

Outline Comments on HIF Forecasts and Appraisal

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Introduction

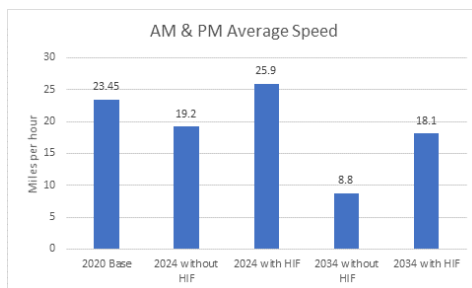
Cllr Charlie Hicks, Chair of the Transport Scrutiny Working Group and Climate Scrutiny Working Group, Oxfordshire County Council, asked me to comment on the treatment of forecasts of traffic, including induced traffic, which are used to support compulsory land purchase for the construction of HIF road projects. These are part of County's housing and other development plans. He provided me with an email chain between himself and the Head of Infrastructure Delivery, Ms Hannah Battye, and links to various published summary material about the proposals, which I have read, but I have not studied the voluminous earlier work about the development proposals themselves, and do not have a view about these.

The main relevant material is contained in an email from Ms Battye dated 17.2.2022, which embodies earlier correspondence. The extracts below are taken from that email.

Background

Oxfordshire County Council has worked up, over some years, a proposal for additional housing, employment and related development in Didcot and neighboring areas. This would increase the number of people living and working in the area, and therefore the volume of traffic. Calculations suggest HIF proposed road schemes would allow the development to go ahead while reducing congestion and carbon emissions.

Traffic Forecasts



The main forecasts cited by Ms Battye are made by the Consultancy Systra using a model called the Didcot Paramics Microsimulation model, owned by OCC.

At face value, they show that without the road schemes, average peak speeds on the relevant part of the network would reduce as a result of the development, from 23.45 mph in 2020, to 19.2 mph in 2024 and a further decline to 8.8 mph in 2034. However, if the HIF schemes are implemented speeds would rise to 25.9 mph in 2024. But then they would fall back to 18.1 mph in 2034 even if the HIF schemes are implemented. This speed is not only less than in 2024, but is even less than the 2020 base figure.

Therefore it seems that the forecast relief from congestion of the HIF schemes is expected to be very short lived. I do not know if there is an implied further set of road schemes that is planned for the early 2030s.

¹ See personal statement at end.

The Paramics model, as I understand it, is essentially a comparison of two cases: both with the development in place, which produces a given total number and location of journeys, but one figure with and one without the road schemes.

Traffic forecasts from 2020 to 2024 and 2034 must clearly be influenced by many other factors than the development and the roads – assumptions about demographics, the state of the economy, the level of car ownership, the cost of fuel, the cost and quality of public transport, policy on traffic management, speed limits, the proportion of vehicles of different types, progress on active travel, and any additional traffic that would be induced by the presence of the road improvements themselves. If I have understood correctly, the Paramics model has itself not been used to make forecasts of all these factors, and indeed does not have the functionality to do so. Rather it has looked at the effects only of the traffic generated by the proposed developments themselves.

But in that case, therefore, the actual forecasts of traffic due to all these other factors have not come from the Paramics model, which seems to be overlaid (I think) on forecasts produced earlier using the Oxfordshire Strategic Model (OSM) which does have the functions to calculate the effects of some of these other factors. I am familiar with the nature of this Model, but have not seen a report of its earlier calculations.

The issue of concern is that I believe this work must have been carried out during the period when the dominant general traffic forecasts were informed by the DfT's 2015 or 2018 National Traffic Forecasts. These were made before the onset of (a) Brexit, (b) Covid19, and the radically increased recognition of (c) the effects of climate change and (d) the importance of policies to combat it, both nationally and in Oxfordshire. It is my view that these four factors radically change the forecasts of traffic which would now be appropriate. Therefore even if the Paramics simulation is correct on the basis of these earlier forecasts, it would not necessarily be accurately representing the relevant current base level, or the factors leading to change. The assessment of the impact of the HIF schemes cannot be more accurate than the assessment of the base level of demand and the factors operating on it.

Induced Traffic

Induced traffic is defined as the additional traffic which results from the provision of additional road capacity which reduces travel times. It may be thought of as the equivalent of the extra traffic which results from reduced journey costs. Both are also influenced by convenience, comfort and other conditions, as well as the availability and attractiveness of other modes of travel. The induced traffic will be made up of the net effect of additional trips or greater frequency of trips, transfer from other modes, increased journey length from more distant origins or to more distant destinations, changes in routes chosen, and will have different effects depending on location, time and season. Where road provision changes land use patterns, this can also be treated as induced traffic.

The only response included in the Paramics modelling is the choice of route travelled, for the two cases with and without the schemes, but both taking the development as given². It is very

² Note that the roads schemes are described as a necessary condition of the development, which means that strictly the traffic speed forecasts for the case with the development but without the road schemes could not actually occur. Sometimes this causes considerable misunderstandings.

widely experienced that the provision of additional road capacity does in fact change behaviour in the ways described, and such induced traffic is therefore likely to occur. This means that there will be additional traffic due to other people using the road system. It is also clear that the Paramics model does not have the facility to make such calculations, and has not tried to do so. My understanding is that there is no claim that such induced traffic will not exist. Rather, the suggestion by Ms Battye is that it is unlikely to be big enough to make any difference:

“for any ‘induced demand’ to have a negative impact on HIF results (make the speed lower than 2024 without HIF), the induced trips would have to be approximately at least the same as the number of trips from ten years of housing and employment growth”

Note that a ‘negative impacts’ is defined, in the brackets, as making the speed in 2024 with the roads lower than the speed without the roads. It is established in traffic science that it is possible for such a big effect to occur, but in the short run it is thought to be rare. However, even in the short run I do not think that this is the correct comparison. Induced traffic has a negative impact on the HIF results even if it is say half the number of trips (or even just 10% of the number of trips) from the housing and employment growth. In these cases the speeds will be lower than calculated, and the benefits therefore less³. This would be revealed when any consideration is made bringing the normal criteria for value for money for road schemes into consideration of the special criteria of value for money of development.

In the longer run, there is a further effect. The question is whether the combined effect of the development and the roads results in a more car dependent life style, a dynamic process which tends to reduce the quality of public transport, and location of facilities, triggering a sort of vicious circle in which the end result is indeed worse for all. This is not inevitable – it would depend, for example, on parking policies, density, provision of facilities like shops, frequency of buses, access to rail services, cycling and pavement standards, schools, doctors etc. But then the traffic forecasts would need to be different depending on the outcome of all these decisions. It is difficult to see how this would be done using the Paramics model, which implicitly will be assuming particular details of development whether or not they have yet been defined.

Taking account of induced traffic will have the effect of further reducing the predicted benefits of both reduction in congestion and reduction in CO₂. (That is, they will be worse than the current forecasts for 2034 'with' the schemes). This will reduce the value for money of the schemes and increase the climate damage caused even if the amount of induced traffic is smaller than the amount of increased traffic from the development. I am not aware that there has yet been any calculation of value for money, but that will may be scrutinised in any Inquiry or Public Examination.

Other considerations.

The effect of speed on carbon emissions is different for an individual vehicle travelling at those speeds (which I think the graphs refer to), compared with a stream of traffic whose average speed varies (which the traffic forecasts refer to). Also, low speeds have entirely different effects if they are in stop-start conditions due to heavy congestion, or if they are a smooth lower speed due to reduced speed limits and managed traffic flows which, hopefully, is what can be implied in the future. Slower speeds are in general inefficient for vehicle

³ At a technical level, the relationship between speed and traffic flow is not linear, especially in congested conditions, so I'm not sure I understand the 'at least the same as...' rule of thumb.

which have been designed to be able to travel must faster than the design speed (or speed limit) or the road. I note that there is currently much more consideration of the effect of different designs of development can have on traffic conditions, for example if housing design is on the basis of multiple car ownership, or reduced car use by provision and accessibility to local services and attractions, and good alternative facilities for walking, cycling and public transport. These are of course, quite rightly, a priority for the Council, but it is not clear how the forecasting methodology allows such policies to have any effect on the traffic.

What to do?

Oxfordshire is not alone in being faced with this problem, which is not uncommon in Local Government when a large proposal inherited from a previous administration has to be assessed (a) following a change in the political complexion of the County, and (b) in the middle of a very substantial change in Government objectives and appraisals, due primarily (though not only) to climate change.

I think the current experience in Wales may be helpful to Oxfordshire. Faced by a large number of 'inherited' road schemes whose appraisals had been carried out at a time of different traffic forecasts and different policy priorities, the Welsh Government has announced a pause in further progress on those schemes, and set up an Independent Commission of well qualified people to reconsider each one to assess its contribution to the Government's wider policy objectives. Their approach derives from similar thinking to the UK Treasury revision last year of its 'Green Book' of the general rules of appraisal. So far one scheme has been formally abandoned, and another I think will be modified. I don't prejudge the overall outcome, but what is clear is that existing or modified schemes which go ahead, will do so with a much greater confidence that they are well thought through and consistent with objectives.

Personal Statement

I have experience in the assessment of traffic forecasts, the calculation of induced traffic from road schemes, and similar matters. I am Senior Fellow of the Foundation for Integrated Transport, and Emeritus Professor of Transport Policy at University College London and the University of the West of England. I was formerly Director of the Oxford University Transport Studies Unit (1979-1995) and a resident of Oxford during that time. I have been an advisor to the Department for Transport on traffic forecasting and road appraisal methods for 40 years, and currently, including being co-author of the official SACTRA report on Induced Traffic in 1994, and reports on suppressed or 'disappearing' traffic and forecasts. I am also currently advising the Welsh Government on its new road appraisal methodology. I have appeared as an expert witness in a number of planning enquiries particularly Public Examination of road schemes.

I am conscious that I have not had the opportunity to read all the documentation and technical reports that surely exist even if not all published, on all the background to the Oxfordshire Transport Strategy, the development proposals and the technical modelling reports, as I would expect to do in a proper professional study. Therefore my conclusions are necessarily provisional. I built my career in Oxford during the late 1970s to mid 1990s, with good working relationships with both City and County at that time, and have a great affection for the region. These comments are offered pro bono publico.

Phil Goodwin 28.02.2022