic view as to cycling and public transport modal share.

67. For “Travel time” (total vehicle hours), again the forecasts seem optimistic, with a 2.6% increase under Scenario 1 and a 2.5% increase under Scenario 2. These again mask

slightly higher forecasts in the AM peak of 3.4% and 2.9% respectively, and are again a network-wide total rather than an area-specific assessment. The AECOM report concludes that under Scenario 2, with significant expenditure on junction improvements etc, “there is no material increase in the journey times across the network as a whole relative to Scenario 0, and that journey times are actually better for 7 out of 10 routes tested.

68. Again, this is questioned in this Submission, as it appears to be highly optimistic and based upon optimistic inputs such as assumptions about cycling and public transport. There also seems to have been no consideration given to the increased need for signal-controlled pedestrian crossings to allow pedestrians to cross roads carrying denser traffic flows. As already noted, modelling does not allow for roadworks, anywhere, a completely-unrealistic assumption.
69. Some of the forecasts in AECOM’s Table 7.11 for traffic speeds seem particularly questionable, for example an overall increase in traffic speeds on the A49 of no less than 11% in the AM peak. There is a 6% increase in speeds on the A49 northbound for Scenario 2 over the 2016 base. Again, there is a similar increase of 11% in traffic speeds (again AM peak) of 11%, for Scenario 2 vs Scenario 0, and a 2% increase over the 2016 base.
70. Again, Table 7.13 of AECOM claims to demonstrate that across the network, between 2016 and 2031 there will be little change in delays-per-km. This is not credible, particularly in the South Warrington/South East Warrington area, where car ownership for existing homes is already high, for new homes is likely to also be high, and where there is very limited scope to improve travel where there are swing bridges (which AECOM assumes are always set in favour of road traffic).
71. There is also an assumption that the M6, M62 and M56 motorways are flowing freely. It is well known in Warrington that this is not always the case, and that there is sometimes severe disruption to local roads as a consequence.
72. The various AECOM calculations certainly provide justification for the planned infrastructure interventions such as the proposed junction improvements on the A49. However, they do not address the likely increased congestion at unimprovable locations such as the junction of the A56/A49 (Stockton Heath centre), the swing bridges, and other key locations. They do not explain, or attempt to explain, wider transport questions, such as effects upon buses or conditions for pedestrians crossing roads, as (to be fair to AECOM) they were not asked to address those problems.
73. There are also no conclusions regarding vehicle noise, air quality and accidents, or wider quality-of-life factors, as again they were not asked to consider those. The “congestion will not become worse” conclusion is thus narrowly-drawn and also (as explained above) technically questionable.
74. AECOM have not considered a Scenario 3 for 2031 as they regard it as undeliverable within the first ten years of the Plan (para 7.104). There is a mystifying reference in para 7.105 that states “*shown in Error! Reference source not found*”.

75. For the 2038 horizon, AECOM estimate:

- In Scenario 1, with the full Local Plan but only with the highway schemes in the pipeline,, this results in a 9% increase in vehicle hour delays on the network, an 8% increase in the PM peak, and an 8% increase across the day.
- In Scenario 2, with the adding-in of the further highway schemes, AM peak delays are up “only” 7% and PM peak 9%.

76. AECOM then goes on to state that in Scenario 3, with “transformational” travel change, presumably highway schemes plus Mass Transit plus a cycle network, and a behavioural change, the highway network impact of the Local Plan development can be mitigated. It concludes that (para 8.11) Scenario 3 offers the greatest benefits to vehicle delay in the local network if this level of transfer from car to bicycle and public transport is achieved under the Council’s Local Transport Plan transformational strategy_(my underlining).

77. The key word here is “if”. Readers should be strongly reminded that:

- in the decade prior to COVID, bus use virtually halved, despite sterling efforts of the generally-excellent Warrington’s Own Buses and its predecessor incarnations and the provision of modern and comfortable vehicles that are clean and well-presented (Warrington won Bus Operator of the Year award in 2008).
- there has been a continuous process of retrenchment in bus service provision, over the past several decades, including loss of complete routes, the axing of innovative hail-and-ride minibus services, the curtailment of starts of service, the loss of evening services (their total absence on Sunday evenings), reductions in frequency and other measures.
- middle-income residents are notoriously difficult to attract to bus use, London apart. Most new residents in the proposed South and South East Warrington housing estates are likely to be middle-income.
- the nature of the planned developments (relatively-modest densities of dwellings not aligned with main radial routes and thus problematical to serve with combined-frequency services) will be likely to make new services to these estates circuitous and low-frequency.
- bus use during evenings is extremely low, and evening services on new estate routes will either absorb subsidy (or profits) or be likely to be withdrawn, even after any initial developer funding.
- producing a “transformational” public transport system will be profoundly challenging. Good quality buses and bus lanes will almost certainly fall into the “affordable” category. However, the provision of any higher-technology network obviously poses major Central Government funding questions. It cannot be funded locally.

78. Warrington is not part of a City Region structure, so is far less likely to attract major funding for a Very Light Rail or conventional (Metrolink-type) tram system than other, larger, cities competing for national funds. Tram systems, and even guided busways, require many years of planning. Several major cities, including Portsmouth, Bristol, Liverpool and Leeds, have spent very considerable funds on promoting tram systems, without success. Warrington is very unlikely to head-up any queue for Light Rapid Transit funding.
79. As background, there is currently a conspicuous lack of success in progressing any light rail/tram systems nationally, West Midland apart. This is not to say that there is not a case for a Warrington system, but simply to emphasise that such schemes take a long determined campaign to succeed, and often do not. The intention to deliver a “transformational” public transport system, as an integral part of a commitment to greatly-increased housing whilst containing highway congestion, must thus be seen in a realistic light.
80. The possibility that cycling levels will not be trebled must also be confronted. Warrington is not Oxford, or Cambridge. To factors such as traffic hazards, weather and hills must be added journey distances to work (eg Appleton to Birchwood) and the risk of cycle theft, amongst others. This is not to undermine the excellent objective of trying to increase cycling, and the worthwhile objective of building-in safe reserved cycle routes into new development, but simply to point out the realities.
81. The detailed considerations of journey travel times in Table 8.3 and subsequent tables follows the logic of the year-2031 tables:
- By 2038, both Scenario 1 and Scenario 2 experience an increase in travel times.
 - Where Scenario 3 routes show an increase relative to Scenario 0, the travel times are still better than Scenario 2.
 - 7 out of 10 routes examined in Scenario 3 remain with a speed lower than the 2016 base, but all routes see a speed level higher than for the equivalent route in Scenario 2, and 5 of the 10 routes have speeds higher than in Scenario 0.
82. Similar arguments are set out for other measures such as travel time. But the key point remains, to deliver the “transformational” public transport option and a major switch to cycling, as a result of significant behavioural change remains aspirational and laudable but hugely speculative.
83. It is disingenuous and delusional to argue that the **certainty** of the adverse transport effects of additional housing can be explained-away by the **low or remote possibility** of a fundamental change in travel habits flowing from a (likely) newly-settled high car ownership population, even assuming full delivery of the highway and other transport improvements.

84. Furthermore, it can be argued that the near-certainty of the highway improvements being programmed or contemplated being actually delivered will only serve to reinforce trends of car ownership and use.

85. In short, investment in the highway system will be widely seen as investment in car travel, and the newly-settled population will respond accordingly, disregarding the possibility of using low-frequency buses or cycling.

86. A snapshot of the almost-certainly-unjustified optimism built into the transport planning tested by AECOM is given in Table 8.14, Outer Cordon Flows, Inbound Direction, 2038:

- Relative to base, Scenario 0 shows a 24% increase by 2038 in vehicles crossing the Outer Cordon.
- With Scenario 3, additional infrastructure plus transformational public transport plus more than trebling cycling plus behavioural change, this is reduced to a mere 4% increase.

87. It is my view that the likelihood of the latter being achieved is remote in the extreme. I think that this would also be the view of many local residents and external assessors.

88. In their conclusions, AECOM state (para 10.18) that:

- “The additional delivery of transformational transport policies outlined in LTP4 provides a higher level of mitigation, providing not just benefits around key sites but across the wider transport network in Warrington”.
- “The assumptions used for Scenario 3 have been based upon sound evidence” (comment - AECOM do not go into details as to what that evidence is in terms of behavioural change) “of what is achievable, when the active travel and mass transit ambitions of the Council’s Local Transport Plan are delivered, yet could also be considered conservative in terms of the scale of changes modelled”.
- “Scenario 3 demonstrates an improvement in network performance compared to all other scenarios for key performance metrics of total delay, total travel time and journey time”.
- The Mass Transit System and cycling aspects modelled in Scenario 3, whilst still requiring development work” (comment - this is a massive understatement) “and commitment to deliver such measures over the life of the Plan, are shown through this analysis to provide significant benefits to the future highway network when applying the realistic shift assumptions which are set out in LTP4” (comment - how realistic the assumptions are is open to doubt, and how realistic Central Government funding is likely to be to fund a substantial Mass Transit System, whilst the latter is extremely desirable, is certainly open to question).

89. The AECOM report concludes:

- Scenario 3.....represents the preferred package providing a series of critical enabling highway improvements alongside a transformation of the cycling and public transport networks in the Borough.....This scenario has shown that the highway network operates satisfactorily.....”.
- However, AECOM go on to acknowledge (ominously) “that “there are still a number of issues on the transport network for which a solution is still to be determined”.
- AECOM’s conclusions go on: “As a strategic model, the WMMTM16 identifies areas or corridors where there may be issues on the network. Under Scenarios 2 and 3 these known remaining locations, such as the A49 Corridor, will require further assessment and targeted interventions throughout the course of the Plan’s delivery. These locations.....should be the subject of further study and included in future revisions of the Local Plan where appropriate”.

90. In other words:

- AECOM are taking the most optimistic view possible of the effectiveness of both the Cycling Strategy and the Mass Transit strategy delivering a combined 24% swing to sustainable travel.
- AECOM freely acknowledge there are still problems, such as on the A49 corridor (they fail to mention the A50/A5061 and the Knutsford Road swing bridge and Latchford gyratory), and that there are currently no worked-up measures to deal with these problems.
- AECOM do not acknowledge anywhere in their report that local cycle routes in housing estates plus cycle lanes on radial corridors, as commented earlier here, do not add up to a “comprehensive cycle network” because any network serving the Town Centre will require remodelling of the major junctions that surround it, if it is to provide an integrated safe route door-to-door (as opposed to front-door-to-edge-of-the-Centre). Note that the very desirable remodelling these junctions to improve conditions for cyclists, pedestrians and buses - not programmed in LTP4 - will affect their capacity for throughput of general traffic.
- Nowhere does AECOM acknowledge that the assumed capacity of the highway network can be undermined (never enhanced, it is not a case of uncertainty either way) by Manchester Ship Canal swing bridges being opened, and by inevitable and necessary routine roadworks.
- AECOM also does not acknowledge, as commented upon previously in this Appendix, that their traffic survey (unless it has been replaced?) was undertaken in June, a month of fine weather when many older families are away on holiday, walking and cycling is more popular, and peak car travel lower than autumn/winter.

- Interestingly, at a time of great change in terms of car design/manufacture, the move towards electric cars and the controversial provision of charging points, plus uncertainty regarding vehicle-life and average running costs, does AECOM acknowledge that these factors (amongst others) will influence modal choice.

91. Perhaps most extraordinarily, although the AECOM report has factored-in the congestion-busting effects of a Mass Transit system, nowhere in their report or in any other public document is there any detail of exactly where such a network would operate. The six-corridor Mass Transit network illustrated in Figure 5.3 of the AECOM report begs far more questions than it answers:

- Is it buses, or guided buses, or lightweight trams, or conventional light rail?
- What are the assumed construction costs?
- Where, exactly, do the routes go?
- How do they pass efficiently through busy traffic junctions and over the Mersey, Manchester Ship Canal and Bridgewater Canal?
- How frequently do services run, daytimes and evenings?
- Where are the stops?
- What are the assumed capacities of each bus/tram/articulated tram?
- What are the assumed fare levels?
- Above all, what is the funding package?
- And how large is the residual bus network? Are the trams an add-on, or instead of, the buses? Do they compete with each other, as is the case with Metrolink and Nottingham Express Transit, or are they an integrated network with joint ticketing and dovetailed connections? These are all detailed issues that require resolution before any studies as to viability can proceed.

92. These massive “blanks” have yet to be addressed, yet have not prevented AECOM from making an heroic assumption about the role and modal-split contribution of this mode.

93. The AECOM report, of course, does not test the highway network in the context of alternatives suggested in my main covering report, such as a considerably-expanded housing development at Fiddlers Ferry and the land north of Fiddlers Ferry up to the A5080, with a new station at Barrow’s Green, and an additional development north of the A57, east of the M6, directly linked by a new road to Birchwood station and the Birchwood Centre and Science Park employment areas, because these were never suggested in the Plan. This, therefore, requires a re-running of an updated AECOM model.

94. On the above basis, and for a wide range of reasons, it is suggested that the AECOM report does not constitute firm supporting evidence for either LTP4 or for proceeding with the major residential and employment developments set out in the Local Plan.

David Thrower
8th November 2021

