



Department  
for Transport

# Appraisal and Modelling Strategy Consultation Consultation Responses

Responses 41-61

**Moving Britain Ahead**

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# Introduction

In 2018 DfT consulted on priorities for a new appraisal and modelling strategy<sup>1</sup>, presenting an ambitious vision for developing our appraisal and modelling tools over the next five years. This document contains unedited responses to the consultation where permission has been given to publish. It contains the vast majority of responses and is for the most part representative of the views expressed. We are publishing the responses in the interests of openness and transparency and it should be noted that they do not necessarily reflect the views or policy of DfT.

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<sup>1</sup> <https://www.gov.uk/government/consultations/transport-appraisal-and-modelling-strategy-informing-future-investment-decisions>

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# Appraisal and Modelling Strategy: Informing Future Investment Decisions

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# Appraisal and Modelling Strategy: Informing Future Investment Decisions

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# 1 Introduction

- 1.1 This is Steer's response to the Department for Transport's *Appraisal and Modelling Strategy* consultation. With its goal of helping the Department shape the future development of its modelling and appraisal guidance, this is an important consultation and one which we welcome and are pleased to respond to. We would also like to acknowledge and note our appreciation of the approach that the Department has adopted to engagement with practitioners during the consultation period: we have been pleased to take part in a number of the 'road show' events held over the last few months.
- 1.2 Our response to this consultation has been informed by our broad range of experience developing and applying land-use transport interaction models, variable demand models and unimodal assignment models, undertaking appraisals and developing and reviewing business cases. This experience includes:
- Working with sub-national transport bodies developing their strategies and business cases for 'transformational' transport interventions
  - Leading the development of five case business cases for capital and policy interventions for all modes, and particularly for rail and urban public transport
  - Developing and defending business case evidence in the role of expert witness at public inquiries and other hearings
  - Acting as Independent Transport Evaluator for six Local Enterprise Partnerships to support the application of their respective Assurance Frameworks
  - Advising promoters, on behalf of Homes England, on the application of MHCLG and DfT guidance for the on-going Housing Infrastructure Fund and in particular, the development of the Economic case
  - International experience developing and applying appraisal frameworks in jurisdictions with similar decision-making frameworks to the UK
- 1.3 This experience gives us a wide perspective of how the Department's guidance is applied in practice and its strengths and weaknesses. While the response has been informed by the work we have undertaken for many public sector clients, what we say here is our view. Where we cite examples, we have not named schemes or clients and nothing we say here should be construed as representing any others' views. Furthermore, while we have engaged with a number of our clients as they have developed their responses to the consultation, only this response is the Steer view.

## Overview

- 1.4 Through its *Understanding and Valuing the Impacts of Transport Investment* programme, the *Transport Investment and Economic Performance* (TIEP) report and the subsequent redrafting of WebTAG, the Department's modelling and appraisal guidance is both more wide-ranging and more accessible than it has ever been. However, we agree with the Department that further development is needed and we broadly agree with the thrust of the five themes set

out in the consultation document. This said, our response has been informed by a number of themes of our own and these are set out in summary below.

### **Impact on the “Real” Economy**

- 1.5 Importantly and notwithstanding advances made post-TIEP, there is still a mismatch between the political goals of promoting increased employment and accelerated growth in GVA that are driving sub-national and local policies and programmes, and the approaches to modelling and appraisal set out in guidance. More specifically, even for modest transport enhancements many decision-making frameworks are constructed around job and GVA impacts: we find that the Department’s position that only the most substantial investments can have an impact on the spatial distribution of economic activity is not having traction. In particular, sponsors/decision makers appear unconvinced of the argument that Level 1 and Level 2 welfare benefits translate into the real economy and are looking for alternative forecasts of job/GVA impacts. To us, it is important that this mismatch between the Department’s position and how LEPs are going about assessing projects is addressed. As well as the further development of guidance, this will require a new approach to communication, and we suggest, new research<sup>1</sup>.

### **The Transformational and the Rest**

- 1.6 Transformational mega-projects are exciting and given the potential scale of the prize, people rightly get enthused by them and because of this a lot of time and effort is being put into their development. We agree with the Department that more needs to be done to develop the approaches to modelling and appraising their potential impacts – both positive and negative. But, we must not lose sight of the fact that most schemes are not transformational mega-projects and in the next five years the bulk of our sector’s collective efforts will be developing and making the case for schemes that guidance says are most appropriately assessed using conventional approaches. In relation to this, in some respects the Department’s established suite of guidance is lacking when it comes to conventional welfare assessment. We agree when it comes to transformational projects guidance needs to be developed, but this must not be at the expense of addressing some of the weaknesses inherent in the current guidance suite as applied to non-transformational projects.

### **Transport Models**

- 1.7 It is our opinion that current guidance gives a strong steer that one particular form of variable demand model is preferred over others and that such models should be applied for most substantially sized road and public transport infrastructure schemes. However, we continually find that such models are poor when it comes to forecasting minority modes (e.g. almost any urban public transport scheme), as well as being expensive and time consuming to construct and run. We believe it is time to critically review the Department’s guidance on variable demand modelling. In particular, we suggest the Department ask the question whether other simpler models have the potential to more cost-effectively and efficiently support scheme development and appraisal.

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<sup>1</sup> In our response to the *Updating Wider Economic Impacts Guidance* consultation, we argued that “alone, theory-based rebuttals of these critiques [of the argument that welfare benefits translate into the real economy] are not sufficiently compelling. Identifying empirical evidence to justify this theoretical position should be a focus of DfT research”. This remains our position.

## **A Compliance Culture**

- 1.8 In our experience, too often appraisal is seen as a hurdle and not a tool to help develop the best course of action. Inherent to this is the “compliance culture” that has been identified by the Department in its consultation document and at each of its consultation events that we took part in. There is no one solution to this. Communication and engagement will be needed with commissioners/SROs, as well as with practitioners. However, we note that the Department and its agencies can be as prone to this compliance culture as much as local authorities and LEPs. There is a great opportunity to lead by example.

## **Setting the Framework, not Specifying the Work**

- 1.9 Related to the ‘compliance’ point above and in our view, the purpose of the Department’s modelling and appraisal guidance should be to set the framework within which schemes and their business cases are developed, rather than determine the tools that should be applied. However, amongst many WebTAG is seen as doing the latter and not the former – the flexibilities and freedoms that are inherent within WebTAG are not being employed and perhaps there is over reliance on following what is interpreted as a WebTAG defined method at the expense of derivation and application of more appropriate or accurate parameters or techniques. A greater emphasis on setting the framework would help encourage innovation and the development of new and potentially innovative techniques, perhaps seed-funded or pump-primed by Government. However, we recognise that a concomitant of this approach is the Department would need a greater willingness to opine on approaches and techniques that it felt have merit and on those which it doesn’t.

## 2 Priorities

**Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?**

2.1 As we set out in the previous Chapter, we agree with the thrust of the five themes set out in the consultation document but suggest some further themes for your consideration.

**What considerations should inform the scope and priorities of our strategy, particularly over the first 18-24 months?**

2.2 For each of the five themes we set out below what we suggest should be the Department's priorities for the next 18-24 months.

### **People and Place: Capturing the Range of Impacts Relevant to Transport**

- Commence a programme of research to develop the appraisal framework for capturing the benefits of changes in location attractiveness (Paragraph 3.2).
- Consider the application of alternative valuation techniques to recognise the benefits of environmental mitigation measures (Paragraphs 3.4 to 3.6).
- Further develop guidance on the incorporation of monetised punctuality, reliability and resilience benefits within cost benefit analysis, with a particular focus on inter-urban rail and urban public transport (Paragraphs 3.7 to 3.9).

### **Reflecting Uncertainty over the Future of Travel**

- For the Department to take ownership of assumptions regarding uncertainty exogenous to scheme development, for example the uncertainty surrounding the take-up of CAVs, the relationship between GDP growth and trip making/travel growth, or the consequences of changing trip/travel pattern of younger generations (Paragraphs 4.2 to 4.4)
- For the Department to develop guidance on the incorporation of uncertainty into scheme appraisal (Paragraphs 4.6)

### **Modelling and Appraising Transformational Investment and Housing**

- Take the opportunity presented by Homes England Housing Infrastructure Fund Forward Funding competition to undertake (a) an assessment of the extent to which modelling and appraisal approaches are considered proportionate and (b) understand promoters' practical experience of applying guidance and see what lessons this offers for how guidance is structured, presented and communicated (Paragraphs 5.19 to 5.24).
- Extend the welfare appraisal framework to incorporate the full extent of Level 3 benefits (Paragraph 5.26).

### **Supporting the Application of WebTag and Making it More User Friendly**

- Review the format and content of the appraisal tables, namely the Appraisal Summary Table (AST), the Transport Economic Efficiency (TEE) table, the Analysis of Monetised Costs and Benefits (AMCB), the Public Accounts (PA) table, the Costs proforma and the Distributional Impact proforma (Paragraphs 6.3 to 6.10).
- Review again the drafting of Units A2.1 and A2.2 to make them more accessible to practitioners and develop non-technical summaries aimed at senior decision makers (Paragraph 5.5 and 5.21)

### **Developing and Maintaining Modelling and Appraisal Tools to Meet User Needs**

- Review Unit M2 guidance on variable demand modelling (Paragraphs 7.1 to 7.7).

## 3 People and Place: capturing the range of impacts relevant to transport policy today

### What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.

- 3.1 There is considerable overlap between many of the concepts described in this chapter, and those covered under *Modelling and appraising transformational investments and housing* in Chapter 5. In Chapter 5, we discuss alternative methods for capturing the benefits associated with the attractiveness of ‘places’ in the context of extending the welfare framework to capture Level 3 benefits.
- 3.2 Without wishing to duplicate later arguments, we consider the **top priority** in this area is to develop the appraisal framework for capturing the benefits of changes in **location attractiveness**. Having established a suitable appraisal framework, we would anticipate the community of practitioners to develop the tools necessary to implement the recommended approach. In other words, we do not suggest that the Department concerns itself with the functionality of specific models and tools (except to inform its programme of research in this area), but instead provides **clear guidance** on its preferred approach to valuing the benefits of changes in attractiveness – integral to this is defining what is to be valued, as well as the valuation of a unit of change.
- 3.3 We note that the consultation document makes reference to urban realm schemes, and the range of tools that are available to assess the quality of the urban realm as perceived by those who live in it (e.g. TfL’s Valuing Urban Realm Toolkit and Ambience Benefits Calculator). We also note, however, that considerations regarding the attractiveness of a given location go well beyond improvements to the physical characteristics of location. We recommend, therefore, that the net is cast as wide as possible to avoid the need for subsequent ‘bolt-ons’ to the core appraisal framework. Wider considerations regarding place attractiveness include: access to amenities, perceptions of safety and security, variety effects, etc.
- 3.4 One approach to capturing the place-based benefits described above is **contingent valuation**. For example, we would expect that for a rational consumer and with all other things being equal, the expected net stream of benefits derived from relocation should at least exceed the transactional costs associated with that relocation.
- 3.5 By extension, our second **priority** is to consider the application of such valuation techniques to a wider range of **environmental and public health impacts**. We welcome the progress that is being made by the Department to incorporate ecosystem service based valuation of landscape impacts into WebTAG, and encourage the Department to pursue further work in this area to address unanswered questions from the current programme of work.



- 3.6 In particular, being able to place a value upon measures designed to **mitigate the environmental disbenefits** of transport infrastructure will become increasingly important as environmental considerations rise up the political and societal agenda. Notable examples include placing the A303 in tunnel in the vicinity of Stonehenge, or realignment of the proposed Lower Thames Crossing to avoid Ramsar sites. Using current valuation approaches, the benefits associated with mitigation measures are typically orders of magnitude smaller than the costs of implementing those mitigation measures. Therefore, the value for money of environmentally considerate schemes is, in many cases, lower than for schemes which do not include any environmental mitigation. While we are not saying that the cost of such environmental mitigation measures must necessarily offer value for money, given the amounts of money that promoters are prepared to propose is spent to secure mitigation, to us there is at least a prima facie case that the mitigation benefits are being undervalued.
- 3.7 Our third **priority** concerns most directly **reliability and resilience**, but also a range of other reasons which are on occasion put forward to justify schemes where the initial BCR is lower than anticipated. Good practice and proportionality suggest that if these other reasons have the attributed influence, it should not be acceptable to not attempt some quantified appraisal of them. The considerable industry experience and body of guidance on robustly quantifying time savings could be argued to be stifling proportionality, with the considerable resource expended in this area not necessarily reflecting its importance in the case for some interventions.
- 3.8 In terms of reliability, the methods set out in WebTAG (particularly for public transport) are not well used and possibly not complete. On congested road and rail networks, poor journey time **punctuality**<sup>2</sup> we suggest is more a source of traveller discontent than journey time and this will increase as networks become more congested. In the strategic dimension, promoters may set out a need for intervention focused on reducing journey time variability but with present guidance, find it challenging to monetise these benefits. We suggest that further guidance, research and securing of data sources is required.
- 3.9 In terms of resilience, the quantification of which in general terms is possible<sup>3</sup> within the existing framework, the residual uncertainty is around the nature, frequency and duration of events which the network would be resilient to. However, further guidance would be useful on when resilience benefits could arise, how they can be quantified and when they might be material. This could also improve qualitative appraisal of resilience, for example it seems clear to us that there could only be limited resilience benefit from providing additional highway capacity if that capacity is largely taken up by demand growth –for a scheme to provide resilience benefits should some other strategic link be temporarily closed, it must have

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<sup>2</sup> In public transport terms, the definition of reliability considers whether a service runs and punctuality whether it runs on time. Both are important, but we suggest that it is the latter which should have more focus. We also suggest that this section of WebTAG should be retitled to be consistent with these definitions.

<sup>3</sup> Highway appraisals were routinely monetising some aspects of resilience in the 1990s, through QUADRO software – for example considering reduced transport disbenefits during future maintenance from a dual carriageway under contraflow running as opposed to shuttle signals on a single carriageway. We successfully applied similar principles to value the resilience of an additional city centre rail transit alignment allowing service continuation if incident or maintenance closed either route.

sufficient capacity with average traffic flows to accommodate an appropriate quantity of the displaced trips.

## 4 Reflecting uncertainty over the future of travel

**What should our priorities be for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three.**

**What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these?**

- 4.1 It is clear to see why uncertainty over the future of travel should be a particular focus for improvement. Emerging disruptive technologies, for example CAVs, and global environmental and other challenges are currently attracting significant attention and discussion. At the same time, appraisal practice of considering impacts over sixty years is portrayed as if it purports to represent what will happen over that timeframe rather than it being a practical solution to dealing with differing asset lives. Uncertainty has the potential to halt necessary transport investment for the wrong reasons.
- 4.2 Our **first suggested Department priority** is to (a) take firm ownership of areas of uncertainty which are common across projects and (b) give strong leadership over appraising uncertainty which is scheme specific.
- 4.3 CAVs are a clear example of the former: well outside the influence of individual promoters and having the same probability of occurrence (but potentially different impacts) for interventions regardless of their nature, scale or location. The need for the Department to take ownership of this uncertainty is twofold:
- Firstly, to ensure a common approach to uncertainty is taken across interventions rather than expecting promoters to develop unique approaches. In our experience promoters can be understandably nervous about exposing uncertainty, feeling that this could put them at a disadvantage in comparison to a project where uncertainty is hidden.
  - Secondly, to ensure that scenarios are plausible and internally consistent – for example ensuring that the potential benefits of CAVs are not suggested to be fully realised before they make up a sufficient proportion of vehicles to make this plausible.
- 4.4 Other examples of common uncertainty include the relationship between GDP growth and trip making and travel, and in particular the view that these relationships are changing, or the impact of the generational differences in car ownership, trip making and travel that have been identified in recent years.
- 4.5 In terms of leadership over scheme specific uncertainty, we suggest that DfT could be more proactive in terms of sharing examples of good practice, or through providing recommendations of areas of uncertainty to be considered. We also suggest the Department

should be more willing to push-back on any promoter which do not give sufficient consideration to uncertainty.

- 4.6 Our **second priority** area for uncertainty is that it needs to be integrated more with option appraisal. Where there has been consideration of uncertainty, our observation is that the focus has been whether this could influence the absolute VfM of the preferred option. While this is necessary, we do not consider that it is enough:
- Where different options have different levels of uncertainty, it is important that this is communicated. Such uncertainty may not just be in the calculation of benefits, it may be that what appears a better VfM option is more uncertain in terms of costs and deliverability than the alternative. In such a situation proceeding with the alternative might be the better course of action.
  - Analysis should take consideration of where the same uncertainty affects options and can have different effects. We have experience of applying Monte Carlo analysis to an option appraisal; by appraising both options simultaneously with probability distributions applied to common inputs we ensured that a like-for-like comparison was achieved for every iteration. This allowed us to show that one option was higher VfM than the other only over a narrow range of probabilities.
- 4.7 Our **third priority** is about the balance between precision and insight. Too often we have found that the models which provide the outputs for our scheme appraisals take so long to run (one example being seven days) that the range of scenario and sensitivity testing which would demonstrate robustness and expose uncertainty is simply not possible within the time and budget constraints of the project. This has often been compounded by the difficulties that come with finding and correcting any anomalies within the model or scheme coding which result in 'unexpected' outputs.
- 4.8 Our position is that more runs from a less precise model has the potential to deliver materially more insight and therefore more certainty than fewer runs from a more precise model. Similar views were expressed by others at the stakeholder events we attended. Our point comes back to proportionality and the way that WebTAG can currently be read as requiring compliance. We suggest that the messaging around this should be carefully considered and parallel action taken by the Department to prevent increases in computing power simply being used only to add more precision, without this actually adding to confidence in the results.

## 5 Modelling and appraising transformational investments and housing

**What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.**

- 5.1 The modelling and appraisal requirements to look at transformational investments and transport enhancements to support housing delivery are very different. We look at each in turn.

### **Transformational Investments**

- 5.2 We agree with the proposition in the consultation document that there would be benefit in the Department producing case studies on assessing transformational investments. This could also help in framing a better definition of what in the context of our analytical methods and approach to appraisal should be considered transformational. This is our **first priority**.
- 5.3 Our **second priority** is for the Department to offer clearer and more definitive guidance on how the ‘transformative’ impacts of transport schemes should be considered in the context of locally administered single pot funds.
- 5.4 Single pot funds are creating an appraisal challenge. Usually such funds are established with a singular purpose, namely to invest to support the growth of the local economy. Some also have explicit distributive goals of spread growth across their area. Because of this, benefits are expressed in terms of jobs and GVA and their BCRs expressed as jobs/pound invested or GVA/pound invested. Returns (jobs, GVA) are often expressed across the life span of the fund, rather the life span of the investment.
- 5.5 While the *Local Enterprise Partnership National Assurance Framework* and the *Single Pot Assurance Framework* requires promoters to have regard to WebTAG when modelling and appraising transport interventions, decision making on whether to fund a transport scheme can ostensibly be made on grounds other than the WebTAG Value for Money statement. For example, we have come across one infrastructure fund scheme assessment pro forma that has no facility for entering a WebTAG BCR or NPV. The only ‘cost benefit’ inputs allowed are a NPV of GVA, gross jobs and net jobs, as well as benefit cost ratios of these three measures divided by public sector cost.
- 5.6 We do not question individual LEPs’ right to set their own criteria for deciding how to spend the funds available to them, although we note that these criteria need to be set in the context of national guidance. What we do question is the merit of assessing the job or GVA impacts of what are often modest investments and the merit and veracity of the methods used for this. For example, we recently received a brief asking for an assessment which “will need to look at

both Value for Money as well as GVA uplift and the potential for jobs creation”. The scheme in question was a cycle path along a canal towpath.

- 5.7 In effect, modest investments are being treated as if they were transformational. The Department’s guidance tells us that this is certainly not the case at a national scale. Given the scale and nature of many of the investments that are funded by Local Growth Funds, it is very unlikely that they would be transformative at a city region scale. It is more and likely they are simply redistributing economic activity at a city region level.
- 5.8 Our concern is threefold:
- We are not convinced about the veracity of the methods and data used as part of Single Pot fund assessments to move from the outputs of a WebTAG welfare appraisal to measures of jobs and GVA. This includes how displacement is considered. We have come across different methods and approaches. There is no consistency.
  - Related to this are the benchmarks for good value that are used to compare transport investments with other potential investments in other sectors. How appropriate are these and is it sensible to compare a transport investment with other sector investments using a set of job/GVA related metrics?
  - Ultimately, this then raises questions re the basis that decisions are made on how public sector funds are spent.
- 5.9 This said, we do believe that *prima facie* there are grounds for believing that the cumulative effect of an infrastructure investment fund/programme has the potential to be transformative. This is for two reasons. The first is simply a question of scale – these funds can run into the hundreds of millions of pounds. The second is that we believe that it is a reasonable hypothesis that a coordinated programme of expenditure can have positive feedbacks that amplify the value delivered by individual elements. Such effects should be considered when making decisions on what is in a programme and its phasing.
- 5.10 Our **third priority** is to extend the welfare framework to fully cover what the Department has classified as Level 3 benefits. It is well known that the basis for the conventional approach is that transport demand is derived from the opportunities and potential benefits available at destinations. It is measured in numbers of trips and “price” is measured in terms of generalised cost. Where there is significant land use change, not all the change that people perceive as a result of the scheme is captured in the generalised cost term and this limits the meaningfulness of the conventional approach in these circumstances.
- 5.11 Implicit in this approach is an assumption that the relative attractiveness of ‘places’ is fixed. However, since transport is a derived demand, it is dependent upon the activities engaged in at the destination. Moreover, since location decisions such as the choice of residence or office location are a function of the attractiveness of origins, capturing the influence of factors which influence the attractiveness of places (urban realm, environmental conditions, leisure and employment opportunities, housing availability, agglomeration etc.) within the travel demand function is important if the scheme is likely to have a significant impact on them<sup>4</sup>.

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<sup>4</sup> As discussed above, arguably for most transport appraisal applications it is unnecessary to model the influence of changes in attractiveness on demand because transport induced land-use changes will be small.

- 5.12 This implies that a utility function based on trip-making alone is incomplete (i.e. by failing to include the scheme’s impacts on changes in the opportunities and benefits of locations) and will lead to an error in the measure of social surplus we are trying to estimate. The problem is not therefore that the rule of a half ‘breaks down’ under variable land use assumptions. Rather, if land-use changes, the rule of half cannot simply be applied to trip numbers and generalised costs in isolation.
- 5.13 We understand that some work has been undertaken to identify the ‘margin of error’ associated with application of the rule of half under the assumption of land-use change, versus the equivalent error if changes in land-use are ignored. Laird (2015) states that<sup>5</sup>:
- “The advocated approach to the convention has been to hold land uses fixed in appraisal. This however gives an incorrect estimate of travel demands and costs and can generate large errors - though the size of the errors are context specific.
- Allowing land uses to vary and then applying the RoH to transport costs is conceptually more appealing than holding land uses fixed as it (a) introduces less biases into the analysis and (b) allows the economic analysis to be consistent with strategic case and narrative (which is often about growth and land use change). Furthermore the limited empirical evidence to date indicates that this approach performs at least as well if not better than holding land uses fixed.”
- 5.14 In the absence of a fully-formed approach to capturing the combined benefits of transport investment and associated land-use change, further guidance regarding the application of the rule of half in the presence of land-use change should be provided.
- 5.15 Generally, we feel that the current limitations of the way that the rule of half is currently applied are not well understood and because of this, we feel that there is merit in the Department setting these out in a technical way (targeted at practitioners) and a non-technical way (targeted at SROs/decision makers). This would then set the ground for explaining any development to the appraisal approaches that would address the current limitations. (More generally, we would observe that the guidance on how to calculate Level 3 benefits (Unit A2.1 and related documents) is one of the more difficult Units to follow. Consequently, it is only accessible to a small group of technical specialists, and it does not seem healthy that part of the appraisal process that could have a real bearing on decision outcomes is only understood by a very small group of specialists. This is an area where there is significant benefit in producing non-technical summaries.)
- 5.16 Then work is needed to address the problem. One approach would be to re-specify the utility function in terms of the attractiveness of a zone (measured by the number of households or businesses located there) and its accessibility to other zones. While there are benefits to this approach in terms of providing an insight into the expected distribution of final benefits, both geographically and between different types of agents (and it allows non-transport changes in the utility of the location to be tested together with the transport intervention, e.g. complementary planning interventions), following such an approach would require equivalent amendments to be made to the treatment of Level 1 and 2 benefits in order to maintain consistency, and would require fundamental changes to the appraisal framework which may not justify the disruption incurred.

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<sup>5</sup> Laird J (2015) *De-bunking the convention that the rule of half is only appropriate with fixed land uses*

5.17 Alternatively, the work we have done for TfN using shadow pricing as a way of estimating benefits with land-use changes directly, offers one way forward. To us, it gives plausible results, and is relatively simple to implement. We suggest that this is something DfT might like to investigate as an alternative method to offer.

### **Housing**

5.18 Rather than setting out priorities, we have a number of observations about how dependent housing is considered in WebTAG.

5.19 The on-going Housing Infrastructure Fund Forward Funding bidding round creates a unique opportunity for the Department to undertake a detailed study on how its guidance (in this case Unit A2.2) has been applied in practice. In total, 71 schemes have been shortlisted. Many of these are substantially or wholly for transport investment. The Fund's guidance asks all bidders to monetise the Transport External Costs of the additional housing that will be delivered. The opportunity to look at the methods applied and assess their proportionality should be clear. It also offers an opportunity to engage with bidders to explore how they interpreted and used Unit A2.2.

5.20 As Homes England's lead consultant, a role which includes closely liaising with DfT and MHCLG economists, we would welcome the opportunity to discuss this idea further with the Department. Here we make some preliminary observations.

5.21 It is clear from our engagement with HIF scheme promoters that the implications of the guidance in A2.2 was certainly not well understood at the start of the process; however, and largely due to similar consultant teams advising across different bids, awareness and experience of its requirements appear to have rapidly increased. We note that A2.2 is one of the more challenging guidance units to follow; in part this is because of the underlying technical complexity, however we do believe that some revisiting of its drafting could be beneficial. We also note that there appears to be relatively limited consideration of public transport appraisal within the unit, for example in terms of dealing with fares/revenues and resulting changes in indirect tax receipts.

5.22 How to scope a proportionate methodology is the principal concern of promoters. Unit A2.2 is an example of the problem with WebTAG we mention elsewhere in this response, namely it has been developed and is worded allowing for a situation in which a VDM is employed, which is towards the higher end of technical complexity and may only be appropriate for a small number of the schemes coming forward. The two most common reactions to this from promoters have been:

- An approach without a VDM would not be acceptable (ignoring wider guidance on when a VDM is needed and proportionality)
- It would not be proportionate for a VDM based approach and therefore A2.2 can be ignored in its entirety

5.23 Neither reaction is right, and much of our effort for Homes England has been spent in directing promoters that A2.2 must be followed (so that transport benefits are addable to land value uplift benefits) but that proportionality considerations allow the development and application of an analytical framework appropriate to their circumstances.

5.24 One further observation on the guidance relates to the summary approach to calculating land value uplift benefits set out in Unit A2.2. It can be inferred from advice given by MHCLG to the HIF programme that the level of detail suggested by this approach would not be appropriate if



the resulting Land Value Uplift value made up a material proportion of the scheme benefit. This leaves the unit rather unbalanced, with an approach to Land Value Uplift capture appropriate only for modest impacts next to a transport appraisal methodology which suggests a high level of detail. Where the purpose of transport investment is to secure 'other' (non-transport) impacts, then we would suggest the balance of modelling and appraisal effort should reflect this emphasis.

- 5.25 The above relate to the extant guidance and its application. While we see scope to improve this particular element of WebTAG, we would not want the Department to lose sight of the collective comments made by Peter Mackie, James Laird and Tony Venables in Appendix B of the September 2016 *Understanding and Valuing Impacts of Transport Investment: Updating Wider Economic Impacts Guidance* which were that compared with the rest of the Department's approach to appraisal, this element is somewhat inchoate and that further methodological development is warranted.

**What transformational impacts do you currently find it difficult to represent in a scheme appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?**

- 5.26 To us, the most pressing priority is to extend the welfare appraisal framework to incorporate the full extent of Level 3 benefits. Without this, it is not possible to consistently and fully capture the impacts of transformational projects. We have set out suggestions in Paragraphs 5.10 to 5.16 above.

## 6 Supporting the application of WebTAG and making it more user friendly

### What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?

- 6.1 In our view, there are a number of shortfalls in the current guidance suite and its supporting tools that individually create barriers and challenges to WebTAG's application. Addressing these shortfalls would help support the proportionate and appropriate application of WebTAG.
- 6.2 We question the usefulness of the **Early Assessment and Sifting Tool (EAST)**. This is for four reasons:
- EAST is structured to mirror the structure of the Appraisal Summary Table and as we set out below, we question whether this is still appropriate given the current policy agenda.
  - EAST is a catalogue of impacts, all assessed at a high level, but these impacts do not necessarily relate to the objectives that have been set for an intervention. As such, completing EAST does not necessarily help decision makers narrow options.
  - Application of EAST can be an example of a compliance culture. While its results do not actually inform the decisions on which options are taken forward, EAST is completed because it is mentioned in guidance and it is therefore a "compliant" thing to do.
  - In spite of EAST guidance being clear that it is not appropriate to sum the impacts of an option, the approach seems too often to result in misuse in this way.
- 6.3 We also suggest that it is now time to review the format and content of the appraisal tables, namely the **Appraisal Summary Table (AST)**, the **Transport Economic Efficiency (TEE)** table, the **Analysis of Monetised Costs and Benefits (AMCB)**, the **Public Accounts (PA)** table, the **Costs proforma** and the **Distributional Impact proforma**. In effect, completion of these six tables is required to be "compliant" with guidance, but they are now dated.
- 6.4 While it has been modified from time to time, with its roots in the *New Approach to Appraisal*, the structure and content of the AST do not reflect contemporary objectives for transport, for example those set out in the Department's *2017 Transport Investment Strategy*.
- 6.5 The culmination of the Economic dimension of any business case is the Value for Money statement. We would want the AST to be a succinct summary of the monetised, quantified and qualitative assessments that have informed the derivation of the Value for Money statement. As a minimum, this would seem to require explicit capture of Level 1, 2 and 3 benefits within the AST and we would suggest, greater prominence being given to reliability and resilience. The AST should allow promoters to set out the impacts of an intervention on

housing numbers, as releasing housing is now often a strategic objective for transport investment.

- 6.6 We would also like to see an AST that encourages scheme promoters to actively screen out impacts that are either insignificant or immaterial to decision makers. At present the ‘catalogue’ nature of the AST can encourage some promoters to undertake work to complete detail that is not needed; that is, the perceived need to ‘comply’ by completing every aspect of the AST can actively act against application of the proportionality principle.
- 6.7 Generally, we support the concept of an AST and we find it a useful concept. However, it now needs to be reviewed.
- 6.8 Looking at the TEE, AMCB and PA tables:
- The structure of the tables with their identification of impacts on ‘road’, ‘bus and coach’, ‘rail’ and ‘other’ pushes scheme developers to use certain types of models, namely those that treat modes separately. Such models may not, however, be the most appropriate way of considering an intervention, especially if it is focused on promoting multi-modal journeys (e.g. using more than one PT mode or Park & Ride).
  - Increasingly public transport interventions are promoted with the explicit goals of enhancing the journey experience (quality) or reducing crowding. Some schemes have a goal of increasing amenity. It is not clear to us why such impacts are not considered as part of economic efficiency. Moreover, separating quality benefits (for instance) from journey time impacts can be methodologically impracticable, especially when quality is modelled using either journey time weightings or alternative specific constants (as it usually is).
  - The PA table neither reflects devolution (financial impacts which are neither local nor national) nor allow for public sector taking revenue risk for public transport services – for example any gains or losses to private sector rail operators transfer to the public sector on rebranding, through the profit share mechanism or directly. Furthermore, the value or cost of holding or transferring that risk is not often considered within appraisal frameworks. Overall, we suggest that the table can be misleading as to true financial impacts- it is too simple.
  - The tables should be modified to show an adjusted BCR and how this has been calculated, including explicit identification of the benefits that underpin it
  - Collectively, the TEE, AMCB and PA tables are poorly understood by decision makers/Senior Responsible Owners. In part, this is in part due to the way that they are laid out. A revised approach creates an opportunity to generate greater understanding.
- 6.9 The Cost Proforma should be a useful illustration of the calculation of costs for the appraisal, but at present is laid out in a way which does not match how costs are built up in terms of risks allowances, etc. It would also be useful if the relationship with outturn costs were explicitly demonstrated through the Cost Proforma.
- 6.10 The Distributional Impacts Screening proforma is perhaps too oversimplified. What we suggest is missing is whether the impact acts on the *relevant* social groups (as Table 2 in A4.2). This mismatch with the full DI guidance can lead to a disjoint between the screening stage and main analysis. An example would be identifying an impact at the screening stage which affects social groups differently, but then the post-screening further analysis concluding that those social groups are not those identified as being of particular importance (i.e. the screening

returns a ‘false positive’). We would advocate an approach that allows promoters to discontinue analysis as soon as any such ‘false positives’ become apparent.

- 6.11 WebTAG offers no guidance on how to address the **‘new mode’ problem** (i.e. when a mode is introduced in the do-something which is not present in the do-minimum). What guidance there is on this actually forms part of the TUBA manual, but this guidance is of itself of no practical worth: the numerical integration approach does not offer a tractable method that can be readily applied in the variable demand models that are routinely used to assess ‘new mode’ schemes, and the alternative suggestion of using demand-weighted averages is both theoretically wrong and can produce perverse results. This shortcoming needs to be addressed and guidance on appraising new modes should be incorporated in WebTAG. In particular, as it is the theoretically correct approach, we would want to see composite cost approaches to assessing benefits incorporated into guidance (noting that this in itself would require a rethink of the TEE table).
- 6.12 As well as the new mode problem, there is a shortfall in guidance on how to model and appraise<sup>6</sup> **park and ride** schemes and schemes targeted at improving **public transport punctuality**.
- 6.13 There is an urgent need to update the approach to calculating **agglomeration benefits**. The Department’s current WebTAG approach (and the application of this guidance) does not reflect the source academic research and a refresh of the method and its underpinning parameters is long overdue.
- 6.14 We would also note that there can be a mismatch between what decision makers/SROs have been led to believe the agglomerative impacts of interventions will be and the outputs from application of the current WebTAG method. More research is needed into agglomeration impacts – on their scale, on the decay over distance and how they are realised (e.g. Marshallian, Jacobian or both). Importantly, any findings of new research need to be communicated to decision makers in non-technical terms.
- 6.15 When it comes to costs, we would note that the Department’s guidance on **Optimism Bias** is both dated and not well understood. The Mott MacDonald advice that underpins the WebTAG Optimism Bias dates back to 2002. Approaches to project costing and delivery have moved on since and we suggest it is now time for a wholesale review. When it comes to understanding the approach to Optimism Bias we find that amongst scheme and programme promoters:
- There is lack of clarity of how risk, cost uncertainty and Optimism Bias should be combined to create appraisal costs.
  - Different approaches to Optimism Bias are used when establishing programme budgets.
  - There is often conflation of the WebTAG approach to applying Optimism Bias, and the approach described within Green Book supplementary guidance.
- 6.16 We note the Department’s January 2017 publication of research on Optimism Bias in rail. We would suggest that similar exercises need to be undertaken to look at other modes leading to an update and refresh of the current guidance on a consistent basis for all modes (acknowledging that this might also require further updating of the rail-related guidance).

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<sup>6</sup> We note that the approach is appraising P&R benefits set out within TUBA guidance is not consistent with the most common approaches to including P&R within transport models, which in any case are notoriously uncertain.

### On 'Compliance'

- 6.17 At its London launch of this consultation, the Department stated that:
- “compliance in common parlance should mean evidence-based, robust and proportionate with use of the great skill we have in the profession, not just following inflexible rules.”
- 6.18 We agree with this interpretation of 'compliance', however we also note that this is not the common interpretation. Rather, 'compliance' is regularly used as if WebTAG does set out both a prescription and proscription of what is acceptable practice. This is particularly so when work is commissioned (briefs talk about producing “WebTAG compliant” appraisals as if it is a case of following a recipe), or when work is reported (saying something is “WebTAG compliant” is often used as a way of avoiding or deflecting challenge). We find that the Department and its agencies are just as prone to do this as our local authority clients.
- 6.19 Glenn Lyons has done some interesting work in this area through the CIHT Futures programme which has drawn similar conclusions.
- 6.20 We would suggest that it is now too late to seek to redefine 'compliance'. In its common use, it does mean using inflexible rules. We need to find a new way of describing the application of guidance, for example “this approach has been developed with regard to WebTAG”. In this respect, the Department, working with its agencies, has a key role leading the industry.

### The Scope of WebTAG Redrafting

- 6.21 We also make some suggestions here about the 2015 *Value for Money Framework's* generally useful distinction between established, evolving and indicative impacts. Firstly, we suggest that renaming these categories is considered. This suggestion comes directly from our experience of applying the VfM Framework and the proportionality principle. To inform a VfM statement we employed a proportionate approach to valuing what guidance would identify as 'established' impacts, but recognising that this was less robust than other elements of the appraisal we treated these as 'indicative' impacts. Our point is that the categorisation should consider the robustness of the data and methodology applied as well as the maturity of the guidance. In our view, the description 'Established' does not capture this distinction.
- 6.22 We also suggest that the VfM Framework categorisation and general approach needs to be brought more fully into the technical units of WebTAG. The same can be said for Department's January 2013 *The Transport Business Cases* guidance (further recognising that HM Treasury appraisal guidance has evolved considerably since this was last updated). Finally, we suggest that the definitions of Levels 1-3 analysis introduced into economic impacts guidance and established, evolving and indicative impacts in the VfM framework need to be formally brought together.
- 6.23 In summary, as it develops its strategy for WebTAG's progression, we would suggest that *The Transport Business Cases* and the *Value for Money Framework* are considered to be in scope.

### What more could be done to articulate the flexibilities in WebTAG and support scheme promoters apply the guidance?

- 6.24 We strongly agree with the Department that more need to be done to articulate the flexibilities that are inherent within WebTAG. We see a need to engage at different levels and through multiple channels with:

- SRO/commissioners
- Practitioners

6.25 When it comes to SROs and commissioners of modelling and business case development, we feel it is important that the Department recognise that such people rarely have the time or inclination to read long guidance documents, even if they are drafted in non-technical terms. Ways to engage with these people include:

- Seminars
- Conference presentations
- Through the trade press
- Peer-to peer learning
- Briefing the briefer - that is, targeting messages at those who brief senior decision makers

6.26 When it comes to practitioners, we would again say multiple channels are needed in addition to well-drafted and accessible guidance. We would welcome greater use of case studies but, as well as highlighting good practice, we would encourage the Department to also identify examples of poor practice, either where work has been poorly specified (e.g. applying a boilerplate solution without considering the intervention in hand) or has been over specified (i.e. the work is disproportionately too great and hence unnecessarily time consuming and expensive).

**How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance.**

6.27 The improvement over recent years in the internal consistency of WebTAG, as well as the clarity of its drafting *per se* is tangible, but as we have highlighted at various points in this response, we believe there is more to be done. We recognise that actioning many of the points we have made in this response would require WebTAG to get longer. No doubt the responses from others would lead to the same conclusion. However, we also feel there is still opportunity to take a blue pencil to the existing units.

6.28 We like that there is a single page on the Department's website that has a full set of current WebTAG documents and that these are downloadable PDFs. We feel that it is important that there is a readily accessible definitive set of guidance and we would not like to use lose this. There is, however, scope to redesign WebTAG units to make them easier to navigate and more engaging to the reader<sup>7</sup>.

6.29 This said, however, a downloadable PDF is old technology and alongside having the definitive downloadable version, we would encourage the Department to explore online solutions such as that currently being used for the update of the Design Manual for Roads and Bridges. As well as offering 'click-through' access for the user, the software has been developed for collaborative drafting and version control. Also integral to the new DMRB is a set of drafting rules that ensures consistent use of terminology. This too would be something the Department may wish to consider for WebTAG.

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<sup>7</sup> See for example:

[http://www.metrolinx.com/en/regionalplanning/projectevaluation/benefitscases/2018\\_08\\_03%20Metrolinx%20Guidance%202.pdf](http://www.metrolinx.com/en/regionalplanning/projectevaluation/benefitscases/2018_08_03%20Metrolinx%20Guidance%202.pdf)

- 6.30 We also welcome the orderly release process, but would like some way to track changes between versions.

## 7 Developing modelling and appraisal tools that meet user needs

### What should our priorities be for improving the development of modelling and appraisal tools and why? Please select up to three.

- 7.1 For all intents and purposes, WebTAG Unit M2 specifies a form of Variable Demand Model that the Department considers is the most appropriate structure to be applied to support the development of strategy and scheme business cases. These models can be traced back to the *Guidance on the Methodology for Multi Modal Studies (GOMMMS)* and the *Transport Innovation Fund (TIF)* modelling guidance. While both the GOMMMS and TIF modelling guidance were focussed on road infrastructure and in the case of the latter, road pricing, a model of this form is widely considered ‘compliant’ regardless of the purpose that it is being put. A number of models of this form are in use across the country.
- 7.2 Our contention is that for many scheme and interventions such models do not serve us well when considered against four broadly defined criteria:
- They can be applied in a timely way
  - Their application is cost effective
  - There is confidence in their results
  - They provide useful information to decision makers
- 7.3 With model run times measured in days and with the time needed to set up model runs and then process and analyse their outputs, such models cannot be described as timely. An Outline Business Case for a major public transport intervention may require modelling the preferred scheme, a low cost and next best alternative, high and low growths sensitivities and perhaps a dozen or so model-based sensitivity tests, and typically for at least two modelled years. Discounting the use of the model to help design and specify the preferred option, alone such a programme of model tests could easily take many months to complete.
- 7.4 Such a programme of work is expensive and can easily cost promoters high five figure sums. This is on top of the sunk costs of model development, which can easily stretch into the hundreds of thousands or greater. In our experience, many promoters struggle to reconcile the cost of model development and application with the value they receive from the analysis of model outputs. Repeatedly, we find that such models have been specified without sufficient thought to how their outputs will be used to appraise public transport schemes, for example how ‘new modes’ will be appraised or how user charge impacts can be identified.
- 7.5 One focus of our work is helping promoters develop the case for urban public transport schemes – bus rapid transit, light rail, metro, etc. In our experience, decision makers often do not have confidence in the outputs produced by conurbation-wide VDMs structured as set out



in WebTAG Unit M2. This is because even if ‘validated’ against WebTAG criteria, when it comes to public transport they struggle to reproduce satisfactorily observed behaviour and they produce forecasts that are considered implausible by decision makers.

7.6 Finally, such models struggle to address many questions currently in decision makers minds. For example, the benefits from bus and tram service integration, investing to get better public transport journey time reliability, implementing integrated fares and ticketing, promoting park and ride, or the investment that is currently being promoted by conurbations such as Greater Manchester in cycling infrastructure.

7.7 This leads us to our **first priority**: for the Department to review its Unit M2 guidance on variable demand modelling. To us, such a review cannot be separated from the approach that is adopted to incorporating uncertainty into decision making, if only because most approaches to thinking about uncertainty will require more model runs than we currently undertake, but with existing VDM run times this would be unsustainable. We do not see the solution to this being faster run times on bigger computers, or investing in writing new optimised software. Rather we see the questions as being more fundamental:

- What is a ‘good’ model – are our validation and acceptance criteria still fit for the purpose that they are being used?
- What is the appropriate level of spatial coverage of a model and the detail that is within it?
- Does it have the right interactions to assess the impacts of the schemes/interventions that are being put forward?
- What are the time and cost implications of any new guidance and are these proportionate to the value that they will add to the information presented to decision makers?

7.8 Our **second priority** relates to TUBA and WITA. Looking at TUBA first, having the calculation of benefits undertaken by software separate to the demand model has a number of pitfalls:

- It extends the time needed to undertake an appraisal as data files need to be exported from the demand model and then input into TUBA. Even with batching, such processes take time.
- Any file transfer process is prone to error, which in turn has time and money costs.
- It is computationally inefficient. Fundamentally, TUBA undertakes three very simple matrix operations – an addition, a subtraction and a multiplication – but its matrix file handling is sub-optimal. The transport modelling suites we routinely used are far better suited to this than TUBA.

7.9 What we would advocate is that the Department produce a functional specification of ‘approved’ appraisal add-ons that the transport model software developers could then code into their packages. There is no reason why these specifications could not include all the warning reporting that is currently within TUBA. We recognise that a process of acceptance testing may be required in which appraisal module outputs are compared with those produced by TUBA. At the very least, a routine which undertaken the matrix manipulation and which performs monetisation, interpolation and discounting to DfT requirements would give a step change improvement in analytical efficiency<sup>8</sup>.

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<sup>8</sup> This would reduce the analytical requirements to something which could likely be delivered in a spreadsheet based format

7.10 Related to this is the need for a workable version of WITA. Our understanding is that when many consultants say they apply WITA, they are actually applying their own emulation of how they think WITA works. Rather than commissioning its own software, we would again suggest the Department produce a functional specification that the software houses can then incorporate as add-on modules to their suites.

7.11 Our **third priority** is fundamental and is a point we also make in Chapter 5. At present, the welfare approach to appraisal is incomplete. We strongly urge the Department to commit to the research necessary to extending the welfare appraisal framework to the assessment of Level 3 benefits and in particular, when land use varies between the Do Something and Do Minimum scenarios.

### How can we best encourage innovation whilst maintaining a consistent and robust approach?

7.12 We have a number of suggestions with respect to this question, all made within the overall context of our view that WebTAG should set the framework within which scheme and their business cases are developed, rather than determine the tools that should be applied. These are:

- That the Department be careful not to disincentivise development work and innovation. If guidance is, or is interpreted as, being overly prescriptive this can lead to promoters insisting that models are “WebTAG compliant” (whatever that may mean) and insist that their advisors adhere to the methods set out there; this can stop innovation. (We would also suggest that the opposite can also be true – there can be a tendency for some advisors to put forward an existing approach on the basis that they consider it to be “compliant” even if promoters are open to innovation.)
- Many advances in modelling have come from consultants, usually on their own initiative. The investment needed can be significant, and the commercial returns are not great. We would ask that the Department does not disincentivise development of these models or damage their commercial value. If WebTAG is, or is perceived by promoters to be, overly prescriptive about how models should work, rather than focus on how they perform, this can bring innovation to a halt. New ways for the Department to support the development of these models would be appreciated. The Department may wish to look at ways of supporting further innovation, for example through its own research programme, seed funding or co-funding development work with sub-national transport bodies/local authorities.
- A database of performance criteria, based so far as possible on empirical evidence, could be assembled and used to test the plausibility and reliability of such models. Models could be tested for credibility and plausibility against these criteria. This would provide a way of judging the performance of models, without the Department being over-prescriptive. Given that we are starting from a rather low base, this would be an ongoing exercise.

### What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?

7.13 Models do exist which have been specified to look at land use transport interaction and which can be developed and applied quickly in comparison to more traditional approaches. As the Department will know, Steer’s Urban (and Regional) Dynamic Model (UDM or RDM) is one, and the result of many years of incremental development work. This model will describe the likely ‘physical’ outcomes of a transformational programme of change, tracing it out over the

years. Dynamic models, like the UDM, built using system dynamics (a simulation method) are proving to be effective, and we contend should be one of a range of techniques explicitly recognised as consistent with the Department's guidance.



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Appraisal & Modelling Strategy Consultation  
Department of Transport

15 October 2018

Dear TASM

## **APPRAISAL & MODELLING STRATEGY**

### **Surrey County Council response to DfT Consultation on 'Appraisal & Modelling Strategy Informing Future Investment Decisions'**

Surrey County Council welcomes the opportunity to respond to the consultation, the focus of which is to seek views on how the DfT can better support the application of WebTAG to help inform future investment decisions.

The views set out below are the result of combined responses from officers representing the Transport Policy and Transport Studies teams of Surrey County Council, who primarily are the main users of WebTAG to support Business Case previously for DfT funding and more recently to satisfy Local Enterprise Partnership organisations funding requirements.

#### **Priorities**

1 Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?

Broadly these themes do reflect priorities, especially the points about well-connected communities & wellbeing – however air quality and health need to be included within the people & place theme or to add another theme of transport & health which encompasses air quality and health value e.g. active travel modes (walking & cycling).

2 What considerations should inform the scope and priorities of our strategy, particularly over the first 18-24 months?

WebTAG is not very practical to appraise sustainable transport schemes but this is the requirement we are set in business cases by the Local Enterprise Partnerships. Could there be more guidance specifically on sustainable transport and smaller transport schemes to enable a comparison of funding bids? Current guidance and method is good for very large schemes such as building a bypass but we do not currently deliver schemes of this nature so struggle to appraise our smaller schemes as WebTAG is not aimed at this level.

The active mode appraisal tool kit is good but has many limitations, in particular being based on length of new cycle route divided by cost. It is difficult for practitioners to make a case for improved junctions to reduce severance and improve accessibility, and therefore mode shift, unless there are cycling related collisions and injuries that a scheme would help to address.  
- this impacts on the quality of scheme we can justify in business cases.

The 'propensity to cycle' tool is useful – could a 'propensity to walk' tool be added to the guidance for appraising sustainable transport?

There is also very little guidance on appraising pedestrian schemes and quantifying these benefits within appraisals meaning the benefits can often be overlooked and again, making it harder to make the case for investment.

Likewise with passenger transport and multimodal schemes, there appears to be limited guidance and standard methods to use apart from comparative case studies.

Issues with the current lack of representation of the value in terms of connectivity, safety (perceived and actual) of tackling significant barriers to walking & cycling e.g. more emphasis on the value of improvements to large junctions for non-motorised users to ensure that these barriers are not

categorised as 'too expensive/ difficult' by local authorities which means they are not considered. This theme also needs to ensure that the latent demand/ induced traffic dis-benefits of road building are accounted for to fairly appraise them against other modes.

Low carbon sustainable transport modes need to be given additional value over any combustion/ traditional fuel modes to account for the dis-benefits of air quality implications. Could a penalty be placed on schemes within the appraisal process which do not account for all types of modes to ensure that schemes are encouraged which include provision for all modes rather than just accounting for motorised vehicles? This method would ensure more equity in transport decision making. In particular a penalty on the value should be applied if a road building/ widening scheme falls within or near to any vulnerable sites e.g. schools or air quality management areas.

Reviewing the evidence base on the degree to which increases in road capacity lead to additional traffic (induced demand). This will allow us to assess whether our existing assumptions on impact need to be updated"; - this needs to form a key priority for the strategy to have a greater understanding of the implications of this. All schemes which have been approved for funding should be closely reviewed to see if they realised the benefits set out in the business case to understand whether these are set at the right levels. Especially the impact this has on journey time reliability – what the decay rate of this value is due to induced traffic.

**“Evenly distributed benefits”** – user benefits need to be careful that the benefits are for everyone. Penalties for schemes which do not provide a footway and cycle provision/ safe crossing points for NMU's so that LA's don't have to deal with the gap further down the line when they have no funding. The modelling framework is key to informing inclusive design.

**Spatial planning implications** – impacts of unlocking homes in any greenfield area on transport schemes and the impact this has on the existing transport network. Implications on spatial planning of the type of scheme and the location. Will it encourage more traffic into an urban area or displace it?

**Longer term implications** – ageing population, data from NTS – less younger people driving to ensure the appraisal relates to the future, not just the now as transport schemes take a long time to deliver.

**People and Place: capturing the range of impacts relevant to transport policy today**  
3 What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.

**Valuing attractiveness - Urban realm** – need to retain use of highstreets for economies to reduce travel. What will the high street's place be in the future? Currently find it very hard to appraise urban realm.

**Ref. Priority 4.7 & 4.9 – appraisal of noise & air quality impacts**

Adding in value of life benefits from active transport modes to help reduce the shortened life expectancy from obesity and sedentary behaviour. Providing active transport mode options within or as part of a scheme, offers significant life year value benefits which should also be captured alongside safety, air quality etc. Need to ensure not only the direct transport benefit is quantified but the impact on people surrounding the transport link.

Ensuring that air quality is factored into the appraisal – what impact will induced and displaced traffic from a scheme have on the wider area/ people living nearby. Significant cost. Values should be given



to discourage schemes which encourage more motorised traffic through areas of vulnerability e.g. town centres, past schools, hospitals, health care centres, urban areas. “As the exposure of individuals to high pollutant concentrations drives the health impacts, rather than the total quantity of emissions” – these are direct health impacts but the total quantity of emissions has impacts on climate change/ extreme weather etc. so this needs to be accounted for in the carbon impacts section.

#### **Priority 4.10 – sustainable transport uptake**

Incorporating these benefits into appraisal & giving them greater value. Large highway schemes need to incorporate these. Need to ensure that the full benefits of cycling schemes are recognised in appraisal. Currently major barriers with the method of cost/ length of route which doesn't enable us to ever justify tackling the expensive “too difficult” schemes, leaving significant barriers to active travel untouched. Connectivity with other routes needs to be quantified to enable the expensive junctions and links to be improved for cyclists even if there is a low accident record here – to promote the scheme as a connectivity scheme not a safety scheme.

Guidance needed for more proportional bus use representation.

Lack of guidance of pedestrians – active mode appraisal limited in appraising increase in pedestrians.

Not just focusing on cycling as it's the easiest mode to appraise.

Propensity to cycle tool – very useful but limited guidance for how you put in the figures for the model & also to produce a similar tool for pedestrians. Work examples are key to making the guidance more accessible.

#### **Reflecting uncertainty over the future of travel**

4 What should our priorities be for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three.

**Ref 5.8** – ensuring understanding of trends in younger people to ensure we are building for the future not just for the now as transport schemes take a long time to deliver. Factor in the planning & construction time of the project to ensure this reflects the uncertainty of the background situation.

There is a risk of making the uncertainty tool kit complicated which will make it difficult to compare schemes. This needs to be a simple process. Uncertainty is already included in TEMPRO etc. anyway, sitting behind the calculations.

Key priority needs to be that any advanced techniques promoted need to be proportional to the scheme being promoted. The methods for addressing uncertainty levels proposed in this consultation is more applicable for national schemes and is not applicable for the smaller local authority schemes. There needs to be clear understanding of proportionality.

5 What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these??

Including these suggested methods to reflect uncertainty runs the risk of making it too complex & time consuming – Local Authorities have limited resources to be able to conduct full appraisals so it needs to be user friendly and not too time consuming - It needs to be proportional to the scheme and context e.g. not having this level of complexity for smaller transport schemes (under £10 million). This suggestion seems to conflict with the objective of making it more user friendly.

The lack of available data at the required level.

The schemes should be based on impacts not costs.

Importance of seeing travel change behaviour within the model – this needs to be emphasized and included to an appropriate level.

### **Modelling and appraising transformational investments and housing**

6 What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.

7 What transformational impacts do you currently find it difficult to represent in a scheme appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?

Modelling and appraising transformational investments and housing – this theme needs to also encompass the negative benefits of large scale road building to ‘unlock housing’ – the impact unlocking of latent demand/ induced traffic/ the impact on the surrounding network to ensure that the dis-benefits of this is not undervalued. The benefits of sustainable transport modes need to be given more weight for the value they bring to ensure that they are measured equally against road building schemes which only benefit motorised vehicles.

Need to ensure that sustainable transport is not lost when appraising transport against housing. Hard to argue that it will unlock housing in itself but is a key element for access. Benefits should be given to sustainable transport schemes that unlock housing as well as for road building schemes.

More emphasis on appraising joined up cross sector schemes – not just transport in silo but working across the sector to appraise transport and communications (super-fast broadband) etc. as a whole. To quantify the benefits of delivering cross sector schemes.

**Housing** – there needs to be a relationship between WebTAG & NPPF. Issues with transport and land use planning. Needs better guidance in terms of understanding the assessment of where housing is going. Once you have located a site need to understand the impacts. More detailed case studies might be useful. Again the guidance is more suited at very large housing projects (e.g. Oxford to Cambridge) whereas Surrey schemes are smaller so this is less applicable – maybe addressing proportionality again would be helpful. Housing dependency guidance not tested.

### **Supporting the application of WebTAG and making it more user friendly**

8 What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?

Using it for sustainable transport appraisal. Current method for appraising cycling using the active mode appraisal tool means it is difficult to achieve a good BCR for difficult junctions as they are appraised on cost v length basis, many of schemes now aim to connect existing cycle routes, or address missing section previously considered too difficult or costly to implement.

Difficulties with quantifying the benefits of buses – within journey time savings.  
Lack of guidance on applying WebTAG to appraise pedestrian benefits.

Barrier of use: the cost to promotor’s especially local authorities as Highway Authorities have limited

revenue. The DfT need have to have a process/ method that is cost effective to allow Local Authorities' to invest in the appraisal method but not spend scarce revenue on data collection and expensive transport models as it is currently unfeasible.

Possible ways to make it more user friendly could include providing a clear pathway through the appraisal process and maybe consider a different platform, although recognize the advantages of a web based system. Introduce a search function to make it easier and quicker to find appropriate sections or information. Potentially provide a more plain English style approach or click on a word to find explanation or provide a glossary. Would be good to provide some worked examples for different modes from previous successful schemes? Any feedback on the shortened WeITAG version that could be adapted \ transferred to a revised WebTAG.

Provide a better way to contact DfT to answer queries, consider online discussion forum to help promote innovation or provide \ receive help to overcome problems.

### 9 What more could be done to articulate the flexibilities in WebTAG and support scheme promoters apply the guidance?

Provide more example \ case studies. Include examples\explanation on security and severance spreadsheet. Provide greater clarity on WebTAG compliance to Scheme Promoters and provide greater emphasis on likely costs and timeframes to undertake different levels of scheme assessment, by mode of range of f costs from >£10m mid-range and £100m+, as consider £5m threshold to low these days given recent examples of what can be delivered for these sums of money. Guidance to help with programming resources and securing revenue funding, also consider certain LEP schemes (such as Sustainable Transport schemes) should not be required to undertake WebTAG appraisal process or needs a more proportionate method, seems that LEPs have just use WebTAG approach, without fully understanding impacts on scarce revenue resources to fully develop and appraise schemes.

### 10 How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance.

Provide more training seminars to increase dialogue and be able to feedback on issues we are having with the assessment methodologies etc.

Hard to search in TAG – currently have to use Google. Needs a different platform which enables you to see a path through the appraisal process and improves navigation. More plain English needed – introducing planning language with no glossary makes it hard to use – need to be able to click on words in the text and it produces a definition to aid users. Be good to have an infographic which shows the path clearly and in coloured flow chart such as used in the consultation document.

### **Developing modelling and appraisal tools that meet user needs**

#### 11 What should our priorities be for improving the development of modelling and appraisal tools and why? Please select up to three.

Provide more guidance on reliability and resilience when dealing with congested networks.

Provide further guidance on “compliance v innovation”, and ways this can be discussed with DfT, AND receive methodology approval sign-off.

More sharing of their functionality – have had some issues with data protection hoops which makes accessing essential data difficult. There needs to be more work on ensuring sensible data protection but also ensuring it doesn't create a barrier to use/ input. Eg TEMPRO.

## 12 How can we best encourage innovation whilst maintaining a consistent and robust approach?

Allow open and honest discussions & have an online chat forum where practitioners can discuss ideas. Examples of innovative techniques and who used it so that we can get in touch to discuss the innovations more – help with knowledge sharing.

More access to someone at DfT to discuss innovation & issues. Could set up a FAQs page so that people can self-serve if others have already asked the same questions.

Currently there is a disconnect between the LEPS & the DfT in using the guidance. LEP's are not up to date with TAG so we are being asked to use it in an inappropriate situation e.g. schemes are too small to be appraised effectively with the method or the current guidance is not fully effective at appraising sustainable transport schemes. LEP's could have their own appraisal method that is suitable for the type of schemes being promoted.

## 13 What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?

How to assess emerging transport solution against traditional interventions, with regards to CAV's, connected towns and cities i.e. Broadband and other sustainable communities.

In summary the Surrey County Council transport officers welcomes the approach undertaken by the DfT to consider addressing issues in the current appraisal and modelling methodologies and are pleased to provide a response to the consultation as set above. It is recognised that WebTAG covers a broad spectrum of the appraisal process and is difficult to provide everything mentioned above but the county council would welcome further engagement opportunities to discuss how WebTAG could be updated and improved to address existing problems when interpreting / using the guidance.

Yours sincerely

Lyndon Mendes  
Transport Policy Group Manager

pp Transport Policy Team  
pp Transport Studies Team

Susan Hedley: APPRAISAL AND MODELLING STRATEGY: CONSULTATION RESPONSE

S. Hedley,  
Northumberland, NE65  
Supermarket checkout operator and regular rural bus passenger,  
widely floating voter with no paid or voluntary office.

I regard all members of the public as stakeholders in that they are the end user of transport systems as well as neighbours to them, but I am obviously not in a position to complete the online response form, but SEE 3 POINTS BELOW.

1) I WOULD SAY THAT SOMETHING HAS GONE VERY WRONG WITH THE TRANSPORT APPRAISAL MODELLING STRATEGY BECAUSE those forms of transport which are predominantly used by women i.e. RURAL BUS SERVICES AND PEDESTRIAN ROUTES, seem to be lost in the process due to apparent lack of attention to detail, lack of interest, lack of care, and lack of knowledge or will in finding ways to communicate with users of these modes of transport: examples

e.g.i) In a new junction alignment to connect the new Morpeth Northern Bypass with the A1 in spring 2017, the bus stops for Fairmoor had to be put in a new location. These serve patients, staff, and visitors for the Northgate mental hospital, and it was already known at that point that a new housing estate was going to be built there, so it would have been an ideal time to encourage as many of the new residents as possible to use the bus network. However, though the old bus stops had a shelter on each side of the road, which had been there for at least fifty years, when they were relocated, no replacement shelter was provided, despite the fact that since this is a new road alignment, unlike at the old locations, there is absolutely no shelter from the surrounding landscape, so these new stops are completely exposed to all foul weather from all directions, so virtually unusable in inclement weather, and therefore unlikely to facilitate regular public transport use. There are no other bus stops nearby. Even if bus stop users had realised in time that they should be looking closely at the new road arrangements, they probably wouldn't have known how to find such detail even if it was available to them, and since none of the relevant decision-makers are likely to use buses, they probably didn't notice or care.

RECOMMENDATION: WHEN TRANSPORT SCHEMES AFFECT BUS STOPS AND PEDESTRIAN CROSSINGS [SEE e.g ii)], THERE SHOULD BE A REQUIREMENT THAT DETAILS ARE POSTED AT BUS STOPS AND CROSSINGS DURING THE CONSULTATION PERIOD. THIS SHOULD INCLUDE DETAILS OF TEMPORARY TRAFFIC CONTROL MEASURES, because it is harder or impossible for frail pedestrians with heavy shopping bags (usually women) to make a short detour than it is for a car driver to make a longer detour.

e.g. ii) Within the last year I have noticed that respect for pedestrians seems to have diminished drastically, both on the part of car drivers and with temporary traffic control measures for road works (in the Morpeth area this often seems to be done by a company called Total Traffic Control).

With traffic control measures, I have seen pedestrian crossings blocked off with notices saying "use alternative crossing" when there is none, or the arrow is pointing in the wrong direction for them, and the blocked off area of road perfectly usable out of working hours, except that it is being used as an out of hours carpark for a mini -digger, so clearly no real care for pedestrian arrangements at all, and I have seen crossings where there is a diversion notice for pedestrians

where it only diverts them away from their route without giving them a route back. This makes things impossible or very dangerous for them, but no-one seems to care.

e.g. iii) Shared space schemes and pedestrian crossings. I have also seen a marked deterioration in the treatment of pedestrians by drivers in recent months, and I wonder whether it is because they are getting used to lesser obligations in shared space schemes. I have had numerous instances where I have been going over zebra crossings and traffic signal controlled pedestrian crossings where the light has been against them, but a car has just driven over the crossing with me on it without even slowing down.

Where we are told in shared space schemes that we should make eye-contact with the driver, this is rubbish, because even though my sight is fine because I always wear my glasses, I can't make eye contact with most drivers because I am only of average height so I can only see the sky reflected in their sloping windscreens and I can't see them past the reflection. If they are waving to me to cross, I can't see them, and then if they slow down and I start crossing they then start accelerating because they are impatient that I haven't started crossing straight away.

Likewise, with switching the sound off at traffic controlled pedestrian crossings, if the sun is in our eyes, or, as frequently happens, lorries stop ON the crossing, so obscuring the signal on the opposite side, and another pedestrian is obscuring the light on the control box on my side, I can't see when to cross, so need to rely on the sound.

I THEREFORE APPROVE OF ANY MEASURES WHICH YOU TAKE TO ENSURE CONTINUED EVALUATION, BUT THIS IS ONLY USEFUL if it also requires remedial action if things aren't working as forecast.

"2) In Annex A of <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/rural-economy-committee/rural-economy/written/89277.html> (House of Lords), you will find my response to <https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Health-and-social-care/Public%20Health/Northumberland-Joint-Health-and-Wellbeing-Strategy-2018-2028.pdf>, containing details of how wider issues and better working together should be considered by Transport departments."

3) Until I read through your consultation yesterday, I wasn't expecting to send a response, and my only online access is at the public access computers at the library when it is open, and I have to go to work now, so the rest of this response is in the form of the notes which I made whilst reading through yesterday!

But does it include wider cost benefits such as reduced social services costs etc.? As I said To NCC consultation –transport should be working much more closely with health and wellbeing – incl X14 e.g.

p. 19 **2.19 NO NO NO NO NO – this is selling our public transport system short**

p.21 . – I don't want an autonomous vehicle in a snowstorm – could this create a north/south divide?

P.22 YES – BOTH NON-DIGITAL PEOPLE AND RURAL SCHEMES COULD BE LEFT OUT

P.23 Valuing attractiveness

P. 24 4.5 – Agree?

4.7 – including appearance of environment on mental health?

4.8 - **YES YES YES**

p.25 4.11 Maybe **access** to the journey is more important – **at present it seems more about improving existing services than preserving and planning the network for the future**

4.12 – survey techniques – **digital?? - please don't forget all of those who aren't online i.e. the most vulnerable, particularly those relying on buses and walking - not the boys toys - trains, cars, cycling. YOU NEED TO FIND AND REQUIRE EFFECTIVE WAYS TO MAKE EQUAL CONTACT.**

p.27 5.3 **There are more grants and suitable locations for these in urban areas, so rural areas might miss out on funding for transport infrastructure if they aren't protected**

P.30 5.20 – **YES**

p.36 7.9 **Differential resources between and within areas e.g. Transport for the North**

**Do cities, towns, remote rural need to work better together?**

# Consultation response: Appraisal and Modelling Strategy – Informing Future Investment Decisions

Sustrans submission to DfT, Transport Appraisal and Strategic Modelling, October 2018

## Summary

WebTAG can be a great resource when used well. But WebTAG has many weaknesses that need to be addressed.

In terms of increasing the range of values to be incorporated, we would suggest prioritising:

- Understanding the effects of **traffic dominance** – how to measure and how to value
- Developing a focus for the **place-making** effect of transport (and non-transport) interventions
- How to measure and value **wellbeing**, and in particular the effects of **noise**
- Understanding the **distributional effects** of transport schemes, particularly in respect of spatial distribution and social distribution

However, we are keen that a proposition on a significant variation to the current approach is explored:

- WebTAG should be reformulated to encourage a 'least-damage hierarchical approach' to scheme assessment. That is to say, for any given transport challenge, we should first consider the extent to which the challenge could be overcome by better supporting walking and cycling – the first tier solution. The second tier for consideration would be local public transport solutions. The third tier would be regional level public transport solutions. And the fourth tier would incorporate more damaging solutions. There should be a de facto assumption that appropriate investment in walking and cycling should be implemented and tested for impact before more damaging schemes become part of the investment package.

Other recommendations include:

- More comprehensive and consistent evaluation needs to be undertaken to support better understanding of what works, and of what doesn't work.
- We would like to see a repository of WebTAG assessments for live and historic schemes that is publically available.
- A consistent reporting form should be devised. This should be comprehensive without being prohibitively voluminous. The Appraisal Summary Table and other summary components go some way towards this. But they do not capture the scope of options considered, the input assumptions and metrics, and the basis for decision-making.
- An objective assessment should be undertaken of the strengths and weaknesses of each of the tools in the modelling and appraisal 'toolkit'. This assessment should consider what may prevent sound outcomes in respect of options assessment, and what measures can be implemented to remedy the issues identified. We are particularly concerned about the extent to which modelling and appraisal tools are able to represent the possibilities of active travel solutions.



## Introduction to Sustrans

- 1 Sustrans makes smarter travel choices possible, desirable and inevitable. We are a leading UK charity enabling people to travel by foot, bike or public transport for more of the journeys we make every day. We work with families, communities, policy-makers and partner organisations so that people are able to choose healthier, cleaner and cheaper journeys, with better places and spaces to move through and live in.
- 2 Sustrans has substantial experience in evidencing the benefits of investment in active modes. Sustrans has along track record in monitoring cycling and walking activity and in evaluating the impact of interventions delivered in support of walking and cycling.
- 3 Sustrans is a long-time user of WebTAG. We supported the development of the first iteration of WebTAG guidance for appraisal of active travel infrastructure schemes.

## Priorities

### **Q1. Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?**

- 4 The themes broadly capture many of the priority areas, although the clustering of the priority areas into the themes represents a challenge to those not familiar with WebTAG. We would advocate that input on some of these issues from a wider pool of people than just the WebTAG user community would be helpful.

### **Q2. What considerations should inform the scope and priorities of our strategy, particularly over the first 18-24 months?**

- 5 In terms of the broad considerations that should inform the scope and priorities of strategy, we would suggest that it is imperative that a better view of whether WebTAG is supporting the right sort of decision making for constituencies affected by transport, but who are not traditionally thought of as the transport sector. For example, how well is WebTAG supporting health sector outcomes, development and planning, needs of local communities, and the imperatives of carbon emissions and global climate change.
- 6 We perceive a risk that WebTAG could be drawn further and deeper into only the domain of transport. The transport sector needs to be able to communicate effectively with other sectors, and a part of this is being able to articulate to these other sectors precisely what WebTAG does and does not do, and precisely what benefits are and are not incorporated.
- 7 To pick out a couple of specific examples to illustrate this point about 'inter-sectoral communicability', we may consider 'health' and 'wider economic benefits'. In the case of health, WebTAG has a health module. So ostensibly WebTAG 'deals with health'. In fact, the health part of WebTAG deals only with the physical activity benefits associated with active travel. There are myriad other costs and benefits at the interface between transport and health (e.g. noise, wellbeing, severance, isolation and connectedness, climate change implications, etc). This is not widely understood by the health sector. In the case of wider economic benefits, WebTAG deals with, for example, agglomeration, but (as far as I am aware) disregards any equal and opposite effect of clustering of services and businesses. This is in part the 'two-way road' issue, where benefits can be counted in one direction without consideration of implications elsewhere. These issues are important to the business sector and particularly those stakeholders in rural economy. In respect of health and wider economic benefits, there is a partiality in the breadth of vision which I suspect misleads both transport sector specialists and specialists in other sectors on occasion.

- 8 So, we need to decide whether WebTAG tries to cover 'everything', and we keep stretching out the breadth of reach of the WebTAG toolkit. Or whether we either better acknowledge the limitations of the WebTAG toolkit in some areas, or even withdraw WebTAG from some areas altogether. Hence the point in paragraph 5 about the need for input from a wider constituency. How is WebTAG influencing decisions from the point of view of these other sectors, and do stakeholders in other areas perceive it as a helpful device?

## **People and Place: capturing the range of impacts relevant to transport policy today**

- 9 This is a massive area. To try and cover all of the cost and benefit areas encompassed by WebTAG into one theme, and with a single question, represents a huge challenge. We identify a number of areas of concern in the following paragraphs. A number of priority areas are identified in the direct response to question 3 below.
- 10 We have a long-standing concern about the way that travel time savings are valued. Whilst we acknowledge the rigour of the approach applied in the recent studies to assign values, we would contest the philosophy of the underpinning assumptions. The fact of a person moving faster is valued irrespective of any adverse effect this has on other system users. There is in consequence an inevitability about the case for a new road scheme, for example, predicated often almost exclusively on the fact of more people moving more quickly. This is not adequately counterbalanced by the costs of the scheme across a whole range of variables.
- 11 One of the possible consequences of the concern about travel time savings is the issue of whether schemes that purposefully set out to make travel by car a less appealing option are penalised by WebTAG. The broad trajectory of such a scenario would be: car traffic is deliberately slowed; travel time is increased, with attendant costs incurred; while some benefits accrue from some aspects of better travel choices, not all of the benefits are valued; analysis of such a scheme may well value the costs more highly than the benefits, and result in a 'negative' benefit to cost ratio. Schemes that set out to restrain traffic, in appropriate contexts, must be given the means to reflect a benefit.
- 12 There is a whole host of aspects of health and wellbeing which are not valued, and in some cases are barely considered, by WebTAG. These include: morbidity benefits (as distinct from mortality); the effects on children (in a health and wellbeing sense, but also more generally); positive and negative effects on engagement, in respect of, for example, severance, isolation and connectedness; and a range of environmental effects, such as noise, carbon emissions (values assigned do not reflect likely damage), etc.
- 13 Considerable uncertainties remain around some of the wider economic benefits approaches in WebTAG. One example is the contradiction between the principle of agglomeration and the principle of the 'two-way road'. We regard the wider economic benefit component of WebTAG as one of the most dubious areas for cost and benefit generation. There is much work to be done to better reflect this group of impacts. Better land use models may address some of the shortcomings of this part of WebTAG, but these models do not necessarily capture all of the changes in land use that may result from transport schemes, and we are concerned that applying this approach could become a new weakness in WebTAG, rather than strengthening it.
- 14 Some guidance on where WebTAG sits relative to, for example, natural capital assessment and 'ecosystem services' approaches will be helpful. This speaks to an earlier point about breadth of reach of WebTAG, and the points of interface with other 'departmental territories'. In recent work in support of the National Cycle Network we have used adapted WebTAG approaches, and included leisure and tourism expenditure (albeit accounted separately). We have not attempted to include the extensive landscape and environment value of natural capital. Clarity on whether we should or should not use such approaches will be helpful

15 We would like to reiterate long-standing concerns about the time frames for appraisal, the application of discounting approaches, and the use of optimism bias. All of these factors are perceived to treat active travel schemes less favourably than other transport schemes. Concerns about the impacts of investment in revenue measures relative to capital measures, and of inconsistency in approaches to hypothecation, are also issues that warrant further consideration.

**Q3. What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.**

16 We recently joined a 'People and Place' theme workshop. We are happy to endorse four priority areas identified by the 'healthy people and places' session at that event:

- Understanding the effects of **traffic dominance** – how to measure and how to value
- Developing a focus for the **place-making** effect of transport (and non-transport) interventions
- How to measure and value **wellbeing**, and in particular the effects of **noise**
- Understanding the **distributional effects** of transport schemes, particularly in respect of spatial distribution and social distribution

## **Reflecting uncertainty over the future of travel**

17 There are numerous aspects to the issues of uncertainty that warrant consideration. These range from population trends and travel patterns through to the impact of new technologies. It is hard to imagine that even a decade ago we could reasonably have forecasted the significant recent changes in levels of home-working, the extent of current demand for rail travel, the new extent of local delivery services, etc. And it is hard to imagine how we can second-guess what might change over coming decades. But there are some key principles that we can apply to give us a better chance of providing in uncertain futures.

18 One of the greatest weaknesses in travel planning is the adherence to 'predict-and-provide' models, whereby we base expectations of future needs on historic patterns. Anything that enables the sector to move away from mechanisms that serve only to 'lock-in' less desirable patterns will be very welcome. In practical terms, this means not forecasting based on historic trends.

19 It is crucial to understand current travel and lifestyle trends, with a view to enabling adequate forecasting of future travel trends. This starts with DfT supporting work that seeks to understand how society is changing. The recent work of the Commission on Travel Demand is a good example of work in this area. More work that supports understanding will be beneficial. Other aspects of societal change are many and varied, but it will be particularly crucial to incorporate public health issues. Forecasts on obesity, diabetes, the problems of poor air and assorted wellbeing issues are distinctly concerning. We need to be able to understand the impact of transport on health, and probably the impacts of health on transport too.

20 By the same token, we must avoid producing scenarios that overstate the role of future technologies, which are unproven, and the impacts of which are tremendously difficult to accurately forecast. Most of the forecasting work around the uptake of electric cars has proven to be misleading, and I am concerned that we may soon make the same mistakes in the context of autonomous vehicles and other 'disruptive' interventions. A cynical view is that the Department must be extremely wary of over-dependence on data from commercial entities – for example, one of the reasons suggested for the slower than expected rate of uptake of electric cars is the limited marketing effort that the manufacturers are investing in promotion.

**Q4. What should our priorities be for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three.**

- 21 So, the principles that I would like to see applied in the context of uncertainty and forecasting are:
- Moving away from forecasting that is based on historical trends
  - Building better understanding of future societal and travel trends, including trends in public health
  - Taking a rounded view of future impacts of new technologies, with input from wider stakeholder groups
- 22 The priorities for improving our understanding and treatment of uncertainty in modelling and appraisal should be constructed around these principles.

**Q5. What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these?**

- 23 The main challenges to adopting a more sophisticated approach to uncertainty in business cases may well be the 'disruptors'. I have commented on a few of the technological disruptors above. The societal change patterns are wider ranging and difficult to capture. But I wanted to flag up some of the other known disruptors that that we can envisage will present major challenges.
- 24 Foremost among these are global climate change, and the impacts of global climate change on resources and lifestyles. As far as I understand it, the Department addresses decarbonisation of the transport sector through carbon budgeting. Without investigating the detail, I suspect that the carbon budget is too 'sector-specific', in so far as the transport bit of the plan deals only with reducing fossil fuel use in the sector, and not the wider question of the implications of the energy sector of power for transport under vehicle electrification scenarios. Carbon emission reduction strategies need to be more comprehensive (transport cannot generate a hugely increased demand for electricity generation, i.e. through fleet electrification, and simply pass that implication on to the energy sector), and we need a joined-up view across the responsible sectors.
- 25 One of the possible outcomes of global climate change is population mass movement. Again, it is hard to know how this plays out. But future transport systems need to have the resilience to be able to cater for mass migration. The most resilient forms of transportation will be those modes that require the least energy to move the most people.

**Modelling and appraising transformational investments and housing**

- 26 The use of the term 'transformational' to describe investment on a huge scale is not helpful. Schemes that are much smaller and more pragmatic in nature can be transformational. Similarly the grouping of 'housing' alongside 'productivity' in the consultation document is suggestive of a predisposition to suppose that the two are intrinsically linked. This choice of language is immediately suggestive that 'new' and 'big' is necessarily 'good'. We would like to suggest that the language, and the way that connections are made between issues, is reconsidered.
- 27 This is closely linked to a long-standing concern about 'wider economic benefits'. The form of expression for a basket of very inaccessible concepts, for which the concepts are weak and the given values even weaker, serves to undermine the rigour of WebTAG. If the premise of these ideas can be articulated more clearly, it may be possible to have a more informed debate about what the implications of transport are for these areas.

**Q6. What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.**

28 The wider economic effects of very large transport investments, and even of more modest investments, is one of the most difficult parts of WebTAG to engage with. It may be that efforts to assign values in these areas involve too many assumptions that are too 'heroic' in nature. We would suggest that a review which addresses deep-rooted questions about whether it is even possible to make a sensible estimate of value for the economic effects of the Oxford to Cambridge Express Way, Northern Powerhouse Rail, Crossrail 2, etc, would be appropriate. The consequence of, perhaps, removing this element of the calculation from the appraisal system would be that weak and often misleading forecast values would not need to be expensively produced. And it is these values that are arguably most often manipulated for political ends, so the propensity for WebTAG to be manipulated for political purposes would be reduced. A further point to note is that in these cases there is rarely a meaningful options appraisal exercise. The Oxford to Cambridge Express Way is a largely binary choice – do we or don't we – and contrived values on economic effect do not help to determine the finer details of alignment or design.

**Q7. What transformational impacts do you currently find it difficult to represent in a scheme appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?**

29 It is tremendously challenging to represent any of the wider sweep of possible economic outcomes captured in scheme appraisal. We would like to see the 'transformational' impacts of mega-schemes far more focussed on the transformational effect on landscapes and severance, for example. But we would like better mechanisms for recording the transformational effects of more positive transport interventions on, for example, place, liveability and wellbeing.

## **Supporting the application of WebTAG and making it more user friendly**

**Q8. What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?**

30 The main barriers and challenges to applying WebTAG are, in our view, transparency, proportionality and consistency.

31 In terms of **transparency**, it is often very hard to see how appraisals have been undertaken. In part this is because the information provided is not as complete as we might like. And in part this is because the material is simply not available.

32 Where information provided is lacking in detail, it may be that, for example, the breadth of options considered is not clearly set out. A recent example of this comes from Wales, where we objected to the case made in favour of the M4 upgrade in part because we consider that there are better transport investment options available. Despite the huge volume of appraisal material that is available in this case, it is very difficult to discern whether alternatives to road investment has been considered. It is very rare in our experience that, for example, road building schemes are considered part of an options mix alongside active travel schemes. Promoters often claim that active travel cannot remedy congestion issues on existing roads, but in the case of the M4 we made a very strong case in favour of investing in active travel and public transport on the basis of reducing local traffic, thereby improving flows for longer distance traffic.

33 A second point on transparency relates to whether the basics of the appraisal process are made available at all. For example, presumably all of the WebTAG assessments for the schemes that make up the Roads Investment Strategy portfolio have been made, but we have seen very few of these. **We would like to see a repository of WebTAG assessments for live and historic schemes that is publically available.**

- 34 The question of **proportionality** presents an immediate challenge to our points on transparency.
- 35 The extent of the assessment should reflect the scale of investment and the extent of (negative) impact of the scheme. Using the case of the M4 proposals again, the vast amount of material available reflects the £1.4bn investment cost of the proposed scheme. Several options have been considered in detail. But neither public transport options or the active travel options had in our view been given adequate consideration. Whilst it is hard for us to conceive of a transport problem to which active travel cannot offer at least a partial solution, scheme promoters will rarely give due consideration to these modes where a 'big infrastructure' solution is preconceived to be necessary. We would argue that serious consideration of public transport and active travel solutions are always necessary, and always proportionate.
- 36 The challenge presented by transparency in terms of the provision of analysis data is that it becomes more straightforward to contest the outcomes. But this has to be right when the purpose of WebTAG is to support making 'the right' transport decisions. The relevance to the issue of proportionality is in the context of how open a debate scheme promoters should be prepared to have about their assessments.
- 37 Both of the points discussed above in terms of transparency and proportionality apply in the context of **consistency** too. Greater consistency supports transparency in so far as it would be easier to understand what information is available and what process has been followed. It would also help to build in positive approaches, if, for example, an approach using an assessment of relative merits pre-empted the production of a detailed business case. We imagine that this would be some form of multi-criteria assessment. If constructed correctly, this approach could help to circumvent the promotion of 'vanity schemes' or 'business as usual' solutions
- 38 **We would like to suggest a significant change to the conventional approaches to implementing WebTAG.** We propose that WebTAG should be reformulated to encourage a 'least-damage hierarchical approach' to scheme assessment. That is to say, for any given transport challenge, we should first consider the extent to which the challenge could be overcome by better supporting walking and cycling – the first tier solution. The second tier for consideration would be local public transport solutions. The third tier would be regional level public transport solutions. And the fourth tier would incorporate more damaging solutions. There should be a de facto assumption that appropriate investment in walking and cycling should be implemented and tested for impact before more damaging schemes become part of the investment package.
- 39 Supplementary to this approach would be the 'panel' approach applied in Wales. As part of the WebTAG appraisal process, a panel of interested parties is convened. Care needs to be taken about the composition of such panels, to make sure that representation is adequate. But the principle of broadening the range of input to the appraisal process is to be applauded.

#### **Q9. What more could be done to articulate the flexibilities in WebTAG and support scheme promoters to apply the guidance?**

- 40 We appreciate the flexibility in the WebTAG system. However, as much as we like the broad catchment of benefits and the application of values when it works in favour of the schemes that we would promote, the flexibility is not so welcome when it serves to support a case for projects that we regard as less positive. We can recognise that this is very much a 'having ones cake and eating it' position. But there is a serious underlying point about how WebTAG is applied, and what can reasonably be included and what cannot reasonably be included. This is very much related to the points about transparency and consistency above.
- 41 Articulation of the flexibilities has to start within the Department. TASM colleagues will assert that there is 'no such thing as WebTAG compliant', yet we have communications from other connections in the Department explaining that they can't use elements of our work because it is not WebTAG compliant. Our nervousness as WebTAG users in straying too far from the WebTAG template is precisely the reaction that we are 'trying to pull the wool over someone's eyes'. The

gap between perceptions of 'compliance' and 'disingenuous application' is too narrow, and the Department needs to find a way to stipulate more explicitly what the appropriate parameters are. It will be extremely challenging to ensure that flexibility is reconciled with pragmatism and transparency.

**Q10. How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance.**

- 42 The guidance is not accessible and it is not clear. It is largely impenetrable to a lay audience. We have no specific recommendations for how this can be improved without a great deal of simplification. We feel that it is important to engage wider audiences in transport decision making – see points above. And a part of enabling this wider engagement is finding ways to engage less technical audiences on complex issues.
- 43 There is a further point about how organisations and individuals can access WebTAG-based assessments. **We propose that a consistent reporting form – comprehensive without being prohibitively voluminous – is devised.** The Appraisal Summary Table and other summary components go some way towards this. But they do not capture the scope of options considered, the input assumptions and metrics, and the basis for decision-making. All of this can be included in the 'repository' of WebTAG assessments suggested above.

## **Developing modelling and appraisal tools that meet user needs**

- 44 This section of the consultation document appears to presuppose that the approaches and tools used are 'broadly ok, but need a little bit of tinkering around the edges'. The fact that WebTAG is consistently being applied to develop damaging schemes and schemes that do not resolve the transport challenges they are designed to address underscores the weaknesses in the existing toolkit. We suggest that WebTAG is seriously compromised by the poor decisions that are often attributed to it as a consequence of the weaknesses in the modelling. Our responses to the question below derive from this perspective.

**Q11. What should our priorities be for improving the development of modelling and appraisal tools and why? Please select up to three.**

- 45 **We propose that a priority should be to make an objective assessment of the strengths and weaknesses of each tool in the modelling and appraisal 'toolkit'. This assessment should consider what may prevent sound outcomes in respect of options assessment, and what measures can be implemented to remedy the issues identified.** We are particularly concerned about the extent to which modelling and appraisal tools are able to represent the possibilities of active travel solutions. It is our understanding that most (if not all) of the specific tools mentioned in the consultation document largely disregard the possibilities offered by active travel solutions. In each case, is it even possible for this to be remedied? And in each case, what would it take to reach that position?
- 46 The second part of this equation is evaluation. More comprehensive and consistent evaluation needs to be undertaken to support better understanding of what works, and of what doesn't work. Scheme effectiveness should be addressed from the perspective of a range of outcomes – economic, environmental and impacts on individuals. The DfT has very strong evaluation frameworks, but we do not see this implemented as thoroughly and as comprehensively as we might reasonably expect. Evaluation should feed back as learning, and it may support modelling exercises if developing and improving models is the preferred route.

**Q12. How can we best encourage innovation whilst maintaining a consistent and robust approach?**

47 The alternative approach to options generation and appraisal that we have proposed above is innovative. DfT should pursue this approach.

**Q13. What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?**

48 Better evaluation techniques, and effective application of evaluation are essential for building understanding and learning on effective intervention.



## SYSTRA Ltd, Neil Raha, Technical Director

### Priorities

1 Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?

*Yes, these themes cover the most important areas for development. They contain other elements which might be considered themes in their own right. It would be good if these elements remain within scope at high priority:*

- *Modelling of freight and its impacts*
- *Scenario building and testing to cover uncertainties*
- *Drivers of demand and impacts of new technologies*

2 What considerations should inform the scope and priorities of our strategy, particularly over the first 18-24 months?

*The current focus on testing of transformational packages by Sub-National Transport Bodies (SNB). These are likely to use innovative approaches which could feed into future guidance but are likely to suffer from:*

- *Inconsistencies in scenario development and testing between the different SNBs (alternative and incompatible “futures”).*
- *An additionality problem in that each SNB is likely to identify transformational growth significantly exceeding the national forecast (eg NTEM) within its own area. How will DfT judge between them? There is no national plan to operate as a control.*
- *There is considerable uncertainty in the impacts of disruptive changes in transport technologies (eg CAV / MAAS) but there are “transformational” (ie large) schemes and packages undergoing appraisal now or over the next 2 years, or indeed already. These are discounted over 60 years. What will be the impact on these scheme appraisals of the new approaches which will result from this consultation and future research? How will implied changes to the fitness of approved schemes be managed?*

### **People and Place: capturing the range of impacts relevant to transport policy today**

3 What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.

- *Impacts on health and the environment are critical in meeting national and international legal commitments such as in Air Quality and Greenhouse Gas emissions. A better and more consistent way of assessing these is needed, especially if they become “red flag” issues for scheme development [a question arose at the July presentation about how to compare marginal changes in these between schemes if none of them meet the target]. Note that natural capital accounting and ecosystem services valuation methods would be welcome additions to the appraisal toolkit but would also raise questions about the validity of the general discounting and economic growth assumptions used elsewhere as standard in all government forecasting. Since we are only asked for three points this element can include the importance of improved modelling of active mode choice as this has great significance for health and environmental impacts.*
- *We need to be able to produce robust appraisals under land use change. I understand that independent work has been done on this (eg by David Simmonds for TfL and John Swanson mentioned a shadow pricing approach) but DfT should lead on this if it can. Many transformational schemes and scheme packages make little sense except in the context of changed land use.*
- *Perceptions of the value of improvements in different aspects of journey quality should be researched with high priority. It is good that there is a plan to do this with HE and Network Rail, hopefully in a consistent fashion. PDFH has already considered various aspects of this but I believe it is proprietary. Reliability and resilience are of great importance to many people. People may well value productive time highly in a self-driving vehicle (although I thought this was expected to be the case for long distance rail travel too, but was found not to be during the Department’s recent research into VTTS).*

## Reflecting uncertainty over the future of travel

4 What should our priorities be for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three.

- *Guidance and consistency in scenario building to generate ranges of forecasts for future appraisal (particularly for SNBs and transformational schemes/packages). The proposed uncertainty toolkit should cover much of this. Please do include case studies.*
- *Can there be greater emphasis on post-scheme evaluation to feed back into and assist with improvements to appraisal generally, over and above just optimism bias in scheme costs? It seems possible that enhancements in big data availability (especially open source) could feed into far more detailed and localised DfT Transport Statistics that might*

*allow post-scheme evaluation to take place in a consistent and cost-effective way.*

5 What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these??

- *Identifying and applying consistent tests between different schemes, promoters and practitioners. The proposed uncertainty toolkit should cover much of this. Please do include case studies.*
- *If scheme sponsors find that others who have invested less in exploring uncertainty still have positive funding outcomes, then the drive to improve in this area will be curtailed. Therefore, the importance of exploring the range of uncertainties should be emphasised in guidance.*

### **Modelling and appraising transformational investments and housing**

6 What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.

- *How can DfT judge between competing aspirational goals for transformational growth driving funding for scheme packages for different Sub-National Transport Bodies? Taken together these forecasts would probably imply unrealistic growth for the country as a whole. There should be a common framework to assess “local” economic impacts, including at SNB level. How can additionality issues be addressed in the absence of a national plan of some sort, when the options being assessed often imply regional growth at, say, double that currently included in NTEM?*
- *Ensuring the robustness and consistency in supplementary economic modelling including commissioning/developing tools within DfT and making more local and national data publicly available.*
- *Further investigating productivity impacts of transport investment which may not be captured by other approaches. This may necessitate consideration of synergies with other forms of investment.*

7 What transformational impacts do you currently find it difficult to represent in a scheme appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?

- *Interaction of transformational scheme development and land use change. DfT should develop and sponsor research into consistent tools to use, and provide “what works” case studies.*
- *Land value uplifts are very uncertain, and the impacts on productivity of transformational schemes requires research into enhanced guidance.*

## Supporting the application of WebTAG and making it more user friendly

8 What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?

*This is well covered in the WebTAG user consultation exercise. A few points to emphasise from that:*

- *Yes, please include more case studies and worked technical examples.*
- *DfT-approved/developed modelling/appraisal tools would be appreciated (as has been the excellent WebTAG Data Book).*
- *This would all have great benefits in consistency between schemes (especially useful for DfT where these are in competition for funds), and reducing costs to scheme promoters and practitioners albeit at the potential expense of innovation.*
- *More guidance on proportionality and what aspects of WebTAG to use for what type of scheme.*

9 What more could be done to articulate the flexibilities in WebTAG and support scheme promoters apply the guidance?

- *Statements that innovation is welcome (and possible inclusion of case studies where innovative approaches have been successfully applied). However, this should be accompanied by a high level specification of a given aspect of appraisal and the requirements for evidence of the effectiveness of an approach which must be met to justify the use of an innovative method (possibly in the context of scheme type and cost).*
- *Evidence (from DfT) that the expense of such innovative approaches can indeed lead to a positive outcome for scheme promoters.*
- *DfT modelling prototypes testing around different innovative appraisal elements (eg scenario building and how many to consider).*
- *Open source modelling tools.*

10 How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance.

*This is well covered in the WebTAG user consultation exercise. Infographics for decision makers and detailed flowcharts for practitioners were high on the wish list. And worked technical examples, of course. Both of these should assist with “more guidance on proportionality and what aspects of WebTAG to use for what type of scheme”.*

## **Developing modelling and appraisal tools that meet user needs**

11 What should our priorities be for improving the development of modelling and appraisal tools and why? Please select up to three.

- *Land use and economic modelling so that transformational schemes can be appraised and more benefits of transport investment captured.*
- *Freight modelling, especially light goods, since this is a perennial weakness and a significant contributor to traffic. Data to support this needs to be improved.*
- *Open source modelling and appraisal tools could encourage collaborative and consistent development but commercial and confidentiality issues as well as maintenance and testing would need to be addressed.*

12 How can we best encourage innovation whilst maintaining a consistent and robust approach?

- *Statements that innovation is welcome (and possible inclusion of case studies where innovative approaches have been successfully applied). However, this should be accompanied by a high level specification of a given aspect of appraisal and the requirements for evidence of the effectiveness of an approach which must be met to justify the use of an innovative method (possibly in the context of scheme type and cost).*
- *Evidence (from DfT) that the expense of such innovative approaches can indeed lead to a positive outcome for scheme promoters. This would help with addressing the tension between “compliance” and innovation but it is not clear to me that any meaningful resolution of this is possible given budget strictures.*
- *DfT modelling prototypes testing around different innovative appraisal elements (eg scenario building and how many to consider).*

13 What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?

- *Big data (including DfT-maintained anonymised datasets from eg mobile network providers and smart ticketing) could be used to enhance many aspects of modelling and appraisal eg:*
  - *base demand matrix development;*
  - *consistent and improved local and national data as evidence base;*
  - *ex-post evaluation.*
- *The National Transport Model and various other urban and regional models could be looked into from the perspective of whether it might be possible to produce **meta-models** to capture broad brush responses from nearby urban centres / London / the national level to given changes in a Sub-National region or urban area. This might help in improving consistency between modelling approaches in different cities/regions, and re-using core aspect of more local models more widely.*
- *Active mode modelling is difficult because the behavioural drivers behind (sometimes quite dramatic) change in active mode use are usually not well modelled. It is welcome that further research into this is proposed. However, since existing models are unlikely to forecast the aspirational levels of growth anticipated (especially in cycling) it might be worth exploring methods of boosting cycle/active mode use as part of the scenario testing elements described in the consultation document. One such approach recently developed for the forthcoming London demand model considers artificially enhancing the propensity to cycle for different population segments to effect such a change. Contact David Christie at TfL for more information.*

## Transport Appraisal and Modelling Strategy Consultation Response

The Tees Valley Combined Authority (TVCA) covers the local authority areas of Darlington, Hartlepool, Middlesbrough, Redcar & Cleveland and Stockton-on-Tees. The Tees Valley has a population of over 670,000 and is home to over 16,500 businesses which provide more than 293,000 jobs.

TVCA only formally came into being on 1st April 2016 and on 4th May 2017 we became one of the six areas to have a directly elected Mayor, with transport within their area of responsibility. However despite these very recent changes in governance arrangements, there is a long history of joint working in the Tees Valley, particularly on transport. There is a well-developed transport strategy for the Tees Valley, and the Combined Authority's (and Mayor's) first Strategic Transport Plan will further outline our transport priorities. The draft framework has been consulted upon with the full Plan due to be published for public consultation in January 2019.

TVCA has also recently published its updated Strategic Economic Plan (SEP) which outlines ambitious growth projections over the next 10 years, including 25,000 new jobs and 22,000 new homes. The provision of improved transport links, will play a key role in supporting this growth by improving connectivity to our key development sites, our Enterprise Zone sites and to the South Tees Development Corporation site which is the first Mayoral Development Corporation to be set up outside Greater London.

TVCA holds a number of modelling tools for ourselves and the Tees Valley authorities, to support our transport strategy and transport scheme development. These tools include a strategic Cube-Voyager multi-modal model developed using previous surveys synthetically, built to support smaller schemes and Local Plan traffic implications. A number of models have been developed in association with Highways England towards the development of business cases for the *A19 Tees Crossing Improvements* and *A66 East-West Connectivity Study*.

TVCA has also closely cooperated with Transport for the North (TfN) in the production of the Northern Rail Modelling System (NoRMS), being used to support the *Northern Powerhouse Rail (NPR)* project, key to supporting economic growth across the north.

TVCA welcomes the opportunity to provide input into the Transport Appraisal and Strategic Modelling (TASM) consultation on the future of WebTAG guidance, and are open to provide further input both directly and through partner organisations such as TfN and the Urban Transport Group (UTG). TVCA would welcome early engagement pre-consultation, not just with academics, but with modelling practitioners, to forge opinions pre-consultation (perhaps through the UTG or sub-regional transport bodies).

## Priorities

- 1 *Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?*

TVCA broadly supports the key themes, of the consultation, which covers a substantial range of issues. We particularly welcome the focus on “**Modelling and appraising transformational investments and housing**” which is a key focus of the combined authority and its partners.

Support should be made for the rebalancing of business cases, given the general belief at present that the economic case is key. The present re-prioritisation of appraisal through devolution, has seen the need to cover wider objectives than that can be reflected in financial terms through the economic case. The main priority should be in strengthening the strategic case, covering all elements of the business case and ensuring it is the driver for understanding investment decisions, not in absence of an economic case, but providing an economic case that supports the strategic case.

TVCA believes there is an additional growing theme around **data availability** and costs of maintaining good transport modelling tools. Transport models are very reliant on quantity and quality of data available, this has become more pressing given the recent reduction of information available both nationally and locally due to funding cutbacks. It is suggested that DfT and TASM champions the dissemination and collection of data across government to support scheme appraisal. At present significant modelling data relies on Census data, due to be replaced with alternative collection methods, and National Rail Travel Survey which is quite dated, which could leave significant shortage in data to inform models.

Any further work into the adoption of reliable use of “**Big Data**” in transport modelling (for instance mobile phone data) especially within multimodal models would be welcomed. These data sets have the potential to reduce the costs and risks in traditional data collection, and in some cases are available through DfT (i.e. Trafficmaster). But their use has always been treated with caution within DfT, with emphasis towards less comprehensive and expensive, directly observed data sets, such as Roadside Interview Surveys with relatively strict cut off dates for their applicability.

Highway England have been an early adopter of Bluetooth and mobile phone technology, but it is only really adopted in highways-only models, given the difficulty of reliable allocation of journey purposes (and therefore propensity of a user to change travel mode). This further highlights the differences between Highway England Project Control Framework (PCF) processes and DfT WebTAG business cases when considering schemes, particularly the impact of public transport users, and stages in which options are assessed.



*2 What considerations should inform the scope and priorities of our strategy, particularly over the first 18-24 months?*

Given the timescales of model development we would welcome relative stability in guidance and an understanding of the timescales of future significant changes to WebTAG, and where big changes occur. This is key for combined authorities with devolved funding such as the *Transforming Cities Fund (TCF)* where schemes are likely to be underdevelopment.

Therefore we would emphasise the quick wins in making **WebTAG more accessible** and to provide **evidenced case studies** to support wider economic benefits, to not just those in transport appraisal but the wider economics community.

In each of the themes it is difficult to consider priorities as different appraisal practitioners (both transport and wider) have different views, based around present projects and workload. Therefore themes outlined below should not be seen as an exhaustive list of priorities.

**People and Place: capturing the range of impacts relevant to transport policy today**

*3 What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.*

Anything that can encourage development of non-road schemes (especially walking and cycling) such as **Valuing Attractiveness** and **Public Health & Wellbeing** are areas we would be keen to see more development in. This is key as WebTAG biases towards popular modes, when considering magnitudes of journey time savings. Therefore outside large cities it can be difficult to encourage development of schemes to encourage non-car travel. Also with the growing focus on urban air quality (including the Middlesbrough Clean Air Zone) it is important that these impacts are considered going forward.

Newcastle University's Self Conserving Urban Environments (SECURE) project, which TVCA was involved with, looked at the interaction of transport and land use on the environment through emissions, not just carbon dioxide but wider greenhouse gasses. It considered and the ability of the environment to support the mitigation of these, through land use planning and other measures.

Recent years have seen the growth of technological and quality improvements to public transport modes, sometimes with the assistance of local authorities. Better guidance on the **Valuing journey improvements** such as these would be welcomed. Understanding of the implementation of these improvements in modelling and appraisal through changes in value of time, interchange penalties and/or boarding penalties, need to be understood. In the last Tees Valley major scheme approval, the *Tees Valley Bus Network Improvement (TVBNI)*, the economic case was purely based upon journey time improvements (significant level of which were for non-bus users), with an understanding within the strategic case that

additional benefits would be accrued through journey quality improvements. This is not helpful in producing a balanced and logical economic case.

### **Reflecting uncertainty over the future of travel**

- 4 What should our priorities be for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three.*

TVCA has taken to considering schemes against two growth scenarios, one linked to NTEM for business case purposes. And a second linked to individual authorities Local Plans which in general contain a higher growth rate, associated with a local authorities housing ambitions, and is of more interest to local authorities.

The principle of Optimism Bias could be reconsidered to appraise both **Uncertainty** and **Risk**, thereby considering both increased costs and diminished benefits. This is more common across appraisal of non-transport schemes and would provide parity across scheme themes.

- 5 What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these?*

The danger with increasing sophistication of business cases is that you significantly increase the time and cost of their development, adding additional pressure on limited resources for developing and running transport models. Therefore a key criteria should be the **proportionality** of any future approach. But also to consider the added complexity against rival funding applications outside the transport area, in order to not hider transport scheme asks of single funding pots.

**Wider advice on scenario analysis** would be welcomed, especially in reference to local growth targets against NTEM predictions. This could possibly be achieved though dissemination of the DfT process of how Local Plans are turned into NTEM. Locally there seems to be significant differences between the two predictions, TASM could also provide advice on how two manage the difference between the two forecasts.

### **Modelling and appraising transformational investments and housing**

- 6 What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.*

It is clear that traditional ways of financing and appraising large projects are not as viable as they were, and therefore scheme promoters are seeking additional value. One of these areas is **Land Value uplift**. While we support the principle of this, it has to be approached with caution as it may cause the possibility of bias towards areas of high potential land values, over areas more in need of transformational development. This needs to be addressed through for instance a regional weighting on land value increases.

Concern is also raised regarding the definition of **dependant development**, specifically with housing. DfT guidance states three quite loose definitions; it is a planning condition, no other sites are available and/or that congestion conditions reach an unacceptable level agreed with DfT. Outside large urban areas “no other sites available” discounts the majority of developments, whilst the congestion statement is very subjective. Clearer advice referencing the principles of Local Plans would help clear up these issues. Locally there is an assumption that development in the local plan but outside NTEM growth rates could be seen as transformational (as it is above national growth forecasts). Although does this make a development potentially dependant if it cannot be accommodated on the local network, without significant resources beyond development contributions?

Examining ways of providing **more local-level data** would be useful, besides data which should be made available across government (especially associated with freight transport discussed below). There should also be an investigation of the applicability of data transfer between similar areas, and the consideration of the impacts of using of older data, where applicable for appraisal.

As outlined below **examples and case studies** are helpful not just for the practitioner but also as an aid to the wider understanding of issues within organisations.

*7 What transformational impacts do you currently find it difficult to represent in a scheme appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?*

The Tees Valley SEP targets key commercial sectors where locally job creation is seen as key to support a growing local economy but given the limited predicted increase in UK GDP, and the methodology of wider economic benefits makes it difficult to prove additionality. Given the government target of rebalancing the economy (both geographically and business sectorially), some **additional welfare benefit should be generated in deprived areas**, which would outweigh the cost to less deprived/economic stronger areas. If these benefits can be quantified it would bring national benefits more in parity to local benefits assessments.

### **Supporting the application of WebTAG and making it more user friendly**

- 8 *What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?*
- 9 *What more could be done to articulate the flexibilities in WebTAG and support scheme promoters apply the guidance?*

We have chosen to address these issues jointly as there is significant overlap between the two questions above:

The department has been clear that there is no such thing as “**WebTAG compliant**”, meaning that a robust analysis of scheme impacts is what should be considered, although guidance does not explicitly outline this view. If TASM were to provide examples of how this has been achieved/agreed it would help define what is actually achievable, and provide an indication of what is proportionate. This is key in the development of wide area models (such as ours) where area wide compliance is not achievable.

The production of examples and **case studies** help not just the modelling practitioner understand the implementation of guidance, but provide those outside regular users of WebTAG to understand the principles and to compare results with. This needs to be informed by wider **monitoring and evaluation** of transport scheme’s impacts post-scheme delivery, to provide examples of what wider benefits can be achieved through transport investment. These should be provided separately to guidance documents (perhaps as appendices to) to minimise the overburden of information when used the less WebTAG aware audience.

As well as case studies it may also prove beneficial to **widen the invite to TASM appraisal workshops** to not just transport professional but also wider economic appraisal colleagues at the combined authorities. This would provide better understanding of the competing methodologies between transport appraisal and wider scheme appraisal.

- 10 *How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance.*

The production of business case economics levels have provided a better understanding of what makes up the benefits of a scheme. Outside the transport appraisal community it can be difficult to explain or demonstrate how the monetised benefits are accrued, for instance some people find it difficult to understand monetised time savings, as they expect benefits in cost per key output, for instance cost per minute.

The development of levels of economic case has also highlighted the differences in scheme evaluation between DfT and local business cases, locally interest lies in level 3 benefits, as these provide the obvious economic outcomes of investment. These benefits are difficult to ascertain and are directly linked to transport investment compared to investment in skills and employment.

## Developing modelling and appraisal tools that meet user needs

*11 What should our priorities be for improving the development of modelling and appraisal tools and why? Please select up to three.*

DfT needs to facilitate a better representation of **freight traffic within transport models**, at this stage it is difficult to provide a representative level of detail due to the lack of available data. It should be noted that freight transport should represent significant benefits given the business travel time benefits. For a significant time DfT collected data through the “Continuing Survey of Road Goods Transport”, but the data has never been made available, providing origins and destinations of freight trips. It may also be helpful for DfT to enter into dialogue with the Freight Transport Association (FTA) and Road Haulage Association (RHA) on wider data collection and dissemination.

There are wider concerns regarding freight transports representation around the development and operation of the **Great Britain Freight Model**, compared to other government funded models, details of how it works and assumptions are scarce. Across the north there have been concerns at the outputs it provides. TASM should make more details available on its development and operation, to make the model more accessible.

Although TVCA has for a long period had very good relations with Highways England, and continue to do so. But **better cooperation with government subsidiaries** such as Highways England and Network Rail including assistance with using their models for mutual benefit would be welcomed more widely. At present TVCA is asking for assistance from Network Rail to support the *Darlington and Middlesbrough Station Masterplans*.

As modellers we are still awaiting the advice following DfT’s “**Support for Matrix building Guidance**” document. We are aware that this may take time, and understand there are concerns about the future direction. But it is difficult to proceed with significant transport model upgrades without some form of direction from DfT on this work.

*12 How can we best encourage innovation whilst maintaining a consistent and robust approach?*

Innovation at present is done at an individual level which leads to differences in approach and uncertainty of results, and difficulty in understanding the best path to take locally. We believe there is a role for sub-regional transport bodies (such as TfN) and the UTG in sharing experience, and engage in dialogue with TASM on wider modelling innovation. Smaller combined authorities such as ourselves struggle to fund and resource modelling innovation, without backing from other sources such as academia.

*13 What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?*

A number have been outlined previously within this response including:

- **Data availability and “Big Data”** – expansion of data availability and guidance on how to make best use;
- **Wider emissions analysis** – consideration of wider emissions and the geographical significance of the generation (Clean Air Zones, sensitive areas);
- **Rebalancing the economy** – consideration of options to assess the additional benefits of transfer of jobs to less economically successful areas.

TVCA suggest TASM should consider bringing benefits of **reliability and resilience** into mainstream benefits calculations, possibly through the expansion of the principles in COBALT to consider the benefits of excess capacity (to make journey times more resilient to unforeseen events). This is a key benefit to the freight haulage business in providing greater journey time reliability.

Also TASM should investigate the beneficial impacts of improving poor **accessibility of high unemployment areas** to skills and work, and its links to the propensity of people to actively seek employment. It is possible that this has significant impacts on welfare benefits across government departments.

TVCA appreciates the opportunity to submit this response, which we hope you find useful.

# Informing Future Investment Decisions

## DfT Consultation Paper

### Views of Telford and Wrekin Council

#### Overview

There is no doubt that, in historic terms, the development of WebTag should be viewed as a major achievement by the Department for Transport. In the early 70's modelling and evaluation advice was nowhere near as well advanced or refined as it is today. The subsequent development of TAMS, WebTag and DMRB has undoubtedly provided a source for much needed and informed debate within the profession.

It has to be recognised that transport modelling and scheme appraisal are both highly complex areas. Whilst modelling interacts with appraisal, it is not a decision making tool in its own right. Modelling aims to understand the wide range of factors that affect human behaviour and provides a logical and coherent framework for doing so which ensures consideration of relevant factors. As such it is an open process that can be subject to reasoned challenge. This in itself is considered to be a valuable asset. Without formal and explicit modelling, the system would be more opaque and less evidence based potentially leading to unfounded claims of scheme benefits and economic rates of return by scheme promoters with serious implications on limited national resources.

The fact that there are difficulties and uncertainties associated with formal modelling does not mean that the process itself is flawed. Indeed the process recognises that such difficulties and uncertainties do exist in the real world and addresses these by making clear the various underlying assumptions and facilitating consideration of alternative scenarios. As such it helps to meet the challenge of formulating and presenting advice to decision makers in a succinct and readily understandable form.

There is no doubt that effective modelling and appraisal techniques are absolutely crucial. There are many cases whereby historical processes resulted in the under design of highway infrastructure, particularly at a national and regional level, which subsequently led to the need for subsequent expensive upgrade.

The consultation paper clearly sets out the changing nature of the modelling and appraisal process, including factors such as national policy initiatives, institutional changes, technology and forecasting uncertainty.

The consultation document recognises these challenges and Telford and Wrekin Council welcomes the opportunity to be involved in the process of ensuring modelling and appraisal advice continues to evolve and remain fit for purpose.

#### Priorities

In particular the DfT is seeking views on the following five priority themes for the next five years:

- *People and Place;*
- *Reflecting uncertainty over the future of travel;*
- *Modelling and appraising transformational investments and housing;*

- *Supporting the application of WebTAG and making it more user friendly; and*
- *Developing and maintaining modelling and appraisal tools to meet user needs*

The paper raises two general questions:

(1) Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?

(2) What considerations should inform the scope and priorities of our strategy, particularly over the first 18-24 months?

T&WC support all 5 themes identified in the paper but are of the view that 2 additional themes merit consideration and prioritisation:

- *Ensuring best use of limited national financial resources;*
- *Addressing regional imbalances in economic performance across the UK.*

### ***Ensuring best use of limited national financial resources***

Effective appraisal of alternative investment options is crucial to the future economic performance of the UK.

To achieve this T&WC would like to see Government consider the need for improved inter modal modelling and evaluation procedures for schemes of national importance.

The modelling and appraisal of all major transport schemes of national importance should ideally take account of inter modal competition whether that be air, rail or road. This is considered essential to ensure that potential operational impacts, such as under/over design issues, are avoided as much as possible. A more thorough approach should also ensure that public money is being invested in a manner that delivers the best economic rate of return for the country as a whole.

However, it is accepted that this a complicated task technically, given the deregulated nature of large parts of the longer distance travel market and one that involves a wide range of social, environmental, economic, political and commercial considerations.

### ***Addressing regional imbalances in economic performance across the UK***

Notwithstanding the above, T&WC recognise the tension that exists between maximising the use of limited national resources and ensuring that existing imbalances in regional economies are properly addressed.

Whilst this is a difficult area, more research into the role that transport plays in addressing regional imbalances in economic performance would be welcomed. The issue of wider economic benefits and losses arising from transport investment, including the spatial distribution of such benefits/costs, is particularly complex. It is not clear whether transport investment results in an overall improvement in the economic performance of the whole of the UK or whether it simply enhances the performance of a particular region at the expense of other regions.

In pure financial terms the case may be made that limited national resources should be invested in those schemes that deliver the best rate of return irrespective of which area those schemes are located in. However, there is a clearly recognised need to address the issue of regional imbalance. The current appraisal process which recognises this through the use of standard national rates and social distribution analysis is supported by T&WC. Indeed the profile of the social distributional analysis should be raised further as it still appears that many decision makers, and indeed technical



advisers, still place an over reliance on the BCR figure alone. It often appears that it is too difficult and time consuming to weigh up the other elements in the appraisal process.

The advantages of delegating scheme promotion to the devolved level would ensure that the theme of People and Place is better reflected in the appraisal process with the benefit of genuine local knowledge. However, delegating funding and investment decisions to the regional level prior to carrying out any effective economic appraisal of competing schemes at a national level raises the issue of whether this would achieve the best rate of return on the investment for the UK as a whole. This would be unlikely if funds were simply delegated on a per capita basis. Undertaking effective economic appraisal at a national level before funding allocations are made should address this concern but it would be essential that effective social distribution analysis continues to be carried out within the appraisal process to ensure that the problem of regional imbalance is effectively tackled. Also, longer distance transport networks should continue to be planned on a cross regional basis to ensure that they continue to perform effectively as a single and integrated network.

In terms of the second question, which seeks views on the considerations that should inform the scope and priorities of the strategy over the first 18-24 months, T&WC believe that the modelling and appraisal strategy should focus on improvements that ensure that regional imbalances in the economy are more fully addressed whilst at the same time ensuring that limited national resources are invested in a manner that delivers the best value for money.

Furthermore, the strategy should also address the resource problem that individual authorities face when trying to digest and understand a rapidly changing body of modelling and appraisal guidance which is, by its very nature, highly technical and complex.

## **The Five Themes**

The views of T&WC on the specific questions raised in the consultation paper are as follows:

### **Theme 1: People and Place.**

**What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.**

#### *Priorities*

The paper identifies a number of relevant issues in this regard. Whilst all of these are deemed relevant, T&WC are of the view that priority should be given to the following three areas:

#### *(1) Public Health and Well Being*

The consultation paper identifies a number issues associated with the effects of transport on health, safety, quality of life, environment, cycling etc. For instance, it is recognised that significant evidence is now emerging from reputable sources about the longer term effects of transport pollutants on the health of individuals. The external costs of these effects in terms of demand on NHS resources, lost working time, individual's quality of life etc may be considerable and further research is considered essential.

#### *(2) Valuing Journey Improvements*

The Council recognises the recent steps the DfT has taken with regards to the value of time and journey reliability and would support a programme of regular updates.

### *(3) Appraisal methods for the future*

Ensuring that appraisal techniques keep up to date in light of ever changing individual behaviour and technology should be a fundamental priority for future work.

#### **Theme 2: Reflecting uncertainty over the future of travel.**

**What should our priorities be for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three. What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these?**

##### *Priorities*

The paper identifies a number of relevant issues in this regard. Whilst all of these are deemed relevant, T&WC are of the view that priority should be given to the following two priorities:

##### **(1) Understanding uncertainty in modelling and appraisal**

The issue of uncertainty in both modelling and Business Case development is an age old dilemma. More research is needed to advance a more sophisticated understanding in these areas. There are undoubtedly issues associated with uncertainty both in the current modelling and appraisal systems. Many factors are of a macro nature such as national level forecasts including GDP, population, fuel costs, income levels, population breakdown by socio-economic groups, car ownership and use etc.

However, as mentioned in the overview, these issues do not mean that the processes themselves are inherently unsound. Current advice addresses some of these problems and the use of sensitivity testing, value switching, confidence intervals, scenario testing etc should help decision makers understand the impact of potential uncertainty in a better manner. Sources of uncertainty are changing. For instance, new technologies and changing work practises are affecting the way that people interact and travel as well as the way that goods are moved. Further research and guidance would be much valued.

##### **(2) Dealing with sources of uncertainty**

Having gained a better understanding of uncertainty, appropriate modifications then need to be made to both the modelling and appraisal systems to deal with them.

One of the main challenges will be to ensure that we don't overload practitioners and decision makers with too much information in what is already a highly complex arena. Another challenge relates to keeping the overall cost of modelling and appraisal under control for scheme promoters. (See proportionality below)

##### *Adopting a more sophisticated approach to uncertainty in Business Cases*

See Theme 4 below regarding the main barriers and challenges in applying WebTAG.

#### **Theme 3: Modelling and appraising transformational investments and housing.**

**What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.**

**What transformational impacts do you currently find it difficult to represent in appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?**

*Priorities*

T&WC fully supports the attention now being given to rebalancing the economy away from the south-east. Ways to increase jobs in the regions, including the North and Midlands, by reusing previously developed land together with improving and expanding the existing housing stock, would reduce the pressure for further development and strategic transport investment in the South East. The needs of rural economies should not be forgotten as part of this rebalancing agenda.

The consultation paper identifies a number of ways of improving the modelling and appraisal of transformational investment including supplementary economic modelling, better understanding in terms of impact on land values and productivity and also interaction with other forms of investment.

In this regard T&WC believe it is important to first reflect on the lessons of historic research before commissioning new work. Whilst the efforts to rebalance regional economies through transport investment alone is at first sight an attractive option, the 1996 report of the Standing Advisory Committee on Trunk Road Assessment' (SACTRA) report drew attention to the fact that' transport can literally be a 2 way street' . That is instead of facilitating the movement of people and jobs out of a particular region (eg the South East) it could potentially have exactly the opposite effect by making it easier for people to commute from these other regions to the South East. Paragraph 40 of the SACTRA Summary Report considers the issue of Spatial Distribution Effects. It observes that 'the direct transport effects are often assessed, for practical reasons, only for a defined area in the neighbourhood of the transport improvement. Studies in economic geography confirm that there is no guarantee that transport improvements will benefit the local or regional economy at only one end of the route - roads operate in two directions, and in some circumstances the benefits will accrue to other, competing, regions'.

Unfortunately it does not appear that understanding of this issue, as raised by SACTRA has advanced significantly since the 1990's. In the future more effective monitoring of transformational schemes including the impact of supporting non transport investment should be undertaken. This should assess the monetary benefits accruing to the local economy as well as the monetary impact on other neighbouring and regional economies.

*Difficulties*

With regards to the transformational issues that we currently find difficult to appraise, it should be recognised that transport planners are, by training, experienced in modelling and appraising the transport, environmental and social impacts of transport schemes. They are far less experienced and knowledgeable about how local and regional economies work and how they interact with each other. Understanding of household and business location decisions, as well as the size of the labour market and the non-transport investments that may also be required to transform economies, are complex areas that are often difficult to represent in appraisals without specialist advice.

National economies are affected by a range of global considerations such as exchange rates, international competition, trade tariffs etc which in turn affect the performance of regional and local economies. A whole range of other factors also affect national economic performance including fiscal and monetary policy, rates of inflation, availability of experienced labour, land prices etc and it

can be difficult to isolate the specific impacts of transport investment on the economy particularly on a regional or local basis.

Whilst local authorities can help to facilitate transformational development through appropriate land allocation policies, at the end of the day they are dependent on the market to actually invest in the local and regional economy. Currently transport planners tend to react to land use policy, both at the Local Plan and planning application level, and identify appropriate transport schemes to facilitate such development. (A recent local example is the Telford Town Centre Regeneration Scheme – See Appendix).

At a regional level there still appears to be a tendency to rely on longstanding, ‘bottom drawer’ type major transport schemes and then build a case that the schemes will attract development to the region. It would be better to first gain a detailed understanding of how the regional economy works, including the specific role of transport, and the extent to which it is in competition with other regional and, indeed, other international economies.

An alternative approach to simply relying on transport investment alone to transform economies may be to place more emphasis on more effective cross silo economic/land use/transport planning at a national level. This would then provide a more effective framework, through associated guidance, to regional bodies and local authorities to help avoid the need to travel significant distances in the first place. However, it is recognised that the challenges associated with this type of plan led approach alone could well be controversial in a market led economy. Accordingly, it may be considered that a balanced approach involving application of both economic and land use policy, together with transport investment, is more appropriate.

#### **Theme 4. Supporting the application of WebTAG and making it more user friendly.**

**What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?**

**What more could be done to articulate the flexibilities in WebTAG and support scheme promoters apply the guidance?**

**How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance**

#### *Challenges*

WebTag is highly valued by transport professionals and contains an immense range of accumulated knowledge gained through years of research by highly eminent specialists. The challenge is to present such respected scientific knowledge in simple everyday language. We need to ensure that we don't overload practitioners and decision makers with too much information in what is already a highly complex area. As referred to earlier, the advantages of a well - developed modelling and appraisal process are clear. Also, the need to ensure that the processes take account of a rapidly changing world are equally acknowledged.

Perhaps the main challenge facing the profession is that as the modelling and appraisal system becomes better developed it is somewhat inevitable that WebTag will become even more complex. Currently, apart from a limited number of people in specialised consultancies and the DfT, there are probably only a small number of people who have an intimate knowledge of the existing modelling and appraisal advice, much of which is highly mathematical in nature. This is a major problem to be addressed.

Also, there is a danger for many people that they 'can't see the wood for the trees'. One of the conundrums is that despite such complex advice, at the end of the process the advice still emphasises the need for the use of sensitivity testing and scenario analysis to address issues of forecasting uncertainty. Accordingly some may conclude that if we are still insufficiently unsure about the reliability of the forecasts at the end of such a complex process, then it is perhaps unsurprising that the process itself is challenged. The use of sensitivity testing and scenario analysis further adds to the cost of undertaking Business Cases which are already expensive to develop and places further strains on limited Local Authority revenue budgets. Again some may consider that if we are going to have to undertake sensitivity analysis in any event then it may be more appropriate to carry out a cruder and simpler form of modelling and appraisal in the first place. However, whilst this would be cheaper and easier to understand, it could lead to ineffective investment decisions being made across the UK. Also, the probability of costly infrastructure being either under or over designed on a more frequent basis would be higher than at present.

#### *Flexibility and Proportionality*

In recent years pressure has mounted to introduce a more proportional approach to appraisal and modelling. The issue of a proportionality needs to be weighed most carefully against the overarching objective of all public investment decisions which is to ensure that public money is being allocated in a manner that maximises the overall rate of return on the total investment for the UK in its widest sense. Whilst there is undoubtedly a cost attached to the evaluation process itself, we need to ensure that reducing the level of appraisal scrutiny for lower cost schemes does not mitigate against achievement of this overarching objective.

There is no doubt that given current restrictions on revenue budgets adopting lesser forms of scrutiny for lower cost schemes can initially be seen by the scheme promoter to be an attractive proposition. However, there is a danger that this may be a false economy. Such an approach could result in schemes with very low rates of return, or possibly even negative rates of return, being selected as appropriate investment choices. Indeed it could well end up with the initial financial saving in revenue terms being substantially outweighed by the lower or negative rate of return on the investment in the longer term.

Furthermore, given that a high proportion of all transport schemes may well be deemed to fall within this definition of a 'lower cost' scheme, there is an ultimate concern that such potential financial losses associated with these lower cost schemes at an aggregate level nationally may well outweigh the financial benefits procured through investing in higher cost schemes with well scrutinised projected rates of return.

#### *Presentation*

In terms of presentation of WebTag advice the current format is good.

Whilst parts of the advice are of a mathematical nature this is somewhat inevitable given the technical nature of transport modelling. Perhaps the explanation of relevant formula and principles could be improved through the inclusion of worked examples. Other parts require an understanding of economic principles such as consumer surplus, rule of half, market prices, discounting, inflation etc. Again this is inevitable and more worked examples may assist.

### **Theme 5: Developing and maintaining modelling and appraisal tools to meet user needs**

**What should our priorities be for improving the development of modelling and appraisal tools and why? Please select up to three.**

**How can we best encourage innovation whilst maintaining a consistent and robust approach?**

**What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?**

Should the theme just focus on the needs of just users rather than decision makers? Effective appraisal processes are vital to the future welfare of the UK and its regions. The priority should be to continue to develop and maintain modelling and appraisal tools to optimise future transport investment decisions. Focussing solely on the needs of the user and scheme promoter, many of whom, have extremely limited revenue budgets, may well lead to the adoption of cheaper and less thorough approaches to both modelling and appraisal. The priority should be to ensure that sufficient revenue funding is made available to users to ensure that they can provide decision makers with the best information to ensure that funds for transport infrastructure are invested in the most effective manner.

#### *Priorities*

In terms of the three priorities, providing additional guidance and tools to help address uncertainty over future of travel would be helpful. Use of scenario analysis is already a useful process but one that is often overlooked by the user/scheme promoter due to the additional expense it places on their limited revenue budget. Any advice that can help refine the development of, and reduce the level of uncertainty associated with, the Core Scenario in the first place would be invaluable. However, it is recognised that this will be a difficult challenge given the complex nature of human behaviour and a rapidly changing world.

Development of guidance on new and emerging and techniques in areas such as building base matrices and travel demand response values would also be welcomed. Good models depend on good data that is statistically reliable and better guidance on how to combine data from various sources, as per the former ROADWAY software, would be appreciated. Also, research to give more confidence in the range of likely demand response ( $\lambda$ ) values would be beneficial. Additionally, getting good quality trip purpose information without undertaking RSIs or household interviews is difficult and greater confidence that the trip purpose information gained from the National Travel Survey is statistically reliable at the individual local authority level would be helpful particularly when stratified at a modal, OD and time of day level. Also, In Telford we have previously encountered problems when constraining overall growth to TEMPRO as the levels implied fall well below those emanating from committed and planned developments alone as estimated through the application of trip rates based on TRICS. This may imply some discord between NTS and TRICS trip rates and further research into this would be useful to help LA's avoid under/over design issues.

With regards to a third priority, improvements in the NTM, national aviation and rail models and forecasting techniques, including modal choice modules for longer distance trips, should help ensure more effective investment decisions at a national level as well as reducing the potential for over/under design of individual schemes. Commercial organisations such as airport operators, airline operators and rail operators have a substantial amount of information on travel patterns and responses and use of this data would facilitate a 'bottom up' approach to modelling to support the

DfT's work which is understood to involve mainly a macro 'Top Down' approach. (It is appreciated that this could involve the signing of confidentiality agreements between DfT and the various commercial organisations.)

The difficulties of encouraging innovation and maintaining a consistent and robust approach are appreciated. However, any developments in this regard must be related to the need to provide greater resources to the scheme promoter to implement relevant findings given current pressures on LA revenue budgets.

In terms of which new emerging techniques should be used, the Council welcomes DfT's proposal for continued liaison with academic institutions and other relevant stakeholders. LA personnel have limited time to keep abreast of developing techniques and have to focus on the now. Greater resources for LA's would again be necessary to help them provide improved training for staff as new techniques emerge.

## APPENDIX

### Telford Town Centre Regeneration Scheme

This scheme was implemented with support from the Local Sustainable Transport Fund (Large Project). It emerged as a result of evolving local land use policy in the Town Centre which was specifically aimed at regenerating the night time and retail economy in the Southwater area. The impact of the scheme was monitored by independent consultants appointed by the Department for Transport. Whilst the scheme was generally well received by local businesses and residents it proved difficult to identify the precise monetary benefits accruing to the local economy and the monetary impact on the other town centre economies in Telford or indeed neighbouring settlements in the region.

In depth interviews with local businesses were undertaken and feed- back was of both a descriptive and quantitative nature:

#### ***Business Confidence***

- Slight confidence in the Telford centre.
- Vacant stores have been filled.
- I think it has changed, it's increasing. It's a good rate up from last year.
- Yes. The quality of shops in the town centre has improved.
- There's a positive feeling
- Definitely up, a lot more shoppers in our place and the shopping centre.
- Definitely changed for the better. There's more excitement around the town centre

#### ***Reasons for change***

- I think traffic and transport has improved. Getting into Telford has improved, a lot better than it used to be.
- The development, more attractions in Telford, easy access for the public, car parking and the road layout has made the reasons why.
- The Southwater complex has made it better and the recent transport measures have held a steady positive change.
- The transport changes have been a major factor and the new Southwater complex has increased our footfall .... We are in the main mall and everyone is coming through that door. All the new eateries are bringing in more people and they have better access with the two way road system. It used to be one way and congestion was quite bad.
- I do believe it was the Southwater complex being built, it may also be down to the transport measures.
- Transport has improved and it is easier to get parked in the town centre, apart from at peak times. There are more car parks and the one-way system has been changed to two-way.



- Recent developments, especially more restaurants in Southwater. It has never really been a place to go to in the evenings but that is changing.
- Probably down to the transport changes. All the Telford developments and the Southwater has made a major impact.

Businesses were also asked to say what impact, if any, the recent transport changes had on the town centre in terms of:

- Footfall;
- Age and profile of visitors;
- Retail confidence;
- Turnover; and
- Opening hours.

Just over half the businesses said the transport changes had attracted new businesses into the town centre or encouraged businesses to stay or expand. Between 2013 and 2015, revenue at the Telford International Conference Centre (TICC) increased by approximately 50%, with knock-on benefits for the wider food, leisure, and hotel sectors. During this period, the TICC expanded by 20% (in 2013), the Southwater Development opened (Summer 2015), and transport changes were implemented on the Box Road (April 2015). All of these factors were identified as having contributed to the TICC's success. The changes to the Box Road were perceived by the TICC owners to be very much part of this mix, contributing to the promotion of Telford as a destination and the re-messaging of what Telford is about, and creating the sense of a more integrated and connected town centre.

The report acknowledges that although the level of inward investment was fairly substantial (£15.7m) establishing causation remains difficult and that a thorough consideration of alternative approaches to establishing causation is needed at the start of any future studies

The consultants Final Report has just been published.

# Appraisal and Modelling Strategy- Informing Future Investment Decisions

Response to consultation from **Tom Cohen**, UCL Centre for Transport Studies

## Introduction

Of necessity, this is a brief response and so I have selected a small number of questions to which I am submitting answers.

I am writing as an individual.

## Responses

- 1 Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?

I think that you have selected some very important themes and have no doubt that practice will improve if you make progress with one or more of them. But I think the most important theme is an overarching one: does current appraisal and modelling guidance consistently lead to good decisions and, if not, what needs to change? It seems that, by settling on the themes you have chosen, you have closed the door to a more fundamental review of the guidance and the principles/assumptions on which it is based. I suggest that an open inquiry based on the questions I have posed could be immensely fruitful, though I have no doubt that it would place at risk some of the founding principles which TASM holds most dear.

- 3 What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.

My first priority would be distributional impacts, though we could have a debate about whether it is appropriate to place this under a heading of people and place. I think that the current guidance on analysing distributional impacts, well intentioned though it plainly is, suffers from the absence of a clear purpose. Moreover, it is not clear what decision makers are supposed to do with a DI analysis. What is required, I suggest, is an understanding of what we are trying to achieve. For example, there is an implicit assumption in cost-benefit analysis that, the higher the BCR, the better. (I do not agree with the assumption but that is beside the point; it provides a clear way of differentiating between projects/policies.) We lack such an assumption where distribution is concerned and this difficulty is compounded by the fact that a scheme with a high BCR may well also have worrying distributional impacts.

This is very difficult territory and it has engrossed philosophers for millennia so I am not asking TASM to crack it overnight. If, though, a meaningful position is not reached concerning distribution and how to trade it off against economic efficiency etc, we can expect distributional impact analysis to remain an oddity – rarely done and typically ignored. This would be a real shame and, in my view, unforgivable.

#### 4 What should our priorities be for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three.

I suggest that the proper use of scenarios (e.g. Van der Heijden, 1996) is the top priority. More specifically, scenario-based planning is not about trying to reduce uncertainty but is instead about trying to make the best decisions possible given a context of uncertainty. So, referring to the question, one can “understand” uncertainty only up to a point – a well-managed scenario development exercise will help decision makers to think through some of the sources of uncertainty and what they may mean but it cannot reduce that uncertainty. With respect to the “treatment” of uncertainty, the golden rule of scenario-based planning is that one cannot sum or average across scenarios. This implies a fundamental shift in thinking given the deterministic paradigm that prevails in current appraisal and modelling guidance. There will be no one “best” scheme when scenarios are used, even if one scheme appears to outperform all others across the scenarios used. (This is because those scenarios cannot exhaust the possibility space – another scenario may exist in which that scheme underperforms all others.)

#### 5 What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these?

I pick out two that would be pressing if/when scenario-based planning were adopted.

The first is a process issue: the value of scenario development lies in taking part. Hence, one does not gain much by being “given” a set of scenarios developed by a third party. Put another way, if we wish transport authorities to make better decisions through scenarios, we need them to develop their own scenarios. This has a major resource implication but, perhaps more significant, means that the DfT would need then to be able to weigh the conclusions of Authority A and Authority B, when the two had developed very different scenarios. The same scheme may look stronger when considered against the scenarios developed by Authority A than when considered against Authority B’s scenarios. How is the DfT going to judge such things? And we must be alive to the possibility that, in the hope of receiving approval and/or funding, authorities might attempt to “game” the scenario process such that their preferred scheme looked strong (though this would defeat the purpose of scenario-based planning!) My suggested responses are:

- Establish processes for comparing scenarios between sources as a means of balancing scheme performance across locations whilst at the same time acknowledging that decision making is more a matter of judgement than it has tended to be presented up to now.
- Audit the scenarios developed by authorities to test whether they are sufficiently challenging and wide-ranging.

The second relates to the difficulty of making a decision when uncertainty has been rendered explicit. Suppose HS2 had looked good against two scenarios but poor against a third (even after the scheme had been adjusted so that it performed as well as possible against that third scenario). It is hard to image a secretary of state announcing that she intended to proceed with HS2 because it looked like a good idea provided certain things didn’t happen. And this is one of several reasons why scenario-based planning is often conducted behind closed doors, an option that is not available in this case. My suggested response is:

- As part of establishing the practice of scenario-based planning, carry out a communications campaign based on making the case for scenarios and explaining the consequences of their adoption.

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Van der Heijden, K. (1996) *Scenarios: the art of strategic conversation*. Chichester, England; New York: John Wiley & Sons.

# TramForward

c/o 7 Greenlands Drive  
Burgess Hill  
RH15 0AZ  
15<sup>th</sup> October 2018

Dear Sir

The Light Rail Transit Association (LRTA) was established in 1937 by a group of people concerned about the proposed closures of tramways in London. The Association has grown over the intervening 78 years into an international body with around 4 000 members around the world, half outside the United Kingdom. Although the LRTA's members come from all walks of life, they share a common concern with the development of good quality public transport through the use of light rail and tramways. Many are professionals working in the transport industries. The Association's monthly magazine, "Tramways & Urban Transit" is widely regarded as essential reading around the world by those concerned with the development, building, operation and use of light rail and tramway systems.

The Association's objectives are to educate people about light rail and modern tramways and to advocate the adoption of such systems as core components of modern integrated transport systems. The Association carries out its campaigning under the banner *TramForward*.

TramForward would like to respond to your consultation questions as follows

## **Priorities**

- 1 *Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?*

TramForward believes that there should be a theme that considers the sustainability of future transport scheme including all three pillars. Firstly, the full environmental consequence of transport schemes including accessibility, availability, environmental and health impacts, both positive and negative. Then the social benefits of transport mode for all ages, income levels and mobility. Finally, the economic benefits of permanency and reliability that creates the certainty required by business to invest as an enabler of growth.

- 2 *What considerations should inform the scope and priorities of our strategy, particularly over the first 18-24 months?*

The inclusion of the wider economic, social and environmental benefits particularly with respect of fixed rail-based transport such as trams so that they can be assessed fairly against other modes over the full economic lifetime of the tramway system rather than just weighted to first cost and little cognisance of non-financial benefits that currently are not monetised in business case appraisal. This should include recognition that some modes such as trams are better at creating modal shift from polluting and inefficient personal transport eg cars and taxis, than traditional bus and BRT modes. The Multi Criteria



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Assessment approach suggested by the Sintropher Project (Hickman, 2015) should be considered as a means of fairly assessing these issues

## People and Place: capturing the range of impacts relevant to transport policy today

3 What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.

1 **Environment and Health.** Currently WebTAG considers tailpipe emissions in the forms of NO<sub>x</sub>, SO<sub>x</sub> and PM<sub>10</sub> but largely ignores non-tailpipe emissions, sometimes called the “Oslo Effect”. The residues from road and tyre wear together with brake pad dust produce and extremely toxic particulate matter in the PM<sub>2.5</sub> as well as the PM<sub>10</sub> size range. In a paper “Non-Exhaust PM Emissions from Battery Electric Vehicle” (Timmers, Achten, 2018) the table below shows how significant the non-tailpipe PM emissions are from cars.

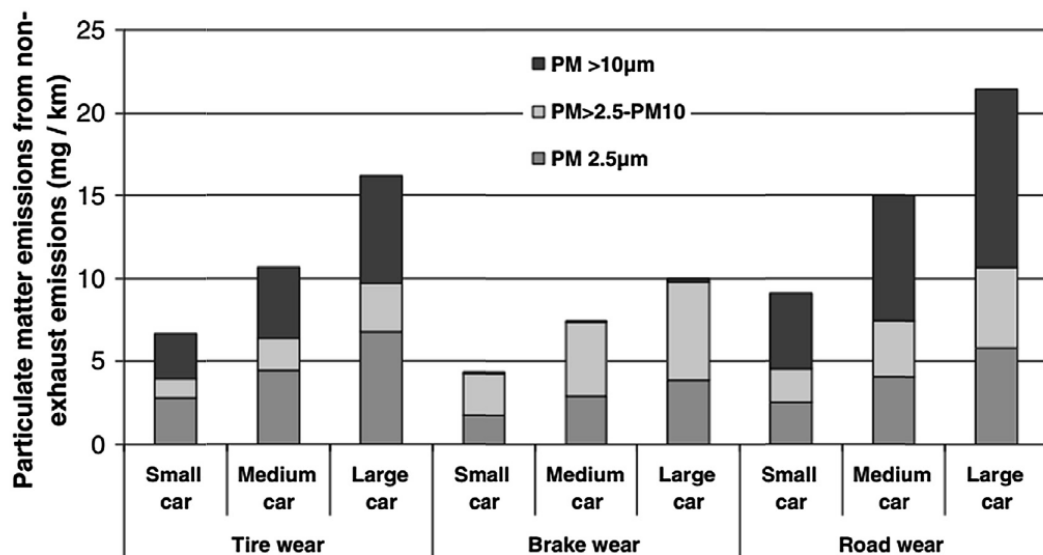


FIGURE 12.2 Non-exhaust particulate matter (PM) emissions by source and car size. From Simons (2013) based on Ntziachristos and Boulter (2009).

In Table 12.2 of this paper they detail the difference in weight between electric vehicles (EVs) and their internal combustion engine (ICEV) counterparts showing that EVs are between 14.6% and 28.7% heavier. The paper also notes the resuspension of the PMs as vehicle re-lift PMs already lying on the roadway.

In the Conclusions of this paper it notes that there is a consensus that whilst there has been a strong reduction in tailpipe PM emissions over the past decades and this will continue in the coming years, non-tailpipe emissions will account for 90% of PM emissions from traffic by the end of the decade. It also notes that claims that EVs are emission free are unjustified as the increase in weight is linked to higher non-tailpipe emissions. (Timmers, Achten, 2018)

This paper really brings together research into non-tailpipe emission and puts to bed the assertion that electric vehicles are the answer to transport

emissions and the weight gain argument applied to electric buses as well as cars.

Trams running with steel wheels on steel rails eliminate both the tailpipe emissions and road and tyre wear emissions and the majority of brake pad wear as electric braking is used for the most of the slowing of the vehicles.

The outcome from the above is that Trams will eliminate both tailpipe and non-tailpipe emissions produced by vehicles with rubber tyres and that these PM<sub>10</sub> and PM<sub>2.5</sub> are particularly harmful to health as noted in the World Health Organisation paper “Health Effects of Particulate Matter” which concludes:

*“PM is a widespread air pollutant, present wherever people live.*

*The health effects of PM10 and PM2.5 are well documented. There is no evidence of a safe level of exposure or a threshold below which no adverse health effects occur.*

*Since even at relatively low concentrations the burden of air pollution on health is significant, effective management of air quality aiming to achieve WHO AQG levels is necessary to reduce health risks to a minimum.*

*Monitoring of PM10 and/or PM2.5 needs to be improved in many countries to assess population exposure and to assist local authorities in establishing plans for improving air quality.*

*There is evidence that decreased levels of particulate air pollution following a sustained intervention result in health benefits for the population assessed. These benefits can be seen with almost any decrease in level of PM. The health and economic impacts of inaction should be assessed.” (WHO, 2013, page 12).*

Defra have just concluded a consultation into non-tailpipe emissions which should provide more evidence on these issues.

- 2 Permanency.** In order to create sustainable housing and other developments that are not solely dependant cars for transport there needs to be a form of public transport that can be relied upon and thus be perceived to be permanent. History has shown that buses routes change and tend to be reduced and thus are perceived as transitory and thus cannot be relied upon into the future. Permanency can be provided by fixed rail systems as the investment in a tramway show commitment to the future. Trams, where introduced have been a catalyst for development and one of the few transport types to actually promote modal shift away from personal transport.

In Manchester it has been reported that “The increase in non-car trips since 2014 has been principally due to growth in rail journeys, Metrolink and walking trips (2% growth for each), with a slightly lower increase in cycling (1%)” and “Since 2002, car trips in the morning peak have decreased by 22%, despite an overall increase in all trips of 12% over the same period. In the off-peak, the number of cars coming into the City Centre has reduced by 19%.” (Manchester City Council, 2015, page 5).

This effect should be properly appraised in WebTAG as a benefit for trams over other modes where the potential size of a Development could justify a tramway.

## Reflecting uncertainty over the future of travel

4 *What should our priorities be for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three.*

- 1 **Reliability.** Uncertainty in travel can be a response to unreliability of services. Where transport modes are shown to be reliable and permanent ridership tends to increase, even in times of economic uncertainty. Full credit in the benefits should be given to modes that offer permanency and reliability.
- 2 **Economic recovery.** The economic cycle is well known and has a period that is much shorter than the life of a transport investment. The resilience of the mode should be assessed along with the ability to provide a service that will encourage economic revival rather than a mode where the service could disappear and not be reinstated when the upturn occurs.
- 3 **Shift in Working Practice.** It has been predicted that working from home and virtual meetings will supersede traditional office life. This has yet to become true for various reasons such as the need for face to face interaction, team working and work management. Also, the human need to interact has limited the amount of home working.

For non-office employees in factories and retail the need to attend work will always remain. Even the rise in on-line retail has created transport needs for deliveries, often in a non-sustainable way that needs attention.

Accordingly, the modelling of uncertainties created by changes in economic activity and online retailing may result in changes to, rather than reduction in, the transport need. Transport is the engine of commerce and economic recovery and has a life that spans many economic cycles, so resilience and adaptability within the permanence of transport infrastructure is the challenge. Fixed rail transport systems can provide such resilience so that they are ready for upturns where required and the assessment should recognise that quality.

5 *What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these?*

Uncertainty analysis traditionally has led to conservatism which, with the lead time for new transport infrastructure, has led to under provision that has been unable to satisfy the demand when the recovery happens. Cross departmental and forward-looking planning is required to ensure that the transport provision is ready when required. This will require evaluation of the benefits of provision with allowance for the uncertainty against the cost to the UK businesses if the transport requirements are not available when needed.

## Modelling and appraising transformational investments and housing

6 *What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.*





- 1 **Sustainability.** Ensuring that the investment follows the three pillars of sustainability so that the investment minimises the impact on the environment and health whilst promoting social inclusion and economic development. Reliance solely on private cars and buses is not sustainable in many cases and the appraisal should give prominence to fixed rail systems such as trams where the main traffic flows are suitable.
  - 2 **Whole lifecycle appraisal.** It is easy to reject modes that require larger up-front investment whilst they may have a lower lifecycle cost. Everywhere where trams have been introduced, the popularity and ridership numbers have exceeded predictions and proved to be high value for money. This has often been against cost uncertainty and initially a poor apparent business case. Whereas bus-based investments do not have the same popularity or satisfaction levels. Lifecycle cost and benefits must be assessed rather than just first cost and decisions based on a fair assessment. Sorting inadequate provision later is always more expensive than correct provision from the start.
  - 3 **Housing needs to be connected.** Sounds obvious and it is, but the correct mode is essential so as to promote health, the environment, accessibility and connectivity with work, shopping and leisure facilities. Provision of fixed track and reliable transport can promote regeneration and sustainability of cities. It should be seen as safe, reliable and available to all sectors of the community. The young, the old and those with mobility impairment are often limited to using public transport. Trams achieve these criteria whereas other modes do not and particularly when the health aspect of clean air are considered on main transport corridors and the assessment should fairly consider these benefits. See the evidence noted above on pollution and health issues.
- 7 *What transformational impacts do you currently find it difficult to represent in a scheme appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?*

A robust approach is required to appraise pollution and health issues. Currently only some pollution aspects are monetised leaving the other aspects to comments in the narrative of a business case. As Number are what seem to count in determining value for money a better way is required in monetising all emissions, particularly the very damaging PM<sub>2.5</sub> and toxic non-tailpipe emissions. This may require research to evaluate the cost of ignoring the effect of these emissions on peoples' health, the NHS, lost production, mortality and wellbeing for current and future generations. As traffic increases and populations rise, the impact of these health issues will grow exponentially and if not addressed now, future generations will pay.

This will require a change of approach to costings and benefit analysis with the costs of pollution being added to the cost of new road-based schemes and the benefits from reduction of current pollution from the introduction rail-based modes being included. When appraised over the asset lifecycle these ongoing costs or benefits could change priorities and ridership levels where trams become good value for money. Also, beware of discounting future costs and benefits too much as they tend to distort the analysis. Rarely are provisions made for discounted future costs and benefits and when the cost is incurred new

money is required rather than theoretical investments. Repeated investments in new buses will cost more than currently predicted in a typical DCF.

## *Supporting the application of WebTAG and making it more user friendly*

- 8 *What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?*

WebTAG needs to be seen as fair to all modes, whereas currently it is seen to favour road-based projects. Careful scrutiny is required to ensure that it becomes fair to all modes and that the appropriated mode for the traffic levels will come out as favourite. Also, fair and level costs for infrastructure provision should be included so that road-based solutions are not seen as having a low infrastructure cost where in fact frequent repair, renewal and the impact of emissions are fairly assessed against the provision of fixed track modes. Also, but outside this immediate consultation, the cost of moving utilities, randomly placed in carriageways should be investigated considering the need for removal or the impact of future failure together with betterment received by the utility owner where utilities are relocated with tramway providers are required to pay up front.

These challenges to the workings of WebTAG are likely to require an in-depth review that may change established norms for transport appraisal. Such a review and the inclusion of multi-criteria assessments and the evaluation of the wider costs of road solutions could change some fundamentals of the appraisal process, but make for better transport decisions.

- 9 *What more could be done to articulate the flexibilities in WebTAG and support scheme promoters apply the guidance?*

Much better guidance on the use of the flexibilities but also ensuring they are included in the headline outputs of the appraisal and the declared value for money statement where not all benefits and costs are monetised.

- 10 *How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance.*

Greater use of plain English in overviews whilst it should be expected that the specialist language of expert economists will be required for the detail.

## *Developing modelling and appraisal tools that meet user needs*

- 11 *What should our priorities be for improving the development of modelling and appraisal tools and why? Please select up to three.*

- 1 Inclusion of Multi-Criteria Assessment, monetised or with full credit for non-monetised benefits.**
- 2 Inclusion of full costs of Pollution from road-based modes including non-tailpipe emissions.**
- 3 Inclusion of the full benefit of mode transfer to non-polluting modes including the elimination of non-tailpipe emissions.**

- 12 *How can we best encourage innovation whilst maintaining a consistent and robust approach?*

Innovation imports risk and as such has always been penalised. However, the lack of innovation also imports risk and the loss of potential cost reductions or

enhanced benefits. It is already difficult for innovations to bridge the “Valley of Death” between initial research, prototyping and economic production.

If a scheme would benefit from innovation, then different criteria should be used for assessing benefits and cost uncertainty. The value of the “learning” from the innovation when in production in the future should be taken into account in the benefits. Whilst not all innovations will prove successful, conservatism in only using the tried, tested and often sub-optimal solutions will lead to higher overall costs and a loss of advancement for the UK as a whole. Also, an initial perceived failure may, with some refinement, actually lead to a success. WebTAG must not prevent innovation but should have a robust means to review the learning and promoting refinement where appropriate.

- 13 *What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?*

As noted above, the use of Multi Criteria Assessment to improve the appraisal of non-financial or monetised benefits leading to a positive input into the Value for Money assessment and recommendations for investment.

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## **DfT Modelling and Appraisal Strategy Consultation – TfGM Response**

15<sup>th</sup> October 2018

### **Contact Officers:**

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As part of the DfT's consultation, TfGM have taken part in a number of consultation events arranged by TASM and other partners and we have contributed to the detailed response made by the Urban Transport Group and by Transport for the North. We would like to take this opportunity to endorse the comprehensive responses made by these two organisations and in particular endorse responses to the specific questions raised.

In addition to taking part in the joint responses, TfGM would like to raise some general points and make an offer to assist the Department in the undertaking the research in these areas over the forthcoming five year period.

TfGM see transport appraisals increasingly being part of more complex policy and scheme development contexts and hence would like to see the Modelling and Appraisal research programme reflect this.

To deal with this increasing complexity, TfGM would like to see TASM adopt a collaborative approach to the research programme and we would like to offer to be part of this, either via commissioning joint research or offering our scheme development projects as demonstration projects to trial new techniques and trial joint agency appraisal frameworks.

Examples of areas that we would be interested in working with TASM on include:

1. How can we get greater clarity and consistency between webTAG and other departments' application of the Green Book? This could involve research to review how business case development, including appraisal, has been undertaken as part of, for instance, the Housing Infrastructure Fund process or how Defra and DfT approach appraisal of Clean Air Plans. For example, the area

of health benefits of (transport) policy will grow in importance and there will be call for the assessment of impacts to reflect more than actuarial values of mortality, but include reduced health costs.

2. How should sub-national transport bodies approach appraisal when working in a multi-modal, multi-agency environments? How should STBs deal with the different strategic planning processes (PCF, GRIP) and interpretations of webTAG by Highways England, Network Rail and local transport authorities? The current M60 North West Quadrant study offers a live and pressing opportunity to tackle these issues.
3. How can we better incorporate uncertainty into our appraisals, whether this is uncertainty about policy assumptions, about the impact of future technological innovation or uncertainty round changing trends in society? Do new approaches like 'vision and validate' offer ways to embrace uncertainty? Should we have standardised scenarios for future technologies such as New Mobility and / or for how societal changes like internet shopping and other home delivery services might evolve?
4. In a more complex environment, how can TASM ensure that practitioners do not become more risk adverse, but instead seek to embrace innovation in terms of data, modelling tools and appraisal frameworks? Could TASM get more involved in promoting innovation and a willingness to try things?
5. How can we assess local economic revitalisation? TfGM is embarking on an programme to improve the vibrancy and health of our local streets through the Transforming Cities Fund. It is expected that holistic investment in local transport systems to create safer and more attractive environments in which to congregate, walk and cycle, with potential commensurate reductions in the use of mechanised modes, will result in local economic impacts creating a virtuous cycle of inward investment and local revitalization – impacts that raise challenges for current methods.
6. This there a tension between the appraisal of urban realm, transport efficiency and land use development? In most local urban communities, there is competition for limited land and a tension may exist between objectives for transport efficiency, the quality of the urban realm and, in some places, pressure to further develop the built environment, which can then cause issues for appraisals.
7. What next for the Active Mode Appraisal Toolkit? The toolkit is very useful in the appraisal of local transport schemes that focus on people and place. However further research is needed to support a more comprehensive appraisal of health impacts (potentially to include morbidity impacts) and also to include health sector cost impacts of local interventions may help increase its functionality.

# TRANSPORT FOR LONDON

## Response to Consultation

### SUBJECT: DfT Transport Modelling and Appraisal Strategy

#### 1 INTRODUCTION

This paper constitutes Transport for London's (TfL) response to the DfT consultation on Transport Appraisal and Modelling.

Link to consultation information:

<https://www.gov.uk/government/consultations/transport-appraisal-and-modelling-strategy-informing-future-investment-decisions>

TfL places a high degree of importance on evidence led decision making and delivering value for money. TfL welcomes this consultation on priorities for the DfT's Appraisal and Modelling Strategy and also welcomes the DfT's commitment to working with stakeholders.

In the recent past, TfL has invested in modelling and appraisal approaches and focused on innovation (for example related to cycling), which has helped build the case for investment. At the same time, there is great work going on throughout the UK and TfL welcomes the opportunity this consultation affords to learn from others. One of the most important things this process can achieve is to raise the profile of modelling and appraisal and continue to build the appraisal and modelling community in the UK.

Our response is set out against the consultation questions as requested

#### 2 KEY CONTACTS

Ryan Taylor – Business Case Manager

David Christie – Demand Forecasting Manager

Martin Tedder – Strategic Spatial Planning Manager

### 3 CONSULTATION QUESTIONS

Direct answers have been provided to the specific questions asked in the consultation.

#### Priorities

- 1. Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?**

Yes, the broad themes cover the most important areas of concern and priorities for development. However the DfT should satisfy itself that the Government carbon values in appraisal give sufficient incentive for what is necessary to deliver the Road to Zero strategy.

- 2. What considerations should inform the scope and priorities of our strategy, particularly over the first 18-24 months?**

TfL would be keen that DfT continues to ensure minimum robust appraisal methodology and that guidance continues to cover all transport schemes, not just those for which DfT provides the funding.

Many agencies look to DfT to provide leadership and minimum standards. This is increasingly important with devolution and decision making on smaller schemes. All schemes must be appraised using a consistent framework so that the impacts represent true social value and money is not wasted on transport schemes that do not fully represent net social worth.

DfT should do more to align tools and appraisal methods with Transport Investment Strategy priorities – ensuring that regions and cities in particular are able to make a robust case for the delivery of their strategic vision, in the context of national appraisal standards. This is particularly important for transformational schemes.

DfT should support innovation and act as a sounding board for others to discuss new ideas and techniques

#### People and Place: capturing the range of impacts relevant to transport policy today

- 3. What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.**

The Mayor's Transport Strategy has set out a Vision for London, with the aim of 80 per cent of trips to be made on foot, by cycle or using public transport. That vision is supported by our stakeholders. It is important that appraisal is able to support the delivery of a broad vision for cities and regions while taking account of the national context.

The importance of the Strategic Case was stressed again and again in some of the events associated with this consultation. TfL agrees with this. The Strategic Case should have a clear link to recognised strategies that reference the true social benefits that are being sought. It is important that over time, these true impacts



should be incorporated into the benefit to cost ratio in the Economic Case as much as possible and where this is not possible, to supplement the Economic Case with representative metrics to inform decision making.

More needs to be done to recognise quality of life impacts in appraisal. Ultimately, this is what is being chased in any appraisal but sometimes it is forgotten that journey time and impact on the economy are just representations for quality of life and are not a complete picture.

It is right that the direction of appraisal is questioned to make sure that true social benefits are being captured sufficiently and that true quality of life aspects are properly included. Quality of life can include health, place effects, better environment, quality housing as well as the cost of living, personal wealth and how these impacts are distributed.

In the rest of the response to this question, specific comments have been made referring to the appraisal of different types of scheme impact.

### **Urban realm**

Work to better value the quality of urban realm should be a priority. Movement efficiency can be captured well, but when space is reallocated to create more attractive places that people want to spend time in, benefit to cost ratios reduce because the value of place is not well represented.

TfL has undertaken some work with ITS Leeds to develop an approach which uses a revealed preference valuation from the housing market to quantify urban realm benefits. The house price model is based on a fine zoning system with inputs from transport models to represent accessibility and other data sets to represent neighbourhood quality, environmental factors and plot characteristics. To move to the next level and develop an approach that can be recommended by WebTAG, TfL would now like DfT to take the lead in commissioning a review of the work undertaken (by this and other studies available) with a view to recommending a way forward that can be implemented by appraisal agencies.

### **Severance**

More needs to be done in this area and the work undertaken by Peter Jones should be incorporated into WebTAG.

### **Cycling**

TfL has developed a cycling route choice model which has a bespoke demand model and has additionally been integrated into our main multi-modal demand model. This approach could be adopted in other cities and regions. The origin of the modelling was analysis of potentially cyclable trips which are obtained from the London Travel Demand Survey – these are defined as existing trips which could reasonably be cycled. The cycling model (Cynemon) now uses generalised cycle time to assess cycling schemes. In developing this model a new survey was carried out in 2015/6 to sample London cyclists' route choices and inform the route choice mechanism.

Cynemon is able to represent the impact of cycle schemes on re-routing, demand response and the resulting changes in flows on the network. It has been used to test major new cycle infrastructure such as new Cycle Super Highways and Quiet ways,

and has been used for strategic planning of future cycle routes in the Strategic Cycling Analysis: <http://content.tfl.gov.uk/strategic-cycling-analysis.pdf>

Work should also be undertaken on how deaths and injuries discourage people from cycling. This is a major barrier to uptake.

### **Health impacts of active travel**

The health benefits of active travel trips and walking as part of public transport journeys are of increasing importance as the UK deals with a public health crisis. While they are already included in scheme appraisal' there is scope for research to continue to support the evidence base for this, which would enable a greater case to be made for schemes which support a reduction in car ownership, particularly in cities. Recent work that the Department has undertaken to look at impacts beyond mortality should be included in WebTAG and a replacement calculator for HEAT (which is cumbersome and not user-friendly) released.

Physical activity impacts should be routinely measured for every project showing the reduction in walking associated with improving connectivity for the car and, where possible, the benefits forgone when there is no increase in physical activity. At present changes in active travel seem to only be measured in a small selection of projects that are specifically seeking to increase physical activity.

A limiting factor to including these impacts is the lack of information on current and potential demand for walking and cycling, particularly for small schemes and collections of small schemes. Research should be undertaken to help provide simple elasticity based factors from evaluation studies.

### **Noise and Air Quality**

The impact of these is local in nature. We note that local air quality monetisation has improved considerably in recent years as more health conditions have been linked to poor air quality. Noise continues to be poorly captured. The impact methodology considers residences in affected areas. This is an unreasonable constraint and the impact ought to be assessed on the numbers of people exposed in particular areas. Air quality on Oxford Street for instance was difficult to assess because most people exposed were not residents but workers and shoppers. Research in this area, particularly around exposure to noise and the impact on anyone exposed (not just residents) should be a priority so that we can more fully capture the impacts on physical and mental health.

### **Distribution of scheme impacts** (links to transformational impacts question 6)

Uplift to GVA is used as a proxy for increased wealth for society but this may not uniformly flow through to individuals and the impact on their quality of life may not be fully captured.

Distributional impacts (including for health) by geography, demographics and income distribution should have to be set out as standard, at least for large schemes.

In addition, Government agencies should continue to work together to agree consistent measurements of wealth that better reflect social value. This should then be applied to different sectors and infrastructure investment.

## Reflecting uncertainty over the future of travel

### 4. What should our priorities be for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three.

TfL welcomes the scenario approach exhibited in the national road traffic forecasts and the common scenario work currently being developed by DfT. However, the range of futures must go beyond high and low sensitivities. TfL is experimenting with a form of scenario planning which imagines very different futures so that our strategies and schemes are designed to be robust to multiple futures and benefits are maximised. TfL analysts would be happy to discuss this work with DfT colleagues.

The following issues are important

- How should scenarios be used in appraisal? Should the scheme be prioritised that does best across a range of scenarios rather than having the best case in the most likely scenario? DfT should lead a conversation on planning transport investment in an uncertain world.
- Mistakes have been made in the past in planning for high car ownership and use in cities. All of the NRTF scenarios have significant growth in traffic in London despite a long term trend of falling traffic. There needs to be a different approach to assessing car use in urban areas. TfL recognises and welcomes the DfT's engagement in this area but some scenarios must reflect a decline in car use in big cities.
- Novel approaches such as quantitative risk analysis provide a distribution of the benefits of a scheme. Their role in appraisal alongside scenario approaches needs to be considered, as counter to the scenario approach they run the risk of giving the impression of greater certainty about scheme impacts. Well-formed scenarios offer a better way of showing decision makers the uncertainty in the work that is being presented.

### Freight and uncertainty

- A key uncertainty at the moment is the potential for transport connectivity to be replaced by digital connectivity and personal travel to be replaced by deliveries. Modelling and appraisal of freight impacts is generally weak and could do with improvement. This substitution could play a significant role in the amount of travel in the future and the kind of travel authorities have to plan for. Expanding the freight evidence base is a priority for analysis at TfL.

### 5. What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these?

There is a lot of interest in uncertainty and scenario modelling and TfL supports work to improve understanding of uncertainty. It is vital that the amount of work and sophistication is kept manageable and proportional. Suggested challenges and potential solutions are listed below.

## Challenges

- Practitioners and decision makers still like to use the central estimate as the “answer”. If scenarios are adopted it will be necessary to dissuade scheme promoters and appraisal practitioners from making selective choices to obtain unduly positive estimates of scheme impacts under uncertainty;
- Producing the central estimate is already a complex exercise. Providing robust scenario alternatives and representing them consistently across the range of business cases and schemes is an additional level of work and complexity that is not the primary focus of a scheme promoter;
- There are potentially significant additional timescales and costs associated with using current tools and methods to obtain estimates under uncertainty; for example, using a four-stage model to inform estimates of scheme impacts under different scenarios; and
- Common scenarios are a good start but it will be challenging to get agreement on them. It is debateable whether they will be sufficiently locally specific and widely applicable to be relevant in all situations.

## Potential Solutions

- More guidance is required on the level of assessment appropriate to the stage of scheme development and appraisal in particular. Section 2.9 in Unit A1.1 should be expanded to list alternative ways to explore uncertainty;
- Guidance should emphasise proportionality and that large projects over a minimum value threshold must undertake uncertainty analysis and that smaller projects could apply consistent and pre-determined scenarios or sensitivities;
- Encourage the presentation of results through ranges or graphics to avoid too much focus on a single case and simplistic high / low sensitivities;
- TfL thinks that allowing the treatment of uncertainty to be context-specific will still be necessary. This could be achieved through the development of common scenarios alongside an ‘uncertainty toolkit’ with guidance and case studies showcasing a range of possible approaches for treating uncertainty; and
- It would also be beneficial to explore guidance on “future proofing” very large schemes. Examples could include:
  - A phased approach as the default option with the highest value and most certain elements delivered first;
  - Describing how a scheme could be adapted if the future unfolded in a different way; and
  - Best practice case studies.

## Modelling and appraising transformational investments and housing

### 6. What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.

The DfT's Transport Investment Strategy priorities are clear and yet it is difficult for common appraisal and modelling methods to get to the heart of these impacts, particularly transport's impact on the delivery of new homes, increases in productivity/growth and rebalancing the economy. Similarly in London, decision makers are focussed on how transport can deliver new homes and new affordable homes. The overarching priority should be improving appraisal and modelling in these areas and striving for a consensus on the way to do this.

There are several scheme promoters developing transformational transport schemes across the UK which gives us a big opportunity to get this right. The evidence base around wider impacts needs to continue to be enhanced and more done to directly show the impact on housing delivery and economic growth. While there may be some scepticism within the appraisal community about large benefit claims associated with transformational schemes, it is crucial to recognise that improving agglomeration in cities and regions is vital to our global competitiveness and that the conventional approach to estimating 'user impacts' is subject to considerable uncertainty, especially given the standard assumption of fixed land-use for all schemes, regardless of location and scale. There needs to be a level playing field across the UK and therefore authorities must work together on a consistent approach to these benefits; one that is accepted by cities/regions sponsoring transformational schemes and the DfT, Treasury and National Infrastructure Commission who will be judging the merits of their cases. This stretches beyond transport with the opportunity to strengthen relationships and explore evidence with other Government departments for other types of infrastructure investment.

At present the GVA uplift to benefit to cost ratios in certain circumstances does not appear to be consistent with the rebalancing the economy strategy and is not a convincing approach to estimating social value.

Detailed priorities on supplementary economic modelling:

- Improving the transparency around the application of supplementary economic modelling tools with a view to standardising and accepting the approach. In London David Simmonds Consultancy's DELTA modelling is used for the LonLUTI land use transport interaction model and TfL is further developing the ULTrA appraisal methodology in collaboration with DfT. Potential ways to do this: undertaking external reviews of modelling tools, publishing model information, encouraging replication of results;
- Reviewing wider impacts methods and assumptions:
  - Reviewing potential limitations in the approach to estimating 'moves to more/less productive jobs' (MTMPJ) impacts, arising most probably from the use of (fixed) average GVA per worker values by local authority district;

- It is especially important to begin Phase 2 of the ongoing research programme on agglomeration elasticities. A number of interesting and important topics await detailed investigation in this phase of the programme. For example the current approach for estimating schemes' productivity impacts assumes that agglomeration benefits accrue solely to firms. However, in addition to these production externalities, there are also consumption externalities – agglomeration benefits accruing to individuals. As these are currently excluded from wider impacts estimates, the scope for quantifying and including them should be considered in Phase 2.
- Supporting the development of general equilibrium modelling approaches for use in appraisal. In addition to diversifying the range of supplementary economic modelling tools in use, this would allow transport appraisal and modelling to benefit from the latest research in urban economics and economic geography. Our response to Question 13 provides further evidence on this point.

**7. What transformational impacts do you currently find it difficult to represent in a scheme appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?**

It is difficult to represent the full range of effects of providing new or expanded transport links to areas of significant additional housing provision. It is especially challenging to account for the benefits of these investments – for example, in allowing locations to cater for growth in an affordable and pleasant way for residents – but there is also a lack of focus on housing affordability for individuals. Furthermore, the issue of geographical distribution raises questions over the social value of benefits. The approach highlighted for question 3 above should partially address this.

There are other difficulties for these types of schemes. Given future regional population projections, it is difficult to forecast how these will be distributed within regions to determine impacts with and without transport investment. Estimates of schemes' benefits are heavily dependent on distributional assumptions, but the uncertainties around these assumptions are only heightened when transport investment is expected to unlock housing development.

It may also be worth exploring portfolio level impacts where a series of smaller schemes throughout a region may combine to allow the region to cater for growth in an affordable and pleasant way. Modelling the effect and apportioning the benefits to individual schemes should be an area for research.

In addition, there are a number of additional types of impacts that cannot be captured with current appraisal tools, such as impacts on locations' attractiveness (which could be captured through new approaches such as ULTrA, as mentioned below), international connectivity (from improved connections to airports), and international trade (from transport investment's contribution to UK competitiveness in international markets). Although these kinds of impacts would only be justifiable for selected schemes, excluding them risks understating the true extent of schemes' welfare impacts. This is perhaps most true for quality of place or amenities impacts – a significant omission in our present understanding of wider economic benefits.

London plays a role as an international and European centre for financial and professional services. That status needs a functioning transport system that can get people to work and enable housing delivery. However, forecasting net increases in employment at the national level is difficult. Government should undertake further research on international competitiveness and net national growth of making the UK more competitive. Although this violates the Green Book assumption that the economy is at full employment over the long term, evidence suggests that in certain cases, a portion of the additional employment supported by significant transport investment may be displaced from locations outside the UK. For cities such as London and other world cities, the fixed population and employment assumptions do not reflect improved international competitiveness.

It is challenging to make this argument in a way that is accepted in appraisal. Tools such as ULTRA (David Simmonds) offers an opportunity to do this. The appraisal and modelling community should continue to explore them.

### **Supporting the application of WebTAG and making it more user friendly**

#### **8. What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?**

Often the language used is not very accessible and it seems to be written in a rather technical / academic / legal way. It is difficult to get the balance between educating new people to the industry and providing a sufficiently detailed explanation to those who are already experts in the field. It may be worth considering a “basics of transport planning” section to educate new generations of transport planners.

Processes seem to be always getting more complicated, for example distance based values of time. The focus should be on simplification – the more complicated, the less likely the guidance will be followed by practitioners.

Scheme promoters often perceive WebTAG in adversarial terms, as WebTAG-aligned appraisal is often carried out when funders’ approval is required. This can lead to various detrimental outcomes, such as a pressure to find and quantify additional benefits where they may be difficult to estimate or indirectly related to the scheme under assessment. It may be possible to address this perception through improving the transparency of appraisals, highlighting examples from appraisals where additional benefits have been appropriately estimated and justified, and strongly advocating for appraisal methods to be flexible but context-specific.

#### **9. What more could be done to articulate the flexibilities in WebTAG and support scheme promoters apply the guidance?**

- Emphasise the proportionality right up front in the WebTAG overview document.
- Publish a comparison of recent transport business cases to highlight potential alternative approaches, tools, and data sources for use in appraisal.
- Provide examples of where alternative approaches have been accepted and what evidence was required to support those approaches.

- Provide clear explanation of the expectations and requirements for modelling and appraisal appropriate to the stage of scheme development, eg. SOBC, OBC, etc.
- Emphasise the links to the other cases of the Five Case approach and show how a project level case could differ from a higher programme / portfolio / strategy where a wider package of interventions could be assessed that better represents the overall value than an individual project level case.

**10. How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance.**

TfL supports efforts to make WebTAG more accessible. Although improvements have been made in recent years, parts still come across as being rather technical and academic. It is important that it is focussed on plain English guidance that can be understood by appraisal practitioners and other interested parties. Getting a panel of lay-people to proof read and draft sections to see if they understand it could be a good test. This will ensure that new sections are produced that can be applied by new people to the industry. Technical explanations should be stripped out and stored in an online reference library for those interested.

More consideration should be given to improving the visual appeal and layout, with more diagrams rather than text.

Guidance can appear intimidating to practitioners with overly technical wording and explanations. Transport modellers come from a variety of academic backgrounds; therefore the guidance should adopt a more accessible approach.

Some users have reported that they would like to print the whole of WebTAG in one go. Maybe an additional combined volume could satisfy this need. It would also provide a useful archive to clarify when sections were changed (often only the latest version is accessible).

### **Developing modelling and appraisal tools that meet user needs**

**11. What should our priorities be for improving the development of modelling and appraisal tools and why? Please select up to three.**

TfL has invested heavily in approaches which focus on people and place e.g. cycling, valuing urban realm, segmentation of users. A lot of this work has involved us stimulating the consultant market, funding developments ourselves and breaking new ground, e.g. in cycling modelling. Could a forum with consultants and software developers be organised to focus on the priorities from question 3 and question 6? The more standard approaches become the more they can be used and the more costs of development can be shared.

Encouraging collaborative development through the use of open source platforms such as GitHub



**12. How can we best encourage innovation whilst maintaining a consistent and robust approach?**

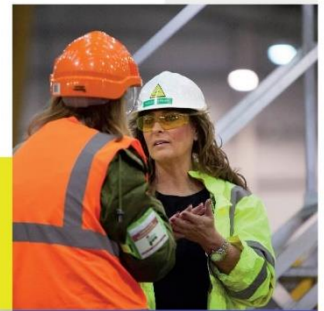
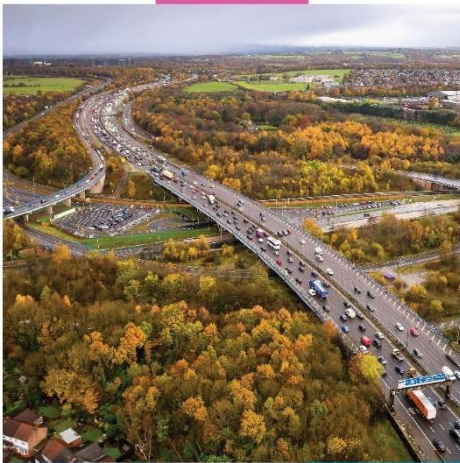
- Have resources to give greater direction to agencies when they are investigating something new.
- Showcasing innovation outside of WebTAG.
- Minimum rather than absolute standards

**13. What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?**

- Quantitative spatial models: a class of spatial general equilibrium models that have been developed in recent years to study various topics in the economics research literature, including the effects of transport infrastructure investments and other place-based policies on the distribution of economic activity within and between cities. Overview: <https://voxeu.org/article/evaluating-regional-policy-and-shocks-real-world>
- Activity based modelling and agent based modelling. Specifically generating a useful modelling and appraisal framework.

# DFT APPRAISAL AND MODELLING STRATEGY

TRANSPORT FOR THE NORTH  
COORDINATED NORTHERN  
RESPONSE



**OCTOBER 2018**

Transport Analysis, Modelling and  
Economics (TAME) team

[transportforthenorth.com](http://transportforthenorth.com)

## INTRODUCTION

1. The Department for Transport (DfT) has launched a consultation exercise to gather views on the scope and priorities for their new Appraisal and Modelling Strategy to help ensure that their guidance, WebTAG, remains best practice and addresses the likely future challenges facing practitioners and decision makers conducting transport appraisal.
2. The Strategy aims to provide robust, flexible and easy to use modelling and appraisal tools that can be used to inform the critical policy decisions that will be made over the next five years. The DfT consultation sets out their initial views within five key themes and provides initial views on priorities. The themes are:
  - **People and place** – emphasises the importance of understanding cities and the urban realm, built environment, well-connected communities and wellbeing. More advanced analytical methods are required to value improved journey experiences and the value of place for both individuals and communities.
  - **Reflecting uncertainty over the future of travel** – the future of travel is highly uncertain, largely due to a combination of technological and behavioural uncertainties. Need to develop understanding of emerging and future technologies and better tools to capture and communicate uncertainty to decision makers.
  - **Modelling and appraising transformational investments and housing** – Northern Powerhouse Rail and the Trans-Pennine Tunnel are referenced as examples where the strategic objectives of major schemes extend well beyond 'traditional' transport outcomes and productivity benefits beyond those generated by agglomeration effects.
  - **Supporting the application of WebTAG and making it more user friendly** – including options for building capability including; use of case studies; sharing of best practice and clearer guidance.
  - **Developing and maintaining modelling and appraisal tools to meet user needs** – recognises that different sources of evidence and modelling approaches may be needed in future. Emphasis on 'big data' in transport models, strengthening the link with evaluation and better use of evidence.
3. Transport for the North (TfN) have worked with practitioners in partner organisations to coordinate this Northern level response to the DfT's consultation. We have also consulted the Northern academic community and the transport consultancy supply chain in preparing this response, although it should not be interpreted as representing their views. It is also

important to note that the TfN response focuses on issues that are particularly important for pan-Northern, regional-level transport planning, and that there are many very important local transport issues not covered, on which TfN partner organisations will respond separately. In this context, this response provides a collective view as to where DfT should focus efforts to strengthen and expand current guidance, as well as focus areas for research.

4. TfN welcomes the draft Strategy as a further step towards an appraisal system which can better represent transformational investment and wider economic impacts. Whilst important steps have been made towards a more rounded approach to appraisal beyond value of time measurement, TfN's Northern partners continue to express concerns about the focus of WebTAG and perceive the system to be skewed against investment in Northern transport schemes. Many of the areas identified in the Strategy reflect TfN analytical priorities and the approach to appraisal outlined in the draft TfN Strategic Transport Plan published in early 2018.
5. There are areas where the Strategy could either be improved or strengthened. Some of these reflect wider weaknesses within the DfT, such as the separation of road and rail planning, and the limited focus on programme and portfolio level appraisal. There are a number of areas which the Strategy could have covered – particularly the rebalancing agenda, employment and skills.
6. The draft response reflects the technical nature of the consultation and focuses on the specific and practical “pain points” faced by practitioners working on Northern business cases. It uses the approaches TfN has developed on modelling tools, scenarios and economic appraisal to illustrate where the department should be focusing its efforts. The wider challenges for the consultation include:
  - a) **Rebalancing** – This is one of the Government's key aims, something TfN and Partners fully support, and this is reflected in the recent 'Rebalancing Toolkit'. However, the toolkit is relatively qualitative and is not particularly well integrated with the rest of WebTAG. The Parliamentary Transport Committee Rail Infrastructure Investment inquiry raised this issue in its report (as did TfN and Rail North in their evidence to the committee). The Government's response to the committee suggested that issue would be addressed in this consultation. Not progressing the rebalancing agenda will increase the perception of bias in the appraisal process against Northern projects.
  - b) **People and place** - The emphasis on wellbeing, community and amenity is welcome, but more needs to be done to quantify these impacts and build them directly into the economic case and the assessment of economic welfare. We need an integrated holistic view that recognises the interaction of transport with other sectors, including first order links to local economic growth, public health and safety,

energy, digital and housing, and second order links to areas like crime or education achievements.

- c) **Continuation of research into agglomeration with renewed ambition** – It is important that the Department continues its paused research into agglomeration and ensures that this study retains its ambitious objectives to broaden and deepen the evidence base, particularly around:
- agglomeration over longer distances and for polycentric regions;
  - dynamic effects based on analysis of time-series data if possible;
  - specialisation vs urbanisation effects, which may be particularly relevant for industrial clusters in the north of England.
- d) **Proportionality** – provide clearer guidance on what level of analysis is proportionate at different stages of scheme development for different types of scheme. Current approach leads to doing more than is required in some areas and less in others.
- e) **“WebTAG compliance”** - rigidly adhering to WebTAG guidance is likely to be the lowest cost and safest option for most scheme promoters. The Department could be more proactive in publishing examples of successful business cases that have used innovative modelling and appraisal. It is important that WebTAG stimulates innovation in transport modelling and appraisal. There is a risk that a set of guidance that is perceived as prescriptive stifles innovation and prevents the industry from making progress in developing robust new tools and techniques.
- f) **Data availability** – the consultation rightly recognises inter-regional trade data and spatial planning data as two key areas where Central Government could take a stronger lead in coordinating standardised, regularly updated national datasets.
7. TfN are also soon to launch a new Data, Modelling & Appraisal Strategy, which echoes the key messages of this response and provides more detail on TfN’s plans to address some of the issues raised. The TfN Strategy is well aligned with the DfT Strategy, covering issues such as shaping new travel markets in an uncertain future; and enhancing the transport system’s user experience. Whilst there are overlaps, TfN’s strategy is focused on the specific challenges TfN and partners face with planning a sequenced portfolio of transport infrastructure investment spanning up to 30 years and across the whole of the North of England.
8. To ensure future investment planning is fair, and to provide great planning efficiencies, TfN believe there is now a real opportunity for practitioners to present decisions makers with one voice for: data;

forecasting; and investment decisions. This theme is at the heart of TfN's Strategy and should also feature strongly in the DfT Strategy. This will require new approaches to modelling and appraisal to allow greater exploration of strategic and economic narratives, as well as adding key missing data, modelling and appraisal ingredients to better understand market creation and shaping. As well as working towards a fair modelling and appraisal system, and a more efficient operating model for the North's business case activities, the framework also focuses on providing consistent quality and providing proportionality with a 'right-first-time' goal.

## Consultation Questions and response

**Consultation Question 1:** *Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?*

10. The themes set out in the consultation are broadly welcomed and reflect the fact that the Department is listening to concerns of stakeholders and practitioners in the North. There is a strong alignment between these themes and the emerging TfN Data, Modelling and Appraisal Strategy, and TfN believe there is significant scope for the Department to collaborate on research and development with TfN and partners to rapidly improve the evidence base and build confidence in new approaches.
11. There are three key areas that we believe are not sufficiently covered by the five themes, as listed below.

### Rebalancing the economy

12. Rebalancing is one of the Government's key aims, and this is reflected in the Department's recent 'Rebalancing Toolkit'. However, the toolkit is relatively qualitative and is not particularly well integrated with the rest of WebTAG. There are several analytical issues related to this theme that the Department could begin to address in a more quantitative way. Illustrative examples are listed below.
  - a. **Wider infrastructure costs** – If a large-scale programme of transport related investment supports net migration into regions like the North from London and the South East, there may be a resource and public expenditure saving due to the lower marginal cost of increasing the provision of wider infrastructure (water, waste, electricity etc.) and public services (hospitals, schools etc.). We understand that the National Infrastructure Commission is considering research in this area, and we would support the involvement of the Department in this research.
  - b. **Economic resilience** – The UK economy is highly dependent on financial services in the City of London, which can be vulnerable to wider global uncertainty, making the UK economy less resilient overall. Programmes of transport investment outside London that help to support skilled employment growth in a more broad-based range of markets will help to increase the resilience of the UK economy. More research and analysis to quantify the value of that resilience to the economy, perhaps in collaboration with HM Treasury, would be welcomed.

### Employment and skills

13. One of the major economic issues that TfN and partners are trying to address is the lack of skilled workers and well-paid, productive jobs in the North. We do not believe the consultation sufficiently covers some of the key analytical issues and questions surrounding labour markets. Illustrative examples are listed below.
  - a. **Labour and skills market failures** – Inadequate transport can be a barrier to matching people to jobs or training, leaving people staying in unemployment longer or taking a job that does not match their skillset.

Guidance on whether and under what circumstances this constitutes a market failure would be welcomed.

- b. **Full valuation of employment** – Related to the discussion on rebalancing above, moving a person from unemployment to employment in a region with structural unemployment can be more valuable than in a region with a well-functioning labour market. We would welcome consideration of whether WebTAG can provide guidance on appraising this. There could be linkages with the Department for Work and Pensions (DWP) who already try to account for: social impacts; reduction in NHS costs from movements into work; etc.
- c. **Linking existing housing to jobs** – The dependent development guidance covers the value of new development, but there is limited guidance on valuation of making existing, vacant housing stock more attractive by improving access to employment. This is perhaps a more relevant issue in the North of England than it is in London, where housing capacity is constrained, and new development is essential.

### **Pain-Points**

14. From a practitioner's point of view a well-balanced strategy should not only explore new modelling and appraisal approaches but should also look at areas associated with practical delivery of analysis that are currently taking significant resources away from developing strong economic cases. To illustrate this, we have highlighted set of high-level pain-points to stimulate discussion and ensure that practitioner voices are more fully represented.
15. Pain-points are not merely operational issues but also limitations that have restricted the ability of practitioners to deliver against objectives. Due to the wide variety of circumstances facing different transport authorities this is particularly prevalent in developing a fair planning system whilst trying to find efficiencies. Practitioners have worked hard to find the best balance for this dichotomy, but this remains a significant challenge and may require more radical solutions.
16. TfN have undertaken their own assessment of current modelling and appraisal pain-points, split into three sub-groups of: data and model consistency; model purpose and specification; and computer resources. All three of these sub-groups could feature in guidance and have therefore been included in this document and are summarised below.
17. Data & Model Consistency Pain-Points: Combining models and appraisals from different projects, can introduce error and is computationally difficult. Issues include:
  - a. **Disparate zoning systems** – Dealing with disparate zoning systems can introduce significant error and waste substantial effort.
  - b. **Base model misalignment** – Dealing with misaligned base models can introduce significant error and waste substantial effort.
  - c. **Poor local representation** – Aggregate models can substantially dilute the local representation within models and to such an extent that models



report low levels of congestion but the user experiences substantially higher levels.

- d. **Poor data standards** – Dealing with errors in the basic definition of data within models can cause gross-error and can waste substantial effort.
- e. **Lack of local data** – Many data and parameters are normalised from a wide variety of sources and presented as nationally representative. Some data and parameters are of unknown origin, definition or quality.

#### 18. Model Purpose & Specification Pain-Points

- a. **Model runtimes limiting exploration** – Excessive transport model runtimes are limiting ‘transport planning’ exploration. Such models are designed to better represent capacity and build robust economic cases. However, they are not appropriate for exploration, and their use can result in substantial effort being expended with limited exploration in return.
- b. **Limited model functionality** – Existing transport models can have restricted functionality that can limit their usefulness for exploration.
- c. **Limited segmentation** – Existing transport models can have limited traveller segmentation that does not allow a full understanding of the user experience or building a compelling economic narrative.
- d. **Integration of innovative approaches** – Due to uncertainty over the extent to which innovative approaches will be considered, current modelling and appraisal often has limited focus on estimation of non-standard benefits, dynamic impacts of mega-projects, or the combined impacts of interventions at the programme and portfolio level. We acknowledge that these issues are considered in detail in the consultation, and we provide further comments below, but include this point here for completeness.

#### 19. Computer Resources Pain-Points

- a. **Difficulties using the latest algorithms and hardware** – Conventional models often use processes and algorithms optimised for the efficient use of early computer resources (with roots as far back as the 1970s), and do not easily adapt to new approaches and technologies, for example data parallelisation required to exploit advanced Graphics Processor Unit (GPU) technology. This means we live with long model runtimes, which can cause quality and delivery problems as described above.
- b. **Inconsistent IT platforms and software** – Misunderstanding of the optimal approach for running models and holding data can create significant inefficiencies.

- c. **Limited data sharing** – Misunderstanding of the optimal approach for transferring data can create significant inefficiencies.

## Addressing Pain-Points

20. We believe that many of these pain-points can be addressed, particularly if a coordinated approach is taken by practitioners across the UK. WebTAG could potentially be a vehicle for providing this level of coordination, with these issues being considered as priorities for strengthening existing guidance and for expanding guidance and research. This could either be done by expanding existing consultation themes or potentially highlighting the need for a new theme, but this could be decided at a later stage if the DfT chose to undertake a pain-points assessment of their own as part of their strategy development.
21. TfN have undertaken an assessment of how the pain-points could be addressed and have critiqued these into three separate groups of: 'Operations'; 'Enablers'; and 'Focus Areas'. The Operations group is largely associated with resource and quality management which does not seem to naturally fit in the DfT's strategy, and therefore is not included in this document.
22. The Enablers group has been further split into two sub-groups of: 'Modules and Interfaces'; and 'Cloud Solutions'. Both sub-groups could feature in guidance and are summarised below.

### 23. Modules and Interfaces

- a. **Modularisation** – Building strong interfaces between models to allow different options to be combined, thereby avoiding tie-in to single software suppliers or models. This allow better integration and compatibility of models, as well as time and resource efficiency.
- b. **Consistent interfaces** – Introduce standardisation to make data and models more accessible, work towards high levels of data interoperability and have reporting at different levels of access, from expert modellers to members of the public.

### 24. Cloud Solutions - Moving to cloud based 'Virtual Machines' (VMs) and file storage, and so:

- a. providing **scalable computing** for use as a modelling platform and data analytics platform, with scope for introducing GPU and machine learning enhancements;
- b. allowing the **sharing** of VMs in the model and appraisal ecosystem, allowing upload to and download from common file share, saving double handling of data; and
- c. providing a **more cost-effective** platform in terms of software and hardware costs.

### 25. The Focus Areas group has been further split into two sub-groups of: 'Data & Model Interoperability'; and 'Reducing Aggregation in Useable Models'. Both

sub-groups could feature in guidance and have therefore been included in this document and are summarised below.

## 26. Data & Model Interoperability

- a. **Consistent base data and forecasts** – This should be given a high priority in the first 18 to 24 months as it is likely to remove many of current pain-points.
- b. **Automating the development of zone correspondence** – This is feasible as data is consistently held at property or full postcode level throughout England, and with sufficient coverage for the rest of mainland Great Britain.
- c. **Automated & consistent model components** – There are numerous options to automate the creation of model components, including travel matrices and basic networks. This could introduce significant quality improvement and consistency, and cost efficiencies.
- d. **Develop data model** – A unified data model could lead to seamless data interoperability.

## 27. Reducing Aggregation in Useable Models

28. WebTAG contains strong guidance for developing conventional transport model and appraisal tools to check operational performance and to develop a robust economic case. However, such tools are often too detailed for exploration of new transport scheme options and simplified faster-running models may be required. Tools of this nature do exist but are often used for exploring marginal changes (e.g. elasticity based models), rather than the 'transformational' impacts of potential mega-projects, or large portfolios of schemes.

29. As such the key focus area for expanding WebTAG should be the development of exploratory tools, appropriate for market shaping and more transformational mega-projects, programmes and portfolio. This type of tool is more likely to be developed in partnership with the DfT and regional or devolved government due to its scale, cost and its enhanced ability to explore and set policy. Key features include:

- a. high-level of segmentation;
- b. short runtimes;
- c. application of aggregate transport supply modelling or more abstract supply models.

30. To help focus the strategy for the first 18 to 24 months it would therefore be useful to recognise the continued need for two-tier model architectures, with the upper-tier holding an exploratory tool and the lower-tier holding a conventional transport model, with a focus on the exchange of information between the two modelling tiers. Following this, the strategy should focus on ways of improving the exploratory nature of the upper-tier tool, and for both tiers investigating ways to achieve useable runtimes and reduce the dumbing-down effects of aggregation.

31. This area is particularly relevant to the 'Reflecting uncertainty over the future of travel' theme, which is covered further below.



## **Consultation Question 2: What considerations should inform the scope and priorities of our strategy, particularly over the first 18-24 months?**

### **Guidance Context**

32. The DfT's WebTAG has served transport modelling and appraisal practitioners well. It has provided an interpretation of the HM Treasury's Green Book that rivals any other department's efforts and has enabled robust economic cases to be developed consistently across England as part of the DfT's funding process. However, current WebTAG has largely evolved in the context of funding applications and has a bias towards addressing marginal market failures. These cases are characterised by excessive levels of congestion restricting the economy, meaning a strong economic case can be presented by relieving this congestion. This includes congestion forecast through DfT's National Trip End Model (NTEM) Central Scenario forecast and related processes. The use of the NTEM Central forecast, and the associated WebTAG appraisal, has provided a practical and proportional approach for transport authorities to seek funding for local projects, and has enabled cost-effective support from private sector consultants. Being able to develop robust economic cases in this context should continue and options for improving this area could be categorised as *strengthening* existing WebTAG, which could be captured in updates to current WebTAG units.
33. In contrast to cases of marginal market failure, persistent poor transport connectivity over a period of decades can lead to non-marginal, or structural market failure, whereby peoples' behaviour and the pattern of economic activity adapt to 'make do' with the status quo. In such cases, a 'market shaping' approach may need to be considered<sup>1</sup> to achieve long-term regional socio-economic objectives and kick-start economic interactions between areas in a concerted, coordinated way. There has been significant development on how frameworks, like TfN's Analytical Framework, should be applied to enable an objective led approach to shaping markets, and as part of moving focus to re-balancing the UK economy and better understanding the user experience. This includes how frameworks can be used to provide a fair way to understand programme and portfolio level investments, as well as enabling consistent quality and providing significant efficiencies for local projects belonging to constituent transport authorities.
34. Programme and portfolio level investment, as well as 'mega-projects'<sup>2</sup>, is more likely to be considered by DfT in partnership with regional and devolved government. Such scale could result in the development of regional guidance for transport planning to best meet the needs of specific regions. This could principally include advice on tools that allow regional planners to explore regional policy, with a focus on shaping markets. Such tools may be

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<sup>1</sup> UCL, Institute for Innovation and Public Purpose, The economics of change: Policy and appraisal for missions, market shaping and public purpose, July 2018

<sup>2</sup> Mega-project definition: substantial capital costs that have transformational effects felt at a regional and even national level

unaffordable to many transport authorities and WebTAG does not cover guidance for this area well. Therefore, options within the context of exploring economic narrative for mega-projects, programme and portfolio levels could be categorised as **expanding** WebTAG, which could include introducing new, and potentially regional, WebTAG units.

35. Within either category of strengthening or expanding WebTAG there are areas of missing evidence that require more detailed investigation before formalising into either national or regional guidance. This is a key area for collaboration where the DfT can work in partnership with the regions to develop evidence to support areas currently with limited or no guidance. And this may be essential to cover the variety of research areas and could see regions specialising in different areas of guidance to feed into a wider collaboration, coordinated by the DfT. Any options within this context could be categorised as **research**, which would feed into existing or new WebTAG units.

### **Prioritisation**

36. The DfT Strategy should adopt a 'balanced portfolio' of WebTAG improvements. This should reflect that strengthening current WebTAG units is likely to represent the quickest Return on Investment (RoI). Consequently, expanding WebTAG through the introduction of new units can be expected to have a slower RoI and research into new evidence to support WebTAG can be expected to have the slowest RoI.

37. It would therefore seem prudent to spread the priorities within these three improvement areas with the strongest early focus on strengthening existing units and then on introducing new units. That way practitioners are most likely to see early value from implementing the strategy, while planning begins on the introduction of new units and research, both which have inherently longer lead times.

38. It would also seem prudent to take a detailed look at practitioner's current pain-points described above as part of the strategy development exercise and augment WebTAG units with improvements targeted at tackling these. Tackling pain-points will require improvements within all three improvement areas (of strengthening, expanding and research) and by adopting this approach practitioners will have greater appreciation of and connection to the strategy. This should therefore go a long way to meet a key aim of the strategy for more robust, flexible and easy to use modelling and appraisal tools.

39. In this context, the strategy should prioritise the areas listed below.

- a. The strategy should recognise that transport impacts much more widely on the economy, society and environment, and a key feature of the strategy should be to capture a more holistic 'systems' view in modelling and appraisal.
- b. The strategy should recognise limitations of narrower 'predict-and-provide' approaches and towards a 'vision-and-validate' approach in which a planner can test a policy vision against a range of futures.
- c. The strategy should accept that we need to achieve better representation of the constraints that people and businesses experience, but this must not be at the expense of retaining model speeds to explore many futures.

- d. The strategy should recognise that exploration needs a more dynamic land-use / transport interaction model with many model timesteps that better match real population and business behaviours and show how better connectivity enhances an area's attractiveness.
- e. The strategy should consider the most relevant segmentation of people and businesses for understanding the impacts of interventions within an uncertain future and should consider new segments that are more likely to experience change up to 2050.
- f. The strategy should consider a system that can model the accumulative effect of sequencing many individual interventions within the whole lifecycle of an investment programme or portfolio.
- g. The strategy should look to exploit new technology & data parallelisation to try and keep model runtimes useable.

40. More detailed consideration on the priorities by theme are covered in following sections as answers to the remaining consultation questions.

**Consultation Question 3:** *What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.*

41. The three areas identified for improvement are listed below.

42. **Welfare valuation of place attractiveness** – Transport can improve the attractiveness of places to business and individuals through improving accessibility, and also enabling regeneration and improvements to urban realm. These improvements can manifest as land-value uplift, which is relatively straightforward to estimate and measure post-hoc. However, there remain concerns about combining these measures with transport user benefits and agglomeration for fear of double-counting or missing important components of benefit. We believe that there is scope to moving towards a consistent, unified framework for estimating net welfare impacts, based on a number of existing methodologies<sup>3,4</sup>. We do not underestimate the risks and challenges associated with attempting this, as it would require a relatively fundamental re-assessment of how we apply transport economics in practice. However, we believe the value of achieving this would be very high. Ideally, this framework should be standardisable and agnostic to modelling software so that a wide range of scheme promoters and practitioners can apply it.

43. **Holistic Systems View** – There is an increasing awareness of the interaction of transport with other sectors, including first order links to local economic growth, public health and safety, energy, digital and housing, and second order links to areas like crime or education achievements. WebTAG is focused on the transport system and does cover 'one-way' first order links of transport system to other sectors. However, there is a growing need to take a more holistic 'systems' view and capture the 'two-way' interdependencies between different sectors, and understand both first and second order linkages. Increasing collaboration between the Department for Transport and other Government and non-governmental organisations in these fields is to be welcomed, particularly where efforts are made to develop analytical frameworks to assess multi-sector systems. There is scope to improve the evidence base in key areas of existing WebTAG, and significant areas to expand WebTAG to cover the wider systems view. Examples of areas for improvement include:

- a. a more quantitative approach to distributional analysis, assessing the wider welfare and equity impacts of transport interventions;
- b. interactions with the energy sector as electric vehicles are increasingly used;
- c. public health impacts from air pollution and active travel;
- d. resilience of transport infrastructure to a changing climate with more extreme weather events;

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<sup>3</sup> James Laird (2015) Working Paper "De-bunking the convention that the rule of half is only appropriate with fixed land uses"

<sup>4</sup> David Simmonds (2012): Developing land-use/transport economic efficiency appraisal. Paper presented to the European Transport Conference, Glasgow, 8-10 October 2012



- e. place-attractiveness externalities (e.g. does cycling make areas more attractive to non-cyclists?);
- f. the tourist economy, particularly around international gateways; and
- g. interactions with perceived and actual crime rates as places become more accessible.

44. There may also be a need to review the models capable of assessing these interactions, such as system dynamics models, and how sharing data between separate modelling systems could be optimised. Transport Systems and Future Cities Catapults have undertaken significant research into this area and could provide valuable lessons learnt and support going forwards.

45. **Improving evidence on customer experience** – We welcome proposals to improve the evidence base on the Value of Travel Time Savings (VTTS) under different conditions. We suggest that the focus on customer experience and journey quality is prioritised. Examples include:

- a. the impacts of technology (real-time information, on-train Wi-Fi) on perceived journey time and interaction with other Generalised Journey Time parameters (e.g. crowding, wait, interchange);
- b. comfort from new rolling stock, particularly in situations where existing rolling stock is very old;
- c. highway reliability and resilience; and
- d. freight reliability and resilience, where we believe there may be useful data available from freight operators if it can be collected in a commercially sensitive manner.

46. We also request that any new survey data is made available at a disaggregate level to allow regional or further segmented analysis.

**Consultation Question 4:** *What should be our priorities for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three areas.*

48. TfN's remit is to develop a long-term Strategic Transport Plan for the North of England, and is therefore primarily focussed on long-term uncertainty. We believe that scenario analysis is best suited to this type of long term planning, and our response is therefore focussed on the scenario approach to uncertainty, rather than trying to empirically estimate the probabilistic variance in transport outcomes using bottom-up methods. However, we acknowledge that this may be an important area for other transport bodies who are more focussed on short term operational delivery of transport systems.

49. The three areas identified for improvement are listed below.

- a. **Ensuring decision makers look beyond the NTEM Central forecast**
  - The Department should commit to work with decision makers to ensure that the central scenario is not the only one considered, otherwise scenario and sensitivity analysis has limited value. We understand that this can only be achieved if the quality, balance and presentation of scenario and sensitivity analysis is improved, but the argument will be somewhat circular if promoters and practitioners perceive that the central scenario is the only one considered in the decision-making process. We are currently engaging with the Department on a number of projects with regards to a variety of future scenarios. This is highlighting the need to first explore what types of scenarios should be used to support different objectives and economic narratives. It is also identifying significant areas for collaboration in developing future scenario travel matrices, and how they should be most effectively applied. Moving towards a more balanced consideration of scheme performance across a range of scenarios is often referred to as a 'vision-and-validate' approach, in contrast to the traditional 'predict-and-provide' approach in which capacity is provided to accommodate a narrow central estimate of future demand. We would welcome a move to such an approach.
- b. **Examples of best practice presentation/visualisation** – One of the challenges associated with assessing a scheme against a wide range of scenarios is that decision-makers need to come to an overall view based on a range of numbers. This is particularly acute if different levels of benefit, associated with wider impacts and land-use change, are being considered. Clearly the way to improve this process is through high quality, insightful data visualisation. If the Department could publish successful examples of best practice in the presentation and visualisation of uncertainty, this would be very welcome to help provide value and insight from the analysis. This could include graphs, colour coded tables or infographics.
- c. **Guidance on trade-offs between model complexity and scenario analysis** – Plans made at project inception to run many scenarios and sensitivities are often de-scoped due to the time taken to run the analysis through complex transport models (and in some cases land-use models). To make better use of scenario analysis, we believe better

consideration needs to be given to simplified models or meta-models more adapted to exploration (simplified representations of detailed models, calibrated to a detailed model where possible). Indeed, such models may be all that is needed in early stages of assessments. As well as enabling a wider range of scenario analysis, using simplified models can also help to provide insight and reduce confusion that often arises from 'model noise'. Alongside guidance on scenario analysis, we would welcome guidance regarding the Department's appetite for use of less complex models, and the types of calibration and validation that would be required to build confidence in their use.

**Consultation Question 5:** *What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these?*

50. The key challenges identified to adopting a more sophisticated approach to uncertainty in Business Cases are listed below.

- a. **Which scenarios to design the scheme for** – Business case development requires a scheme to be designed for a certain level of future capacity. Whilst the 'predict-and-provide' approach steers decision makers towards providing the minimum capacity required to deliver the central demand forecast, the 'vision-and-validate' approach might lead decision makers to favour schemes that future-proof the network to scenarios with higher levels of demand. This issue could be amplified where it is expected that there could be high levels of induced demand from land-use change in response to the scheme. Furthermore, schemes are rarely tested against a 'bad day' scenario in which there is significant network disruption due to roadworks or extreme weather. There is a risk that designing schemes for the central scenario lead to capacity that is rapidly congested and lacks resilience to disruption. Alternatively, interventions, programmes and even portfolio level investment could be considered in the context of a number of carefully selected future scenarios (that best test objectives and economic narrative) and then should go through a process of evolution / optioneering so that the interventions have an optimal design considering all possible future scenarios.
- b. **Policy uncertainty** – A major area of future uncertainty in travel demand is Government policy, including fuel taxes, fares policy, road pricing and land-use planning policy. Whilst we recognise the political sensitivities associated with some of these issues, relatively clear guidance on scenarios for these issues would be welcome. For example, there is a high-level commitment to stop sales of purely fossil-fuelled vehicles by 2040 – to what extent should this be taken into account in highway modelling? DfT and the regions should work in partnership using exploratory tools best suited for developing policy. This policy exploration could help frame some of the future scenarios used for modelling and appraisal of interventions.
- c. **Uncertainty relating to different results from different tools** – A two-tier modelling system remains the preferred approach to: firstly explore economic narrative (upper-tier, dynamic land-use); and secondly check operational performance and provide a robust economic case (lower-tier, detailed transport model). There are challenges associated with both transferring aggregate and abstract transport supply models from the lower-tier to the upper-tier, and transferring travel matrices from the upper-tier to the lower-tier. Uncertainty arises in the need to demonstrate that the two modelling tiers have similar traveller responses. TfN have significant lessons learnt in the challenges likely to be faced and as part of the 'one voice' proposition is developing the Analytical Framework to represent the entire North, cascading forecasts down into satellite conventional transport models to check operational performance and provide a robust economic case.

**Consultation Question 6:** *What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.*

51. We propose that a transformational investment can be defined as one which:

- a. is designed to achieve a set of specific strategic goals, leading to a vision of the future to be validated by modelling and appraisal;
- b. changes behaviour in a significant way, creating new opportunities and shaping new markets rather than fixing existing market failures<sup>5</sup>;
- c. delivers step-changes in connectivity, leading to step-changes in the levels or patterns of transport demand; and
- d. changes the patterns of economic activity and development, such that Supplementary Economic Models are needed to assess impacts (such as TfN's Northern Economy and Land-Use Model – NELUM).

52. The three areas identified for improvement are listed below.

53. **Data availability for SEMs** – As noted in the consultation, Supplementary Economic Models (SEMs) are particularly data-hungry. The consultation rightly recognises inter-regional trade data and spatial planning data as two key areas where Central Government could take a lead in coordinating standardised, regularly updated national datasets. We would also like to highlight the importance of regional and national time-series datasets, making use of modern data synthesis techniques where observed data is not available. Key examples are listed below.

- a. Accessibility: Historical accessibility datasets, comprising of road, rail, bus, light rail and walk travel times at a spatially disaggregate level (e.g. LSOA geographies).
- b. Households: Synthesised datasets on household and housing characteristics (household structure, income, occupation, housing type etc.) at a spatially disaggregate level (e.g. LSOA geographies).
- c. Businesses: Synthesised datasets on employment and business characteristics (sector, skill level, average wages, commercial property type etc.) at a spatially disaggregate level (e.g. LSOA geographies). The Health and Safety Laboratory's National Population Dataset<sup>6</sup> (NPD) is one potential source of this data, synthesised from sources such as the Inter-Departmental Business Register (IDBR) and the property datasets from the Valuation Office Agency.

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<sup>5</sup> UCL, Institute for Innovation and Public Purpose, The economics of change: Policy and appraisal for missions, market shaping and public purpose, July 2018

<sup>6</sup> HSE's Health and Safety Laboratory (HSL) National Population Database (NPD) for use in transport modelling, 2004 to 2018

54. These datasets could have a wide range of uses to help improve the evidence on the wider economic impacts of transport, as listed below.

- a. *Statistical analysis* – Many important statistical studies of wider economic impacts<sup>7</sup> from transport have used cross-sectional data. However, the impacts of new transport investment are by their nature causal and dynamic, involving feedback loops and endogenous effects (e.g. relating the income and displacement, i.e. gentrification). It is possible that cross-sectional analysis is inappropriate for estimating the dynamic impacts of a new transformational transport scheme. It should therefore be a high priority to develop time series data for any new statistical studies on wider impacts, such as the forthcoming agglomeration elasticities project. As a case study, the Department could consider the University of Leeds Land Value Uplift study<sup>8</sup> TfN is currently co-funding with West Yorkshire Combined Authority. This project is developing cross-sectional Hedonic Pricing and Geographically Weighted Regression models for the property market and comparing these to a time-series Difference-In-Difference analysis over a smaller study area.
- b. *Dynamic calibration of SEMs* – SEMs are often criticised for a lack of detailed calibration and validation, in contrast to transport models where there are rigorous requirements for calibration and validation. As SEMs are often dynamic models, which use feedback loops and small time-steps, a key way to test and calibrate their performance would be to produce historical time-series datasets to enable a ‘back-casting’ exercise. By either illustrating that the models reproduce the time-series data well, or by calibrating their parameters to match the time-series data more closely, this would help to build confidence in their use for modelling and appraisal.

**55. Commitment to improve confidence on appraisal with land-use change**

– This priority is closely linked to priority 1 under ‘People and place’. If we are able to develop a standardised system for appraising changes in place attractiveness that avoids double-counting impacts, it would follow that we can begin to use SEMs in transport appraisal with more confidence. We would encourage the Department to continue to evolve the WebTAG guidance in this area as the evidence base and levels of confidence improve. Ideally this would lead to ‘Level 3’ benefits or dis-benefits (i.e. with land-use change) being viewed with less caution by decision-makers. Publication of case studies in which SEMs have been used and properly considered in the economic case would be a welcome step forward, as it would give scheme promoters and practitioners more confidence to invest time and effort in developing this area of transport appraisal.

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<sup>7</sup> Nellthorp, J., Johnson, D., Ojeda Cabral, M. and Laird, J. (2016). Transport and Land Value Uplift: Evidence and Implications for Appraisal, Modelling and Strategy. Report to WYTRIF. Leeds: ITS.

<sup>8</sup> Reference TBA

56. **Continuation of research into agglomeration with renewed ambition** – It is important that the Department continues its paused research into agglomeration and ensures that this study retains its ambitious objectives to broaden and deepen the evidence base, particularly around:

- a. agglomeration over longer distances and for polycentric regions;
- b. dynamic effects based on analysis of time-series data if possible; and
- c. specialisation vs urbanisation effects, which may be particularly relevant for industrial clusters in the north of England.

57. Our answers to question 1 on the overall priorities of the consultation are particularly relevant to this theme. 'Rebalancing the economy' and 'Employment and skills' effects are key missing impacts of transformational schemes not adequately considered by this consultation.

**Consultation Question 7:** *What transformational impacts do you currently find it difficult to represent in a scheme appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?*

59. Challenges TfN has experienced include the items listed below.
60. Promoting transformational schemes which have a relatively limited conventional transport case, but a stronger strategic and wider economic case. Improved confidence in the estimation of 'Level 3' impacts would enable these schemes to be considered on a fairer basis against more incremental schemes with a stronger conventional economic case.
61. Developing exploratory Land Use Transport Interaction (LUTI) models that balance detailed representation with model runtimes that allow many scenarios and scheme variants to be tested. We believe we have arrived at a reasonable compromise, but further work is required to optimise this balance.
62. Feeding transformed, re-distributed travel markets taken from our Northern Economy and Land Use Model (NELUM), down into our conventional transport models, because traditional trip-end modelling imposes constraints to the base year, based on the Furness process. Further work is required to understand whether a new approach trip distribution estimation may be required to properly integrate land-use and transport models.
63. Incorporating spatial planning data and modelling structural changes to land use in conventional transport models. Most modelling techniques involve pivoting off a previous year but this is not applicable if the change in land-use is structurally different from the previous year. This may also be an issue for LUTI models. Seeding future year distributions into the previous year used as a pivot has had some degree of success.
64. Developing models that can represent long-term, sequenced programme and portfolio level investments. Conventional tools are designed for single major scheme assessment. However, programme and portfolio level investment can feature a single opening year due to restrictions of model runtimes. Use of the exploratory tools to optimise the sequence according to which interventions are operational should help overcome this.
65. Reducing dumbing-down effects associated with averaging over limited traveller segments. Moving to dynamic models with multiple feedback loops for a variety of traveller and business responses should be better than equilibrium models that aggregate many responses into a single time-step. This will also help model positive or negative feedback loops, for which suitable restraints are necessary.
66. Reducing dumbing-down effects associated with averaging over space and time, including weather and seasonal scenarios. Most benefits are likely to be captured in the highest levels of congestion. Using averages that smooth away peaks of congestion are likely to dumb-down responses and underestimate benefits that might be skewed toward busier periods. This also affects the representation of the customer experience.



67. Current WebTAG parameters and outturn elasticities used to calibrate transport models are expected to have been collated from more marginal cost changes, although the precise origins may not be known. This may underrepresent the responses for large cost changes represented in transformational change.



**Consultation Question 8:** *What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?*

**Consultation Question 9:** *What more could be done to articulate the flexibilities in WebTAG and support scheme promoters apply the guidance?*

69. We have opted to answer these two questions together as the main barrier we have experience in applying WebTAG is the lack of flexibility, perceived or otherwise. The key issues are listed below.
70. **WebTAG compliance** – The Department has been clear that there is no such thing as ‘WebTAG compliant’, meaning that robust analysis of scheme impacts will always be considered, regardless of whether it is explicitly described in WebTAG or not. This message is welcome, but experience suggests this is not widely understood, either inside or outside the Department. Rigidly adhering to WebTAG is likely to be the lowest cost and safest option for most scheme promoters, which is a key reason why most business cases are developed in this way. As discussed above, if the Department could publish examples of business cases that have used modelling and appraisal creatively, including how the Department assessed the robustness of the analysis, this would be a welcome addition to the guidance.
71. **Innovation** – In addition to providing a degree of consistency, it is important that WebTAG stimulates innovation in transport modelling and appraisal. There is a risk that a set of guidance that is perceived as prescriptive stifles innovation and prevents the industry from making progress in developing robust new tools and techniques. We would like to see a section of WebTAG that sets out the department’s position on using innovative approaches (e.g. big data, machine learning) in business case development, including regular public updates on key innovations that have been developed by scheme promoters and practitioners around the country.
72. **Non-technical explanations of novel techniques** – Related to the ‘People and place’ and ‘Modelling and appraising transformational investments and housing’ themes, we believe there would be significant benefit in developing materials for senior decision makers explaining novel techniques, such as appraisal with land-use change. Key to this would be a non-technical explanation of the evidence suggesting that conventional transport user appraisal misses important impacts. It is also worth referring back to our first priority under the ‘Reflecting uncertainty over the future of travel’ theme, where we suggested that materials should be developed to help decision makers look beyond the central scenario.

**Consultation Question 10:** *How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance.*

74. Our assessment of the key improvements is listed below.

75. **Proportionality** – We would welcome clearer guidance on what level of analysis is proportionate at different stages of scheme development for different types of scheme. Risk aversion can sometimes lead to doing more than is required in some areas and less in others. This applies to modelling and appraisal, and both economic and strategic cases.

76. **An 'at a glance' leaflet on WebTAG** would be welcomed. It is important not to underestimate how simple and visual end users would like this to be. Even the highest tier of WebTAG is too detailed for some end users.

77. **Examples and case studies** – As noted above, a greater range of case studies and examples of best practice would be warmly welcomed by TfN and our partners.

78. **Consistency with business case guidance outside WebTAG** – There are a number of guidance documents that relate to business case development but sit outside WebTAG. A key example of this is the Value for Money Framework, which includes language that is inconsistent with the Wider Economic Impacts guidance. For example, it uses the terms 'established', 'evolving' and 'indicative' impacts seemingly in place of 'level 1', 'level 2' and 'level 3', although it is not clear whether there is a one-to-one correspondence between these.

**Consultation Question 11:** *What should our priorities be for improving the development of modelling and appraisal tools and why? Please select up to three.*

80. Our assessment of the key improvements to national modelling and appraisal tools are listed below. This response could include answers to many of the questions in this response, so the list below reflects areas largely not covered elsewhere. The answer to Question 2 is particularly relevant to this question.
81. **Breaking down model siloes** – National models do not take a consistent approach across different modes of transport. For example, NTEM and the NTM are primarily focussed on forecast trip ends for highway modelling, with little regard of rail demand, whereas EDGE uses an elasticity-based approach to produce more robust forecasts of rail demand, but it is more difficult to incorporate these forecasts into a multi-modal model. There is no national-level model that can be used to thoroughly understand the competition between modes in future (i.e. one that doesn't just assume fixed costs). We would welcome a programme of work within the NTEM/NTM framework to explore modal competition in more detail.
82. **Support strengthening links with evaluation** – We support efforts to ensure modelling and appraisal tools are continually improved based on evaluation of existing schemes. Our suggestion above on helping to make time-series data available would be one important step to doing this.
83. **Improve data and model interoperability** – For example, work with CLG and partners to allow more regular NTEM planning data updates, as well as wider national datasets making more use of data synthesis to add intelligence.
84. **Making tools more readily available** – One of TfN's aims is to make the Analytical Framework modelling and appraisal tools more readily available to our partners to help provide consistent quality and a fair approach across our region. We would welcome collaboration with the Department on this to share learning and best practice.

**Consultation Question 12:** *How can we best encourage innovation whilst maintaining a consistent and robust approach?*

**Consultation Question 13:** *What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?*

86. We have opted to answer these two questions together. The key issues are listed below.
87. **Support 'agile' by allowing models to develop through scheme development** – As noted above, it is important that model development is proportionate to the stage of scheme development. At TfN we try to use agile model development techniques from the software development industry. This means that our models are never truly 'finished' but are always improving through iterations that incrementally add value. It makes sense for these iterations be aligned to the various stages of scheme development, so that models become increasingly robust and sophisticated as the scheme approaches investment decision. We suggest that recognition of this as a valid approach within WebTAG would be a helpful way to support innovation.
88. **Scenario and sensitivity analysis** – One way to enable novel techniques to be introduced into business cases is to present them alongside conventional techniques as a sensitivity test. It is clear that the Department is increasingly interested in scenario and sensitivity analysis, and we believe there is a clear synergy between this position and fostering innovation. However, it is important that, as new techniques are improved and confidence in their robustness increases, we do not continue to relegate them to sensitivity analysis. Our responses above on the need to increase confidence in 'Level 3' benefits are an illustration of this risk.
89. **Share best practice through examples** – As noted throughout this response, publication of examples of best practice in innovation would help to build the confidence to be creative in modelling and appraisal. We believe that there is already a considerable amount of innovation going on in the industry, and that communicating this more widely would be an excellent first step to fostering innovation more widely.



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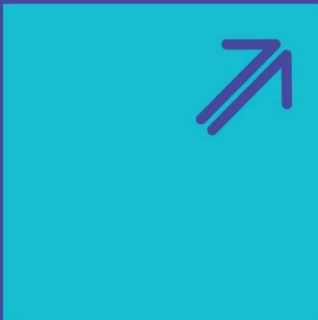


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Appraisal & Modelling Strategy Consultation  
Department of Transport

15 October 2018

Sent by email to: [TASM@dft.gov.uk](mailto:TASM@dft.gov.uk)

Dear TASM

**APPRAISAL & MODELLING STRATEGY**

**Transport for the South East response to DfT Consultation on 'Appraisal & Modelling Strategy Informing Future Investment Decisions'**

Transport for the South East welcomes the opportunity to respond to the consultation on the Department for Transport's future modelling and appraisal strategy, the focus of which is to seek views on how the DfT can better support the application of WebTAG. A copy of our draft response is set out in Annex 1.

The views set out below represent the combined responses from a number of our constituent authorities. I should emphasise that this is an officer response on behalf of the Transport for the South East Senior Officer Group.

Yours sincerely

Rupert Clubb  
Director of Communities, Economy and Transport  
East Sussex County Council  
On behalf of Transport for the South East Senior Officer Group

# Annex 1

## Appraisal & Modelling Strategy – Informing Future Investment Decisions

### Transport for the South East - Draft Response

#### Priorities

1 Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?

We agree with the themes proposed and particularly support the priority to make WebTAG and appraisal / modelling tools more user friendly, which will assist in making the whole process more widely understood, interpreted and valued.

We particularly support the points about well-connected communities & wellbeing – however air quality and health need to be included within the people & place theme or another theme of transport & health should be added which encompasses air quality and health value e.g. active travel modes (walking & cycling).

It would be helpful if the final draft of the document included a more comprehensive section outlining the context for the guidance as on page 7 (Introduction), i.e. outlining what re-balancing the economy means.

2 What considerations should inform the scope and priorities of our strategy, particularly over the first 18-24 months?

Over all there is a need for the guidance to be more streamlined, user friendly and accessible to non-modellers. This is particularly important to help support local authorities in managing local stakeholders and explaining complex information. The use of case studies would be a simple option, which could be utilised to demonstrate the methodologies used and the outcomes of these.

WebTAG is not very practical when appraising sustainable transport schemes. Further guidance needs to be developed relating to sustainable transport and smaller transport schemes.

The active mode appraisal tool kit is good but has many limitations, in particular being based on length of new cycle route divided by cost. It is difficult for practitioners to make a case for improved junctions to reduce severance and improve accessibility, and therefore mode shift, unless there are cycling related collisions and injuries that a scheme would help to address. - this impacts on the quality of scheme we can justify in business cases.

The 'propensity to cycle' tool is useful – could a 'propensity to walk' tool be added to the guidance for appraising sustainable transport?

There is also very little guidance on appraising pedestrian schemes and quantifying these benefits within appraisals meaning the benefits can often be overlooked, making it harder to make the case for investment.

Likewise with passenger transport and multimodal schemes, there appears to be limited guidance and standard methods to use apart from comparative case studies.



There are issues with the current lack of representation of the value of improved connectivity, safety (perceived and actual) and of tackling significant barriers to walking & cycling. An example of this is the need for more emphasis on the value of improvements to large junctions for non-motorised users to ensure that these barriers are not categorised as 'too expensive/ difficult' by local authorities which means they are not considered.

Low carbon and sustainable transport modes need to be given additional value compared to traditional fuel modes to account for their dis-benefits on air quality. The Intergovernmental Panel on Climate Change report published last week seeks to limit the 1.5 degree increase in global mean surface temps has given added impetus to this. Transport, including aviation and shipping contributes approx. 26% of total greenhouse gas emissions with road transport alone accounting for 21 percent of these.

With increasing emphasis on smart technology either integrated as part of transport infrastructure schemes or as standalone schemes, a lead from the DfT on best practice in the emerging appraisal of these types of schemes would be welcomed. The sharing of best practice could again be through the sharing of national or international case studies.

## People and Place: capturing the range of impacts relevant to transport policy today

3 What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.

- **Health impacts**, including both positive impacts for new and more walking and cycling due to a scheme, as well as capturing the negative health impacts for private motorised travel. The wellbeing of future generations must be built sufficiently into scheme appraisal and health generally should carry further weight than other criteria. Providing active transport mode options within or as part of a scheme, offers significant life year value benefits which should also be captured alongside safety, air quality etc. Need to ensure not only the direct transport benefit is quantified but the impact on people surrounding the transport link.
- **Value of urban realm and place-making improvements**, including appropriate tools based on evidence from previous schemes and their impacts.
- **Measuring 'journey experience'** will need to change in future, in the context of new and emerging technologies, for example improvements to public transport information, Mobility as a Service, etc., with the potential to make non-car journeys easier and simpler, putting them more on a par with the convenience of travelling by car. We need to ensure future flexibility to account for these changes as these indicators emerge.
- **Valuing attractiveness - Urban realm** – need to retain use of highstreets for economies to reduce travel. What will the high street's place be in the future? Currently find it very hard to appraise urban realm.
- **Air quality** is also an important determinant of health and it should be easier to capture this in appraisal. Assessing the impact that induced and displaced traffic from a scheme have on the wider area/ people living nearby. Values should be given to discourage schemes which encourage more motorised traffic through areas of vulnerability e.g. town centres, past schools, hospitals, health care centres, urban areas.
- **sustainable transport uptake** - Need to ensure that the full benefits of cycling schemes are recognised in appraisal. Currently major barriers with the method of

cost/ length of route which doesn't enable the expensive "too difficult" schemes to be tackled, leaving significant barriers to active travel untouched. Connectivity with other routes needs to be quantified to enable the expensive junctions and links to be improved for cyclists even if there is a low accident record here – to enable the scheme to be promoted as a connectivity scheme not a safety scheme.

- **Lack of guidance of pedestrians** – active mode appraisal limited in appraising increase in pedestrians.
- **Propensity to cycle tool** – very useful but limited guidance for how you put in the figures for the model & also to produce a similar tool for pedestrians. Work examples are key to making the guidance more accessible.
- **Person centred business cases** – an increase in opportunities to utilise existing or new methodologies to assess the impact of transport schemes on users would be welcomed. The current outputs in assessing social and distributional impacts do not have enough prominence in appraisals. A move towards demonstrating impact at the level of the transport user would be beneficial to assess impacts on more marginalised sectors of society and facilitate a more inclusive approach. This would align with the DfT's Inclusive Transport Strategy. This type of assessment may also become more useful and necessary when assessing smart technology based infrastructure, to provide a more detailed analysis on different user groups, as this type of infrastructure will be more person centred

## Reflecting uncertainty over the future of travel

4 What should our priorities be for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three.

- **An evidence-based approach to fully understanding future travel needs** and provision is needed in order to accurately reflect this in modelling and appraisal. For example, assumptions that traffic will grow, assumptions on number of Electric Vehicles (EVs) / Connected and Autonomous Vehicles (CAVs) within traffic flows, and evidence from cycling and walking schemes to reflect behavioural drivers. New scheme data, once built, should also be reviewed and fed in to future scheme forecasting where appropriate, and case studies, which would then give further confidence in future forecasting work and the system generally.
- **Impact of reduced driver behaviour on roads / at junctions due to Connected and Autonomous Vehicles (CAVs)** – and the impact of this on traffic flow.
- **Impact of changing demographics and travel behaviour / influencers.**

5. What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these??

Challenges include:

- Ensuring a **robust evidence base** that is regularly updated
- Reflecting the **wider value of sustainable travel schemes** in modelling and appraisal – e.g. full acknowledgement of the impacts of 'policy-type' changes both at the local and national level, such as parking restraint, introduction of car clubs, or national policy changes (transport-related or wider policies which impact on travel)
- **Challenging the assumptions of traffic growth.**

- **National Level Forecasting** - the suggestion of publishing confidence intervals around forecasts in national level forecasts GDP, population and fuel costs, which can be utilised in business case development, sensitivity testing, scenario and Monte Carlo analysis, to provide greater understanding around uncertainty is welcomed.
- **Uncertainty Toolkit** – an ‘uncertainty toolkit’ would be welcomed, but it must be both applicable and scalable according to scheme size and be user friendly, to take into account the limited resources available to local authorities in undertaking this element of business case development.

## Modelling and appraising transformational investments and housing

6 What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.

- Ensure more weight and attention is given to the **strategic case** in these instances.
- Ensure that **cumulative impact can be taken into account** (e.g. on a programme basis) rather than just project-specific benefits (as WebTAG is currently structured).
- **Supplementary economic modelling** - additionality, land use transport interaction - additional opportunities to quantifying transformational or wider impacts. We realise that this area is in development and would appreciate the DfT sharing best practice in relation to this would be welcomed. We understand that this type of modelling is often reliant on robust evaluation of schemes. Whilst evaluation is integral to business cases, the development and delivery of this is often subject to the availability of funding, which can be challenging for many local authorities. Therefore greater prominence of this should be placed in relation to competitive government funding schemes.
- **Productivity Impacts** – methods to measure productivity would be welcomed, for example how improvements in long distance travel links between geographic areas could enhance productivity.

7 What transformational impacts do you currently find it difficult to represent in a scheme appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?

Greater research is required to **appraise integrated packages**. In relation to house building and transport infrastructure packages, greater weight needs to be given to benefits of sustainable transport schemes. Whilst it is difficult to demonstrate that it will unlock housing, it is integral in supporting access, but this is difficult to appraise.

**Impacts on property prices** from a scheme are currently hard to attribute – a way of assessing this alongside wider factors would be useful, particularly in terms of the future potential for **capturing land value uplift from schemes** (a national issue which needs to be suitably addressed).

In addition there are also opportunities for a strengthened relationship between WebTAG and NPPF, in relation to the issues between transport access and land use planning. This could be supported through the use of case studies.

## Supporting the application of WebTAG and making it more user friendly

## 8 What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?

It is imperative to ensure WebTAG is both fit for purpose & robust as well as user friendly. There is a balance to be had here.

Barriers and challenges:

- **Resource** – the current complexity and detail of WebTAG means that many Local Authorities require resource from consultants to fully provide support with business case development at all stages. This has a time, resource and monetary cost.
- **Understanding amongst decision-makers** of the appraisal process, in particular WebTAG.
- Agree with the proposal to enhance **output from TEMPRO** (par 8.8). Also, the development of guidance in creating robust matrices in the light of mobile network data use (par 8.17) is welcome.

How to overcome:

- Additional training and support from DfT for Local Authority officers on **understanding, interpreting and applying** WebTAG.
- **Simplified guidance** to be produced as an additional document, for different user types and different levels of understanding, as well as video guides for how to utilise WebTAG for example schemes.
- Ensure that decision-makers **understand the need for assessing not just BCR but the wider case?**
- **Additional resource at sub-national level** to strategically assess schemes and provide expert knowledge in WebTAG.
- **Case studies** of schemes would be welcomed, showing real scheme application of the tools and guidance.

## 9 What more could be done to articulate the flexibilities in WebTAG and support scheme promoters apply the guidance?

- **Less reliance on BCR**, ensure it is clear that the BCR is not the sole output from the appraisal and that other elements of the wider cases are just as important. Focus on how to interpret and apply the results, with suitable guidance and tools for a range of knowledge / experience levels.
- **Provide more example \ case studies** - Provide greater clarity on WebTAG compliance to Scheme Promoters and provide greater emphasis on likely costs and timeframes to undertake different levels of scheme assessment, by mode of range of costs from >£10m mid-range and £100m+

## 10 How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance.

- **Provide more training seminars**

- Clearly set out the **stages of the process**, actions and responsibilities for different types of user; using easy to understand methods such as flow charts.
- **Case studies** and examples of results and their application. Video guides on usage of data and tools, with practical examples of how and when to apply tools in a given context.
- **Review of existing guidance** and its content / layout – **summary leaflets welcomed.**
- Development of a **two staged approach for the guidance**, 1. Technical guidance – for those undertaking the appraisal and modelling 2. Non-Technical – simple guidance on methodologies and expected outputs, which local authorities can utilise with stakeholders.

## Developing modelling and appraisal tools that meet user needs

11 What should our priorities be for improving the development of modelling and appraisal tools and why? Please select up to three.

- Ensure future applicability of these with future data changes e.g. **implications of Big Data.**
- Ensure ease of use for Local Authorities and that while being technically sound the process, inputs and outputs are **understandable to wider stakeholders.**
- Ensure **proportionality and applicability to different scales of project.**

12 How can we best encourage innovation whilst maintaining a consistent and robust approach?

WebTAG must be a **streamlined and succinct document**. The constant additions to WebTAG have often made it challenging to use. Therefore to avoid this, greater reviews of the document may be required as guidance and methodologies are developed.

13 What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?

The use of and implications of **Big Data** – great potential for utilising new data sets The need for more robust data generally and **more Origin-Destination** data.

## 1. Introduction

Thank you for inviting stakeholders to participate in framing Government's themes and priorities for transport appraisal in the next five years. We are also very grateful of your invitation to present to the local consultation event held in Birmingham on 3<sup>rd</sup> September and to attend the uncertainty workshop in London on 14<sup>th</sup> September.

We have set out below an overview of our perspective with respect to current transport forecasting, predictive models and appraisal, which for simplicity we will refer to as 'modelling'; an overview of our aspirations for improved modelling; and responses to your specific consultation questions. If you require further information from us, please contact: Keith Homer, Transport Data Framework Manager, 0121 214 7378, [keith.homer@tfwm.org.uk](mailto:keith.homer@tfwm.org.uk).

## 2. Where we are now

Building on the work that has been on-going for over a decade, the West Midlands metropolitan authorities – WMCA, the seven Constituent Authorities, Transport for West Midlands – have a suite of relatively sophisticated transport forecasting and appraisal models, including:

- PRISM [Policy Responsive Integrated Strategy Model] – a conurbation-wide trip/tour generation, modal split and trip distribution model plus highway and public transport network trip routing models;
- Coventry Area Strategic Model [CASM], a model covering Coventry and its housing market area in Warwickshire with similar functionality to PRISM;
- DEIM [Dynamic Economic Equilibrium Model], an appraisal tool to model the effect of individual investments in terms of gross value added.
- Additionally, we use local highway traffic models to look in detail at particular areas of interest and schemes, e.g. Birmingham city centre traffic model, and Brierley Hill metro street running model.

We have prepared and are preparing major transport scheme appraisals that include conventional transport economics, e.g. time savings to scheme users and non-users, and conventional externality effects (such as noise and air quality), but also wider economic benefits such as land regeneration and uplift in economic activity. We work jointly with national transport and sub-national transport bodies to develop and deliver schemes, i.e. Highways England, Network Rail and Midlands Connect.

Governance of the scope of our conurbation-wide models is provided by the West Midlands Analytics Board, reporting to the Senior Transport Officers Group; management of their application to policy analysis and scheme appraisal is provided by the West Midlands Analytics Forum, which reports to the Board. We are in the process of procuring a Modelling Advisory Services consultancy framework that will strengthen client-side capability in forecasting and appraisal.

As part of this framework we will be establishing a modelling advisory panel containing experts from across industry and the academic sector to help shape the future of modelling and appraisal in the West Midlands and beyond. We would welcome the attendance of the Department at these meetings and will send a formal invite to confirm arrangements once the framework is in place.

We are looking beyond our current modelling tools to a new generation of modelling that can make better use of emerging data sources, e.g. Connected and Autonomous Vehicle's (CAV), mobile phone tracking and digital social media, and aligns appraisal criteria more closely with our targets for real societal outcomes, e.g.

increasing economic activity among disadvantaged groups. As the UK's first Future Mobility Area we feel we are well placed to lead the way, in partnership with Government and Industry, on new approaches to data capture and integration, modelling and appraisal.

### 3. Our key local themes

Movement for Growth, the West Midlands' Strategic Transport Plan, sets out an ambitious plan to greatly improve the transport system to support economic growth and regeneration, underpin new development and housing, and improve social inclusion, air quality and the environment. Movement for Growth identifies five challenges for which an excellent transport system is an essential part of the solution:

- Economic Growth and Economic Inclusion
- Population Growth and Housing Development
- Environment
- Public Health
- Social Well-Being

With the population of the WMCA area expected to increase by 444,000 by 2035, and a need for an additional 215,000 homes by 2031, the region is undergoing an extensive infrastructure transformation to facilitate this growth. It is vital to ensure that the expected increase in travel demand in the future is facilitated through strategic interventions and local management to move people around the region in convenient and efficient ways. With the region already experiencing high levels of highway congestion, it is imperative to offer viable alternatives to using private cars; the development of a truly integrated transport system will facilitate this.

Inclusivity underpins the WMCA's ambitions in the region, and it is essential that the transport system in the region works for everyone, and is accessible and affordable. Active travel plays a role in Transport for West Midlands' ambitions in the region to accommodate shorter distance trips, and reduce congestion and air pollution. A soon to be introduced bike share scheme will contribute to active travel options in the region, and will complement ambitions to decrease regional health inequality.

The region is also accommodating considerable construction from schemes relating to HS2, the 2022 Commonwealth Games and Metro development. This construction is likely to increase congestion in the short-term however, so adequate modelling of the region and travel behaviour is necessary to help create resilience in the network to cope with these challenges.

With involvement in innovative projects, TfWM are engaged in various trials including Whim movement-as-a-service) and the testing of connected and autonomous vehicles on the region's roads. Increased data sharing and 5G technology will aid the availability of up to date information that can be used to get a better understanding of travel on the region's network. The innovative projects that TfWM are involved with have the potential to change travel behavior and choices in the region in the future, and modelling needs to be capable of taking this into consideration.

The West Midlands is growing and transport plays a fundamental role in the WMCA's growth and inclusion programme. Along with major transport schemes, improvements will be made to the transport system overall, and a resilient network will be central to ensuring the region continues to move through periods of considerable construction and investment around the region. WMCA's strategic decisions will respond to demographic change, industrial regeneration, transport innovation and travel demand to produce positive outcomes for the people of the West Midlands.

## 4. Responses to the consultation questions

### Priorities

#### ***Q1. Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?***

Whilst we broadly agree that these themes are appropriate priorities, we would also encourage the DfT to work with professional bodies, training organisations and academic institutions to set in train a programme of practical, work-based skills improvement in modelling. This should cover forecasting of exogenous inputs, analytical and predictive methods around travel behaviour, and concepts in and instruments for appraisal of outcomes.

See also our answer to question 3.

#### ***Q2. What considerations should inform the scope and priorities of our strategy, particularly over the first 18-24 months?***

- (i) Provision by DfT and MHCLG jointly of guidance on transport planning and appraisal for Local Plans; this should cover effective appraisal of the different trip distribution and modal split effects of different spatial strategies. Research and advice on the impact of emerging technologies and changes in societal behaviour would also be welcome when assessing Local Plans and other strategic planning/transport policies.
  - a. Tools for the prediction and valuation of real economic outcomes – activity levels, employment and investment resulting from transport investment – to link industrial strategy to transport strategy. We acknowledge that in order for this to be achievable a significant amount of research maybe required. WE are happy to support this, should it take place, with any regional/local data sets we have available.
  - b. Linked to the above point the effective, realistic and accessible modelling of freight at a national level is another key priority for the West Midlands and is a subject area where additional support would be appreciated.
- (ii) Enhancements to tools such as HEAT focused on the prediction and valuation of the health benefits of active travel, specifically to include decreased future health service expenditure resulting from increased physical activity.

See also our answer to question 3.

### People and Place: capturing the range of impacts relevant to transport policy today

#### ***Q3. What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.***

Our key outcome themes are:

- Economic growth and inclusion: how can transport facilitate an increase in the amount and value of economic activity, and enable increased economic well-being for people on low incomes?
- Housing: how can transport facilitate increased delivery of dwellings across the region?
- Environment: how can changes to the transport system improve local air quality and reduce harmful emissions?



- Public Health: how can changes to the transport system increase the amount of active travel, reduce road traffic casualty numbers and severity, and reduce health inequality?
- Social Well-being: how can transport improve the well-being of socially excluded people?

We identify three particular appraisal priorities in the next two years:

- Increase understanding of how real economic outcomes – e.g. company activity levels, number of employees, R&D spend, capital investment – are linked to mobility, connectivity and transport system characteristics; leading to predictive tools and analytical methods that can be used to appraise such outcomes. Again, we would be happy to support any emerging research programmes that isolate the impacts of transport interventions on these topics.
- Increase understanding of forecasting demographic and societal changes across a range of groups. For example research on the of the benefit of increasing and improving 16-19 and young adult participation in further education, i.e. future economic benefit, e.g. increased employment rate, and broader social benefit, and how changes in the transport system could facilitate participation in education and training programmes.
- Appraisal values that can be applied to increases in walking and cycling, both as main modes and as access/egress modes, that are achieved through modal shift from motorised modes to active modes.

### Reflecting uncertainty over the future of travel

***Q4. What should our priorities be for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three.***

- Scenario testing and analysis: enhanced guidance/support for policy makers and scheme promoters on proportionate approaches and techniques to enable proposals to be tested under several distinct likely exogenous scenarios, e.g. housing development patterns, employment types and location variation, private car fuel price. Further support is required on this can be achieved robustly but affordably for scheme promoters highlighting the tests that can be relatively easily undertaken outside complex strategic models.
- Clear, practical examples of what ‘good’ looks like using real data and examples.
- Trip Rate prediction: tools to predict trip makers’ travel/do-at-home choice, e.g. for retail activity and for those who have the option to work from home sometimes. This could also include an evolution of NTEM to cover a broader range of forecast scenarios (agreed nationally) and, in large urban areas, an investigation into the benefits/disbenefits of a greater disaggregation of forecasts at a District level. E.g. reflecting the employment growth impacts of HS2 in the West Midlands.

***Q5. What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these??***

Challenges and Mitigations:

- Technical know-how: insufficient to understand risk concepts and apply risk appraisal techniques. Mitigation: Skills training and guidance publication
- Staff time requirement and consultancy fee costs. Mitigation: Sifting out poor-value scheme options and proposals early so that planning and appraisal resources are not wasted on policies and schemes with a low probability of realisation.

## Modelling and appraising transformational investments and housing

**Q6. What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.**

- (i) Further research to improve the understanding of, and to quantify, the interaction between housing density, design quality, transport supply and travel behaviour.
- (ii) A joint DfT/MHCLG approach at appraising major housing schemes with clear guidance.
- (iii) Similar to other areas of the industry flexibility around departures from guidance, where reasonable, for transformational or exceptional scenarios such as HS2 or the Commonwealth Games.

**Q7. What transformational impacts do you currently find it difficult to represent in a scheme appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?**

- (i) The catalytic impacts of significant, large scale transport interventions such as new rail and tram lines on housing and employment, both in terms of growth and changes in sectoral mix, density tenure etc. Whilst research on this topic has improved over the last decade there is still some uncertainty on appropriate ways to apply methodology. Often arbitrary additional benefits are still applied in some cases based on a percentage of traditional benefits. Our experience suggests that a 'top down' approach to this type of appraisal which fails to account for land availability, quality and scale will only ever offer a coarse estimate of local impacts.

We would recommend that further work is needed on understanding these impacts which can then be used to inform a best practice guide and land-use/transport modelling that takes into account local supply side factors such as land availability. There should also be an acknowledgement that in a Devolved environment, and in support of a National priority to rebalance the economy that gross local economic benefits should be considered in parallel and on par to the net national picture.

- (ii) Local Plans and master-planning of large developments: how to model the effects of different development strategies and proposals. Planning Inspectors often require certainty and a single version of what the future could be with little scope for the inclusion of innovative transport interventions and proposals. Further research would support a greater understand of the impact of different transport strategies on major development sites.
- (iii) Modes outside the traditional private car v. public transport umbrella, e.g. taxis, cycling including public bike schemes, demand-responsive transit, car clubs, driverless cars, which could be encompassed by mobility-as-a-service (MaaS). Mitigation: whole-industry research into the nature of travel demand and the drivers of behavioural change.

## Supporting the application of WebTAG and making it more user friendly

**Q8. What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?**

- (i) WebTAG perceived mainly as a barrier to obtaining funding approval, due to over-focus on the modules covering the detail of forecasting and appraisal. Mitigation: Emphasise the guidance exists to help authorities select schemes that are more relevant to their local policy goals, and to optimise scheme specification to achieve value-for-money.
- (ii) For new users a WebTAG manual read cold can be particularly daunting. Improved communications including a process where scheme promoters have a nominated DfT analyst they can contact with any queries they have should be encouraged. The occasional visit, drop in session, video guidance, and a greater focus on the practical application of the guidance, potentially through best practice user events.
- (iii) Shortcomings in the competences of those applying WebTAG: Mitigation: DfT, in conjunction with the private sector, Local Authorities and professional institutes, to encourage and support professional skills development in analysis, forecasting, modelling and appraisal. We would be happy to support any initiatives that address this need.

***Q9. What more could be done to articulate the flexibilities in WebTAG and support scheme promoters apply the guidance?***

Make a clear distinction in the guidance between:

- ‘Must do’ modelling methods, e.g. take account of the growth in behavioural value-of-travel-time-savings in your mode choice modelling in future years; and
- ‘Could do’, e.g. mode choice models could be above trip distribution or below trip distribution in the variable demand modelling hierarchy, depending on evidence from base year travel demand analysis.
- How: This could be communicated using attention-drawing formatting within the manual, as used in some technical manuals and text books.

***Q10. How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance.***

- A strategic overview section in Senior Responsible Officer manual that contextualises the role of modelling in devolved decision making, so that modelling is not seen purely as a hurdle to be overcome to gain external funding approval.
- Use summary panels at the start of each module to give an overview of key concepts and contents.
- ‘Key concept’ boxes inserted in the text, with references to sources, e.g. other WebTAG modules or text books, that to find more information.

**Developing modelling and appraisal tools that meet user needs**

***Q11. What should our priorities be for improving the development of modelling and appraisal tools and why? Please select up to three.***

- (i) Better understanding of the link between transport’s role in facilitating connectivity and real economic effects, e.g. private sector industrial investment, and better understanding of the link transport’s role in facilitating connectivity, the allocation of land for housing development, and the submission of development consent applications.

- (ii) Better understanding of trends in travel demand in relation to personal activity, e.g. linking trips into multi-activity tours.
- (iii) Better understanding of freight movement demand and load routing. This is an area we believe needs to be addressed at a national level given the nature of the pattern of demand and the difficulty of obtaining data from the private sector. Current options in the private sector are limited and often expensive preventing this important element of the transport system being adequately addressed.

**Q12. How can we best encourage innovation whilst maintaining a consistent and robust approach?**

- Set out the criteria that modelling and appraisal must adhere to, e.g. in terms of scope, soundness in relation to traveller's behaviour characteristics, statistical confidence in base year data, range of uncertainty in future year data.
- Accept modelling and appraisal methods that conform to the modelling and appraisal criteria without prescribing the method that should be used.
- Being frank in providing feedback on modelling methods that are put forward.

**Q13. What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?**

We are not at present aware of any new or emerging techniques; our focus is on the more accurate application of current techniques, e.g. how we model mode choice in the context of a complex multi-modal network and ticketing scenario in which travellers are choosing to subscribe to certain mode combinations for periods of time, e.g. buying a bus+train travelcard for a one-month period, out of a wide array of service and ticket combinations available. This might mean moving away from purely logit-based choice models applied at the per-trip level.

We have also been developing new data analysis tools which will enable better representation of baseline conditions for incorporation in models and appraisal. For example, our Real Journey Time tool ([www.realjourneytime.co.uk](http://www.realjourneytime.co.uk)), which analyses observed bus journey times over any section of a bus route over months of operation. The tool produces visualisations of bus journey time variability versus the timetable and aims to calculate the level of contingency regular bus passengers allow for their journeys. This can allow us to identify the causes of delays and solutions to address them.

We will be exploring modelling methodologies more fully from January 2019 by using a Modelling Advisory Services supplier framework, which we are currently preparing to procure. As noted in the opening section of this response we would welcome DfT participation in this Modelling Advisory Panel.

# **Transport**Planning*Society*

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**Response to the DfT's consultation on appraisal**

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**Annex 1: TPS and members' views**

**Annex 2: TPS Principles of Transport Planning**

## 1 Introduction and summary

This response is in two sections:

- i) a review of the strengths and weaknesses of the current appraisal system and suggestions for how to improve it;
- ii) responses to the specific questions in the DfT consultation.

In overall terms the Society welcomes the DfT's engagement with practitioners and others and hope this will continue beyond the consultation period. We recognise that appraisal is full of difficult choices, including: how to represent non-monetised impacts in a robust way; how to represent uncertainty in forecasts for transport demand; how to include land use impacts; and how to deal with the problem that some of the key benefits from transport interventions, such as time savings, are very rapidly traded in for other benefits which have hugely different (and usually greater) social and environmental impacts.

Overall our conclusion is that we have most of the tools we need to undertake transport appraisal but that some are over used and have a disproportionate impact on the results. On the other hand, some are underused or underdeveloped and this leads to a fundamental imbalance in decision making. This is in turn reflected in the type and scale of the transport interventions implemented in the UK, whether at local or national level.

For this reason the changes we propose are not a wholesale rejection of the current system but a radical rebalancing of the elements. For example we propose giving the Strategic Case a far greater role and aiming to achieve quality of life objectives rather than calculating precise benefit to cost ratios (BCRs). This is related to the issue that many schemes only offer making the future slightly less worse and this unsatisfactory outcome is not made sufficiently transparent to the public. In reality current appraisals also have huge uncertainties attached to both the forecasts on which they rely, and some of the methodologies which they employ. Whatever qualifications DfT place on their use, BCRs still dominate transport appraisal and this latest consultation provides the opportunity to address this in a comprehensive and productive way.

### ***Scenario based traffic forecasts***

Before discussing our proposals in more detail, the Society wants to emphasise that the methods of forecasting, and the most recent national road traffic forecasts<sup>1</sup>, must be considered as an important part of this exercise. The move to more scenario based forecasts in 2015 was significant and had less impact on appraisal than it should.

For the first time this reported in detail the impact of varying of the underlying assumptions behind the forecasts. This was valuable for three reasons. First it allowed the impact of individual assumptions to become more transparent, in particular the change in patterns of travel reflected in falling car use (measured as driver miles) and trip rates across modes<sup>2</sup>. Secondly it allowed, implicitly if not explicitly, the possibility that policy packages might influence how the assumptions (and thus the forecasts) varied. For example, what were the policy/pricing conditions under which

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<sup>1</sup> <https://www.gov.uk/government/publications/road-traffic-forecasts-2018>

<sup>2</sup> See Charts 2 and 3 in: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/674568/analysis-from-the-national-travel-survey.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/674568/analysis-from-the-national-travel-survey.pdf)

car trips and mileage would continue to fall? Finally, if national forecasts could be produced on the basis of different scenarios, should this now be done at local level?

While the forecasts contain many interesting elements, for example that a rapid move to electric vehicles would cause a huge increase in congestion (due to a fall in costs per mile generating traffic), they recognise the overall uncertainty in predicting future travel demand. The issue here is how that should be reflected in the current system of appraisal.

### ***Transport for better or slightly less worse?***

In relation to strengths and weaknesses of the current system a key point is that appraisal should result in transport interventions which lead to a future which is recognisably better. At the moment many schemes present a “Do Minimum” which fails to deliver that better future and a “Do Something” which fails slightly less badly. This failure to deliver people’s quality of life objectives is apparent in the detail in many appraisals but somehow the implications are lost. Thus we have numerical predictions, whether it is poor air quality<sup>3</sup>, lack of active travel and detriment to health, carbon emissions exceeding targets<sup>4</sup>, or communities suffering severance and poor access to jobs, healthcare and other facilities. However, no negative value is attached to missing the very clear opportunity, which most transport schemes offer, to help to address them. As is often repeated, it is taxpayers’ money which is being spent. But “value for money” in this context is not an abstract principle: it should be apparent in the outcomes of the not inconsiderable amounts being spent.

In fact it seems that policies and associated schemes which might be beneficial are being overlooked, in particular those which, in transport terms:

- Rely on revenue rather than capital elements
- Focus on demand management rather than enlarging capacity
- Reflect rapidly changing lifestyles at both ends of the age scale and across geographic boundaries, for example in our major city regions.

In addition, the issue of uncertainty, both in forecasting and the calculation of the costs and benefits, is not adequately reflected in current methods. To be fair this is an issue the DfT recognises, particularly in a changing context driven by mobile internet access.

On the other hand these methods, as set out in WebTAG, aim to be robust across schemes and evidence based. These two aims are strongly supported by TPS, however we think they can be upheld while making a range of substantive changes.

The next section summarises the results of our discussions with members, our own appraisal events and seminars over several years, recent non-TPS organised seminars and conferences which members of the TPS Policy Group have attended, and the results of our annual member surveys. Results from the latter are set out in Annex 2.

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<sup>3</sup> It should be noted that pollutants may reduce due to technological improvements but still not meet acceptable standards. For example in 2015, despite stricter environmental standards, over 40 UK cities exceeded or were at the WHO particulate limits.

<sup>4</sup> See Committee on Climate Change [www.theccc.org.uk](http://www.theccc.org.uk): emissions from transport since 2013 are rising rather than falling, despite the use of more efficient vehicles (although it is clear some manufacturers’ figures were kept artificially low in the test procedures and did not reflect real world outcomes).

## 2 Making progress

We summarise our proposals for reform in the points below. In essence we would like to see:

1 **Increasing use of scenario based forecasting**, using a range of possible futures<sup>5</sup>. These could easily use the current DfT scenarios as a first approximation, but with new combinations to produce a low and high forecast. For example continuing the fall in car driver miles from reduced trip rates and combining it with high fuel prices (this may even stabilise or reduce traffic).

2 **Within the Treasury 5 Case model<sup>6</sup>, a greater emphasis on the Strategic Case**, using it to produce, for example, pass/fail criteria. The Strategic Assessment should be an assessment against the strategy, not the production of vague high level objectives deliberately tailored to support the scheme being assessed. This is too often the case at present. DfT needs to be very clear in the absolute requirement for this to be done properly and for the strategy to lead the other four cases. The use of the term “Strategic Outline Case” in the Business Case guidance<sup>7</sup> may have caused some confusion.

3 **The Strategy should guide option development**, which is again contained in WebTAG<sup>8</sup> but in the real world is usually inadequate and most often uses minor variations on the preferred option rather than genuine alternatives. This does not meet WebTAG guidance, for example on the need for an Options Report, and DfT need to ensure that realistic and properly championed alternatives are prepared and tested, for example using strategic quality of life objectives, Multi-Criteria Analysis and cost effectiveness.

4 **Greater use of quality of life objectives and Multi-Criteria Analysis (MCA)**. In 1998 an objectives led assessment section and the Assessment Summary Table (AST) were introduced in the New Approach to Appraisal (NATA). However this did not replace the existing methods which continued to use modified social cost benefit analysis with Benefit to Costs Ratios (BCRs) and was never given equal weight in transport appraisal. Our recommendation is for greater use of MCA methods combined with cost effectiveness and less emphasis on partly (and unreliably) monetised social cost benefit. This is particularly useful at the Strategic Case level.

5 **In terms of the Business Case, the real world production of BCRs is itself seriously flawed**. At the September Appraisal Conference practitioners made wry comments about how they had to work very hard to achieve their client’s target BCR. Every practitioner knows that this is the norm and has rightly led to accusations that transport planners are “guns for hire” (or a less polite version!). The practise of competitive bidding and adversarial culture has led to a lack of transparency and public confidence. It is one of the motivations behind the drafting of the TPS Principles, which are attached to this response as Annex 2.

6 **Key elements of appraisal are undervalued and need to be mainstreamed** and this is affecting which schemes are approved. While the Strategic Case analysis should identify and filter out any schemes which do not meet objectives such as reducing carbon, improving air quality or

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<sup>5</sup> For example see “Transport Futures” Glenn Lyons for CIHT, 2017

<sup>6</sup> The other cases are: **Economic** (in transport the Business Case, where BCRs are produced); **Commercial; Financial; Management and delivery**.

<sup>7</sup> See para 1.17 in:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/85930/df-t-transport-business-case.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/85930/df-t-transport-business-case.pdf)

<sup>8</sup> And in the Treasury Green Book, see para 3.6-3.9.



promoting active travel reaching this stage, this is simply not happening. This was evidenced by practitioners during the Housing Appraisal seminar organised by UCL in August this year, and at the Landor Appraisal event in September. This would not be so damaging were it not the case that these same factors are downplayed in the current Business Case analysis. For example, while health benefits are a key component of the Business Case for walking and cycling<sup>9</sup>, encouraging the use of motorised travel is not seen as a disbenefit.

**7 Redefine the counterfactual (Do Minimum) against which transport schemes are assessed.**

The bias against schemes with significant third party benefits derives from the use of a “Business As Usual” Do Minimum to which new transport schemes are compared. Too often the Do Something (i.e. implementing a scheme) results in marginal changes to most of these impacts, ignoring the fact that what is required to regain an acceptable future is a significant change. Thus money is spent on interventions which may achieve one type of benefit (for example time savings) while doing very little to achieve carbon reduction targets, improvements to air quality, improved safety and security, less community severance, or healthier people. While transport cannot solve these problems on its own, in many cases it has a major impact. It could at least stop contributing to them.

**8 Use negative values for schemes which fail to address key objectives when different schemes could.**

In this context, there have been several suggestions as to how to give a negative value to the lack of progress against priorities such as those described above. For example, to avoid penalising improvements to street environments which delay traffic, the desired end state could be the baseline and speeding up traffic is a benefit only if it does not damage those streets<sup>10</sup>. Using the existing situation as the counterfactual is having the effect of penalising schemes which move towards a better outcome than the present day. This often occurs due to time disbenefits to motorised travel and is a major barrier to achieving change.

**9 Recognise the cost of failure in the appraisal.** Another possible way forward is to include the cost of failing to meet an objective in the disbenefits from a transport intervention. Thus a scheme which did nothing to reduce carbon would have the cost of the carbon not removed added to the cost of the scheme. The appraisals of most schemes currently use forecasts which predict a failure to meet carbon reduction targets. At the very least, the amount of carbon in excess of the target should be costed. Another example would be the case of transport schemes which encourage inactive travel. In this instance a proportion of the users would have been counted as not active, encouraged to remain so by the scheme, and their health disbenefits included in the calculation of the BCR.

**10 Recognise the flaws in monetised social cost benefit.** It must be stressed that this is related to the use of one traditional approach to economic theory: a variation on Pareto optimisation in social cost benefit with its roots in the 1930s. In this case very different factors are assumed to be amenable to monetisation (based on willingness to pay) and are traded off against each other to maximise the social benefit. As well as the obvious problems of monetising factors on a consistent basis (this is actually not even achieved in the present system<sup>11</sup>) the classic criticism of this type of optimisation is that it can produce outcomes which no-one wants. There are others to do with willingness to pay or be compensated and mixing these values with others, such as business time

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<sup>9</sup> For example see WebTAG Unit 4.1, Social Impact Appraisal, Section 3

<sup>10</sup> For example see the “CREATE” project on urban mobility, 2018

<sup>11</sup> For example, time savings use a national equity value while noise has a non-linear value.

savings. This is complicated by the fact that the monetisation can be asymmetrical – in other words once a situation has been optimised people in the new context may put different values on the same factors<sup>12</sup>. For this reason the production of BCRs has to be viewed with the utmost caution. There are further issues with monetisation highlighted in following sections.

**11 Revise guidelines for proportionality.** While these criticisms of the economic assumptions mainly apply to major schemes, attention is also needed to the way in which some small and medium sized schemes are treated and sometimes expensively modelled. Some walking and cycle schemes provide examples. At the other end of the scale, some very large schemes struggle to find a rational basis on which they can be assessed or compared to other similar sized options. HS2 is probably one of these. This category is sometimes referred to as “transformational” and is so in the DfT consultation, but this seems too subjective. While all transport schemes have land use impacts, there is a question of scale and whether these extend outside the immediate transport corridor in which they are implemented. Thus key issues do not seem to be taken into account, for example the radical impact of HS2 on the relationship between Birmingham and London and how that will affect demand and land use. Strengthening the links between Birmingham and London may have detrimental impacts on other regions. Meanwhile the well understood problems of the rail travel time between cities such as Liverpool, Manchester, Leeds and Sheffield seem to have lower priority. Do they individually need to be closer to London or to each other?

**12 Expand DfT guidance on level and type of appraisal required.** DfT already recognise the need for proportionality and in two contexts: for smaller schemes and for strategic assessment. We would like to develop this to include more Multi-Criteria Analysis for the latter, and then undertake a Strategic Case review without the need for a Business Case for small schemes. Instead, where there is a strategy in place, schemes should be assessed against their contribution to that strategy rather than an isolated monetary value. This approach should avoid the situation where a scheme which might, assessed individually in a Business Case, have a low BCR, is critical to unlocking other parts of the strategy or is simply one of a package of schemes which are required to achieve the objectives.

**13 Revise funding approaches.** There are two reforms TPS suggests. The first is less use of competitive bidding, this may be appropriate in cases where innovative thinking is required but has become the norm for too much transport expenditure. The negative impacts have been commented on earlier. The second is greater devolution of funding, within the new context of a strategic framework, developed and owned locally, which can guide expenditure. Within this it is critical to allow flexibility between capital and revenue (both are needed but there is often a bias against the latter). While there needs to be due accountability for funding derived from central Government sources, this should be in the context of properly evidenced strategies. A good example is the current Transport Strategy for Greater Manchester<sup>13</sup>, itself part of a wider strategy encompassing elements such as health, sustainability and the economy.

**14 Understanding where the time savings go.** In terms of the benefits of transport schemes, journey time savings are the dominant influence in the Business Case. However, when travel times change, people tend to respond quickly by changing their choice of destination and mode. This is a continuing issue, for example walking to the local shops every day evolved into filling a hatchback once a week and that is now evolving into an internet order delivered to the door. Changes in

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<sup>12</sup> This is not the only issue, for example the social distribution of who benefits is an obvious problem.

<sup>13</sup> Available on: <https://www.tfgm.com/2040>

retailing are a good example because they happen quite quickly, for example the trend towards supermarkets has become tempered by building a significant number of “local” stores for daily shopping and infrequent bulk buying over the internet. Economists may argue that the value of what the time savings are “spent” on must be at least equal to the time savings themselves, so it doesn’t matter for appraisal. In fact this is completely inappropriate in transport planning. The reason is that time savings only measures user benefits and transport is an area where:

- Third party costs are often greater than user costs
- Spending time savings creates other changes (especially land use) which have their own range of costs and benefits.

In this context one way forward would be to spend the time savings on extra travel in the traffic forecast and re-run the user costs. This should be mandatory in the guidance.

15 **Guidance on time saving values.** There is a continuing debate on how the values of time are reflected in transport appraisal. In broad terms TPS considers that there are a range of issues which mean that, while extracting them from traffic models may still be worthwhile, their use must always be heavily qualified. Using them as a basis for a BCR which depends on their value over 60 years (when most of them are used up in the short term) is likely to be seriously misleading. However, it is clear that different values apply to different modes and are also strongly related to size. The recent DfT research was informative, even in this time savings less than a minute were not included in the analysis. One reason for this is the way in which reliability is undervalued at present, and variation in travel time often eclipses time savings of a few minutes. In large scale modelling there are frequently major gains and losses at this small scale level. DfT advice on producing a table to show time savings by size (introduced in 2008) needs to be extended to exclude these in a road traffic context. Users value time differently for different modes (and between waiting and travelling) and current guidance partly reflects but it needs to be fully incorporated. This should include time savings which are not valued at all no matter what their size. For example research has shown that commuters prefer to have some time between leaving their home and arriving at work – for a variety of reasons sometimes referred to as me time, catch up time or transition time<sup>14</sup>. This is entirely in tune with the widely accepted evidence that people have time “budgets” which they tend towards.<sup>15</sup>

16 **Recognising social impacts.** This leads to the issue of how the impacts of transport schemes are distributed amongst users and non-users of the transport system. For example, the increase in motorised mobility has led to land use changes and locational choices which have maintained and in some instances increased accessibility to goods and services for those who can afford the new mobility. For those who cannot the situation deteriorates if centres of employment, and outlets for retail, healthcare or leisure become fewer and larger and less accessible by non-private transport. Distributional impact was part of the intended 2008 NATA Refresh but is still not sufficiently represented in current appraisals. Stronger guidance is needed.

17 **Mapping change.** In terms of methodology to include such factors into appraisal, the use of accessibility mapping is particularly useful without a major modelling cost. Another of our

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<sup>14</sup> For example see: “Technologies, social practices and travel – where are we heading?” presentation by Professor Glenn Lyons, Centre for Transport and Society, 2012, for more on driver activities see: “Traffic Restraint: What Drivers Think” London Planning Advisory Committee 1991

<sup>15</sup> One of the first examples was “Travel time budgets and mobility in urban areas”, Yacov Zahavi, 1974

recommendations is that this should be more widely used, and be mandatory at the Strategic Case level. It is particularly helpful in assessing suitable locations for new development, where access by sustainable modes or time catchment areas for different groups of people. Changes in accessibility are currently measured by time savings – this needs to be moderated so that higher values can, for example, be used where accessibility is currently low, either by area or by variables such as car ownership or access to rapid transit. This would begin to address some of the issues to do with the distribution of benefits which is a key weakness in current methods.

18 **Agglomeration and the opposite.** Wider economic impacts are increasingly being used in appraisal but they are extremely hard to identify at scheme level. Connectivity is seen as a good but has proved hard to define. In addition, transport schemes which encourage lower densities will have a negative effect. In the context of time savings being spent on extra travel (the implication of most research including the National Travel Survey) this is most likely to cause lower density. In this case the cost of disagglomeration needs to be attributed to these schemes. The original Wider Economic Benefits were renamed Wider Economic Impacts but in terms of the practical impact on most appraisals practitioners seem to assume the original title was correct. DfT needs to be clear in its guidance that economic impacts can be negative as well as positive, particularly between different types of users.

### ***Conclusions***

This list of issues which TPS wants DfT to address, with some proposals for remedial action, forms the basis for our submission. However, we elaborate on some of these issues in the context of the questions posed in the consultation document. Our responses are set out in the next section.

### **3 Responses to the specific questions in the DfT consultation**

#### **Chapter 4 People and place**

*What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.*

In line with our general comments above:

1. Appraisal methods for the future – increased use of accessibility tools for option generation and assessment. Accessibility tools should be genuinely multi-modal, including local access to services by walk or cycle. Accessibility tools can be used at a range of scales including the assessment of wider packages of measures designed to achieve a step change in accessibility and travel behaviour change.
2. Public health and wellbeing – the adoption of a multi-faceted definition incorporating physical activity, air quality, road danger reduction etc. This definition must be applied in appraisal to consider both positive and negative impacts, i.e. the health disbenefits of schemes that promote increasingly entrenched car-dependent lifestyles must be counted.
3. An overall approach to appraisal based on objectives which seek a better future (defined in a clear set of quality of life objectives) rather than marginal change. This needs to respect the needs of real people in communities as well as context free economic actors, as the current methods assume. While there is value in the latter approach, it should crowd out the former, in particular it is often seen as too difficult to measure so is downgraded in the appraisal.

#### **Chapter 5 Reflecting uncertainty over the future of travel**

*What should our priorities be for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three.*

1. Further research into the observed changes in travel behaviour is vital. This should consider (a) lifestyle and life cycle factors, (b) spatial determinants of travel opportunity including local access to service and facilities, and (c) users' preferred travel behaviour versus the limited travel opportunities available to them.
2. For the reasons set out above, we welcome the proposal for greater use of scenarios. The use of clearly defined potential future scenarios is easier to communicate to stakeholders, more in line with a vision-led approach to transport planning, and avoids spurious accuracy. This fits well with the DfT's development of scenario based forecasts, which could be taken further.
3. Recent research among professionals carried out by Glenn Lyons, both for CIHT and for TPS/CIHT through their role in professional qualifications, has revealed a need for what has acquired the title "constructive challenge". This needs to be adopted through out appraisal and links back to the need for a more principled approach. The widespread use of scheme led appraisals with no strategic context, and the idea of a "target BCR" used by some clients bidding for public money is a serious issue which needs to be addressed.

*What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these?*

1. Freight and servicing – it is clear that technology will potentially have a greater impact on supply chains than passenger movements due to the cumulative impacts of automation in the whole supply chain and associated changes in production and servicing (3D printing,

remote computing, AI etc). If transport costs fall substantially, freight movement could be more elastic than personal travel. Yet in practice a great deal of modelling and appraisal activity barely attempts to include explanatory models of freight and servicing. In the short-term, transport planners should be much more transparent about the limitations of their freight models, and there is a need for a much greater focus on research into the observed trends in freight and servicing. The significant environmental and severance disbenefits of HGV and LGV traffic need to be addressed in this context, the TPS support for Lorry Road User Charging reflects both the need for economic as well as environmental efficiency.

2. There is a great deal focus on technological solutions and electrification of the vehicle fleet as the only solution to air quality. This can potentially lead to a danger of spurious accuracy in forecasts of air quality improvements, as well as creating a situation where the wider economic, social and environmental externalities of private motorised vehicle use are ignored. Electrification will be too late to achieve the carbon reduction targets needed to comply with CCC budgets. It also does not deal with the need to reduce within a time limit. In this situation the traditional economics approach of saying the price of carbon will just get higher as we need to make ever less feasible and more painful reductions into the 2020s. The better metric should be carbon tonne years rather than tonnes.
3. As stated earlier, the over emphasis on the BCR among most scheme promoters, a lack of genuine alternatives and dependence on definitive forecasts rather than scenarios and genuine “High” and “Low” travel growth is a major barrier. This is a particular problem for motorised road traffic where performance depends on the level of demand – if traffic grows it will slow down. For rail transport and walking improvements are more robust and can be for bus travel and cycling where sufficient priority is provided. One idea would be to provide an upper and lower estimate with no central BCR at all.

## **Chapter 6 Modelling and appraising transformational investments and housing**

*What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.*

1. There is a need to overcome the lack of understanding of travel behaviour in relation to local access, strategic transport options and travel demand management measures including parking restraint (there is a reasonably good evidence base in London but less elsewhere). The recent Transport for Homes report highlights some of the policy and process issues that lead to the continued incremental expansion of entirely car-dependent developments. In modelling terms we tend to (a) predict future travel behaviour based on observed behaviour in existing car-dependent areas thus replicating that behaviour from the outset and (b) try to demonstrate that we are resilient to the ‘worst case’ in traffic capacity terms (although we never apply the ‘worst case’ principle to other factors such as local accessibility).
2. A lot more can be achieved without the need for ever more complex LUTI models. Greater use of tools such as accessibility mapping by a range of transport modes is sufficient to illustrate the potential impacts of schemes on the short- and long-term location decisions of individuals and businesses.
3. It has been argued that capturing land value uplift is arguably a more direct way of measuring marginal changes in accessibility than notional time savings. But others argue that both time savings and land value uplift are simply proxy values for greater accessibility/connectivity. The DfT guidance on dependent development rightly acknowledges that, where used, the land value uplift approach needs to consider the non-transport factors that may affect value (e.g. utility requirements). More fundamentally, in

welfare appraisal the value to society of development in one area compared to another area is not solely a question of financial value, e.g.:

- Economic – e.g. development in an area of housing shortage with good public transport to a range of jobs is of much greater value than dispersed sprawl far away from the highest demand
- Health and social – e.g. development is more valuable when it offers a range of housing and tenure types, is adapted to a range of age and social groups, encourages healthy lifestyles, and is well-integrated with surrounding areas
- Environment – e.g. development is more valuable if it encourages less energy-efficient lifestyles and minimises local environmental impacts
- Distributional – e.g. increasing public transport accessibility in areas with low household car access will have a higher relative value than marginal gains in travel time to those with high household car access. The traditional economic context free “constant value theory” in this case works against identifying real world values.

*What transformational impacts do you currently find it difficult to represent in appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?*

1. The analytical tools for evaluating transformational impacts cannot be based solely on lots of small time savings for users of one transport mode, in particular where these are marginal impacts relative to a Do Minimum scenario that is worse than the current situation. Transformational packages of measures are those that offer a high quality of life, e.g. through offering people (and businesses) a range of genuine transport choices. These are likely to result from urban transport packages rather than individual inter-urban schemes.
2. As TPS has previously argued in the last Wider Economic Impacts consultation, economic theory stresses the cluster benefits of physical density (resulting from high-capacity public transport links coupled with walkability) that lead to genuine productivity gains in high value knowledge-based economies.
3. The impact of land value down shift is rarely measured – this is not just an issue of no net gain (i.e. if a development was not located in one place it would take place in another). If activities such as housing and employment are badly located in relation to one another, better locations will be missed and the total uplift lower than could have been achieved. Alongside this will be situations where land values may fall in, for example, city centre locations requiring regeneration, if car based greenfield sites are developed.

## **Chapter 7 Supporting the application of WebTAG and making it more user friendly**

*What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?*

There is a great deal of poor practise in relation to preparing:

- Strategic cases,
- option development and
- the Assessment Summary Table.

Better guidance and an emphasis from DfT, who are often consulted on modelling and appraisal, on producing these as an essential pre-requisite.

*What more could be done to articulate the flexibilities in WebTAG and support scheme promoters apply the guidance?*

There needs to be greater emphasis on the high level appraisal (see above) and much less on detailed modelling. Proportionality is inherent in current guidance but needs to be strengthened. We suggest workshops with different promoters and practitioners to refine further guidance on this and TPS would be willing to help organise such events.

*How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance.*

As described above, much greater focus is needed on the early option generation and selection process. Too often only a very narrow selection of options are assessed, or in reality the option assessment reports are later adjusted to give the impression that more options were genuinely considered.

WebTAG needs to be clear that failure address either the Strategic Case or option development is effectively a showstopper and the appraisal will not be accepted. It seems that practitioners have a strong sense that innovation in modelling or forecasting is frowned upon, and that the Strategic Case means trying to find some generalisations which support the scheme in question, that option development means some small variations on the favoured scheme, and that the BCR is a sort of game with Government funding as the very considerable prize. TPS does not think this is a fair representation of what is in WebTAG, but given that these views are widely held, guidance needs to be particularly strong to correct any misapprehensions.

## **Chapter 8 Developing and maintaining modelling and appraisal tools to meet user needs**

*What should our priorities be for improving the development of modelling and appraisal tools and why? Please select up to three.*

Given what we have set in detail in earlier replies, the headline priorities are:

- 1) Greater use of scenario forecasting and recognition of uncertainty
- 2) Greater use of accessibility and other mapping techniques to show overall impacts
- 3) Improvement to non-monetised impacts including carbon (which in our view has a fundamental flaw in its valuation).

*How can we best encourage innovation whilst maintaining a consistent and robust approach?*

Continue engagement with practitioners – DfT has made significant progress, including this consultation which TPS very much welcomes.

*What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?*

As above:

- 1) Greater use of scenario forecasting and recognition of uncertainty
- 2) Greater use of accessibility and other mapping techniques to show overall impacts
- 3) Improvement to non-monetised impacts including carbon (which in our view has a fundamental flaw in its valuation).



## Annex 1: TPS and members' views

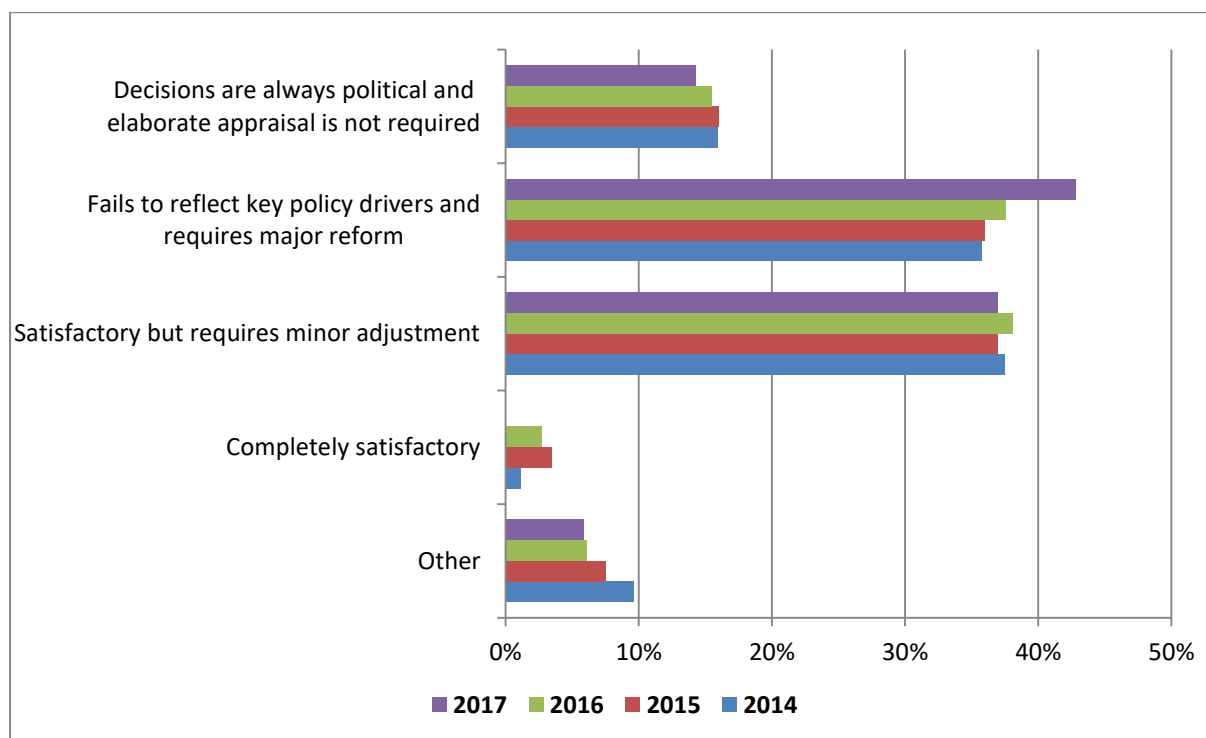
The Transport Planning Society (TPS) is an independent institutional body based in England, established to facilitate, develop and promote best practice in transport planning and to provide a focus for dialogue between practitioners and others interested in the field. It is the only body focussing entirely on transport planning as a profession. It is supported by four long established professional institutions – ICE, CIHT, CILT and RTPI - all of whom have an interest in transport planning within their own core activities.

TPS administers its own Professional Development Scheme for transport planners, leading to award of the Transport Planning Professional qualification which is the only professional qualification uniquely aimed at transport planners. The Society has over 1300 professional members in the UK and elsewhere. Many of our members are active in highway planning and management, including extensive experience of working with or within the Highways Agency. They are involved in transport modelling, forecasting and appraisal from a multi-modal perspective and increasingly in the analysis and development of transport planning in response to new technology and vehicle autonomy.

This response has been drafted by the Policy Group reporting to the elected Transport Planning Society Board. It builds on several initiatives, including the idea for independent commissioning of traffic modelling and forecasting, rather than scheme promoters, in 2017 and a Chatham House Rule seminar with DfT and practitioners focussing on reforming appraisal methods and “Vision and Validate” on 28<sup>th</sup> February 2018. TPS members attended the Landor Appraisal event on 19<sup>th</sup> September 2018.

In addition, a draft note was published on the website in August with a news item and social media publicity. Our annual member survey contains questions on current appraisal methods although these do not include forecasting. Below is a chart showing the results from the most recent surveys on their views.

**Figure 1: TPS member responses on appraisal 2014-2017**



Apart from the slightly concerning number who consider all decisions are political and appraisal is not required (included as a result of member replies) this provides an interesting snapshot of practitioners' views. The range is considerable but overall illustrates the need for some change.

A supplementary question explores this in some detail. Again the options are selected from member feedback and changed in 2016. The results for the two years with identical questions are set out below.

<b>Table 1: TPS survey results 2016-2017</b>	<b>Responses</b>	
	<b>2016</b>	<b>2017</b>
<b>Answer Choices</b>		
Replacement of time savings completely by land use or employment changes to capture long term impacts	<b>23.2%</b>	<b>34.3%</b>
Appraising changes in land values, land-use or travel behaviour resulting from transport schemes alongside time savings	<b>56.1%</b>	<b>61.9%</b>
Continuing to use time savings as the key to appraisal to avoid double counting	<b>23.2%</b>	<b>12.4%</b>
Removal of small time savings (below + or - 5 minutes) in the cost benefit analysis	<b>37.8%</b>	<b>44.8%</b>
Represent greenhouse gas impacts by comparison against targets, not marginal change	<b>49.4%</b>	<b>50.5%</b>
Counting positive and negative health impacts (e.g. the disbenefit of car dependency)	<b>68.9%</b>	<b>70.5%</b>
Reform of the use of non-resource costs (such as tax and developer contributions) in the cost benefit analysis	<b>31.7%</b>	<b>23.8%</b>

## Annex 2: TPS Principles of Transport Planning

### The principles of transport planning: the outcomes sought

Transport planning is all about creating connections between people and places, without which everyday life cannot function. However, this aim is complicated because:

- Transport is almost entirely generated by where people and places are located
- Connections are not always through physical travel
- The impacts of transport are often greater on non-users than users.

This is why we start our transport principles by setting out some key social, economic and environmental goals. Transport planners should develop and implement transport plans and schemes which:

1. Maximise connectivity for people and businesses while minimising the need to travel – thus reducing cost for users and non users alike
2. Manage demand as an end in itself, for example by
  - a. working with spatial planners to minimise the need for movement of people or goods
  - b. supporting options that encourage the least damaging alternatives, such as non motorised modes, sustainable goods transport and digital connectivity
3. Meet the key quality of life objectives of:
  - a. environmental, economic and social sustainability
  - b. health and wellbeing, safety and security for all users and non users
  - c. equality of access for all members of society to the connectivity they need
  - d. respect for the needs of local communities
4. Are integrated and provide a range of choices to people on how and when they can travel
5. Are adaptable and flexible for a range of possible future scenarios, and resilient to major shocks and events, such as extreme weather, attacks and disruption
6. Innovate and work creatively with new technologies so that they benefit the whole of society.

## **The principles of transport planning: how we behave**

In striving to achieve the outcomes above, transport planners should carry out their work in accordance with the following principles:

1. ***Integrity:***

Provide robust, independent and honest evidence based advice which always protects the integrity and objectivity of the profession.

2. ***Clarity:***

Explain clearly all the work we do, in particular to make the levels of uncertainty in all technical work, such as forecasting the future, transparent to experts and non experts alike.

3. ***Make connections:***

Work across sectoral boundaries, especially with spatial planners, and give equal weight to demand management, the different ways of travelling, and non transport solutions to transport problems.

4. ***Constructive challenge:***

Adopt an open minded, problem solving approach, be innovative, always fully consider alternative solutions, and not favour one type of investment (such as capital or revenue) over another.

5. ***Focus on People:***

Be led by clear quality of life objectives, to understand the impacts of transport plans and projects on individuals as well as society as a whole and to listen, understand and acknowledge the views of all those affected (whether users or non users).



# URBAN TRANSPORT GROUP

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Consultation Response

## **Transport appraisal and modelling strategy: informing future investment decisions**

October 2018

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Modelling and Appraisal Reference Group

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## 1. Introduction

The Urban Transport Group (UTG) represents the seven largest city region strategic transport bodies in England, which, between them, serve over twenty million people in Greater Manchester (Transport for Greater Manchester), London (Transport for London), the Liverpool City region (Merseytravel), Tyne and Wear (Nexus), the Sheffield City region (South Yorkshire Passenger Transport Executive), the West Midlands (Transport for West Midlands) and West Yorkshire (West Yorkshire Combined Authority).

We also have the following associate members: Tees Valley Combined Authority, Strathclyde Partnership for Transport, West of England Combined Authority (WECA) and Nottingham City Council.

This forms the response to the consultation on the Transport Appraisal and Modelling Strategy, from the Modelling and Appraisal Reference Group (MARG) of the Urban Transport Group.

We welcome this consultation and would be interested and make ourselves available as a collective group to work with TASM to help inform and shape future developments. Members of the group are analytical experts working in this field at a local and sub-regional level who, on a daily basis, implement WebTAG guidance, so we would see discussions with TASM as an important two-way function.

## 2. Priorities

### 1. Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?

We broadly welcome the overall themes, which cover a substantial range of analysis. It is possible to see most analytical priorities as being encapsulated by one or more of these themes. Although in our response we explore the themes in more detail, we would particularly highlight the points below.

One of the underlying problems with WebTAG is the predominance of the economic case, which often seems to take precedence over the strategic case. This can fundamentally distort the process, especially given the uncertainty of economic analysis. The main priority should be in strengthening the strategic case and ensuring it is, in effect, a driver for the remainder of the business case. Transport schemes are very good at demonstrating their benefits but (understandably) promoters are often very reticent when it comes to outlining less desirable impacts. The strategic case needs to focus on schemes achieving objectives in an integrated fashion. The strategic case should also include an assessment of the extent to which identified problems are being solved, rather than simply moved around.

We particularly welcome a focus on the “**Modelling and appraising transformational investments and housing**”. This has become an important issue in many transport schemes. Within this, we would want to see a focus on development of the Rebalancing Toolkit – although note that, dependent on the direction of future developments, it may be desirable for “Rebalancing the economy” to be a theme in its own right. We would observe



that within the theme of “*Modelling and appraising transformational investments and housing*” there are a number of points outstanding from the previous year’s consultation on Wider Economic Impacts outstanding, including the debate around additionality which UTG and many of its members have raised.

When it comes to “***Supporting the application of WebTAG and making it more user friendly***” we would note that the “*supporting the application*” is probably the most critical. This is especially true regarding recent changes to Wider Economic Impacts assessment, with many members of the UTG pressing for case studies to help in this regards. We welcome the recent language which focuses on the need for schemes to “follow WebTAG guidance” rather than being “WebTAG-compliant” – although noting that in order to avoid challenge, there may be a need for some thought as to what the bounds of the guidelines may be. Note that there is some thought that there may be a shortage generally of modelling and appraisal expertise amongst project sponsors and their consultants (this includes for example writing narratives that are factual, not biased, and consider schemes from all angles including the counterfactual), which poses a potential risk, and perhaps raises a skills issue that needs addressing.

“***People and Place: capturing the range of impacts relevant for transport policy***” is a diverse area in which we welcome a research focus. However, the research sub-elements are extremely diverse and each could well be a priority area in itself. This theme captures a number of elements which are often either poorly or not quantified within ‘traditional’ transport appraisal but which are becoming increasingly important as matters of public policy such as air quality. We would also note overlaps in this theme with other priorities (such as appraisal methods for the future and Supplementary Economic Models) and believe that some of these could be taken forward as joint pieces of work.

Another theme which we believe could be useful lies in “***Developing and maintaining modelling and appraisal tools to meet user needs***” although there are a number of concerns within this. On the one hand, for TASM to focus on this would aid in ensuring consistency across different schemes, but on the other hand there is also a strong appetite amongst our group members for ensuring quality local data and local forecasts are used. It may be that there is a need to ensure these tools can utilise local as well as national datasets, alongside producing guidance around how we can ensure local data and forecasts are viewed with confidence by the Department. Also within this theme, the emerging use of Big Data is probably useful – and here we would urge TASM to engage with UTG’s Emerging Data group – but would also provide a caveat: the on-going work by ONS into using non-survey data to replace the Census currently shows significant limitations in utilising mobile phone data to replace (for example) travel-to-work data, particularly for elements such as journey purpose and certain transport modes. We would also point out in this theme that especially in the field of Wider Economic Impacts the lack of affordable models / limited range of models in the market can be a limiting factor for some organisations in making the case for schemes. Within this theme, we also particularly welcome the continued emphasis on the need to strengthen the link between evaluation and appraisal.

There are number of areas which are not explicitly captured by current WebTAG guidance – or not, it is felt, with sufficient detail. As indicated in our introduction, it is possible to envisage these as being part of one of fitting within the themes TASM lists as a focus for development, but for clarity we list these below.





- Greater recognition of economic benefits reaped by different sectors of the economy thanks to transport schemes which are (arguably) not fully covered even under Wider Economic Impacts. One such is the Visitor Economy, where improved transport links encourage net increased tourist trips and spend, but the current guidance on this is largely hidden away within the unit on Regeneration impacts.
- Nationally-available datasets can be a weakness, and although this may not be an issue for TASM itself to address, it might be useful if TASM were to champion improvements in such data. One example is the National Rail Travel Survey – still referenced and used in some transport schemes despite being substantially out of date and no longer reflecting many subnational economies. Likewise, some of the data in the Wider Impacts Dataset is now out of date.
- We would ideally want more evidence based elasticities, regionally derived values of travel time, etc. Ideally we need regional “input-output” matrices and models to compute GVA impacts. Above all we need integrated transport and development planning to avoid planning consent being given without appreciation of transport impacts, which to some extent undermines WebTAG/Green Book rules. The recent guidance on dependent development is a welcome step forward but there is still a job of education amongst practitioners and stakeholders in its implementation

## 2. What considerations should inform the scope and priorities of our strategy, particularly over the first 18-24 months?

There are a number of areas which may need a focus. However, from an economic perspective, given the importance of dealing with the UK’s ‘productivity puzzle’, emerging regional ‘powerhouses’ and the fact that over this period we will be leaving the EU, a prime consideration should be further **development of understanding of regional and sub-regional transformational investments**. We would suggest this covers a range of elements, including:

- a) Better understanding of such transformational impacts (including guidance as to how impacts can best be measured when an investment is in an area with low/no existing transport flows);
- b) Clearer resolve around proportionality – i.e., when should different levels of impacts by schemes be considered. This also means we need to be clear around the language of ‘transformational’ – at the moment this risks becoming a ‘buzzword’ with all accurate reference to ‘what is transformation’ often missing;
- c) Improving and strengthening the Rebalancing Toolkit, which whilst welcome does not seem to offer much to change a business case; one aspect might be to consider whether one of the aims could be to offer a change to the Value for Money guidance, adding a sub-category that indicates if a scheme offers the opportunity to rebalance the UK economy (within given thresholds);
- d) (Possibly linked to the above) Developing guidance around best practice and the tools to capture these in transport business cases; and
- e) Resolving outstanding issues from the Wider Economic Impacts consultation – for example, revisiting the issue of net additionality.



Notwithstanding the above comments, the focus for further quantification is a concern. This will inevitably increase the cost and complexity of the process, which is fine so long as the quality of the output is similarly improved. However, it does not always follow that increased complexity gives a commensurate improvement in accuracy. Understanding of the relationship between transport and the economy remains weak, and adding further layers of quantification poses two threats to the robustness of the process:

- It may give a spurious impression of accuracy; and
- It may make the process less transparent to those outside of it.

These are important questions that should be examined in any changes to the process going forward. A greater level of qualitative assessment may be more effective in making the process more transparent and allow examination of major uncertainties that quantification might mask.

As indicated elsewhere in our response, more work in the area of ex-post evaluation and in research elasticities (of all kinds) is required; with another area indicated of priority as being the shape of demand curves over a range of fares, or cost-change over time.

### **3. People and Place: capturing the range of impacts relevant to transport policy today**

**3. What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.**

It is difficult to select up to three areas when all of the areas listed are likely to have some priority. Different members of the UTG group may well have differing priorities depending on the needs of their area, and this is only to be expected. Thus, the order shown below is only loosely considered a priority order, and we would ask for more attention to be paid to the comments made than the order.



<p><b>Valuing attractiveness</b></p>	<p>This is one area we would be keen to see more work in, and we feel that elements of this are definite priorities for Local Authorities. Valuing attractiveness is quite important at a generic level and when considering schemes of a more transformative nature. We would specifically highlight the wide range of impacts these improvements can have – a list of impacts that include but are not limited to: encouraging inward investment / office locations, sustaining the retail base, growing the numbers of tourists to an area. As such this is something of a missing area in WebTAG guidance. It would probably be specifically useful to consider:</p> <ul style="list-style-type: none"> <li>• the <i>functional</i> side of transport in improving attractiveness (journey time improvements, connectivity measurements, etc.)</li> <li>• the <i>ambience</i> side of transport (improvements to the realm, comfort levels of travel, etc.) – this latter may well provide evidence which has a spill-over benefit to schemes besides those with a transport base, and may be useful for business cases in other government departments.</li> </ul> <p>We would further observe that Project Promoters where there are public realm as well as transport improvements (for example the pedestrianisation of Newcastle Central Station portico) have faced significant challenges in bringing forward projects through traditional Assurance Frameworks.</p>
<p><b>Public health and wellbeing</b></p>	<p>Given the current and necessary policy focus on urban air quality, it is important that these impacts are studied. However, it is understood that fundamental updates will not be a simple or short-term matter.</p> <p>Forecasting active modes feels a little shoehorned into this section by the Department and we would like to work with the Department on forecasting active modes, particularly as UTG &amp; Core City members have some of the most significant investment in cycling in the UK.</p>
<p><b>Valuing journey improvements</b></p>	<p>Much of the valuing travel time savings work has been useful, specifically from a public transport angle, albeit that the evidence base for bus users seems somewhat weaker.</p> <p>Generally on the public transport side of things there is a need for better clarity on interchange penalties (i.e., there may be a trade off in business cases to consider greater frequency of services achievable via interchange against provision of less frequent direct services.). This might adopt values indicated within PDFH or use fresh research; but certainly where a scheme removes (or imposes) an interchange within a journey this has an impact on the valuation of travel time. This is not to say that it is one of the top three priorities, but it certainly is an area with scope for improvement.</p> <p>Overall, it might be more useful to develop further work in terms of identifying journey <i>quality</i> – thereby bringing a wider range of factors into play, although the development of tools to assess this will need care to ensure robust results.</p> <p>Members have found that questions of resilience (particularly highway) are of increasing political and stakeholder importance. However, they lack analytical toolkits to better quantify this, while recognising the Department's HMEP/HMAT tool</p> <p>We particularly welcome the proposal to consider more journey time impacts on freight, which is often an overlooked area.</p>



<p><b>Appraisal methods for the future</b></p>	<p>Considering the wider economic impacts in appraisal, there is much work to be done on developing a better understanding of the relationship between transport and land-use change; specifically on the level of impacts when land use is not held to be fixed.</p> <p>It may also be useful to consider here a multi-modal element; as part of needing to rebalance the economy, in certain location the solution may be (e.g.) a road or a rail scheme or both, but current mechanisms mean each mode is looked at individually. Future appraisal could better reinforce the need/mechanism to ensure a cross-modal coverage of options.</p> <p>The commentary within this section lists “Accessibility indices” and it may be useful to consider here improved and more useful definitions of accessibility and connectivity.</p>
<p><b>Person-centred business cases</b></p>	<p>For schemes which take into account factors such as SROI this would be an important development.</p>

## 4. Reflecting uncertainty over the future of travel

### 4. What should our priorities be for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three.

Firstly on this theme, we broadly welcomed the revised Value for Money guidance that emerged last year. This contained several useful and user-friendly pointers around considering uncertainty within a business case. Secondly, we would caution that this is a very large open-ended area to be considering, and whatever work TASM takes forward should at each stage be clearly defined to avoid ‘mission creep’. Thirdly, we would emphasise that this is an area where a body of evidence should be built up through scheme evaluations, which in part would be the chain of better linking evaluation and appraisal. This should include direct reference to high-quality evaluation results as justification for WebTAG values when appropriate

Subject to the comments above, any development in this area which can help the robustness of business cases would be useful, and we comment on each of the priorities below. Note again that as a group, our comments are not necessarily in priority order.



<p><b>Travel preferences and behaviour</b></p>	<p>This would seem to be the most important priority within this section. We would welcome research undertaken by the Department on young people’s travel and would like this to be built upon.</p> <p>Understanding future travel behaviour is – like with CAVs – an area which should produce a range of values rather than definitive forecasts. We need to be careful here, and perhaps what should be examined is what impact such changes <i>might</i> make otherwise on expected demand. i.e.:</p> <ul style="list-style-type: none"> <li>• Although current work suggests digital solutions may mean less 5-days-per-week commuting, this is only one possibility, and we would caution against this being assumed as a sole truth.</li> <li>• Likewise the presumption is of a future with fewer young people obtaining driving licences, but this may be contingent on future housing/jobs for this population being in areas with acceptable public transport provision.</li> <li>• Changes to work/lifestyle/income might mean changes for leisure time with impacts on travel for non-work purposes. (and the nature of these trips is itself changing, with the ‘traditional’ two week holiday moving towards a number of short breaks, with implications for net travel demand).</li> </ul>
<p><b>Optimism bias</b></p>	<p>An update to optimism bias rates in guidance, particularly including changes to other variables would seem to be a worthwhile research project. Cross-governmental data on cost overruns should also incorporate data from more local schemes to arrive at a fuller picture. This should be part of work linking scheme evaluation to appraisal, forming a body of evidence for use in future toolkits / business cases.</p>
<p><b>Uncertainty toolkit</b></p>	<p>As indicated elsewhere, displaying uncertainty alongside TEMPRO outputs would be useful. We would expect an uncertainty toolkit to link into revised Value for Money guidance in order to maximise its effectiveness.</p>
<p><b>ULEVs / CAVs</b></p>	<p>Linking ULEVs and CAVs in the same priority may not be accurate. Despite some connections between the two it might be better to have them as two separate priorities. In the first of these, the prime consideration is a change in energy source; in the second, there are a far wider different set of assumptions around consumer behaviour change.</p> <p>In examining take up levels of ULEVs more work is needed to understand this – in particular, understanding the differentials between London/urban/small town/rural conditions and between different user types. With each year the available evidence should grow, but understanding what elasticities may result and communicating these appropriately will be key.</p> <p>CAVs are a much more problematic area, and while there are theories around what impacts may result from this technology – when/if sufficiently developed – any evidence is thin. This should not be inferred as meaning not to conduct analysis in this field, but a suggestion that any forecasting work produced forms a fan projection of upper and lower values – thus, we are looking for work here that portrays the <i>range</i> of uncertainties.</p>
<p><b>Uncertainty in forecasts</b></p>	<p>We would welcome work being done to understand the levels of uncertainty in the underlying inputs to forecasts; and would suggest this ideally needs to feed through into differing levels of uncertainty being displayed within TEMPRO outputs – although acknowledging this might be a very substantial level of work involved for this.</p>



<b>Advice on scenario analysis</b>	Whilst this sounds as if it could be very useful, it probably needs exploring more as to what exactly such a piece of work will offer that couldn't be covered as a piece of advice within an uncertainty toolkit.
<b>Review of techniques to present uncertainty</b>	Whilst this sounds as if it could be very useful, it probably needs exploring more as to what exactly such a piece of work will offer that couldn't be covered as a piece of advice within an uncertainty toolkit.

**5. What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these?**

Evidence is always a key issue in how much we understand about uncertainty. As indicated above, a strong level of importance should be attached to amassing and utilising evidence linking scheme evaluations to appraisals, which will help with this; and there should always be a preference for expressing a *range* of uncertainty, rather than treating it as an absolute.

A more sophisticated approach to dealing with uncertainty in business cases would be to recognise how much the uncertainty in underlying values may vary. For example:

- a) We recognise the importance of geography (amongst other factors) – for example, are there differing levels of uncertainty apparent for schemes in economically more successful areas compared to areas with weaker economic indicators? This could apply both to viewing transport demand but also the more important underpinning jobs, population etc. forecasts.
- b) Another focus may be to recognise that the levels of uncertainty can vary depending on the *type* of transport scheme: For example, a road scheme solving congestion may primarily need to consider road traffic growth (incl. CAV) and housing growth. Examples of uncertainty by categories of scheme could be presented as a set of case studies, including (but not limited to):
  - Road schemes aimed at solving congestion (bypasses, widening, etc.)
  - Schemes which unlock development (link roads, new stations serving housing, etc.)
  - Schemes which have transformative impacts on local or regional economies (NPR, East-West rail, etc.)
  - Infrastructure improving access for passengers/freight to international gateways (highways links to ports, rail/tram links to airports).



## 5. Modelling and appraising transformational investments and housing

### 6. What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.

As indicated within the introduction, we see this theme as being of prime importance, given the need to rebalance the UK economy – with the presumption that transport schemes can be a key enabler in this process. Infrastructure investments that enable transformation (such as Northern Powerhouse Rail) are of increasing importance, and in many cases these can – or should – reference the impacts these schemes can have on both the local and national economies. (This is based on an argument more towards net additionality, a debate which we have already observed needs refining within the WebTAG guidance.)

Before we get into our specific comments, it is worth mentioning that guidance should probably take some steps towards defining what “Transformational” means. Although “Transformation” may have different definitions at different spatial levels, what we are looking for here is agreeing a definition at which the tools and techniques we comment on below become relevant.

Para 6.19 identifies the crux of this problem in looking at transformational investments. Transport interventions will rarely be transformational by themselves, and evidence tends to suggest they often have a supporting role. Unless development can be shown to be dependent on a transport intervention (which may well not be applicable in all cases), evaluation of its economic benefit would not seem appropriate. The transformative impact of an intervention should generally be an element of the strategic rather than economic case. This would allow its setting in a proper policy context rather than attempt to narrow it to a notional value of standalone benefit. However, the corollary to this is ensuring that the strategic case genuinely has as important a consideration as the economic case; and this is even more the case when dealing with investments which may help rebalance the economy.

Each of our members may have different priorities in the list below, so we would urge more attention is made to our observations than the indicative order we have placed them into.

<p><b><i>Improving confidence in Land Value uplift (+ including in BCR)</i></b></p>	<p>This strikes us as the most important priority in this section from both a political, scheme financing and economic perspective. It is clear that the ‘traditional’ ways of financing and appraising large or mega-projects are not as viable as they were and scheme promoters are thus at the outer edges of guidance when seeking additional value. As one of the boundaries being pushed relates to confidence in Land Value uplift, we would fully support this priority, including the work the Department is undertaking with WYCA, the NIC and TfN on NPR.</p> <p>We note that points 6.12 to 6.15 within the consultation reference considering the land value uplift from housing – but there needs to be consideration equally of assessing land value uplift from commercial developments (of course, always making sure that the mechanism for including this within the BCR does not involve any double-counting).</p>
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<p><b>Development of Supplementary Economic Models for DfT</b></p>	<p>This would be helpful for those members of UTG who have existing SEMs and would provide authorities who are looking to enhance modelling capabilities with better guidance on what decisions to make. .</p> <p>However, one concern exists as to how the data contained within such models would represent local areas – for example, a common development of a local LUTI will contain robust local economic forecasts rather than national forecasts, in order to better represent known and anticipated changes to the local economy.</p> <p>Thus, if such models were developed nationally, there may be a requirement to ensure local data can be input for a scheme by scheme basis, subject to following guidelines regarding the data’s robustness.</p>
<p><b>Improving understanding of productivity impacts</b></p>	<p>As mentioned elsewhere, this is seen as a further development of the WebTAG guidance around Wider economic impacts. This may be of particular concern when considering schemes which are about rebalancing the economy – and is something which we recommend is built into the evaluation of schemes currently underway.</p> <p>Updates to the M2MPJ guidance would be particularly welcomed.</p>
<p><b>Gaps in local level data</b></p>	<p>Examining ways of obtaining and providing more local-level data would be useful. Besides data which should be available (such as through HMRC) there may also be useful intelligence to be gained through commercial products such as the MINT database – although how this information is then licensed for use by those outside the department may be another issue.</p> <p>Conducting an audit of local statistics – perhaps involving ONS – would be a useful activity here. For example, whilst it is acknowledged that some of Visit Britain’s domestic tourism statistics are weak, many (but not all) local areas make use of data through the STEAM model.</p>
<p><b>Case studies showing application of different elements of guidance</b></p>	<p>We are strongly in favour of having a range of case studies (as indicated in our response in Section 6, on supporting the application of WebTAG and making it more user friendly). This is particularly the case with this theme, where the use of case studies could not only show how different elements of guidance are implemented, but also when it is not proportional to use some elements.</p>
<p><b>Case studies: what works in transformation (incl what non-transport factors need to be in place)</b></p>	<p>We would be strongly in favour of such development, albeit that it should be improved as the body of available evidence expands. As an example of this in practice, we would reference NPIER, which highlighted how transport interventions alone would not be enough to create the conditions for a transformed North of England.</p>





<p><b>Framework: how local economies work</b></p>	<p>This needs more development as a proposal before assigning a priority to this element. Linked with this is that there needs to be a careful approach taken. When we define “a commonly agreed framework” there needs to be an understanding that this will not be a blanket methodology that fails to recognise where economies differ from each other.</p> <p>For example, a city with dispersed economic areas based on the knowledge economy will function and work very differently to a city based more on a central area and reliant on more traditional industries, which will work very different to a county with dispersed towns reliant on an agrarian and visitor economy. The transport investments needed to grow the economy in each location and indicators which help to validate this may be very different in each case.</p>
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**7. What transformational impacts do you currently find it difficult to represent in a scheme appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?**

With this being an emerging area of analysis, there are a wide range of issues, which can vary substantially by different areas. Amongst the areas we would like to include in scheme appraisal, but for which evidence may either be weak or the topic not adequately covered in WebTAG guidance are:

- Investments likely to make an area more attractive to inward international investment.
- Schemes that encourage a step change in the area’s visitor economy
- Demonstrating net additionality (i.e., an assumption of 100% displacement may not always be appropriate)

We welcome recent guidance (such as in the recent changes around Wider Economic Impacts) whereby the advice in WebTAG emerges as less prescriptive, although this does leave a measure of uncertainty around any risk of whatever evidence is produced being open to challenge. Some understanding as to the bounds of flexibility would help to assure some stakeholders.

**6. Supporting the application of WebTAG and making it more user friendly**

**8. What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?**

For the experienced practitioner, WebTAG provides a good solid base for building a transport scheme. The main barriers we would contend which we explore within our response to this theme are:

- a) Ease of use
- b) Data



- c) Understanding the limitations
- d) Proportionality
- e) Areas WebTAG does not explicitly cover

There are a wide range of issues that – when it comes to a business case – WebTAG does not seem to cover (in fact many of these are possible to cover using WebTAG, but the ability to do so is hindered by the relevant guidance not being as well signposted as it could be, or by problems in understanding what evidence may be used). Each area of the country might have specifics that could be included within this list, but items we might flag up (some of which we have referenced elsewhere in our response) include:

- Schemes where growth in the visitor economy is a core part of the scheme;
- Adequately reflecting mode shift of freight (covering impacts beyond values in the WebTAG databook);
- Journey quality;
- The burden of proof around dependent development / net additionality / international inward investment; and
- Appraising transformational cycling capacity schemes which reduce existing road space.

Perhaps one of the main ways to overcome some of the challenges in using WebTAG could come about through provision of case studies. This is one aspect we flagged up as missing in the recent guidance around Wider Economic Impacts, as it would provide a good way of exploring the different parts of the guidance.

One specific technical issue (if not an actual barrier) related to WebTAG can be assigned to the use of forecast data. It is understandable that in the interests of consistency one set of forecasts are used (i.e., as in NTEM); the problem arises when this dataset becomes out of date. It is naturally a given that even before a forecast is produced that it is out of date but a conflict arises when, for example, NTEM provides one forward-looking message in terms of population change, and official data from ONS provides another. This happened when NTEM 6.2 was still being used some years after the Census data was available. (Indeed, it seems that the “Wider Impacts Dataset” is still using some numbers dating back to NTEM 6.2). We would urge a more managed approach to updates of such official data where WebTAG requires them to be used – although some of the proposed work around the uncertainty theme may help this whole area. Linked to this we would welcome more signposting to the ability to use local economic forecasts as a sensitivity test.

## **9. What more could be done to articulate the flexibilities in WebTAG and support scheme promoters apply the guidance?**

Recent guidance has some measure of emphasis on how WebTAG should be viewed as being flexible guidance rather than a set of fixed rules, and we welcome this. However, it is not clear whether this flexibility is understood. In particular there is great concern that should flexibility be exploited, then the department and others may raise objections upon submission of a business case, owing to the ‘guidance’ not rigidly being followed. Clarity and assurance would be welcome on this issue.



Given the complexity and specialisms inherent within WebTAG we would recommend increased use of:

- a) Workshops to enable/explore this understanding. A particular point here is that whilst the flexibility in WebTAG is welcome, scheme promoters should understand the extent of this flexibility – both to ensure they do employ flexibility when appropriate, but also recognise where guidance limits exist on this, to avoid challenges to schemes from DfT and others.
- b) A range of case studies (possibly including some of those alluded to earlier in our response) where this flexibility is used to good effect, in order to help promoters understand what flexibilities may exist.
- c) Some Frequently Asked Questions regarding WebTAG flexibility, with answers from the Department.

It is important of course that such workshops – as indeed any WebTAG workshops – should be conducted across the regions, to ensure the message reaches a wide audience.

The Department should also be cognisant of the fact that a large amount of local transport spending is now funnelled through Local Enterprise Partnerships in various forms. As a condition of their Assurance Frameworks, large transport schemes will be required to adhere to WebTAG and this will be tested with independent assurance. In the experience of scheme promoters, the lack of clarity on where there can be flexibility is creating additional work for both promoters and assurers completely out of sight of the Department as they struggle to adhere to rigid standards.

#### **10. How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance.**

We would again emphasise the importance of Case Studies – some case studies should be suitably high-level, focussing on examples of where Wider Impacts etc. have been used, but there should also be some examples where some detail, including listing of different WebTAG modules / databook elements used. (Be aware that some audiences might prefer almost a ‘worked example’, whilst those already somewhat familiar with WebTAG might not require quite such detail.)

Those familiar with WebTAG can navigate through the different parts of the current website and the modules/forms/data with no problem; however, the overall layout is not particularly intuitive. There are a wide range of possible design options to aid this.

- One would be to adopt a more ‘thematic’ approach, which might even mean that some resources appear in more than one location on the website. (This will of course mean a great deal of extra care is required when guidance is updated to ensure all sections are updated). The themes could be structured by type of schemes; or by types of impact.
- Another approach would be to have a book-style approach, with chapters marrying up to different sections/stages in a business case (and would be an evolution rather than revolution of the current approach).

Whatever changes in the way WebTAG is presented, more use could be made of incorporating ‘other relevant links’ on each page.



## 7. Developing modelling and appraisal tools that meet user needs

### 11. What should our priorities be for improving the development of modelling and appraisal tools *and why*? Please select up to three.

As we indicated early in our response, we welcome the theme around developing tools that meet user needs; although one common issue can be in terms of what data goes into any such tools.

Given the very different geographies the UTG MARG group covers, as elsewhere in our response, we would emphasise that different areas may have very different priorities. Our comments are thus of more weight than the implied rank order – this is especially the case for this theme, where arguably all of the items listed are of some importance.

However, besides those items we have listed below, investigation of new data sources should be a priority in this area.

<p><b><i>Improving NTEM forecasting</i></b></p>	<p>Improving the NTEM forecasting is probably of more importance than the functionality of TEMPRO. We would welcome:</p> <ul style="list-style-type: none"> <li>• Work that improves understanding of car ownership levels (for example, taking more account of ‘peak car’ theories).</li> <li>• Work that improves the forecasting of other transport modes (rail being particularly poorly served in this regards).</li> </ul>
<p><b><i>Improving functionality of TEMPRO</i></b></p>	<p>We welcome developments that improve the functionality of TEMPRO (although noting our comments made earlier regarding the need to deal with some of the data issues within). The consultation document mentions the possibility to show different scenarios; this would have value, but with regards to TEMPRO we would suggest activity needs reviewing on:</p> <ul style="list-style-type: none"> <li>• The rail demand side of the model (or an alternative tool for this).</li> <li>• Showing uncertainty levels in the outputs.</li> <li>• Optional incorporation of local forecasts which may under certain scenarios have more validity.</li> </ul>
<p><b><i>Ability to generate bespoke local forecasts</i></b></p>	<p>This would be useful for colleagues developing Local Transport Plans. There may also be benefits for working with Subnational Transport Bodies.</p>
<p><b><i>Developing robust advice on land use &amp; economic modelling techniques</i></b></p>	<p>It will be important to ensure that guidance keeps pace with the appetite for such models, especially given their importance where schemes have as their strategic aim “rebalancing the economy” rather than more ‘conventional’ aims. However, this option is perhaps somewhat repetitive from options shown earlier, so may not ‘fit’ here?</p>



<b>Modelling of freight</b>	We would welcome the provision of more work on this, an area which is somewhat neglected in WebTAG guidance. Particular areas of concern relate not just to domestic demand for freight (including changes in LGV traffic, a large driver of increased volumes) but also more strategic elements, such as what happens to flows when alternative ports of entry are used.
<b>Strengthening links with evaluation</b>	Throughout our response we welcome links that strengthen appraisal-evaluation links. One aspect we are particularly concerned with is in the fact that these links should be used to build up an accessible body of evidence, to better inform future scheme appraisals.
<b>National model development</b>	As is evidenced by our comments regarding TEMPRO, we are very concerned with some of the outputs from NTEM, specifically around public transport (and particularly rail, which suggests zero or low growth). This should be an area of some priority for work. Although we note that the tool is flagged as not being optimal for rail, there is also the point that if rail growth is not adequately allowed for, then road use is potentially overestimated. There is also some concern that the model is overly reliant on looking at commuting patterns, and does not adequately understand or represent changes in and the nature of other trips.
<b>Provision of advice on base year trip matrixes</b>	Whilst this is an area we see of being of some use, we would specifically flag up the problems that reliance on mobile network data can bring. Whilst undeniably a tool which is lower cost and more manageable than conventional tools, the wording of the text in the consultation raises concern as to whether a full understanding of some of the data weaknesses/issues exist.
<b>Logic-based sifting toolkits</b>	In generating options one aspect that typically underperforms in current tools is adequate understanding and representation of local strategic priorities.
<b>Developing activity-based models</b>	This would be an area of interest – although given the high levels of uncertainty that can be inherent in such models, may not be of such immediate priority as some of the other options in this theme.

## 12. How can we best encourage innovation whilst maintaining a consistent and robust approach?

It is understood that consistency is important in business cases and in the analysis that underpins them. However, it is equally understood that in many schemes different approaches may be required. We would specifically flag up here the use of alternative data sources such as local economic forecast which:

- a) may be more recent and hence accurate than national datasets;
- b) more accurately reflect the position of known developments and local strategies; and
- c) provide data at a more suitable geographic scale.



At the moment such data is often used to provide a ‘sensitivity’ test rather than the core case; it would be more innovative if this improved data provided the core case, with the national dataset (possibly TEMPRO) was a sensitivity (given the difference between such data, TEMPRO possibly being described as a “low growth” sensitivity). However, in order to provide some level of both assurance and consistency in the business case, it would be a prerequisite that WebTAG provides guidance around what assurance should be conducted to ensure the forecasts used are as fair – and consistent – as possible.

The same applies to bringing in data to business cases that comes from other models, such as models calculating WEIs, models looking at future transport choices, models predicting growth in specific target industry sectors; WebTAG should consider what needs to be done with the underlying models and their underlying inputs to ensure their outputs are robust?

### **13. What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?**

Most of our comments within this section can be referred to in the above sections. However, it would be specifically worth highlighting our concerns over the need for work that identifies both freight and active travel as areas where understanding on a range of issues are weak, and examination of emerging methods in this field – including perhaps identification of overseas research – may be useful.

We would also urge for work with other government departments, who may have emerging insights (such as into growth of different industry sectors, change in health, education levels) all of which can form the basis for better future-looking forecasts and values within WebTAG.

Going forward, continued engagement by TASM with other bodies working in this field – including the Urban Transport Group – will help to keep all stakeholders involved in identifying emerging techniques and best practice, ensuring that WebTAG remains world-class guidance.



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October 2018

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**Re: Response to DfT Transport Appraisal and Modelling consultation**

Dear Madam/Sir,

This response is intended as a contribution to the questions on housing and transport in chapter 6 of the consultation. It draws on experience in applying the TAG guidance on Dependent Development contained in Unit A2-2 on induced investments. The author most recently used this guidance while assessing options and preparing an SOBC for transport interventions in Thamesmead in south east London where enabling housing is a core scheme objective. This work was presented at the Transport Practitioners Meeting 2018 in Oxford.

While the client for this work was Transport for London, the views expressed are solely those of Wedderburn Transport Planning Ltd, an independent transport consultancy, and are intended as feedback from a practitioners' perspective. Overall, the framework for assessing transport in the context of dependent development is a useful one but the guidance is formulated in a manner that is suited to car-dependent greenfield development and that is not always relevant to the challenges of development in major urban areas. With several metropolitan cities in the UK now using their newly acquired powers to integrate sustainable transport and housing investment, it is an opportune time to update the TAG dependent development appraisal framework to better reflect new policy and governance.

*Dependency in the context of public transport led development*

The dependency test is defined as the question of whether a development is likely to breach a "reasonable level of service" in terms of transport network capacity, often requiring an assessment of impacts on both highway and public transport capacity (as illustrated by the East Reading Mass Rapid Transit example in the recent case studies published by DfT).

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However, capacity is not the only mechanism by which development can be dependent on transport. The planning system in London uses PTALs as a key metric to steer denser development to the most appropriate sites, and other major cities adopt similar principles. Many of the urban regeneration Opportunity Areas are located in ex-industrial brownfield sites with little access to the existing public transport network. As such they are quite literally dependent on public transport connectivity to achieve the levels of density at which they become viable. In these cases, the dependency test is self-evident, and in some cases (e.g. Barking Riverside) conditions of the planning permission are used to ensure that the transport connections are in place in advance of the full build-out.

Beyond the quantifiable transport planning metrics of connectivity and capacity, perception factors can also play a role. When faced with sites of this scale, developers may refer to factors that they believe are psychologically important to buyers, e.g. commute times of less than 45 minutes to major employment centres, direct links to major centres with no need to interchange, or simply the need to appear on the city transport map. If those responsible for managing and financing the development stress the need for these factors, they can become de facto dependency factors.

*Recommendation 1: Update the guidance on development dependency to reflect the wider range of factors affecting dependency in the context of public transport led developments in urban areas.*

### *Definition of preferred option*

Public transport schemes that are predominantly about unlocking land for medium-high density urban development can in some cases perform very badly under traditional transport appraisal terms. For example, extending an existing transit route to an area of what is currently industrial wasteland could have virtually no transport benefit with reference case demand.

In practice, most public transport schemes will have both transport and housing objectives. Yet the option assessment is by no means straightforward if one option offers the best value for money for existing transport users and another option maximises development opportunities. In these cases, scheme promoters need to be encouraged to set out these factors in a transparent manner.

### *Net impact (value and costs)*

The new TAG guidance on dependent development describes clearly the elements of value uplift and costs to be considered.

#### Costs of new development

The recent improvements to the guidance reminding scheme promoters to consider the potentially large non-transport costs (e.g. utilities) are a welcome addition and especially relevant to complex urban public transport-led schemes.



## Transport external costs

When using the dependent development framework to assess the external costs of public transport led housing development, the change in highway and public transport costs exerted on existing users is measured.

In the modelling framework, the change in highway costs ultimately comes down to the simple question of whether the mode shift effect on existing trips exceeds the new trips generated by the new development. As such the conclusions are extremely sensitive to assumptions on development trip rates and mode shift (see comments on modelling below).

New public transport links to unlock housing sites can benefit existing users through increased connectivity and/or capacity. They can also negatively impact on existing passengers through increased crowding. In practice, sites for new housing are often located on the edges of congested radial public transport networks, and transport planners are quickly able to identify the downstream pinchpoints on the network that may be affected. Indeed, this analysis should form part of the option selection process for identifying public transport schemes to deliver housing that are operationally feasible. The external costs on existing users, or additional costs in terms of mitigating interventions can then be factored in.

*Recommendation 2: Update the guidance on calculating transport external costs with examples of urban public transport network crowding effects.*

## Environmental and social costs

Public transport-led housing delivery imposes far fewer environmental and social costs, such as local air pollution and road danger, on surrounding communities than car-dependent development. The localised impacts will often result from the additional car trips generated by the development, although it should be explicitly recognised that in cases where the generated mode shift of the transport intervention exceeds the trip generation of the development, surrounding communities may experience a reduction in environmental and social costs.

## Land amenity value

This is less relevant to many public transport-led housing developments that are frequently urban brownfield rather greenfield sites.

## Land Value Uplift

Where sites are unlocked through public transport links, the rise in land value can be great. In TAG guidance it is assumed that the value rise overlaps with user benefits and Wider Economic Impacts, and as a result the land value is only used in the assessment of dependent development.

More fundamentally, however, is the question of whether this notion of financial value is appropriate in welfare appraisal. In an urban area with a housing shortage, public transport investment generates the connectivity and capacity to unlock higher density resulting in huge

value increases for individual landowners (and the resulting land speculation incrementally pushes up the viability thresholds for individual sites). Some of this value increase may be clawed back by transport authorities, either through direct financial contributions, associated fiscal mechanisms or indirectly through, for example, increased affordable provision on the site. The value to the local public authority may therefore be perceived in terms of this local net value impact, but coupled with an assessment of the economic, health, social and environmental value of development in that location as opposed to a different location.

Public transport-led housing delivery in a growing urban area will often be of significant economic and social value to the transport authority through the housing and regeneration impacts, the relatively low local environmental impacts and a financially sustainable business model for transport to serve the site. By contrast, new greenfield car-dependent housing may be of little or even negative value to the public authority if it extracts economic benefits from existing settlements in need of regeneration ('land value downshift'), imposes significant environment and social costs on surrounding communities, makes use of strategic road capacity for local trips, and requires socially necessary public transport to be subsidised.

### *Modelling*

One practical transport modelling difficulty encountered in this type of assessment is status quo bias. In a city-wide multi-modal transport model, trip generation, distribution and mode choice are calibrated to reflect baseline travel patterns. Where public transport-led housing developments are inserted into model zones previously dominated by low density development or even redundant industrial land, the default travel parameters are based on those observed in surrounding residential areas. These are frequently vastly different to the proposed development in terms of density, transport accessibility, tenure mix, skills levels, and ultimately travel behaviour. This is especially true where a high degree of parking restraint is used as a demand management tool in new development.

Some of the conclusions drawn in the dependent development assessment are frequently very sensitive to the development-related car trip generation relative to the estimated mode shift of existing trips. Hence it is clearly in the interest of a transparent assessment method that alternative travel behaviour assumptions and their impacts are presented.

*Recommendation 3: Update the guidance on development dependency to advocate the use of a range of travel behaviour parameters for modelling new development where it is clear that this is likely to differ substantially from surrounding residential areas.*

### *Wider Economic Impacts*

There is an inconsistency in the way that static Wider Economic Impacts are applied to transport schemes and housing delivery-focussed transport schemes.

In a standard business case the time saving benefits and static wider economic impacts are calculated based on changes in generalised costs using the Do-Minimum demand matrices. As stated above, transport schemes where the principal objective is unlocking housing may

produce few time savings for existing users. Similarly, while there may be no change in transport connectivity for existing residents and businesses, the increase in population in the enabled housing will, for example, improve labour market access for existing businesses.

This is particularly relevant for public transport-led housing delivery in major urban areas, where the additional housing is within a reasonable commuting time of high-productivity CBD locations with good public transport accessibility and thus leads to a marginal increase in agglomeration benefits. In these cases, the calculation of complex dynamic wider economic impacts would not be proportional because the majority of the benefits will be captured by a static assessment of the 'with transport and housing' scenario. This is because the highest productivity employment in CBD locations already tends to be highly clustered and the agglomeration elasticities in these locations are strongest, so the majority of benefits will be determined by access to a small number of locations (Pareto principle).

This same approach is less suitable to car-dependent developments because the connectivity impacts are more widely spread and affect sectors with lower agglomeration elasticities. Furthermore, the direct transport impacts and indirect land use impacts (sprawl) of highways-led development are more complex and may even lead to 'disagglomeration' relative to a Do-Minimum scenario or alternative packages of measures.

*Recommendation 4: Adopt a new approach to static wider economic impacts for public transport-led housing delivery in urban areas, enabling transport authorities to test the agglomeration impacts of enabled housing at individual sites or cumulatively for multiple sites using the 'with transport and housing' matrices from the dependent development assessment.*

#### *Application and assessment scale*

One general criticism levelled at the TAG appraisal approach is that by assessing individual schemes against a future year Do-Minimum scenario it values marginal improvements that are actually worse than the existing conditions ("not better but slightly less worse"). This approach can lead to a situation where multiple individual schemes in turn produce a marginal benefit in travel time savings against incrementally worsening Do-Minimum scenarios. Yet cumulatively, these schemes do nothing to address (or make worse) the underlying trends in the spatial distribution of economic activity and the wider negative externalities thereof.

A similar general criticism applies here too. The TAG guidance on dependent development specifically states that it should be used to assess individual large sites in relation to transport investment rather than development scenarios encompassing multiple sites. The application to individual sites and the use of 'switching values' to determine where development benefits are sufficient to justify schemes with lower BCRs simply accentuates the issue described above. The real value of the dependent development approach to transport authorities would be realised by determining dependency on a site-by-site basis, but assessing the economic, social and environmental value of alternative transport and development packages at an aggregate level. The benefits would be (a) the ability to plan for a future where wider economic indicators are maximised at minimal environmental cost, (b) the ability to plan for a future with an aggregate mode shift to sustainable transport modes thus producing a net positive societal

impact, and (c) cumulative assessment of impacts across the public transport network and the identification of the best value mitigation measures.

*Recommendation 5: While retaining the dependency test on a site-by-site basis, enable transport authorities to test the economic, social and environmental value of alternative transport and development packages at a cumulative level. This is a central requirement for a vision-led approach to integrated transport and land use planning and could form a useful contribution to the evidence base for Local Plan development.*

Yours sincerely,



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**Martin Wedderburn**  
Director  
Wedderburn Transport Planning Ltd

## **Appraisal and modelling Strategy Consultation – The Welsh Government’s response**

The transport modelling and appraisal framework fundamentally affects transport investment decision-making. For the UK Government, WebTAG is the foundation of this framework has acquired a reputation for guiding robust transport modelling and comprehensive and consistent appraisal.

However, given the significant changes within transport currently underway to travel patterns, demographic trends, and technology which are all likely to accelerate in the future, this review of the approach to modelling and appraisal is welcome and timely.

The devolution of some transport functions to the Welsh Government (such as rail franchising), but not others (such as rail infrastructure) means that the UK Government’s appraisal framework must meet numerous requirements, assess multiple criteria, and work across jurisdictional boundaries.

Our response has been structured under the five themes of the consultation. However, many of the issues are more general, cutting across more than one theme, and need to be considered across each one.

### **1) People and place – Capturing the range of impacts relevant for transport policy**

Where responsibility and funding for transport infrastructure and services is devolved, policies and expenditure can be better aligned with local objectives. However, where decisions relating to transport are taken by the UK Government, it is less clear how local priorities and requirements can and are being taken into account.

The Welsh Government and other public sector bodies in Wales have a duty to ensure that public funds are invested in a way which maximises their contribution to the goals of the Well-being of Future Generations (Wales) Act 2015: a more prosperous Wales; a resilient Wales; a healthier Wales; a more equal Wales; a Wales of more cohesive communities; a Wales of vibrant culture; and a globally responsible Wales.

When schemes in Wales are being considered, it is important that these priorities and goals are taken into consideration. In order to guide transport appraisal in Wales and align the transport appraisal framework with the Act, the Welsh Government published WeITAG (Welsh Transport Appraisal Guidance) in 2017. WeITAG contains guidance on the development, appraisal and evaluation of proposed transport interventions in Wales where the focus is on improving the four aspects of well-being in Wales: economic, social,

environmental and cultural. The Department's appraisal process therefore needs to consider how to take account of devolved administrations' priorities and obligations through its own decision-making.

The Department for Transport's appraisal framework also needs to deliver the Department's commitment made in the transport investment strategy to build a stronger, more balanced economy by "opening up central government decision making to ensure that infrastructure investment takes account of regional transport strategies and is targeted at rebalancing the country's economy." The existing rebalancing toolkit needs to be developed and embedded within the appraisal and decision making process to ensure that this requirement is given sufficient prominence and appropriate metrics produced and published.

## **2) Reflecting uncertainty over the future of travel**

It is clear from the different scenarios presented in the recent update of the road traffic forecasts that there is significant uncertainty around future traffic growth and trends. The range of potential outcomes identified (and their effect on traffic) inevitably leads to very different policy and infrastructure requirements. The historical over-estimation of growth across all modes in London and the south-east of England has led to transport infrastructure expenditure decisions in favour of schemes in these areas (and potentially become a self-fulfilling prophecy that has encouraged further growth, justifying further investment).

Understanding the performance of models through comparing outcomes with predicted effects is essential to improving forecasting and modelling techniques.

We anticipate working in the future with universities and other research bodies to develop our understanding of potential future trends, predicting transport impacts, and measuring their wider benefits. This will inform an approach that identifies preferred future scenarios and objectives, and then considers how transport can meet these. We would like to work with the UK Government on a programme of research that considers the uncertainty of future travel patterns and the wider societal effects of transport.

## **3) Modelling and appraising transformational investments and housing**

Both large and small transport schemes can have significant and far-reaching effects across the four aspects of sustainable development (economic, social, environmental and cultural) which underpin the Well-being of Future Generations Act, such as accessibility to

employment and services, affordability, health and well-being, resilience, viable communities, and protecting our culture and heritage. Many of these impacts do not lend themselves to monetisation, and those that can be monetised are often not included in a 'core BCR'. It is important, therefore, that non-monetised 'softer' impacts are given sufficient weight in the decision-making process.

One of the reasons for having detailed guidance on scheme modelling and appraisals is to promote consistency, allow comparison between schemes and allow prioritisation of expenditure. If additional benefits are being identified, modelled, and monetised, it will be important that these approaches are not used to enhance the economic case to justify 'transformational' investments at the expense of 'non-transformational' schemes which rely on less sophisticated modelling approaches.

#### **4) Supporting the application of WebTAG and making it more user friendly**

Because of the range of effects of transport schemes, the inter-dependencies with other areas, and the impacts that we attempt to capture through modelling and appraisal, it would be helpful for guidance to consider how to maximise links, manage dependencies, and acknowledge limitations with other appraisals, models and analyses (for example air quality, health and education services, and land-use planning).

An efficient and effective modelling and appraisal process needs to deliver a timely, reliable, cost-effective, and robust evidence base that can be understood and interpreted by decision-makers. The guidance in WebTAG can sometimes be onerous for practitioners and expensive for commissioners, and reiteration of its status as guidance and the need to apply proportionately is welcomed.

#### **5) Developing and maintaining modelling and appraisal tools to meet user needs**

The Department for Transport's pro-active approach to the development of overarching models and a forecasting framework is welcomed. However, it is also important that alternative approaches reflecting different priorities and perspectives at a local, regional, and national level are developed and recognised by the Department.

Given the interactions at a UK level, it would be beneficial for UK-wide models - such as the national transport model, national freight and aviation models - to be made available to

devolved authorities and regional transport bodies to inform sub-national models, test policies, and develop investment programmes.

Similarly, these models need to be supported by national and international datasets including trip origin-destination matrices and freight movements. Ensuring that data collection and surveys are conducted and designed to maximise value across the UK, and made more widely available would offer consistency and significant economies of scale.

The development of a new national transport model offers the opportunity to develop a more open and transparent approach and we look forward to being engaged as the scope and requirements are identified. We are also expanding our own modelling and analytical capabilities in Wales through the establishment of an analytical unit within Transport for Wales. The initial focus will be on the development of strategic regional transport models for Wales that complement the capabilities of the South East Wales Transport Model. We will also be considering an appropriate multi-modal forecasting framework for Wales that meets the needs of decision-makers, and ensures a consistent and proportionate approach to appraisal across all modes - including active travel.

Given the impact of the Department's appraisal and modelling strategy and WebTAG on decision-making across organisations and investment across transport networks, it is important that the framework is clear, the process is transparent, and the outcomes at each stage clearly communicated to stakeholders. On-going active engagement is needed to realise these requirements in order to ensure that the interaction between the UK Government's, devolved authorities', and statutory transport bodies' appraisal guidance and decision-making is clear, coherent, and consistent.



## **West Yorkshire Combined Authority response to DfT Modelling and Appraisal Strategy consultation**

Background:

West Yorkshire Combined Authority very much welcomes the approach taken and the themes identified in the consultation document and taken together will represent a substantial evolution of the governments approach to transport business case development – we applaud the ambition but recognise the scale of the challenge.

We are particularly pleased to see the prominence given to the “People and place” theme as this recognises that many transport scheme interventions and their business case development cannot be seen in isolation of the physical investment in transport infrastructure but needs to be seen in its wider context – in this respect we recognise that the department has been incrementally developing WebTAG guidance to address wider economic benefits but would urge that more is done to develop modelling approaches which explicitly address these benefits within the economic case elements.

West Yorkshire Combined Authority Works closely with Transport for the North on a wide of variety of business case development and appraisal activity and our response to this consultation should be seen in the context of TfN’s joint response to the departments consultation (in our response to some of the questions posed we will refer you directly to TfN’s response – especially in the key themes of addressing uncertainty in future travel and developing and maintaining appraisal tools to meet user needs).

Consultations questions

### **Theme - Priorities**

Consultation Question 1: Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?

- Broadly we agree with the themes identified – especially the focus on People and Place, Modelling and Appraising Transformational investments and Housing and supporting the focus on making WebTAG more user friendly. These key areas represent clear and present issues for the development of joined-up approaches in business development addressing transport, housing and place based interventions together.
- Additionally we would also suggest that development of the departments approach to modelling and appraisal should also reflect on the following additional themes:
  - Alignment with departmental appraisal guidance from MHCLG and DCMS (by way of example) – this theme could address issue of consistency of approach across government and where and how the department can play a leading role in developing guidance around transport interventions that are packaged with housing, regeneration and broadband connectivity elements.
  - Communication, learning and sharing on what works in the development of WebTAG guidance and its supporting evidence base. This theme recognises that we need to reflect on the learning from existing developments in WebTag guidance and find effective ways of capturing those insights from practitioners – finding ways of doing this more effectively will strengthen business case robustness.
- We would agree with TfN’s specific insights on rebalancing the economy in the development of the themes and strongly agree with the emphasis they have placed on the importance of skills,

employment and labour market effects which flow from investment in transport especially in a transformational business case context – this aspect of business case development is worthy of significant further research and recognises the North’s desire to reduce journey times and connect cities therefore creating new labour market catchments and interactions which do not currently exist.

Consultation Question 2: What considerations should inform the scope and priorities of our strategy, particularly over the first 18-24 months?

- We support the key considerations identified and addressed by TfN in their co-ordinated Northern response – those relating to prioritisation and modelling “pinch point” issues.
- More generally we feel that it is important that the department sets out clearly its forward research program and communicates across national and sub national partners (the main themes of the work, the objectives and time scales) whilst also prioritising a clear short term timetable of work designed to improve the usability of WebTAG in applied business case development – we are particularly interested in how these developments will materially improve the benefits which are captured in the economic case elements – by way of example:
  - We strongly echo TfN’s observations on the applicability and usability of the recently introduced “Re-balancing Toolkit” and would urge the department in its short term to work plan to look at the development of a more quantitative approach to the design of the toolkit and for clearer integration to the rest of WebTAG – especially in how values could be used beyond just strategic case elements.

**Theme – People and Place: capturing the range of impacts relevant to transport policy today**

Consultation Question 3: What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.

We support the key priorities identified by Transport for the North in their co-ordinated Northern response – especially these around welfare valuation of place attractiveness and supporting strongly the development of the departments understanding of VTTS (Value of Travel Time Savings) under different conditions

Additionally we would also highlight the following:

- The need for stronger guidance and development of appraisal tools to help practitioners undertake consistent and proportionate assessments relating to place depending on the size, nature and complexity of schemes. The CA devotes significant resource to support scheme promoters and any improvements in communicating and interpreting guidance with clear case studies will bring significant benefits at the sub national and local level to scheme development work.
- The department could strengthen its guidance and expectations around the role and applicability of LUTI modelling approaches in quantifying the spatial implications of specific patterns of development activity – more generally we would encourage the department to work more closely with organisations such as Transport for the North on the development and application of LUTI modelling techniques.
- A recognition that to many of the wider economic benefits that flow from place based investment in transport are grouped within the “Level 3” assessment of projects and can only at best ever marginally influence the value for money classification of projects – we are keen to encourage the department to think outside the box on this issue and to consider how some of these effects can be captured directly in the initial and adjusted BCR assessments. In this respect

we would sign-post the work of Dr. John Nellthorp and his team at the Institute of Transport Studies, who are currently developing a detailed and descriptive land value uplift model looking at the relationship between transport (by mode), connectivity, labour market and place based relationships (using an Hedonic Pricing and Geographically Weighted Regression approach) – this approach has great potential to advance quantification of place based benefits as part of the economic case elements and significant potential to improve the reliability and accuracy of LUTI modelling approaches. The approach being developed by the Nellthorp team also allows treatment of increasingly important place based environmental effects to be considered – key policy issues around air quality are highly relevant to the practical challenges that the CA faces in capturing positive and negative effects from air quality in business case appraisal and we would urge the department improve WebTAG's treatment of the valuation of these effects.

### **Theme – Reflecting uncertainty over the future of travel**

Consultation Question 4: What should be our priorities for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three areas.

Broadly we are very supportive of the collective priorities identified in the TfN co-ordinated Northern response especially the focus on development and consideration of scenarios beyond the NTEM central scenario.

On addition we would like to highlight the following:

- We welcome the proposal to develop an 'uncertainty toolkit' (we would welcome more detail on the approach and would like to understand how this will be implemented) we would also suggest that any approach used looks at case study examples illustrating how uncertainty can be presented for different schemes as this would be of great benefit and encourage consistency from scheme promoters and appraisers.
- We believe a significant area for development around reflecting uncertainty should flow from a focus on the presentation and visualisation of sensitivity around a 'central' scenario and that greater prominence around a range of scenarios for an intervention will help improve judgements on the performance of schemes in value for money terms.
- Predictions about traffic growth into the future have a large impact on the benefits of many of our schemes, and representing this within appraisal is an important issue. We would recommend that the department consider the recent work of the Travel Demand Commission (Professor Greg Marsden, Leeds University, "All Change: The Future of Travel Demand and implications for policy and planning, final report of the Commission on Travel Demand) – the key recommendations from the report are highly relevant to improving how we assess future demand across modes.

Consultation Question 5: What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these?

We strongly agree with TfN's view that we have to find ways of moving beyond the "predict and provide" approach to scenario development in business cases - when considering future capacity requirements.

In our view we should be actively developing scheme business cases to future proof transport networks around higher levels of demand (based on the best evidence we have now of future modal, demographic, economic and technology drivers) – equally this approach should address the vision and ambition associated with national, sub-national and local strategic growth priorities and

the role of transformational transport investment to reduce journey times and create new market catchments addressing latent demand opportunities for more people to use public transport networks.

### **Theme – Modelling and appraising transformational investments and housing**

Consultation Question 6: What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.

Whilst TfN's response to this question sets the context extremely well we would also add that the department itself needs to set out more clearly its understanding and typology for transformational projects and do this in a way that is "Joined Up" with (and informed by) thinking across other key departments – especially MHCLG.

TfN's response includes a helpful definition of transformational transport intervention – which we agree with – but we would also suggest that active consideration be given to how such a definition recognises differences in transformational scale nationally, sub nationally and locally – and that transformational projects at the local level can bring benefits which have significant local benefits which improve public transport demand and uptake.

Consultation Question 7: What transformational impacts do you currently find it difficult to represent in a scheme appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?

We strongly support TfN'S view that we need to improve the way we capture the often very strong strategic and wider economic case elements of transformational transport schemes and recognise that the current guidance and approach often means they have a poor conventional transport case. The department needs to work with TfN and sub-national partners to find ways of improving confidence in current level 3 impacts – so that transformational schemes do not lose out to smaller incremental interventions which deliver a good traditional transport cost benefit.

- We would urge continuing and renewed efforts by the department to formalise the guidance around the development and application of LUTI models. There should be a particular focus on obvious data gaps to inform model inputs and parameters. In this respect we believe the findings from the ongoing work looking at land value uplift (John Nellthorp, et al) could be very valuable in this context.
- We believe that in isolating the transformational impacts of schemes, care needs to be taken to avoid proposed modelling and appraisal methods becoming overly complex and losing transparency.

### **Theme – supporting the application of WebTAG and making it more user friendly**

Consultation Question 8: What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?

Consultation Question 9: What more could be done to articulate the flexibilities in WebTAG and support scheme promoters apply the guidance?

Consultation Question 10: How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance.

Please note we have taken consultation questions 8, 9 and 10 together.

- The Combined Authority wholeheartedly supports moves to encourage a more flexible interpretation of WebTAG, recognising the need for consistency with Green Book approaches and that transparency in guidance and application is maintained. We would strongly encourage the department to develop the use of case studies and applied worked examples across all modules of WebTAG so that scheme developers can see what the department is looking for. We would also support the department in more local best practice and learning events – although we recognise the resource implications.
- We would also encourage the department to look at ways of making standardised data available to local areas in the development of local strategic models – the cost of building and maintaining these models is significant – mainly driven by the underlying data required to populate these models. We feel the department can play a key leadership role in working across a range of partners (such as Highways England, HS2 and TfN) to drive down the costs of capturing and maintaining this data – whilst local authorities can focus scarce resources on addressing genuine gaps in local intelligence (for instance could more be done through existing data capture mechanisms such as the NHT survey).
- We agree that we need to get away from the phrase ‘WebTAG compliant’ and view WebTAG as a set of tools for the benefits of practitioner to select and use based on their knowledge and experience to reach the best assessment of the scheme.
- Alignment of WebTAG guidance with other key departmental business case guidance – especially MHCLGS’s 2016 Appraisal Guidance suite. We believe that significant methodological differences are now beginning to appear across both departments in key areas – such as the treatment of land value in scheme BCR’s and economic appraisal. We recognise that MHCLG’s 2016 guidance sought to clarify the valuation of transport benefits relative to development benefits but we feel a cross departmental approach is required to set out clearly the valuation of transport investment in large transformational housing and place schemes – if such guidance had been produced it would have greatly improved the approach being employed to projects being developed for the Housing Infrastructure Fund (by way of example).

### **Theme – developing modelling and appraisal tools that meet user needs**

Consultation Question 11: What should our priorities be for improving the development of modelling and appraisal tools and why?

Consultation Question 12: How can we best encourage innovation whilst maintaining a consistent and robust approach?

Consultation Question 13: What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?

Please note that we have taken questions 11, 12 and 13 together.

- We are very supportive of the consultation documents insight that “simple alternative approaches could be used at earlier stages in option generation and appraisals” – we would welcome innovation from the department and the evolution of the WebTAG guidance to help spell out and describe the approaches that could support appraisal tools that will help practitioners undertake consistent and proportionate assessments.
- We strongly support the formalisation of “appraisal handover packs” and firmly establishing requirements for monitoring and evaluation, including portfolio approaches to evaluation. It is important that monitoring and evaluation is clearly captured in project costs. It is to be welcomed that the department is strengthening its focus on the handover process ensuring that

lessons learned through a clearly designed monitoring and appraisal framework feed back into the development of future scheme design and business case development – we would also suggest that this could be a good way to strengthen the usability of WebTAG more generally with a focus on case studies to illustrate learning from evaluation that can be applied to future scheme appraisal.

- We are very interested in the development of tools to appraise active modes as these present particular problems because ‘valuation’ of many of the main impacts on these modes are difficult to assess (eg urban realm/environment, safety and security issues, perhaps within journey quality) but also because many schemes are developed in the expectation that they will cause significant increases in active modes – this could be an area where the department can provide more support especially when forecasting future modal distribution.

William Bramhill's Response

Dear Sir or Madam,

I am responding to your [consultation here](#).

Rather than answer your questions directly I am going to pass on my comments relating to my experience as a local transport activist.

Far more investment needs to go into local transport, especially in urban areas. This is needed to offset the huge induced demand for motor transport that will be created by new housing and the growth in main roads (in the case of my home town, Colchester, the A12 and A120).

As well as capital investment in buses and local train services, more needs to be done by way of [filtering](#) (think Walthamstow's mini-Holland), and the installation of Dutch-style cycleways on key urban routes to provide pleasant, separated conditions for cyclists and pedestrians.

It is vital for quality of life and public health that every urban scheme aims to reduce the number of journeys under five miles made by car and to increase opportunity/ability to cycle or walk — even if this adds to inconvenience/congestion for motorists making short trips.

Electric and AI cars have a place but while reducing pollution, they will not necessarily address congestion, health or motor vehicle dependence. I would also go so far as to say the idea of non-ownership is politically unlikely.

The current modelling scenario is one-sided. I have tried to influence several local projects but without success. In each scheme, the appraisal has failed.

One of these, a £1m shared cycle path in Mile End Road, Colchester, was clearly not going to work. I complained to Essex County Council and eventually won my case at the Ombudsman.

A second scheme (Brook Street, Colchester — already an AQMA) tried to relieve congestion by increasing throughput. Two years on and it appears that jams are no better and pollution has increased as a result, despite about £600,000 expenditure.

A third scheme (A133 roundabouts at Ipswich and Harwich Road — cost £8m) is currently under construction. Despite the funding being granted for an “integrated” scheme under, I believe, LSTF, very little is being done for cycling beyond renovating a single 1980s shared cycle route. Even with this, the wider car lanes will increase danger at one key point and no provision (on carriageway or elsewhere) has been made for north-south cycling on what the Dutch and Danes would consider main desire lines. The result is that the new roundabouts *may* relieve congestion in the short term but will not help beyond that.

While opposing the A133 scheme, I found:

- That my local authority had little or no understanding of a non-motorised user audit, believing that road safety audits were a satisfactory substitute
- That the non-mandatory application of DMRB in local schemes is used to skew designs in favour of motor travel to the virtual exclusion of other modes. DMRB's guidance on cycling and walking was ignored (extra pedestrian crossings were added and/or reinstated at a relatively late stage of design).
- That the DMRB rules on gauging which roads were “affected” in terms of air quality were not fit for purpose — especially the “first year only” rule.

I would go so far as to say that the A133 scheme could be used as a case study of the flaws with the current version of WebTAG.

This experience has convinced me that cycling and walking need to be treated as a national issue rather than left to the discretion of councils, especially with regard to funding and design standards. Wales has a national cycle design guide, why not England? The effect of the lack of active travel because of poor infrastructure is resulting in diabetes, heart disease, obesity and poor mental health: the need for a nationally co-ordinated approach exceeds that for the fight to reduce the harm caused by cigarette smoking from the 1970s-2000s.

To help improve the current situation, I would suggest that all local authority schemes over a certain value have to undergo a peer review by a government body to check that they are meeting targets for green transport; that the go-ahead for such schemes is dependent on an origin and destination study being part of the assessment, and for compulsory land acquisition (to help install walking and cycling routes) is made easier, almost certainly with the introduction of new legislation.

Yours sincerely,

Will





## WSP Consultation Response – Transport Appraisal & Modelling Strategy

<b>TO</b>	Department for Transport	<b>FROM</b>	WSP
<b>DATE</b>	11 October 2018	<b>CONFIDENTIALITY</b>	Public
<b>SUBJECT</b>	<b>Consultation Response - Transport appraisal and modelling strategy: informing future investment decisions</b>		

### Introduction

WSP welcomes the opportunity to comment and recognise DfT's step change in engagement with the industry which we see as being a very positive step.

The DfT's initial views on the five identified key themes and priorities for developing the evidence base and supporting users of WebTAG recognises that the future of travel is both more uncertain and more important than ever. Transport is experiencing a significant phase of change, driven by advances in the new digital economy, in turn influencing choices of where people and businesses locate and conduct their activities. Considering wider access and mobility needs will provide for an integrated approach to people, place and activity. Transformational growth objectives will help to realise this but equally forecasting into a future of multiple possibilities will result in increased uncertainties. Challenges exist in modelling and appraising this new landscape and it is hoped the DfT consultation will shed light on industry thought and experience in these areas.

Responses to the specific questions are provided below.

### Priorities

*1. Do you agree that these themes reflect the most pressing priorities for development of our Appraisal and Modelling guidance? If not, what other themes do you think we should be exploring?*

Of the themes identified we perceive that transformational growth and people / place reflect the most pressing priorities. The former based on economic imperatives and the latter relevant to the user experience. Other areas are important, including uncertainty and modelling approaches but they represent a secondary response to fundamental issues. The economic imperative of "rebalancing the economy" chimes with many of our clients. It currently manifests as a checklist "toolkit" however quantitative analysis could potentially be better explored to develop metrics to help inform decision making / prioritisation. This would allow wider utility to be quantified on a common basis, irrespective of locale or focus.

The industry would also benefit from a set of metrics focussed not only on large capital spending schemes but also on operational issues through better utilisation of existing networks, which are commonly sub-optimal and subject to regular disruption to the detriment of travellers. The ability to qualify and quantify the impact of network resilience would assist in enhancing the strategic case for those interventions which focus on better operation of what is already in-situ. Operational impacts of networks under reduced critical capacity and length of time to resolve incident impacts could be considered. Our research into expressway conceptualisation and capacity enhancement is indicating that this could provide a rich source of resilience benefit.

In addition, our experience is increasingly being called upon for environmental analysis such as Clean Air Zone modelling and appraisal. Activities most recently in Newcastle upon Tyne are calling for a significant increase in analytical segmentation by pollutant compliance and household income, to investigate charge

affordability and roadside impacts on NO<sub>2</sub>. In delivering CAZ compliance there is commonly a transport efficiency dis-benefit of remedial scheme implementation (traffic management measures, potentially pollutant charging), reliant upon environmental monetisation. Inevitably there is difficulty in a trade-off where the main positive impacts are challenging to monetise whereas negative ones are straightforward. It is by no means clear that the wider environmental benefits of cleaner air are being fully quantified, however in view of the ongoing objectives to balancing economy and environmental concerns some focus in this area is considered beneficial.

A further key area that is not sufficiently covered by the five themes is that of 'Before and After' Monitoring. The evaluation of road schemes is important and necessary as recognised in the Treasury Green Book. However, current methods do not provide sufficient information on outturn effects to form a basis for policy making. Nor does the approach provide sufficient information in assessing the robustness of the modelling form and forecasting capability of the transport model providing input to business cases. Only by identifying weaknesses in the current modelling methods can we improve on our approach and understand where greater functionality is required. It is therefore essential that process is re-evaluated with a desired aim of continual learning, ensuring credible and robust delivery.

### *2. What considerations should inform the scope and priorities of our strategy, particularly over the first 18-24 months?*

The initial stages of the strategy should focus on a balance of implementation measures aimed at providing maximum advantage over a short period of time. Clarification and focus would be welcomed on key areas of guidance including those "red line" boundaries considered mandatory, irrespective of new data sources and technology. Equally the implementation of "proportionality" could be clarified, both in guidance and amongst DfT officers. This would not necessarily represent new areas of consideration, simply signposting of existing process with consideration of proportionality dependent upon questions to be asked.

Major paradigm shifts in movement are unlikely to be realised over a relatively short period, nevertheless there needs to be recognition of the potential for these and there will be a need to put in place analytical work that may support the analysis of whatever emerges. The modelling and appraisal of Connected and Autonomous Vehicles (CAV's) is a case in point. Consequently, WSP would welcome the release of further research areas, exemplified by the Congested Value of Time study that we have recently delivered. By sharpening our tools at the earliest stage, it is hoped that the industry can move towards the necessary enhanced sophistication required to qualify and quantify changing patterns travel and technology.

WSP are encouraged that DfT recognise the need to address some of the issues raised in subsequent questions as early as is practical.

### **People and Place: capturing the range of impacts relevant to transport policy today**

#### *3 What should be our priorities for improving the appraisal of people and place and why? Please select up to three areas.*

- 1 **Social Benefits.** People and place represent the socio-economic and spatial segmentation that links human activity into the built environment. Transport inevitably impacts upon these dynamics. The recent Congested Value of Travel Time study conducted created an understanding of how income and time budgets impact perceptions of time saving. Beyond value of time saved from transport interventions there are secondary considerations of what can be accomplished within that time, including monetisation of non-economic activity such as social interaction, community cohesion and physical and mental activity. These aspects of society lead to welfare gain outside of the common understanding and could be important in spreading benefit into non-economic or marginalised groups.

- 2 **Reliability** also represents an area of dissonance which if measured, appraised and treated appropriately could lead to improved investment choices and better travel outcomes. Behavioural psychology suggests that people lodge the worst outcomes within their experiences to a much greater extent than more favourable outcomes. Willingness to pay for reliability could be reviewed from this perspective and should be recognised within appraisal to greater extent. Beyond this, quantification of resilience and the ability of systems and networks to bounce back from exogenous incidents would significantly enhance user experience under people and place.
- 3 **Urban realm valuation** recognises the contribution of transport schemes, across all modes, in delivering not only improved travel conditions but also betterment in respect of the built environment. These benefits may manifest themselves outside current monetisation. Equally they may be complementary to benefits already captured including second order impacts such as uplift in local rental values. This is important in that it encourages a holistic approach to planning, recognising that accessibility is not the only criterion. It is equally about people enjoying environs of travel also – package approaches that deliver such improvements. There is evidence that interventions WSP are developing in locations as diverse as Central London, Leeds and Great Yarmouth would significantly benefit from enhanced guidance in measuring and appraising such improvements which goes beyond transport, wider economics and land value capture. The avoidance of double counting of impacts is likely to present a key issue. DfT could assist with identification, review and endorsement of current best practice.

## Reflecting uncertainty over the future of travel

*4. What should our priorities be for improving our understanding and treatment of uncertainty in modelling and appraisal and why? Please select up to three.*

1. **Utilising Scenario Based Approaches.** Presently DfT is inclined towards a scenario based analysis consisting of core forecasting and an emerging set of alternative visions of the future based on economic performance, technologies and land-use assumptions. This provides alternative outcomes, dependent upon circumstance. Recently in delivering Strategic Development Corridor analysis TfN has experienced uncertainty on how to progress alternative forecast outcomes. In a future where economy, society, behaviour and technology are expected to change in ways which cannot accurately be predicted, scenario development is possibly more useful than probability based analytical outcomes. The DfT should consider methods that can generate different forecast outcomes at a local as well as a national level and to provide opportunities for decision makers to interpret the uncertainties, with potentially different conclusions on solutions and value for money, in a consistent manner.
2. **Sketch Planning Methods.** To speed up understanding of alternative scenarios and choices a more rapid “sketch planning” analytical approach could be beneficial. It would allow a better understanding of risk and could quickly advise on “what if” scenarios to rule in or out more detailed analysis. This approach would need to be appropriate and proportionate to the stage of a project and the likely areas of impact. Direct demand models, for example, could allow formulation whereby key variables would contribute to quantified uncertainty, permitting high level strategy through appropriate model sensitivity tests. DfT may wish to commission research into simplified models, including investigation into their compatibility with more detailed downstream analysis.
3. **Technological Uncertainties** can be encompassed by the concept of “New Mobility” which ranges from modest adaptations at the fringe of the travel market through to harnessing of new approaches in ownership and technology. These technologies are likely to experience a “tipping point” where initial limited uptake only has minor impact on outcomes whereas beyond a certain adoption the travel

market becomes “transformed” with both positive and negative outcomes. Positives could include cheaper and more efficient mobility. Negatives may include marginalisation and exclusion of sub-groups based on access to technology. Some greater investigation of intended and unintended consequences of paradigm shifts should be considered, both in respect of modelling and appraising behavioural outcomes.

*5. What do you see as the main challenges to adopting a more sophisticated approach to uncertainty in Business Cases and what suggestions do you have for overcoming these??*

Key challenges lie in correlation of multiple socio-economic trends. These deliver overall outcomes and yet are composed of specific detailed nuances which impact travel markets in numerous ways. They may include issues relating to residential affordability, trip rate changes for younger people coupled with mode choices and employment availability. Equally there are issues related to older population including retirement affordability and employment availability. Disentangling the subtle impacts of these trends will present a challenge any yet is key to enhanced understanding.

This leads to a general conclusion that aggregate modelling is approaching its natural limit where outcomes are likely to be based on specific and personal circumstances which reflect an increasing diversity of travel market and choice. A move towards activity and agent based modelling in respect of vehicle utilisation (distinct from ownership), trip generation and demand routines would help to achieve this. Evidence from WSP USA is that much of strategic model development has shifted to this approach, allowing response to uncertainty, technology and other market disruptions to be investigated. Resources to deliver this are significant, requiring understanding and synthesis of population data from sample of socio-demographic travel trajectories and disaggregate treatment of demand responses. Equally the rewards for adoption are evident in a rich source of disaggregate information which can be modelled and appraised to a greater level of detail based on circumstantial travel choices.

Whilst this remains as a long-term possibility the DfT should investigate and commission research on different model structures which already exist and now represent the predominant method in the United States. The DfT should consider whether overarching data processing and model development guidance can be provided in a manner which doesn't preclude innovation in these areas.

### **Modelling and appraising transformational investments and housing**

*6. What should our priorities be for improving the modelling and appraisal of transformational investments and housing and why? Please select up to three.*

The strategic objectives of transformational investments and housing extend well beyond ‘traditional’ outcomes. Therefore, WSP considers there are the following three priorities for improving the modelling and appraisal of transformational investments and housing:

1. **Relationship to growth.** Recent guidance has progressed how we capture these impacts but we need to build on this to support the ambitions of UK investment strategies. For example, WSP work on the Oxford to Cambridge Expressway developed appraisal and modelling tools to understand transport's impact on housing and job growth along the corridor and a consideration of productivity benefits beyond those generated by agglomeration effects. Also, key is appraisal of jobs and capturing wider economic benefits as well as social aspects, because well-connected communities are essential for a healthy society and infrastructure investment has an integral role to play in this. Therefore, interaction between transport and land use change and the importance of that to make the case for specific investment is only likely to increase;

2. **Accounting for Future Ready.** WSP has recently developed a Future Scenario Toolkit<sup>1</sup> as part of our Future Ready initiative to assist in determining likely changes that impact on investment choices and is utilising this for investment decisions on an Infrastructure Plan for Milton Keynes, building on our work for England's Economic Heartland on their Transport Strategy. Key aspects include appraisal across technologies and sectors, the role of big data and mobility changes, and these need to be better explored through appraisal and modelling techniques referenced elsewhere in this document; and
3. **Ensuring investment in the right projects.** The appraisal framework needs to include for cross-sector integration, and needs to set out a strategic case and an economic case that considers the full range of wider economic and social benefits. The appraisal must consider the widest possible range of benefits to be delivered through the planned investment and packages of projects, e.g. road and rail with housing, jobs and education etc. This could include wider economic benefits to industry and society from regeneration of underperforming areas, enabling business expansion, encouraging innovation, improving connectivity, tackling congestion and lowering carbon across a level playing field for different transport types.

We then need to learn from the appraisal and modelling work undertaken (together with the impacts and benefits of schemes delivered) to feed into future evidence to improve how we appraise and model infrastructure and make investment decisions.

*7. What transformational impacts do you currently find it difficult to represent in a scheme appraisal? What are the barriers to their inclusion and how would you suggest these are overcome whilst maintaining a consistent and robust approach?*

Transformative schemes are expected to realise a marked change in outcome. This could either be at the behavioural (forecast) or economic level. Whilst transport is not the only catalyst of transformation, it remains a key driver. Nonetheless full benefits can often only be realised through use of wider models, referenced by DfT as Level 3 analysis. Implicitly this suggests that transport is not the only active ingredient within a regional economy and linked demographic, economic and lifestyle models are required to be considered. Improved measurement and prediction of these benefits is necessary, including widely recognised ways of validating relationships involving major cost changes, such that techniques can be propagated across a wider range of potential advocates with attendant acceptance at DfT level.

Transformative urban realm schemes involve major change at a micro level. It is unlikely the same cost drivers as evidenced in macro models would be relevant. In addition to accessibility, transformation is based on ambiance and form, leading to upward spirals of activity, economic and social transactions. Blending micro level analysis with macro changes is not commonly undertaken and it is likely that such schemes will remain relatively under-forecast and under-valued in terms of outcome.

### **Supporting the application of WebTAG and making it more user friendly**

*8. What are the main barriers and challenges to applying WebTAG? How do you think these could be overcome?*

WebTAG provides excellent documentation and compilation of current received wisdom and best practice in modelling.

Its size and scope however can lead to accusations of out-dated content. The consultants are aware of the intent to refresh demand data modules but this sentiment can be extended into wider areas including supply side data, model form, realism and sensitivity targets to name but a few. DfT should continue the process of renovation. Data fusion will form an important area to focus on.

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<sup>1</sup> <https://www.wsp.com/en-GB/who-we-are/future-ready>

Despite the non-prescriptive intent of WebTAG, adherence to approaches rarely deviate from those published. Approval of non-compliant approaches is rare and yet budgets to ensure full compliance are even rarer.

To deliver any consideration of new technology within the confines of WebTAG proves challenging, from technological schemes associated with ITS solutions through novel perspectives on future travel behaviour through to new mobility modes including Mobility As A Service (MAAS) and Connected Autonomous Vehicles (CAV). Whilst current demand for detailed funding focussed studies in some of these areas is limited, it is timely for early trials of modelling and appraisal.

**9. What more could be done to articulate the flexibilities in WebTAG and support scheme promoters apply the guidance?**

WebTAG attempts to apply the principles of the Green Book, mandated by the Treasury, to transport investment. In many cases the intent of and outcomes from this are sound. However, WebTAG already recognises its limitations. The following quotation is from “An overview of Transport Appraisal”, Para 1.5.8 January 2014. *“Note that (WebTAG) is not a text book, nor does it recommend the use of methods that are at the leading edge of research. Where alternative techniques appear to be more suited to the case in hand, Project Managers will need to liaise with Senior Responsible Officers and the Department to agree on the best way forward”.*

This almost never happens based on the perceived risk of stakeholders (client, consultant and the department itself) in charting an untried path for technical delivery, which may be open to challenge.

Yet in the current climate where fast tracked delivery and technological components are frequently under consideration there are an increasing number of circumstances where either proportional application of guidance or alternative non WebTAG approaches may be valid.

WSP suggest that dependent upon stage or focus of study a signposted protocol be introduced to indicate how to proceed. This will ensure a trade-off of relatively rapid pre-feasibility outcomes (for example early Trans Pennine Tunnel studies) against projects which require higher levels of assurance. In addition, novel approaches to delivering forecasts and appraisal in New Mobility are necessary.

**10. How can we improve the way in which WebTAG is presented? Why? We are particularly interested to hear about how we can improve accessibility and clarity of the guidance.**

Drafting styles for guidance need to be attuned, dependent on intended publishing methods. Newer generations are more comfortable and adept with technology and as a result WebTAG is naturally focussed on browsing behaviour, often guided by an off-site search engine, or a central index of content on the site itself.

Mindful of enhancing WebTAG to suit the way it is read, the site should contain a greater use of linkages between areas that reflect the relationships between types and stages of model and conditional appraisal needs. Modelling and appraisal involves complex feedback mechanisms and the process is not always linear. Hyper-text protocol should be used to a greater extent to reflect this, allowing newer practitioners to comprehend modular relationships more effectively.

In addition, greater use could be made of illustrative examples. We welcome this approach, recently exemplified in the DfT publication “Capturing housing impacts in transport appraisal - Case studies”. This would allow readers to contextualise the technical approaches recommended. There could also be more detailed exploration of specific issues through linked slides or video presentations on “set pieces” that are commonly required.

## Developing modelling and appraisal tools that meet user needs

### *11. What should our priorities be for improving the development of modelling and appraisal tools and why? Please select up to three.*

Whilst there are many opportunities to improve modelling and appraisal on multiple fronts, three key areas are presented below.

- 1 **Disaggregate Choice.** Modelling needs a renewed recognition of disaggregate choice models, reflecting the increasingly heterogenous nature of society. This reflects the reality that people are not alike and a multiplicity of choices will prevail, dependent upon circumstance and preference. These are the principles behind agent based and activity based models which attempt to examine impacts on travel behaviour from demand through to assignment. Techniques such as population synthesis based on sample variables are increasingly being used to enhance levels of detail and to provide response to new mobility questions such as affordability of ownership or usage models through to the impact of connected vehicles on network capacity. The move towards this area may take time and comparison against traditional aggregate models will be necessary to establish suitability. The United States is a leader in this field and WSP has greatly contributed to the process. In that market we now predominantly develop models based on new choice architecture. Hybrid approaches such as improved tour modelling and more focussed segmentation may achieve earlier favourable results. Irrespective of the extent of progress, movement in this direction is recommended.
  
- 2 **Social Value Appraisal.** Beyond developing model systems there is a significant interest around “social value” within the appraisal community. Transport investment can offer changes in outcome across numerous areas. These can include designs which impact upon the cost of crime (in terms of economic loss, the criminal justice system, imprisonment, and knock-on social costs), the cost to public services and wider society of a road traffic accident, the cost of inequality (social and economic costs expressed through the benefit system, in the economy through people with poor educational outcomes having low disposable income and requiring more interventions by the state to live their lives productively) Health inequalities, and their impact on society at large, can be impacted by poor connectivity, leading to inadequate social care. A range of other complex factors present their own risks here. Significant costs come attached to these risks (not least in health, where a failure to intervene early can often lead to expensive acute interventions later – not to mention the wider cost of illness to society in terms of social bonds, communities and wellbeing). It would be worthwhile the DfT considering standardised / accepted tools to assess and capture such benefits around social value, ensuring consistency of approach.
  
- 3 **Contingent Valuation** Stated preference (SP) / contingent valuation (CV) represent an equally exciting area. The A303 Stonehenge has set a precedent in the use of CV in large transport schemes. It would therefore seem appropriate for the DfT to refer to SP / CV techniques in WebTAG, setting out acceptable methodologies and defining impacts within level 2 or 3 analysis.

### *12. How can we best encourage innovation whilst maintaining a consistent and robust approach?*

The willingness of DfT to discuss these aspects represents an excellent start to this consultation. WSP would like to see innovation captured through ongoing engagement with industry, with structures put in place to encourage more collaboration amongst key players, to their mutual benefit. This may take the form of working groups or consistency groups formulated to cover specific remits operating across tranches of projects that are facing common challenges.

For lower risk projects, where anticipated outcomes are better understood, DfT should consider reservation of funding and programme time to provide flexibility for innovative techniques to be embedded within delivery

methods. Hence new techniques can be tried and tested in circumstances where the delivery imperative does not overshadow the learning initiative.

DfT should consider to increasingly operate as an “intelligent client” in targeted areas allocating responsibility for the ownership, management and delivery of a defined project or range of services on behalf of part or all of the organisation, to that sub-group, who can then provide focus, support and valuable feedback to delivery partners engaged in novel areas of research / development.

In respect of the above objectives DfT should consider relaxation of bid and project delivery timeframes to allow innovation to flourish. In evaluating bids, the DfT should place an emphasis on innovative responses of tenders. There should be an expectation that these elements could impact the price / quality continuum and the risk profile for studies. Progression of innovation will inevitably command a price and the DfT should demonstrate willingness to pay.

### *13. What new and emerging techniques and methods should we potentially explore and what specific problems might they solve?*

WSP is pleased to see potential increased “blue sky” thinking in techniques and methods. We are currently conducting an internal WSP “Future of modelling” project, with global contributions, examining a wide range of anticipated trends and potential future techniques. We recognise that next 10 years will be significantly different to the last 10.

Beyond this there are ongoing initiatives to extend perspective to new scope and techniques, such as “big data” sources for transport demand development, which should also include data merging techniques. WSP has already provided some innovation in these areas in developing multi-sourced demand content for local models already accepted on DfT business cases (Great Yarmouth).

There are novel techniques available in economic appraisal to capture urban realm benefits, the most common is the TfL / TRL Valuing Urban Realm toolkit. It would be enormously valuable if these methods were assessed by the DfT to establish suitability for a wider roll out. TfL also have other tools to use in this vein, the ambience toolkit being another example.

For bus schemes, passenger quality impacts are sometimes assessed and benefits captured. This borrows from methods advised in Passenger Demand Forecasting Handbook (PDFH), and typically captures a handful of quality benefits derived from SP values. Again, TfL have advanced methods for this which suggest significant additional benefits. It would be useful for DfT to consider a separate TAG unit for capturing such improvement (potentially to sit alongside the active mode, rail, marginal external cost techniques) as bus analysis seems an obvious omission.

The Wider Impact Transport Analysis (WITA) tool arguably needs some review and readjustment. Without significant manipulation of data and outputs, benefits are commonly produced which are significantly higher than those anticipated or considered acceptable. WSP have already made adjustment in WITA emulation techniques to improve the realism and plausibility of results.

Agent based modelling and activity based modelling have already been raised with their attendant benefits in delivering bespoke travel demand and assignment activity. Sketchplan/feasibility modelling has also been mentioned. Offering more accessible and immediate analytical capability this type of modelling could be fused with GIS style software to provide rapid analysis albeit to a lower assurance level, which could be acceptable for specific circumstances.