On behalf of the: Defendant
Witness: Helen Bowkett
Statement: First
Exhibit: "HB1"
Dated: 30 January 2015

IN THE HIGH COURT OF JUSTICE
QUEEN'S BENCH DIVISION
PLANNING COURT

CO/4433/2014

BETWEEN:

THE QUEEN

on the application of

FRIENDS OF THE EARTH ENGLAND, WALES AND NORTHERN IRELAND LIMITED

Claimant

-and-

THE WELSH MINISTERS

Defendant

WITNESS STATEMENT OF HELEN MARY BOWKETT

Introduction

1. I am Head of Transport Evidence for the Welsh Government and a member of the Government Economic Service. I joined the Welsh Government in September 2013 and work within the Transport area of the Welsh Government's Department for Economy Science and Transport. I have over thirty years professional experience in transport modelling and appraisal and worked mainly as a consultant transport economist in England before joining the Welsh Government. I hold an MA in Philosophy, Politics and Economics from Jesus College. Oxford, an MSc in Transport awarded jointly by Imperial College London and University College London, an MBA from Durham University and an MA in Applied Social Research from the University of the West of England. I am a Transport Planning Professional (TPP) and serve on the panel of reviewers for applicants for the TPP qualification. I am the visiting lecturer on transport appraisal for the Transport MSc degree courses at Cardiff University and the University of the West of England.

2. I have extensive experience in the transport modelling and appraisal of highway and public transport schemes. I have attended the Rail Passenger Demand

Forecasting Council meetings for over 15 years. I have led on the transport modelling and appraisal for projects which have been delivered across a variety of modes including rail (Reading station northern entrance, Mitcham Eastfields station), bus rapid transit systems (Kent Thameside, advisor on Sheffield to Rotherham), Local Sustainable Transport Fund funded packages which included new walking and cycling infrastructure for Reading and Plymouth, and the Northfleet by-pass.

3. The facts and matters set out in this witness statement are within my own knowledge unless otherwise stated, and I believe them to be true. Where I refer to information supplied by others, the source of the information is identified; facts and matters derived from other sources are true to the best of my knowledge and belief.

Traffic Forecasting Methodology

4. My colleague Martin Bates has, in his witness statement, discussed WelTAG. In short, WelTAG sets out a methodology and process for assessing proposed transport strategies, plans and schemes.

5. In terms of transport modelling, WelTAG provides that the UK's Department of Transport's (DfT's) WebTAG guidance should be applied. The WebTAG Guidance is available on the DfT's website. WebTAG provides detailed information on the role of transport modelling and appraisal and gives detailed guidance on methodology and data sources. The WebTAG approach is widely accepted and is applied as the industry standard to a wide range of projects across the United Kingdom. What follows is a very general and high-level summary of the approach that is adopted pursuant to WebTAG.

6. The first stage in forecasting traffic levels in any area is to build a model of current conditions on the highway network. This is a computer-based model with two main elements: a detailed description of the available network (such as road types and junction arrangements) and details of the current trips made in the modelled area. The information on these trips is taken from driver surveys and traffic counts in accordance with WebTAG guidance. The model contains an algorithm which determines the route each individual car will take and produces an output detailing

the number of vehicles on each link of the network and their travel speed. At the end of the first stage, the model's output is compared to observed traffic volumes and speeds to ensure that the model is replicating reality.

7. The second stage is to use the model to predict conditions on the highway network at a future date. WebTAG guidance provides that the increase in the number of car trips between now and that future date (due to changes in the size, location and age of the population, changes in the number and location of jobs, and changes in car ownership) be taken from output produced by the DfT's National Transport Model. These outputs are known as Tempro growth factors, which are produced for car, rail, bus, walking and cycling, and are made freely available on the DfT website.

8. The third stage provided for in the WebTAG guidance is to further modify the Tempro growth factors to allow for the impact of other factors such as growth in incomes and changes in the cost of travel (e.g. from fuel price changes).

9. In the fourth stage, this information on the future number of trips in the area is used in the model to predict the route each vehicle will take and hence predict the future number of vehicles on each link and the travel speeds along each link. When the future number of trips is predicted on the basis of the current highway network still being in place, this is known as the 'Do-Minimum scenario'. When the future number of trips is predicted on the basis of the current highway network with the addition of the scheme being examined, this is known as the 'Do-Something scenario'. Any known and certain proposed changes in the network are included in both scenarios, to ensure that the effects of the proposal alone are being forecast. An assessment of the performance of the proposed changes is made by comparing the conditions on the highway network in the Do-Minimum and Do-Something tests.

10. The fifth stage of the process is to use the model to conduct a series of sensitivity tests, such as using a range of traffic growth forecasts, to investigate the conditions on the network if traffic growth is higher or lower than predicted. WebTAG provides guidance on producing these low, central and high forecasts.

11. The results of traffic forecasting in this case were reflected in the June 2013 WelTAG Stage 1 (Strategy Level) Appraisal report (which begins at page 6/177 of the Claimant's bundle), which considered both the Do-Minimum scenario and a

number of Do-Something scenarios, including the proposal eventually adopted by the Welsh Ministers as the Plan.

12. Upon receipt of the 'Blue Route' report, further traffic modelling was also carried out on three different Do-Something scenarios to test their performance. These scenarios, and the results, are set out in the 'Strategic Appraisal of Alternatives Considered During Consultation' July 2014 (which begins at page 4/358 of the Claimant's permission bundle).

Criticisms of the Forecasting Methodology

13. I understand that reliance is placed on comments made by the National Assembly for Wales' Environment and Sustainability Committee to the effect that the standard forecasting methodology referred to above has consistently predicted significant traffic growth, while actual traffic data shows the trend to be broadly flat.

14. However, an independent expert review of the sensitivity of changes in car traffic levels in the DfT's National Transport Model, which produces the Tempro growth factors used in the forecasting methodology referred to above, to the three key drivers of demand (namely population levels, GDP per capita and fuel prices) was published in January 2015 by Rand Europe). It concluded that there is insufficient evidence for the DfT to change the values it currently uses.

15. As I understand the position, much of the criticism of the Tempro growth factors is predicated upon what is known as the 'peak car' hypothesis. The 'peak car' hypothesis is that per capita car use is close to its maximum level.

16. The Welsh Government statistics for vehicle kilometres on motorways in Wales (essentially relating to the M4 in South Wales) show a peak in 2007, followed by a dip to 2010 and renewed growth from 2010 onwards. This pattern is broadly consistent with the mechanisms in the modelling framework where the level of traffic demand is influenced by the price of fuel and the level of personal incomes. The flattening of traffic levels on the M4 between 2007 and 2010 was more likely to be a result of the economic recession, the rise in fuel prices and the long term roadworks on the M4 rather than a result of a 'peak car' phenomena

17. It must also be recognised that the 'peak car' hypothesis ignores spatial and demographic differences in the growth in car use. Accordingly, even if 'peak car' were to be experienced in Wales, the growth in population which is forecast for South Wales would still result in an increase in the absolute number of car miles. Further, the main decline in car use per capita has been observed in very dense urban areas such as central London and amongst men under the age of 30. Even if 'peak car' were to be experienced in Wales, this would likely only apply to the most densely populated urban areas of Cardiff, and not to trips on the M4 around Newport.

18. I also understand that it has been suggested that the forecasting methodology did not take proper account of public transport measures. Reliance is placed on Professor Cole's assertion in the Blue Route report (referred to in the Evidence of Martin Bates) that as a result of the Cardiff Capital Region Metro ("Metro") proposals and electrification of the Mainline and Valley Lines railways 'a conservative assessment in south-east Wales could be a transfer of between 20-30% of traffic from road to rail at peak times'. I consider that this assertion is incorrect and I address each of these measures below.

19. Mainline railway electrification would reduce the rail travel time from Cardiff to London by 17 minutes. Using the elasticities of demand given in the Rail Passenger Demand Forecasting Council Handbook this would lead to a maximum uplift to existing passenger numbers of around 23%. Even if all these additional rail trips are assumed to be journeys that are transferred from cars, rather than say the result of current rail passengers travelling to and from London more often, this represents a reduction in peak hour vehicle flows on the M4 around Newport of less than 2.2%. Using an alternative methodology suggested by WelTAG, where it is recognised that only a percentage of trips are transferred from car driver trips, the reduction in peak hour vehicle flows on the M4 around Newport would be less than 1%.

20. Professor Cole overstates the reduction in car use along the M4 corridor that would arise from the Metro proposals. He gives the examples of Tyne and Wear and Bordeaux. A report on 'The Longer Term Effects of the Tyne and Wear Metro', produced by Transport Research Laboratory in 1993, examined the longer term effects of the Metro system. It suggested that without Metro the car flow into central

areas of Newcastle would only increase by, at most, 5.1%. Of course, it must be recognised that effects on traffic travelling into a city centre cannot be directly translated into effects on traffic flowing along a stretch of motorway.

21. In Bordeaux, while it is reported that there was a 30% decrease in road traffic in the inner city between 2000 and 2012, this was primarily due to pedestrianisation of the city centre and the creation of car-free zones rather than solely due to the increase in the public transport network constituted by the tram system that was also implemented. Such pedestrianisation measures do not form part of the Cardiff Metro proposals, which are focussed on improving public transport into the centres of Newport and Cardiff, and they cannot properly be compared with Bordeaux.

22. In order to take account of public transport measures in any meaningful way directly in the traffic modelling, they must be at a sufficiently developed stage to be able to define them for use in the forecasting work. The same can be said of general high-level policies to, for example, reduce carbon emissions or to reduce travel by car generally. For the purpose of considering the draft Plan, it would make no sense to apply a random reduction to the Tempro growth factors so as to take account of Metro polices that are not yet fully defined and will likely address wider issues in South East Wales. Such an approach would be contrary to WelTAG.

23. Both the Mainline and Valley Lines railway electrification and appropriate elements of the Metro proposals were considered in the Public Transport Overview Update 2013 (referred to in the witness statement of Martin Bates and exhibited at 8/1-34 of "MB1"). This assessment concluded that a reduction of less than 3% of traffic volumes would be expected on the M4 between Magor and Castleton. As a sensitivity test, it was concluded that even if a 100% increase in public transport patronage were to occur across the Newport area, that would only result in up to a 5% decrease in traffic flows on the M4. The reality is that the electrification of the railways and Metro are unlikely to achieve such a 100% increase in public transport patronage.

24. It must be appreciated that the Welsh Government has had a lengthy history of assessing proposals for the M4 around Newport, and that the decision to proceed to adopt the Plan progressed in light of forecasting work that showed that public transport solutions would not resolve the problems on the M4 around Newport. That is not to say that the Mainline and Valley Lines railway electrification and Metro

proposals will fail. It is simply that these proposals are not designed to reduce trips on the M4. The Claimant is not realistic in thinking these public transport proposals will succeed in reducing trips on the M4 to a material extent. They should however succeed in reducing other vehicular trips and it is those trips that are targeted by them.

25. Lastly, the Claimant criticises the Welsh Government for not holding congestion statistics for the M4 around Newport. The Welsh Government does not produce official statistics on road congestion but, once the DfT have confirmed its preferred methodology for producing such statistics, it will have the data necessary to do so. That data includes observations of the capacity, measured traffic flows, achievable and actual travel speeds and journey times on the M4 around Newport. On its own, this data indicates that the M4 around Newport is currently experiencing operational problems, even without growth. Comparable forecasts on future capacity, speeds, journey times, and flows on the network, produced using the accepted methodologies referred to above, were assessed in the June 2013 WelTAG appraisal.

26. For all of the above reasons, contrary to the suggestion that the Welsh Government's traffic forecasting methodology was flawed, the forecasts used a standard methodology for modelling all the options and it was a proportionate appraisal at the relevant stage in the WelTAG process.

Statement of Truth

27. I believe that the facts stated in this witness statement are true.

Signed Helen Bowkett

HELEN BOWKETT

Dated 30 January 2015

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