



Department  
for Transport

# **Joint Analysis Development Panel**

## **Annual Report 2020-22**

April 2023

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## Forewords

This report covers 2020-22 to combine 2 years of Joint Analysis Development Panel (JADP) meetings. It has spanned a difficult period for the nation, as the COVID-19 pandemic unfolded with significant ramifications for the transport sector and the country as whole. This has raised significant analytical questions for the Department, which we explored throughout the course of 2020-22.

As we have balanced the needs of responding to short term analytical pressures related to the pandemic, with the underlying longer-term themes of our Appraisal and Modelling Strategy, JADP have offered invaluable advice to DfT on ensuring our analytical methods remain fit-for-purpose. We have continued to work effectively together despite all the meetings being virtual.

On behalf of DfT I would like to thank the JADP for continuing to engage pro-actively on a wide variety of topics over the past 24 months, which has provided the critical and independent challenge we need to deliver our modelling and appraisal ambitions. Special thanks go to my co-chair Peter Jones for his continued leadership of the panel.



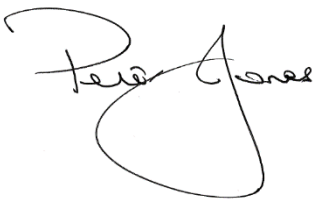
Amanda Rowlatt, Chief Analyst

This two-year report covers a very challenging period, both in terms of the range, speed of change and intensity of the issues that the DfT has had to grapple with; and the switch from physical to digital meetings, for events that have traditionally been very interactive and where much value has derived from side discussions during breaks. Thankfully, recent advances in broadband connectivity and software upgrades have enabled us to interact relatively freely, at a distance.

JADP's remit covers reviewing current guidance and practice, to ensure that it remains up-to-date and fit for purpose, and addressing emerging issues and requirements.

The former category has included topics such as updating the National Road Traffic Projections and the National Trip End Model, and looking at the further development of values of time. The basket of items in the latter category has grown rapidly. The Green Book review and the Levelling Up agenda have led to questions about how appraisal can be adapted and enlarged to incorporate new issues and priorities; COVID has highlighted the inherent uncertainties in forecasting and the need to make greater use of scenario planning; carbon accounting and the achievement of carbon reduction targets raises questions about how to address this in appraisal; while more extreme weather conditions have brought issues of network resilience and developing the associated business cases, to the fore.

I would like to thank all members of JADP for their thoughtful and insightful contributions over the last two years, and for the constructive ways in which DfT colleagues have engaged with and incorporated our recommendations into their on-going work. Particular thanks go to Amanda Rowlett, Chief Analyst at DfT, who has enthusiastically co-chaired the Panel with me, providing direction and leadership to DfT's work.

A handwritten signature in black ink, appearing to read 'Peter Jones', with a large, stylized flourish at the end.

Peter Jones

Professor of Transport and Sustainable Development, UCL

## Executive summary

1. The Department for Transport (DfT) is committed to maintaining and developing our appraisal and modelling methods so that our evidence base remains best practice. Working collaboratively with academics and stakeholders is central to this ambition and the Joint Analysis Development Panel (JADP) forms a core component of our academic and professional engagement.
2. JADP was established in 2015 to provide expert advice to DfT on its modelling and appraisal methods and strategies. It brings together academic and professional experts with senior departmental analysts and is co-chaired by the Department for Transport's Chief Analyst, Amanda Rowlatt, and Professor Peter Jones, Centre for Transport Studies, University College London.
3. The panel has continued to be at the forefront of shaping the analytical agenda over the past two years, with a focus on the delivery of priorities within the Appraisal and Modelling Strategy. Topics have included reflecting uncertainty in appraisal, valuing landscape, the future of the National Trip End Model.
4. Our discussions with the panel have helped to steer the delivery of key themes in the Appraisal and Modelling Strategy, expose challenges and uncertainties with developing and presenting our work and ultimately helped us to build more confidence in our modelling and appraisal methods. Looking ahead, the panel's advice will be invaluable as we reflect on how appraisal and modelling continue to support ambitious government objectives such as decarbonisation and levelling up.
5. This annual report summarises the panel's discussions covering 2020-22 and is published in the interests of transparency. We continue to be very grateful to all our panel members for providing their time free of charge.

# 1. Introduction

## Background

- 1.1 This is the sixth annual report of the Department for Transport's Joint Analysis Development Panel. It covers the panel's activities from May 2020 to April 2022. This report summarises the panel's discussions and impact and is being published in the spirit of openness and transparency.
- 1.2 DfT is committed to maintaining and developing our appraisal and modelling methods so that our evidence base remains best practice. Engaging with academics and stakeholders is essential to achieving this ambition and the Joint Analysis Development Panel is a key aspect of our engagement with academics and professionals.

## Membership

- 1.3 JADP brings together academic and professional experts with senior departmental analysts and is co-chaired by DfT's Chief Analyst, Amanda Rowlatt, and Professor Peter Jones, University College London.

## Format of meetings

- 1.4 The panel has met seven times over the past two years. Meetings are normally structured around two or three substantive topics with departmental analysts and on one occasion, JADP presenting papers for discussion posing key analytical questions.
- 1.5 Topics have been selected on the basis of DfT's priorities and suggestions from panel members.
- 1.6 The full list of topics for 2020/22 were:
  - A route map for updating Transport Analysis Guidance during uncertain times
  - Covid-19 Scenarios
  - The future of the National Trip End Model
  - Road Traffic Forecasts review: summary report



- Reflecting levelling up objectives in transport business cases
- Consulting on appraisal periods
- Optimism bias
- Valuing Landscape Visual Amenity
- Green Book Review
- National Transport Model Version 5 development and application
- Appraisal and Modelling strategy update
- Carbon and climate appraisal
- Developing TAG to improve carbon appraisal
- National Road Traffic Projections update and discussion on adjusting the NRTP to take account of Covid-19
- National Trip End Model Version 8 update
- Future development of the Value of Travel Time Savings
- Common Analytical Scenarios – Plausibility and Proportionality
- Update on carbon appraisal and embedded carbon

1.7 The following sections summarise the discussion at each meeting, outline next steps and provide further background on panel members.

## 2. Summary of Meetings

### Introduction

2.1 This section summarises the topics and discussions of the panel at each meeting over the past two years. All meetings were held online.

### Summary of discussion at 16<sup>th</sup> June meeting 2020

2.2 Topics for discussion at this meeting were: A route map for updating Transport Analysis Guidance during uncertain times, Covid-19 scenarios and the future of the National Trip End Model.

### A route map for updating Transport Analysis Guidance during uncertain times

2.3 DfT presented a paper setting out the department's proposed approach to updating Transport Analysis Guidance in light of several unexpected events that could have a significant impact on transport scheme appraisals. These included Covid-19 pandemic, a revised economic and fiscal outlook, the Green Book review with its focus on levelling up and the government's commitment to net zero.

2.4 The panel members supported the publication of a plan for addressing current and forthcoming appraisal challenges and agreed that the route map identified a comprehensive list of issues to be addressed over the coming year. There were a number of questions about how the issues relate to each other and how the cumulative impact would be considered. Furthermore, the issue of regional vs. spatial dimensions of appraisal was raised.

2.5 The following points were made in discussion:

- When the route map discusses the impact of different challenges, is it the impact on scheme value for money or the schemes themselves?
- The question of how carbon is dealt with in appraisal, in particular whether carbon ought to be in the economic case at all or considered at a prior stage. It was suggested that considering the carbon impacts of a scheme as a proportion of all carbon in the economy has no corresponding equivalence in other areas of appraisal, for example, time savings. DfT noted that carbon is part of discussion across government.

- On a practical level, the significant challenges of incorporating a large volume of changes were noted, along with the need for clear guidance on what happens to appraisals that are part way through or almost completed. It was suggested that it might be helpful to clarify those things that affect model runs and those that affect the economics/economic appraisal. For example, updated OBR forecasts affect both the modelling and economics whereas new landscape values only affect the economics. One panel member questioned whether there can be confidence in whether models are still fit for purpose given the huge uncertainties created by Covid-19 which may mean the relationships models are calibrated against no longer hold.
- It was questioned whether a consolidated release of formal guidance in February 2021 provided sufficient stability and whether the route map should make it clear when the next update might be. DfT clarified that guidance updates would revert to May and November following the proposed February 2021 extraordinary update.
- DfT noted that a central tenet of the route map is proportionality.
- It was suggested that the appraisal period and discount rate should be considered collectively in light of the Oakervee Review of HS2<sup>1</sup> which in turn should be set in recent history. It was suggested that a potential issue not explored in the route map is the 'shovel ready' criteria for schemes which may become increasingly important during a recession.

## Covid-19 Scenarios

- 2.6 The purpose of The Common Analytical Scenarios (CAS)<sup>23</sup> is to ensure decision making is resilient to future uncertainty, decision makers need to understand how the outcomes of spending and policy proposals may differ under varying assumptions about the future. DfT presented a paper showcasing a set of scenarios developed following Covid-19.
- 2.7 Panel members commented that an impressive amount of work had been undertaken to develop the Covid Scenarios.
- 2.8 Panel members noted that a global shock would likely lead to shockwaves running for many years into the future. The panel expressed caution about hiving off Covid uncertainty as different from other uncertainty in the common analytical scenarios.
- 2.9 Several panel members asked about supply side uncertainties, for example the impact of the pandemic on marginal costs of transport supply, and whether they have been considered. DfT responded that the scenario focus has been on exogenous uncertainties to the department that provide a counterfactual against which schemes

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<sup>1</sup> <https://www.gov.uk/government/publications/oakervee-review-of-hs2>

<sup>2</sup> <https://www.gov.uk/government/publications/common-analytical-scenarios-databook>

<sup>3</sup> <https://www.gov.uk/government/publications/tag-uncertainty-toolkit>

and policies can be set. It was noted that supply side constraints are indirectly considered within the lock down impacts on trip making.

- 2.10 Emphasis was placed on keeping a close eye on the latest evidence and for instance potentially using a larger sample size on the NTS (National Travel Survey). The panel suggested that the scenarios need to account for trends seen in the National Travel Survey between 2015-2018 which show a 30% increase in walking trip rates under 1 mile.
- 2.11 Consideration was given to whether the value of time should change if people are reluctant to travel due to fears around infection and crowding. A question was posed as to how insights should be used in this context to develop practical economic appraisal.
- 2.12 There were some questions over how public policy intervention and advice would be handled in the scenarios. Long term impacts will be dependent on the short-term policy response. DfT responded that the scenarios ought to cover a sufficiently stretching range of outcomes and policy response is likely to influence the specific pathway to an end state. The scenarios help to inform policy in a portfolio-based approach.
- 2.13 The panel asked whether DfT had evidence that the scenarios were indeed edge cases and captured the 'black swan' events. It was noted that scenarios can be time consuming and expensive to model so need to be proportionate.
- 2.14 It was suggested that at a local level the scenarios could differ significantly along with different demographics. Different trip purposes could move in different directions with for instance business and commuting trips down and holiday and leisure trips up. The team acknowledged this could be the case and that this would be given further consideration in developing the scenarios further
- 2.15 The learning from the Covid scenarios, such as balancing the richness of scenarios with understandability, were applied to the development of the Common Analytical Scenarios. This included applying the effects of Covid to the Behavioural Change scenario.

## The future of the National Trip End Model (NTEM)

- 2.16 DfT presented a paper discussing the results of the NTEM discovery<sup>4</sup>. One of the purposes of the study is to better understand how and why users engage with NTEM, challenges they face, how DfT can support innovation with NTEM and ultimately how to better meet their needs.

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<sup>4</sup> NTEM Discovery report - <https://www.gov.uk/government/publications/national-trip-end-model-discovery-report>

- 2.17 The panel largely echoed the report's findings and amplified some topics especially transparency, documentation, open data, mode split and scenarios. The importance of transparency was noted given how much is built on NTEM. There were also questions raised over the quality of exogenous inputs, particularly consistency of local authority dwellings data.
- 2.18 There was discussion that HGV freight generation and personal trip generation are completely independent, but that LGV freight and LGV personal trip generation probably interact.
- 2.19 It was noted that NTEM rarely touches academia and that there may be an opportunity to promote it as a research tool, for example through a PhD topic related to NTEM or training courses could be set up, possibly run with an academic partner. Different stakeholders could be brought together to discuss how to build up an intellectual community around it, possibly through an external NTEM oversight board.

## Summary of discussion at 13th October 2020

- 2.20 Topics for discussion at this meeting were Road Traffic Forecasts review: summary report, reflecting levelling up objectives in transport business cases and a draft consultation on appraisal periods.

## Summary of Road Traffic Forecasts review

- 2.21 DfT gave a summary of the paper noting that traffic forecasts have been published in one form or another since the 1960s. Following the publication of the 2018 Road Traffic Forecasts, the team has conducted an internal review to ensure the forecasts remain fit for purpose and are useful and deliverable. A wide range of stakeholders were engaged as part of the review.
- 2.22 The review concluded there were two key purposes of the RTF:
- credible and relevant projections whilst communicating the uncertainty; and
  - provide government and external bodies with forecasts that show current trends.
- 2.23 The panel supported the recommendation of renaming it to road traffic projections.
- 2.24 The review's recommendation for greater flexibilities and representation of uncertainty was generally welcomed by the panel. However, some panel members voiced concerns over a possible internal contradiction between on the one hand moving from forecasts to projections while on the other potentially giving more emphasis to the reference scenario in scheme appraisal by including it in the TAG databook.
- 2.25 Countering this, other panel members noted the need to have a reference case in order to assess the impact of different investments and policies. It was suggested that wording may be able to help, for example referring to it as a "common comparator" rather than something that suggests it's the "most likely" case. The

panel also cautioned, if people can choose from a range of scenarios, the risk of cherry-picking projections that suit the narrative, without the need to show a comparison with other possible futures.

- 2.26 It was also suggested that the removal of the reference case and move towards a range of scenarios that may imply demand could go up or down could devalue the discipline of forecasting. An argument was made for the need of skilled forecasters who are more agile to the dynamic environment we're in.
- 2.27 The panel raised the point of the burden on the modelling community from assessing different scenarios. DfT responded with plans to publish appraisal scenarios as part of the route map.
- 2.28 Other points raised by the panel included the issue of inconsistency across modes with terminology, for example the Passenger Demand Forecasting Handbook (PDFH) and road traffic forecasts. Comprehensive exploration of uncertainty would look at both exogenous and endogenous sources of uncertainty. The connection between the Common Analytical Scenarios could be made more prominent in the report.
- 2.29 While Connected and Autonomous Vehicles (CAV) are a good example of dealing with "wicked" problems in relation to future road traffic, the panel cautioned against being swept along by Silicon Valley hype, noting that other uncertainties may be 'more likely'.

## Reflecting Levelling Up in transport business cases

- 2.30 DfT introduced a paper on reflecting levelling up in transport business cases. Ahead of the final recommendations of the Green Book review, the team had been working to consider how DfT can support scheme promoters develop robust business cases for schemes with levelling up objectives. Emerging recommendations from the Green Book review aimed to respond to a lack of strategic coherence in the development of business cases and a disproportionate focus on the BCR which drives the way appraisals are carried out.
- 2.31 DfT's programme of work was divided into three workstreams: raising visibility of advice on levelling up through the use of a standardised set of data in business cases that provides information about the local context and the assessment of the impact of schemes on relevant metrics; accelerating research and filling evidence gaps and promoting the application of flexibilities in current guidance.
- 2.32 It was observed by panel members that DfT is ahead of the game in terms of appraising investment aimed at levelling up as transport investment analysis is inherently spatial. DfT has developed good theories of change and have thought about increasing returns and agglomeration. There's a question of how DfT makes the most of the evidence it has and leads thinking in this area.
- 2.33 It was suggested that a risk from the levelling up agenda is that a very large sum of money gets smeared across areas and has very little effect. When assessing metrics, it's worth thinking about whether they're going to encourage a general

smearing of spend across areas with little real value or whether the metrics will encourage strategic thinking and concentration of activity. For example, it was suggested that the metrics could include consideration of whether the project in question is part of a credible joined up package integrating DfT planning with that of other Departments. Broader framing could extend to transport's impact on health in addition to the economy.

- 2.34 It was suggested that DfT's Rebalancing Toolkit could play an important role in encouraging strategic thinking about possible impacts.
- 2.35 Greater emphasis on the strategic case was generally welcomed by panel members, including a clearer link to the evidence base.
- 2.36 It was noted that a challenge with the increased emphasis on place-based analysis relates to the development and use of spatial economic models.
- 2.37 The panel discussed the potential tension between national and local level analysis. Particularly, if the economic narrative focuses on the local story, how should this be presented alongside the national analysis, and would the national and local analysis be given equal emphasis? It was asked whether there is evidence of multiplier effects in local areas, moreover if there is investment in a place with little infrastructure will it have a greater impact than in another area with more infrastructure?

## Consultation on Appraisal Periods

2.38 DfT provided a brief overview of the draft consultation document. DfT noted they are planning to hold a public consultation on the appraisal period to make sure long-term aspects and benefits are reflected in appraisal. It was noted the timeframe in mind is 60 years and beyond and that the overall approach is as follows:

- Define the problem statement;
- Consider whether there is a case for a very long-term approach and, if so, possible methods;
- Look at the issue around value of time and discount rates – inter generational considerations;
- Consider increased uncertainty over much longer time appraisal periods; Finally, set out some options and criteria.

2.39 DfT then invited comments on 3 main points, these were as follows:

- Are there any considerations or evidence we have missed?
- What further research or analysis might we undertake during the consultation to help us make a final decision?



- What do you see as the key linkages to other issues being considered in the route map?

2.40 The panel questioned the timing of the consultation: why is now the right time to extend the appraisal period beyond 60 years? DfT clarified the reason for potentially moving to beyond 60 years is the current focus on long-term infrastructure investment across government.

2.41 The panel raised various concerns over extending the appraisal period beyond 60 years, not least because it would involve modelling under greater uncertainty. Some panel members questioned whether it would be credible to extend modelling beyond 60 years before having solved the gap between the treatment of uncertainty between 20- and 60-year time period.

2.42 The panel noted that to a large extent, this issue is more about making robust decisions under uncertainty so taking account of flexibility, fundamental characteristics of the investment, robustness under different outcomes and the ability to deal with unforeseen circumstances is more important than whether the appraisal period is extended from 60 to, for example, 70 years.

2.43 The panel noted that time savings are often the primary source of scheme benefits so assumptions over how the value of time is increased over time are crucial. One panel member urged a review of the argument that assumptions on the value of time fall outside of the Ramsey equation<sup>5</sup> given the marginal utility of income features in the estimation of both values of time and the discount rate.

2.44 It was suggested that using a staged approach or residual value techniques could be helpful. For example, stage 1 is to model over x years, stage 2 to extend/extrapolate to 60 years and stage 3 to look at the residual value. The concept of residual value is used in Australia and might be a way of navigating through this issue.

2.45 It was suggested that one of the most interesting impacts is how changing the appraisal period might change the benefits of investing in road vs. rail. Also, within rail, to what extent should we invest in rolling stock and track, with 30-60 year lifespans vs. tunnels and bridges which last substantially longer. It was also noted that some assets built for the long term don't stand the test of time, for example, canals and elevated motorways in the US that have been taken down because they weren't properly maintained. It was suggested that the characteristics of infrastructure that stand the test of time could be compared with those that don't.

## Summary of discussion at 24th November meeting

2.46 Topics for discussion at this meeting were optimism bias and valuing landscape visual amenity.

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<sup>5</sup> This is the equation used to derive the HMT Green Book discount rate.



## Optimism Bias

- 2.47 DfT had recently concluded a research project exploring rates of optimism bias<sup>6</sup> for use in transport appraisal. These represent the typical rates of cost overrun in projects and are estimated by comparing outturn data with estimates produced at different business case approval points. DfT noted there are many reasons why optimism bias happens, and the research found an average cost overrun of 30%, schedule overrun of 29% and average benefit shortfall is -7%.
- 2.48 DfT outlined the three steps of reference class forecasting (RCF): identify relevant reference class of past similar projects; establish probability distribution for selected reference class and lastly, compare specific projects with distribution, in order to establish likely outcome.
- 2.49 It was noted that this is the only existing method that takes unknown unknowns into account.
- 2.50 The RCF curve looks like a Standard ‘S-curve’.<sup>7</sup> It relates the required uplift to base costs to yield a given probability of staying within the given cost. It was noted that this work has increased the number of projects in the studies and also increased the scope of this work so we can look at Outline Business Case (OBC) and Strategic Outline Business Case (SOBC).
- 2.51 DfT explained they have been able to pool data from different reference classes to show overall cost overrun, schedule deviation and benefit deviation. This can show differences between, for example, bridges and tunnels. DfT noted a very large increase in sample size compared to the 2004 guidance document.
- 2.52 DfT added some clarification on the estimated OB rates for scheme benefits – these are based on a comparison of outturn and forecast demand within the first 5 years of scheme operation. As such they are a fairly loose proxy for long-run project benefits. It was noted that these may not strictly be regarded as “benefits” but should correlate to it. The panel noted there was not much of a shift from the OB in the middle part of the RCF but it comes at the start and end of the distribution.
- 2.53 DfT discussed reasons as to why the median OB didn’t change. Firstly, the risk primarily reduces as construction progresses. Next, the early estimates have an anchoring and lock in effect and lastly, scope change. The impacts of this might explain the behaviour of tails in the distribution.
- 2.54 The panel raised the question of how the research outputs will be presented to practitioners. Due to the level of diversity in location and area of project and, in

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<sup>6</sup> Optimism Bias

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/983759/updating-the-evidence-behind-the-optimism-bias-uplifts-for-transport-appraisals.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/983759/updating-the-evidence-behind-the-optimism-bias-uplifts-for-transport-appraisals.pdf)

<sup>7</sup> Technically, the ‘S-curve’ is the inverse cumulative distribution function, also known as the quantile function.

regard to optimism bias in benefits, what should practitioners do if we realise that our benefits aren't realised fully?

- 2.55 The panel mentioned the possibility that OB is treated as steady state phenomenon and questioned to what extent temporal variation was considered when comparing projects, to see if over time there is a change in OB. They also noted that over time there should be an expectation that there is a convergence between expectation and actual. How is the analyst's expectation changed knowing OB will be accounted for – do they change their behaviour?
- 2.56 The panel noted the potential usefulness of guidance on how optimism bias is used for maintenance costs.
- 2.57 The panel noted that it was a hugely impressive database but questioned if the consultants' assumed positive association between opening year demand and project benefits could be dubious and work in the wrong direction. Examples of this could be relief roads or induced traffic, which may erode project time savings relative to the counterfactual.
- 2.58 The panel stated that the counterfactual should be treated in the same way as the proposed intervention. Evaluation is key to understanding the cause of the underestimates.
- 2.59 DfT mentioned that while the OB rates on costs are directly applicable to a scheme's estimates, the approach for benefits is much cruder and essentially focuses on do-something forecast accuracy. In reality, benefits are a function of the difference between the do-something and do-minimum forecast accuracy, and also reflect economic valuations of quantified impacts. The team thought there is not much merit in taking this into guidance.
- 2.60 The team has looked at OB over time and it has not changed significantly, any dynamic changes in analyst's expectation is unlikely and beyond the scope of this work.

## Valuing Landscape Visual Amenity

- 2.61 The panel was asked the question, can we estimate the value people place on the views of their surrounding landscape, and how do we design a study that would do this? In transport appraisal this is relevant, because transport schemes both (i) use up land that itself had a positive visual amenity impact; and (ii) cause visual blight for the surrounding areas.
- 2.62 It was noted that the current process is to use a set of values from 7 different land types, from a literature review produced in 2006. Visual amenities are not included in a scheme BCR but can be brought through into the overall VFM case for it.

- 2.63 A review<sup>8</sup> was undertaken in 2019 which, in addition to reviewing the rationale, supporting evidence and assumptions behind the current approach, also assessed the potential scope for introducing and integrating an ecosystem service (ESS) based approach.
- 2.64 In summary, the review recommended updating some of the assumptions underpinning the derivation of the current landscape values to be better aligned with the rest of TAG regarding income growth and appraisal periods. It was also recommended to include high and low sensitivity values. The review assessed a wide range of studies that in conclusion found there was no robust UK specific evidence that could form the basis of an approach. The report recommended taking forward repeat sales approach and/or a stated preference survey to provide more robust, UK focused valuations.
- 2.65 The panel noted the need for a tight definition of what is meant by landscape. More substantively, some members were more attracted to the hedonic pricing method to landscape valuation which exploits variation in property prices. They felt this approach could be transferred to this work. The panel noted the use of both hedonic pricing and stated preference as alternative approaches to valuing landscape impacts. A potential reason for both of these approaches is that not all people can afford to purchase houses, so stated preference and hedonic pricing could give a range of values and then hedonic can give absolute values.
- 2.66 The panel noted it isn't clear whether people involved in a house transaction are able to gauge whether the perceived value reflects the actual landscape value. It was suggested that one way of dealing with this would be to develop values for each relevant "type" of person, for example visitor, homeowner etc.
- 2.67 DfT noted the need to justify the robustness of each method. DfT also acknowledged other factors such as income elasticities and changes in property age, which need to be controlled for. However, it was noted that there doesn't seem to be the case for moving this category of impact to level 1 or 2 and that it should remain an indicative monetised impact.

## Summary of discussion at 18th May 2021 meeting

- 2.68 Topics for discussion at this meeting were: Green Book Review and National Transport Model v5 development and application.

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<sup>8</sup> Valuing Landscape Visual Amenity

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/942839/valuation\\_of\\_landscape\\_impacts\\_of\\_transport\\_interventions-document.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/942839/valuation_of_landscape_impacts_of_transport_interventions-document.pdf)

## Green Book Review

- 2.69 The panel was presented with DfT's initial reflections on the review<sup>9</sup> and set out our planned work in response, noting there's a clear opportunity to build on the current momentum to implement the review's recommendations.
- 2.70 The work programme has been built around a number of themes which summarise how we are responding to the findings of the review:
- Raising the visibility of relevant analysis;
  - Highlighting existing flexibilities;
  - Updating guidance;
  - Developing the evidence base;
  - Improving capacity and capability – embedding changes in practice.
- 2.71 Our approach to taking forward the work programme recognises the breadth of the recommendations made in the Review and the scope of the challenge in driving changes in existing behaviours and attitudes towards business case development and decision making. TASM are working closely with DfT's Strategy Unit and with policy and analytical colleagues across the Department to identify and drive the changes required.
- 2.72 DfT welcomes the findings of the review. We believe we are well placed to respond, for example, transformational investments are a key theme in our Appraisal and Modelling Strategy and we have been working on aligning the strategic and economic cases. There are, however, some additional aspects to focus on. These include raising the visibility of analysis that is being done and providing support around the application of existing guidance. As part of this, DfT plans to undertake research on appraisal practice to gain an overarching view on appraisal practise in the industry.
- 2.73 It was noted that DfT is undertaking research to provide case studies on the conditions that need to be in place to deliver transformational impacts and will review the value for money (VfM) framework in light of GBR recommendations on increasing prominence of levelling up and carbon.
- 2.74 In response the panel challenged that the proposed work came across as onward incremental improvement which, while welcome, may not be sufficient to deliver the desired outcomes. There was a question whether the work programme is proportional to the findings of the Review, noting that the criticisms in the GBR have wider implications than writing better cases and are very critical of BCRs, so much

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<sup>9</sup> Green Book Review - <https://www.gov.uk/government/publications/final-report-of-the-2020-green-book-review>

so, it was argued, that it potentially raises questions around projects that have been supported in the past.

- 2.75 It was noted that there's a need for integrated transport appraisal, joining up land use and transport planning. More work is needed on cross sector appraisal. While technical work is moving in the right direction the desired outcome is that better decisions can be made. DfT noted that while the focus of the discussion paper is the technical appraisal, the response as a whole is as much about the policy and decision-making frameworks. TASM is working with Strategy Unit to make sure we are reaching policy colleagues. The panel noted the importance of linking the strategic and economic cases.
- 2.76 The panel noted that, historically, appraisal focuses on individual schemes rather than the programme/strategic level which will be the focus of action aimed at levelling up. The panel asked whether programmatic appraisal is being addressed as part of the GBR implementation. There was a suggestion that scheme level appraisal could be pushed towards an assessment of cost-effectiveness rather than benefit cost ratios. The challenge of making appraisal tools suitable for projects that are bigger than usual was noted.
- 2.77 The panel noted that it would be worth revisiting the rebalancing toolkit to assess who has used it and where it has been used well. DfT noted there was ongoing work to engage with stakeholders to understand the toolkit's use.
- 2.78 It was suggested that place-based appraisal is harder in transport than other departments/sectors due to the two-way road problem.
- 2.79 One panel member commented that, in terms of the review, what was most striking is what hasn't changed, in particular the discount rate where stability of the appraisal system is paramount. This puts considerable pressure on modelling when we're operating in a turbulent environment.

## National Transport Model v5 development and application

- 2.80 The introduction updated the panel on the development of NTMv5, plans for testing the model and proposed handling with both NTMv2R and NTMv5 in use for policy analysis.
- 2.81 The following points were made in discussion:
- 2.82 The spatial detail in NTM is a significant step forward in DfT's national modelling capability but further consideration of the compromise between faster run times and more detailed analysis is needed.
- 2.83 In regard to testing, it was suggested that it would be useful to compare NTMv5 with other models, for example Highways England's regional models in order to test the assignment side. TASM noted they are also now in a better place to share data models with the likes of HE.

- 2.84 The panel noted there had been previous discussion on model tests which it would be useful to refer to.
- 2.85 It was suggested that validation tests should be undertaken at the most detailed segmentation both models can manage to understand elasticities.
- 2.86 The panel asked about the treatment of speed limits in urban areas. DfT noted that fixed land speed research should be published in June<sup>10</sup>.
- 2.87 The panel noted the importance of HGV/freight modelling and welcomed the latest work on LGVs by DfT.
- 2.88 DfT made the point that with two models in operation it will be important to understand the reasons for different answers in order to understand which model is best suited to each question. We would need to know why the answers are different to get real value from them.
- 2.89 It was noted that a faster running model is useful, whether that's V2R or otherwise, and that model could use the elasticities in V5. Having more information on these elasticities would be good for faster running models.
- 2.90 There was agreement that income segmentation is important, particularly for pricing and other policy interventions that have impacts on different income bands, including levelling up which is often geographic but also demographic. It was also suggested that gender and age are important, particularly age given the importance of understanding dynamics of behavioural change over time. Consideration needs to be given to the value of segmentation versus other elements in the model that add to run times.
- 2.91 The panel suggested that a priority should be understanding digital substitution and who is able to do their work digitally, who is left travelling and what this can mean for public transport demand. It was suggested that allowing a 'what if' test for digital substitution in other areas would be useful, although this is a wide modelling challenge and not only related to NTM v5.

## Summary of discussion at 6<sup>th</sup> July 2021 meeting

- 2.92 Topics for discussion at this meeting were: Appraisal and Modelling strategy update and priorities going forward.

## Appraisal and Modelling strategy

- 2.93 DfT introduced the paper on priorities for the remainder of the Appraisal and Modelling Strategy, which is halfway through its five-year time horizon. The paper includes a long list of options and acknowledges that prioritisation will be needed and that the team will need to build in some time to react to external events, as the route

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<sup>10</sup>Urban Road Speed Changes research - <https://www.gov.uk/government/publications/teletrac-navman-traffic-speed-data-longitudinal-analysis>

map<sup>11</sup> has demonstrated. DfT noted that it would be good to have an open discussion about priorities. The paper takes the five themes in AMS as the starting point:

- 2.94 **People & Place:** developing the evidence base to ensure people are at the heart of decision-making; place-based impacts, social and distributional impacts and wellbeing.
- 2.95 **Uncertainty:** continue our evolution on uncertainty and scenarios, using feedback from the Uncertainty Toolkit<sup>12</sup> as we go.
- 2.96 **Transformational Investment & Housing:** immediately clarifying guidance in support of the levelling-up agenda, but we need to continue bolstering the evidence base on Wider Economic Impacts and the role of Supplementary economic modelling
- 2.97 **TAG accessibility:** the review looking at behaviours around TAG and its application and getting this underway in earnest, opening out and encouraging best practice and mitigating misinterpretation; this links through to GBR and strategic work.
- 2.98 **Modelling:** major NTEM update, review of modelling guidance underway, including freight and evaluation.
- 2.99 The panel noted that the paper would benefit from consideration of the changes we're going to be experiencing over the next 10 years and what the issues will be, for example, the consequences of where people live and work, electric vehicles, the bus strategy, what levelling up means. There's a need to consider firms and jobs, not just people.
- 2.100 The importance of decarbonisation was emphasised by the panel. It is not the only issue but is the only issue that affects all the other issues on the agenda and is now an issue of urgency - 2050 is only the first half of the appraisal period. There was support for a decarbonisation theme in AMS and a question whether consideration of carbon should sit at a higher level in the appraisal framework.
- 2.101 The panel noted the issue of Scheme v Strategic level appraisal. TAG pitches at the scheme level, but a lot of big-ticket things are focused at the regional level. So, there is a strong argument for reformulating at a more strategic level in those cases and also, should appraisal then just focus on cost effectiveness.
- 2.102 It was acknowledged that it's important to differentiate between short run and long run elasticities as TAG doesn't give guidance here. Specifically, we need to think about the dynamic process through which short term translate into long term over time.
- 2.103 There's also a places element and the link between short distance journeys and longer journeys on the strategic network – we can't change the frequency of short

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<sup>11</sup> TAG Route Map <https://www.gov.uk/government/publications/appraisal-and-modelling-strategy-a-route-map-for-updating-tag>

<sup>12</sup> <https://www.gov.uk/government/publications/tag-uncertainty-toolkit>



distance trips without changing frequency and journey length distribution of longer journeys.

- 2.104 The panel also raised the point that how we use our models is likely to change over the next 10 years or so and therefore the capability of reflecting behaviour. How do we represent weekly rather than daily travel patterns if we have increased work from home and increased local trips replacing commuting trips. Models aren't currently well placed to deal with localisation of travel e.g. 30-minute cities as we don't have the spatial detail.
- 2.105 It was noted that there's a difference between importance and urgency which could be useful when prioritising development of TAG.
- 2.106 The review of priorities could consider how to make better use of what we already have. An example is whether there is good evidence on how the rebalancing toolkit is being used that would help build a stronger link between the strategic case and the economic case.
- 2.107 **People and place:** The panel suggested that there could be a more fundamental issue around the quality not just quantity of time spent travelling, for example, crowding may become much more significant in people's decisions. Further to this, congestion values of time pivot off pre-Covid values, so the question was raised as to how robust will baseline values be in the post-Covid environment. Some panel members suggested values of time would be less important in the future and that schemes will not be driven as much by VoT as they have in the past.
- 2.108 The panel noted that urban realm issues and wellbeing are likely to become increasingly important. It was suggested that more and clearer guidance on social impacts is needed. It is currently challenging for people to tackle social impacts using TAG.
- 2.109 **Uncertainty:** One panel member suggested that two scenarios will be more important than ever, firstly what happens if we fail to meet global carbon targets and secondly, what it looks like if we succeed and accomplish shift from vehicle travel to walking, cycling, public transport. What is the economic geography for that?
- 2.110 There was a consensus that uncertainty is going to continue to increase in importance. One panel member questioned the shelf life of the Common Analytical Scenarios and that we should consider the communication that go alongside the release.
- 2.111 **Application of TAG:** It was suggested that the team should prioritise this over some of the other parts overall, partly because there is a lag between dealing with complexities of guidance and people using it in practice.
- 2.112 It was noted that case studies have been well received, they bring the guidance to life and show what is possible.
- 2.113 **Modelling:** The panel noted that they would like to see more on segmentation in models and that how we use our models is likely to change over next 10 years or so.



2.114 The panel also asked the following questions regarding modelling:

- How does the National Transport Model v5 stack up in terms of future needs?
- What are the policy issues which we'll need modelling for? How will that be undertaken?
- Are our models capable of reflecting behaviour, distributional impacts and how good are our models in terms of winners and loser?

2.115 **Transformational impacts:** In relation to supplementary economic modelling, it was noted that there are issues with data. And the following questions were raised: Do we have good enough data to achieve what we want to do? If not, then what should we be recommending in terms of what data we need to collect and how to use it?

2.116 In terms of levelling up and economic impacts, we still have the twoway road problem as it is not always clear where the benefits are going to realised. One panel member noted that there are more interesting questions than agglomeration elasticities, for example, what it takes to get local labour markets working and firms relocating. The panel expressed that there is a need to grapple with land use issues on a bigger scale than just tweaking the rule of a half<sup>13</sup>. The current way these impacts are being modelled means people lack confidence in the outputs.

## Summary of discussion at 18th October 2021 meeting

2.117 Topics for discussion at this meeting were Carbon & climate appraisal and developing TAG to improve carbon appraisal.

## Carbon and climate appraisal

2.118 JADP presented a paper on carbon appraisal. In summary, two scenarios were proposed: one with runaway climate change and one where we successfully limit climate change. The panel asked the question as to how well using methodologies of equilibrium relationships based on cross section data copes with the effects of climate change itself. Particularly, concerns about new dependent variables of interest and new policies which influence them, and a world in more or less permanent disequilibrium.

2.119 A JADP discussion with devolved administrations was also proposed as they are dealing with the same issues.

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<sup>13</sup> Rule of a half

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1079012/t-ag-unit-A1.3-user-and-provider-impacts.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1079012/t-ag-unit-A1.3-user-and-provider-impacts.pdf)

## Developing TAG to improve carbon appraisal

- 2.120 DfT presented their workplan and noted it responds to a lot of the points raised in the carbon and climate appraisal paper. The paper outlined the importance of a more full and transparent presentation of carbon impacts at all scales of projects and that this is particularly important for schemes with an objective of decarbonising, and also capturing the carbon impact of highly polluting schemes.
- 2.121 DfT emphasised that putting carbon front and centre should draw decision makers' attention to it.
- 2.122 DfT pointed out that it is important to consider what metrics are used in the presentation of carbon, as the benefit cost ratio (BCR) is a summary metric that includes carbon together with other appraisal impacts. In addition, TASM noted they are working on making the links between the strategic and economic dimensions clearer in business cases. Another significant issue is the treatment of capital or embedded carbon.<sup>1415</sup>
- 2.123 DfT updated the panel on the Common Analytical Scenarios (CAS). TASM have added another decarbonisation scenario to the draft scenarios presented in the Uncertainty Toolkit. Since releasing the toolkit in draft, TASM have undertaken further engagement with a view to capturing the envelope of electric vehicle costs with two separate decarbonisation scenarios; 'mode-balanced' decarbonisation and 'vehicle-led' decarbonisation. The former assumes electric vehicle (EV) running costs are equalised with those of petrol and diesel cars, while in the latter EVs retain their current significant running cost advantage.
- 2.124 There was general agreement among the panel that there is a risk that modellers using TAG are concerned with painting the black box models to match what DfT want. There is a real role for DfT to act as guides and point out what has changed and to help share understanding of key things we should be looking at, some of which aren't catered for currently. There are significant issues that aren't strictly transport, for example, land use change and having houses much nearer to jobs and in education, children going to the closest school. How do we as a profession understand what are the big things that have changed?
- 2.125 DfT noted there's a challenge of how we communicate carbon – what does a table with tonnes of carbon really mean? DfT raised the question as to how we present information and advise decision makers? How do we expect decision makers to respond to this additional information we provide? Carbon is very different from place-based analysis where ministers decide where they invest.

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<sup>14</sup> Following correspondence issued by DfT to arm's length bodies in January 2022, DfT 'Tier 1' projects are now expected to undertake whole life carbon impact assessments at all business case stages in accordance with the principles of the PAS 2080 framework. To support this, TAG has been updated with references to relevant supporting guidance such as RICS (2017), although there remains significant scope for its coverage on the topic to be strengthened over time as more relevant and robust data, evidence, and tools are developed.

<sup>15</sup> RICS, 2017. Whole life carbon assessment for the built environment.

- 2.126 It was suggested that the CAS decarbonisation scenarios are too focused on technology and neglect some of the other policy decisions needed to decarbonise, for example, walking and cycling targets. There was also a question about how modellers can use models to look at the effects of policy in intermediate years and the possible impact on travel time budgets if people change their behaviours. It was noted that DfT needs to be clear what the scenarios are for and their purpose.
- 2.127 DfT acknowledged the points raised by the panel, they noted the CAS are not supposed to be comprehensive and are focused on testing bigger investment programmes. If walking and cycling might have a big impact on individual schemes, then this should be considered in sensitivity analysis. The CAS are mostly focused on key national level uncertainties regarding transport demand and are not designed as preferred futures but instead challenging what-if futures.

## Summary of discussion at 9<sup>th</sup> February 2022 meeting

- 2.128 Topics for discussion at this meeting were: National Road Traffic Projections (NRTP) update and discussion on adjusting the NRTP to take account of Covid-19, National Trip End Model (NTEM) Version 8 update, future development of the Value of Travel Time Savings (VTTS), Common Analytical Scenarios – Plausibility and Proportionality, Update on carbon appraisal and embedded carbon.

## National Road Traffic Projections (NRTP) update and discussion on adjusting the NRTP to take account of Covid-19

- 2.129 DfT presented the latest statistics on demand by each transport mode compared to pre-Covid demand.<sup>16</sup>
- 2.130 DfT noted there is considerable uncertainty over post-Covid travel demand which needs to be addressed as part of a programme of work to produce updated national road traffic projections. The extent to which the demand seen in February 2022 will recover to pre-pandemic levels is unclear, as is the length of time to reach a new steady state. It was noted that no matter what approach is taken to post-Covid travel demand, it will rely on making assumptions. DfT recognised that ‘stickiness’ of behaviours and changed habits may persist even after restrictions lifted.
- 2.131 DfT presented two possible projections to account for Covid: first an upper bound projection where Covid is a blip and demand recovers to its pre-pandemic trend. Secondly, a lower bound projection where all the traffic level reduction seen (as of February 2022) is considered permanent ‘scarring’.
- 2.132 DfT proposed a ‘half way’ approach where it is assumed that half of the observed scarring relative to an ex-COVID trend ‘bounces back’, and the transition period to a

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<sup>16</sup> <https://www.gov.uk/government/statistics/transport-use-during-the-coronavirus-covid-19-pandemic>

‘new normal’ ends in 2026. After that, traffic growth is driven by National Trip End Model (NTEM) projections<sup>17</sup> and the usual exogenous drivers within the NTM.

- 2.133 Panel members raised the point that the notion of when the ‘switch’ will flick back to normality will occur perhaps isn’t the right question to ask, as there is no switch that can be flicked to reverse the scarring. On the appraisal side the panel noted business traffic is important for scheme benefits (given the higher value of time), so as well as looking at working from home adjustments to commuting trip ends, we should also consider impacts on business travel. In addition to this, business trips may take a long time to return to ‘normal’. For these reasons JADP agreed further disaggregation of Covid ‘scarring’ effects by trip purpose would be useful.
- 2.134 On the suggestion of recalibrating trip rates from new survey data, the panel raised the point that working from home is not a ‘yes’ or ‘no’ question as we are now moving to flexible working which may continue. However, data from The Office for National Statistics, as well the National Travel Survey, depicts different trip rates by different job types so this can potentially help to understand what the future will look like.
- 2.135 Nobody suggested the option of returning to the ex-Covid trend was plausible, with most panel members preferring to reflect some degree of ‘Covid scarring’ in updated traffic projections.

## National Trip End Model Version 8 update, and the future of NTEM

- 2.136 DfT presented an overview of the NTEM8 update. It was noted that ONS population forecasts were growing much more slowly than before and this could have important implications such as fewer people and fewer trips, but this isn’t uniform between different locations as some will see increases and some decreases; this will be depicted in NTEM8. DfT informed the panel that they would be publishing six NTEM scenarios and asked the panel how best to present the results of scenario analyses during appraisal.
- 2.137 The panel suggested that all the scenarios should be given equal prominence in reporting. So, decision makers could easily see under how many of these scenarios would this still be a good investment. The panel noted NTEM is about personal trip rates, and now that a large proportion of personal shopping has been substituted by home delivery trips, there is an opportunity to link these findings and generate greater insight into the drivers of future freight demand. The panel made the point that we tend to treat the main part of traffic forecast as about trip rates and mode choice, perhaps we will have the rediscovery that the (4stage) distribution model becomes key to geographically specific traffic forecasts.

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[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1123542/national-road-traffic-projections-2022.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1123542/national-road-traffic-projections-2022.pdf)

## Future development of the Value of Travel Time Savings (VTTS)

2.138 DfT presented a paper on the future of VTTS and noted that current values were based on a 2014/15 study. DfT asked the panel the following questions.

- What opportunities and challenges exist in developing VTTS?
- What key policy questions should VTTS be able to help answer?
- Which critiques of current VTTS should TASM focus on addressing for the refresh?

2.139 The panel made the point that productive use of time is a contentious debate and clearly of growing importance going forward with autonomous vehicles. On estimating VTTS for freight, the panel noted that the current position in TAG of using a cost saving approach (CSA) could be improved upon, there is a need to reflect the values of the goods being transported within the VTTS. The panel suggested that a revealed preference approach might be preferable, however, it was noted that due to a lack of data this isn't currently viable. It was also noted by the panel that congested values of time is a gap in appraisal and this could be looked at in tandem with values of reliability.

## Common Analytical Scenarios (CAS) – Plausibility and Proportionality

2.140 DfT presented a paper on the CAS and noted the main change since the Uncertainty Toolkit was published has been the development of two decarbonisation scenarios. There had also been tweaks to the regional growth scenario. The paper posed the following questions to JADP:

- How prescriptive should TAG be on when to model the CAS?
- Should all Tier 1 projects complete full model runs and, if so, at what stage?
- How might schemes without models at early stages or with low levels of impact consider CAS?
- Which option do you prefer for dealing with the TAG unit M4 High/Low sensitives and the CAS?

2.141 The panel agreed that, regarding the importance of using the scenarios in a qualitative dimension, the CAS should not just be a checklist exercise. Furthermore, the potential proportionality table is useful, helping practitioners identify what might be the drivers of them taking a more/less of a quantitative approach. The panel commented, looking at the scenarios, they seem to be tweaking a small number of things, when actually one of the benefits of scenarios is looking at the interactions between lots of things happening at the same time. Consequently, the scenarios could be underestimating the level of uncertainty by only tweaking specific things at a specific time. It was also noted that the time dimension seemed to be absent in the

scenarios. The different components can change at very different rates and it was recommended that the scenarios accounted for this.

2.142 DfT agreed that scenarios are very important and noted how challenging it has been to get them down to a limited and proportional number. While there are advantages of having a more sophisticated approach where a larger number of components are changing, there is also value in having an approach where it is easy for people to intuitively understand the inputs and see how the outputs change in response. The more scenarios there are the larger the task becomes of running extra runs, so a balance is required for ease of use.

## Update on carbon appraisal and embedded carbon

2.143 DfT gave an update on their carbon appraisal workstreams. It was noted that BEIS had published updated values of carbon last September with a single set of values for the traded and non-traded sectors. DfT is working to reflect this change in TAG.

2.144 DfT also provided an update on work to more visibly present carbon impacts on appraisal. It was agreed that having the 'right' price for carbon is the priority and that carbon impacts need to be highlighted both when they're positive and negative.

## 3. Next Steps

- 3.1 Following the conclusion of the TAG Route Map in May 2021,<sup>18</sup> where we made number of major changes to TAG appraisal guidance, the following year focused on uncertainty, traffic projections and forward planning to ensure our modelling and appraisal framework can adapt to meet the challenges of the post-Covid landscape. This raises new challenges, such as understanding the implications of changes in patterns of travel and land-use on both modelling methods and appraisal values, and the level of demand for each mode of travel.
- 3.2 A key theme for the coming year is continuing to embed the findings from the 2020 Green Book review within our analytical framework, which includes reviewing the VfM guidance and reflecting the government's focus on levelling up where appropriate – such as in how we understand and reflect transformational and distributional impacts within appraisal. We also plan to develop greater guidance on strategic appraisal and modelling, better linking the economic and strategic dimensions of the business case and bringing robust evidence to bear on both.
- 3.3 We are also developing new tools to ensure a comprehensive whole-life carbon assessment can be routinely carried out for project appraisals. As we strive towards Net Zero, we will actively review relevant sections of our appraisal guidance to ensure carbon is given the appropriate weight within decision support advice. We welcome the continued involvement and scrutiny of JADP in this space.

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[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/990643/tag-update-report-2021.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/990643/tag-update-report-2021.pdf)



## 4. Biographies

### Peter Jones OBE

- 4.1 Peter Jones is Professor of Transport and Sustainable Development, in the Centre for Transport Studies at UCL. He is a member of the Independent Transport Commission, the DfT's Science Advisory Council and co-chair of its Joint Analysis Development Panel. He is a member of the City of London Transport Strategy Board, and the Dubai Council for Future Transportation. He is Scientific Co-ordinator for the EU funded project 'MORE', on optimum design and operation of road-space on main urban roads; and also leads on two ESRC projects, on Sustainable Urban Mobility transitions on Africa, and governance issues around the introduction of automated vehicles in the UK.
- 4.2 He advises the European Commission and a number of major cities and national governments around the world, and was awarded an OBE for services to national transport policy, in January 2017. He has a wide range of transport research and teaching interests, covering both analytical methods and policy. These include transport policy, traveller attitudes and behaviour, travel trends and the determinants of travel demand, traffic restraint studies, accessibility studies, policy option generation, major transport economic and social impact studies, public engagement, development of new survey and appraisal methods, and advances in urban street planning and design. Recent research has addressed issues around the need to adapt local transport planning to address the carbon challenge, by developing long-term transition pathways to carbon zero, and to more fully engage with trip-generating sectors.

### Richard Batley

- 4.3 Richard Batley is Professor of Transport Demand and Valuation and Director of the Institute for Transport Studies (ITS), University of Leeds. With a disciplinary background in transport economics, Richard's specialist expertise covers two related areas: first, valuing qualitative aspects of travel (e.g. journey time, punctuality and comfort) in monetary terms, and second, forecasting the impacts of changes in these qualitative aspects on the demand for travel.



- 4.4 He has operated mainly at the interface between academe and public policy, and can demonstrate lasting impacts from his research, especially in the form of official UK policy and practitioner guidance issued to transport operators and transport scheme promoters. Richard has reported research outcomes to senior public servants and politicians (e.g. to transport ministers, and to the House of Commons Transport Select Committee). He played a leading role in the programme of research, underpinning the Department's 2017 major update to appraisal guidance on The Value of Travel Time Savings.

### **Helen Bowkett**

- 4.5 Helen Bowkett is a transport planner who has spent the last 40 years working on the planning and appraisal of changes to the transport network across walk, cycle, bus, rail and road modes. Over this time she has worked for consultancies, local and central government. She trained as a transport economist but also builds many of the multi-modal transport models which provide inputs into the economic appraisal of schemes. Her work is often focussed on multi-disciplinary approaches to the planning of areas such as London Docklands and Kent Thames-side. This has provided her with useful insights into the role that transport plays in the long term transformation of places and the impacts of transport schemes on people, the environment and the economy.
- 4.6 While Head of Transport Evidence at the Welsh Government she was the main author of the significant 2017 revision to WeITAG, which sets out the transport appraisal process used in Wales. WeITAG emphasises the importance of a broad consideration of possible impacts of proposals and the need to build an evidence base on the impacts of transport schemes and policies, promoting an ethos of openness and continual learning. She completed a PhD recently which looked at modelling methods used in other disciplines and the value they could bring to transport modelling and appraisal. She is a visiting Professor at the University of the West of England where she teaches on modelling, economics and appraisal.

### **Phil Goodwin**

- 4.7 Phil Goodwin is Emeritus Professor of Transport Policy at University College London and University of the West of England. He was previously Director of the Transport Studies Unit, an ESRC centre of excellence at Oxford University and UCL, a transport planner at the Greater London Council, and non-executive Director of the Port of Dover.
- 4.8 He was a member of SACTRA and co-author of its three reports on Transport and the Environment (1991), Induced Traffic (1994), and Transport and the Economy (1999). He has carried out research for the DfT and other agencies on travel demand, transport appraisal, road and public transport projects, road pricing, suppressed traffic, smarter choices, wider economic benefits (and losses) and transport strategy.

## Glenn Lyons

- 4.9 Glenn Lyons is the Mott MacDonald Professor of Future Mobility at UWE Bristol where he was previously Associate Dean for Research and Enterprise in the Faculty of Environment and Technology and the founding Director of the Centre for Transport & Society. Since January 2018 he has been seconded for half his time to Mott MacDonald, bridging between academia and practice. His position is helping to further develop the consultancy's transport expertise in relation to understanding and responding to a changing and uncertain mobility landscape, which is shaped by technological possibilities and societal needs and preferences.
- 4.10 A former secondee to the UK Department for Transport and more recently to the New Zealand Ministry of Transport, Glenn has led major studies into traveller information systems, teleworking, virtual mobility, travel time use, user innovation, road pricing, public and business attitudes to transport, and future mobility. He is now actively engaged in examining the future prospects for technological innovations including Connected Autonomous Vehicles and Mobility as a Service. He has been involved in several strategic futures initiatives and recent and ongoing engagements include helping transport authorities adopt a vision-led approach to strategic planning that can accommodate deep uncertainty and thereby achieve more resilient decision making. Glenn is a former (2016-2020) Trustee of the Chartered Institution of Highways & Transportation and is a Trustee of the Rees Jeffreys Road Fund.

## Charlene Rohr

- 4.11 Charlene Rohr is a Senior Research Leader at RAND Europe and Co-Director of RAND Europe's Centre for Futures and Foresight Studies. Ms Rohr received her B.Sc. in Civil Engineering and her M.Sc. in Transportation Engineering from the University of Alberta, Canada. She has over 25 years of experience in undertaking research to better understand factors that influence mobility and travel, including extensive expertise in transport demand modelling, futures analysis and policy analysis more generally.
- 4.12 Ms Rohr has substantial experience in developing large-scale travel demand forecasting models for urban, regional and national geographies in the UK, Scandinavia, Europe and Australia. She has also contributed to the design and analysis of Stated Preference surveys to explore travel behaviour and to value non-market goods. She has led a number of rapid evidence literature reviews, including for the UK Department for Transport to identify factors influencing the levelling off of car travel in Britain. Her work also explores the influence of technology on travel demand. In 2015-16 she led a study for Innovate UK to develop future scenarios for Britain for 2035 exploring the impact of emerging technologies, including autonomous vehicles, on travel. In 2017-2018 she led a study for the European Parliament to quantify the social and economic impacts of changes to the Product Liability Directive

on roll-out of fully autonomous, or self-driving, vehicles. She has also undertaken policy studies to examine travel behaviour of concessionary pass holders to quantify costs and benefits of concessionary schemes and to quantify the impact of migration on transport infrastructure.

### **Elaine Seagriff**

4.13 Elaine Seagriff is Director of Transport Planning with Jacobs, where she leads the UK national transport strategy and policy team to help shape strategic policy and transport planning in many regions. In this capacity she has been advising a number of the devolved transport authorities in the UK and overseas city regions on their transport strategy and policies and on integrated transport authority responsibilities and governance.

4.14 Prior to this, apart from a short time in the U.S. working on southern California's light rail strategy, Elaine has been a mainstay in London's planning and provision of transportation efforts for more than 25 years, where she has taken a truly integrated approach to London's development. Prior to joining CH2M then Jacobs in 2017 Elaine served as Head of Transport Policy and Strategy for Transport for London where she led the development and delivery of TfL's strategic policy covering environmental, sustainability and transport policy, service planning related to equalities and inclusion policy and impact assessments. She was responsible for developing the transport elements of the Mayor's spatial development plan and the Mayor's Transport Strategy for next 20 years. In this regard she led major area based studies to develop priorities for investment as well as the development of appraisal and strategic evaluation tools, the outcome-based monitoring framework and prioritisation and evaluation in business planning processes to deliver the agreed strategic outcomes for the London.

4.15 In addition to holding an MSc in Urban Development at the University of Strathclyde in Scotland, and BSc (Hons) in Geography at the University of Glasgow, Elaine is a founding member of the UK's Transport Planning Society and served as its Chair and has been active internationally through her roles as Commissioner on Union Internationale des Transports Publics (UITP)'s Sustainable Development Commission and as a Commissioner of the UK's Travel Demand Commission and Board member of the Association of European Transport (AET). Elaine is also currently a Commissioner on the South East Wales Transport Commission and is also advising DfT and Network Rail in shaping of a new national whole industry strategy for rail.

### **Anthony Venables CBE, FBA**

4.16 Tony Venables is Professor of Economics at Oxford University where he also directs a programme of research on urbanisation in developing countries and the Oxford Centre for the Analysis of Resource Rich Economies. He is a Fellow of the Econometric Society and of the Regional Science Association, and is a Fellow and

Council member of the British Academy. Former positions include chief economist at the UK Department for International Development, professor at the London School of Economics, research manager of the trade group in the World Bank, and advisor to the UK Treasury.

- 4.17 He has published extensively in the areas of international trade and spatial economics, including work on trade and imperfect competition, economic integration, multinational firms, economic geography, and natural resources. Publications include "The Spatial Economy; Cities, Regions and International Trade", with M. Fujita and P. Krugman (MIT press, 1999), and "Multinationals in the World Economy" with G. Barba Navaretti (Princeton 2004).

### **Tom Van Vuren**

- 4.18 An international transport modeller and demand forecaster, Tom van Vuren combines an interest in academically sound theory with pragmatism in application to real life situations – he considers himself a ‘pracademic’. As the Regional Director for UK and Europe at Veitch Lister Consulting, with 30 years’ experience in the development, maintenance and application of large scale strategic transport models in appraisal, he is well positioned to advise the Department for Transport on making their analytical methods accessible to the profession. He has been a long-term supporter of TASM's efforts to make forecasting and appraisal more transparent, and in particular TAG as a tool to improve best practice. A recent two-year secondment to Sydney has provided him good insights into how guidance and techniques are applied on the other side of the world.
- 4.19 Throughout his career, Tom has emphasised and contributed to knowledge sharing in modelling and demand forecasting and he increasingly uses social media for that purpose. Between 2008 and 2010 he was Chairman of the Association for European Transport and in that capacity had responsibility for the organisation of the annual European Transport Conference. Since 2006, Tom has organised and chaired Modelling World. He has held a position as Visiting Professor at the University of Leeds since 2004. He is currently the Policy Director at the Transport Planning Society.

### **Bryan Whittaker**

- 4.20 Bryan Whittaker is a Director of WSP and is a transport modeller specialising in transport modelling associated with both public and private sector projects. His experience includes data analysis, transport modelling for all modes of transport, demand forecasting, business case development and provision of strategic transport advice. He has given transport evidence at several Highway and Planning Public Inquiries, the most recent being the M4 Corridor around Newport proposed highway scheme. Whilst in the private sector, Bryan has also led a number of research projects commissioned by the Department for Transport.

4.21 Prior to joining the private sector, Bryan spent a significant number of years employed by the Department of Transport and the Highways Agency (now Highways England). During this period he was responsible for the delivery of a wide and varied range of innovative practical and theoretical projects. During this period, he served as a member of a number of Governmental Project and Steering Groups. He has been a regular presenter of papers at the European Transport Conference and is currently a Council Member of the Association of European Transport.

### **Tom Worsley CBE**

4.22 Tom Worsley has been a Visiting Fellow in Transport Policy at the Institute for Transport Studies (ITS), University of Leeds since 2011, when he retired from the Department for Transport. During his career at the DfT, he was responsible for managing the team that developed the first versions of the National Transport Model and for the establishment of the WebTAG appraisal methodology. He also held senior level posts overseeing the Department's teams responsible for rail modelling and analysis, for the appraisal of local transport investment and for economic advice on aviation and the environment.

4.23 He was Specialist Advisor to the Economic Affairs Committee for their inquiry into the Economic Case for HS2 and to the Treasury Committee between 2015 and 2017. He has carried out research on the interface between transport appraisal and policy and has co-authored a number of reports and research papers on the subject. He has acted as a consultant to TfL and has contributed to the OECD's work on the relationship between transport investment and economic development.

## 5. Joint Analysis Development Panel Terms of Reference

### Aim

- 5.1 The aim of the Joint Analysis Development Panel (JADP) is to ensure that DfT's appraisal, modelling and evaluation methods continue to represent international best practice by providing constructive challenge and encouraging fresh, innovative thinking.
- 5.2 The panel brings together academic and professional experts with senior Departmental analysts. It was established in 2015 and is jointly chaired by DfT's Chief Analyst, Amanda Rowlatt, and Peter Jones, Professor of Transport and Sustainable Development, University College London.

### Remit

- 5.3 JADP meets four to five times a year and provides strategic advice and challenge on the Department for Transport's approach to developing its transport modelling, appraisal and evaluation guidance and methods. Over the coming year the panel will be invited to add fresh perspective and challenge on the delivery of DfT's Appraisal and Modelling Strategy. Topics and areas for discussion will be agreed in advance before each meeting.
- 5.4 The panel is not intended to replace the more focused peer review we subject our analysis and research to on a regular basis. In addition, we will continue to engage widely across topic areas where we look forward to maintaining close and productive working relationships with all our stakeholders.
- 5.5 Panel members generously provide their time free of charge to prepare for and attend meetings but travel costs are reimbursed. Meetings are usually held in London and are scheduled to start mid-morning to allow for travel time. In addition, members attend a full day workshop once a year which is held outside London.

- 5.6 Panel members are sometimes invited to undertake additional, paid, work to provide greater depth and analysis of certain topics that have been discussed. Any additional work undertaken by individual members in response to requests from DfT would be procured under the Department's standard procurement processes. Members would be reimbursed at their daily rate, upon completion of satisfactory deliverables. The availability and/or willingness to undertake additional work is not a requirement of being on the panel.
- 5.7 The panel will not be discussing details of research specifications or work that is imminently going out to tender.

## Membership

- 5.8 The panel consists of ten external members (including the co-chair). These are senior professionals with a range of expertise, skills and experience and an ability to take a strategic view of Departmental issues and inject the latest academic thinking and practitioner insights.
- 5.9 All members (including the co-chair) are expected to abide by the seven principles of public life (Nolan Principles, attached at Annex A). They will also be expected to notify the JADP secretariat of any changes in circumstances that affect the answers given in the integrity and conflict of interest form supplied on application. This information will be held by DfT and not shared with third parties.
- 5.10 The group includes a number of DfT senior analysts, including DfT's Chief Analyst who jointly chairs the panel with Professor Peter Jones.
- 5.11 Given the range of issues the panel will be invited to discuss, the core group is supported by a wider network of subject matter experts who are invited to attend meetings as appropriate.

Contact details  
TASM@dft.gov.uk

## Annex A - Seven Principles of Public Life ‘Nolan Principles’

### 1. Selflessness

Holders of public office should act solely in terms of the public interest.

### 2. Integrity

Holders of public office must avoid placing themselves under any obligation to people or organisations that might try inappropriately to influence them in their work. They should not act or take decisions in order to gain financial or other material benefits for themselves, their family, or their friends. They must declare and resolve any interests and relationships.

### 3. Objectivity

Holders of public office must act and take decisions impartially, fairly and on merit, using the best evidence and without discrimination or bias.

### 4. Accountability

Holders of public office are accountable to the public for their decisions and actions and must submit themselves to the scrutiny necessary to ensure this.

### 5. Openness

Holders of public office should act and take decisions in an open and transparent manner. Information should not be withheld from the public unless there are clear and lawful reasons for so doing.

### 6. Honesty

Holders of public office should be truthful.

### 7. Leadership

Holders of public office should exhibit these principles in their own behaviour. They should actively promote and robustly support the principles and be willing to challenge poor behaviour wherever it occurs.