

**SUMMARY PROOF OF EVIDENCE OF LEO EYLES**

**DEMAND FORECASTS AND ECONOMIC APPRAISAL**



**THE CHILTERN RAILWAYS (BICESTER TO OXFORD IMPROVEMENTS) ORDER**

**TRANSPORT AND WORKS ACT 1992**

**TRANSPORT AND WORKS (APPLICATIONS AND OBJECTIONS PROCEDURE)  
(ENGLAND AND WALES) RULES 2006**



## Summary Proof of Evidence

### Introduction

1. I am Leo Eyles and I am a consultant Transport Economist. I have a BA in Economics from Warwick University and an MSc in Transport from Imperial College London. I have twenty five years' experience in the planning and appraisal of public transport systems. I am an Associate of Steer Davies Gleave, based in London.
2. I am Market Leader of the Transport Economics team within the Policy and Planning business group at Steer Davies Gleave. I have personally overseen or undertaken a wide range of economic appraisals of major public transport investment projects on behalf of public authorities including the provision of expert advice to the Department for Transport on the economic appraisal of major public transport projects.
3. My evidence demonstrates how the expected patronage for the Order scheme has been derived and how this underpins the economic case for the scheme. It focuses on the Phase 1 scheme alone.
4. My evidence sets out the expected additional rail passenger usage for the London - Bicester - Water Eaton Parkway - Oxford service, from three main elements:
  - The provision of a new rail service for the existing Oxford to London market, via Bicester;
  - The opening up of the North Oxfordshire to London market, with a new parkway station at Water Eaton and a step change in service levels at Bicester Town; and
  - The provision of new direct and improved local rail journey opportunities, such as from Oxford to Bicester and High Wycombe.

### Demand Forecasting

5. Each of the above described elements is different in terms of the nature of its market. Therefore a different forecasting approach has been taken for each. The demand and revenue forecasting is undertaken in four stages:
  - Using MOIRA, the rail industry standard forecasting model, for modelling the impact of rail timetable changes on station to station demand, for the market between Oxford and London;
  - A catchment area analysis for the markets between Bicester Town, Water Eaton Parkway, Islip and London, where there is a step change (or completely new) service. This is based on examining the characteristics of the area population and access to these and surrounding stations;
  - A mode choice model based on Census Journey to Work data at a ward level, for non-London flows; and

- Year-on-year demand growth forecasts undertaken using standard rail industry methodologies.
6. The demand forecasts were undertaken on an annual basis and were made in terms of rail journeys. They distinguish between journeys that switch from one station to another (known as abstraction) and journeys that are new to the rail network (known as generation). The latter trips may have switched mode or be completely new trips. The forecast for **newly generated** trips, for the forecast year of 2016, are:
- 67,000 journeys between Oxford and London;
  - 134,000 journeys between Bicester Town and Water Eaton Parkway and London; and
  - 298,000 journeys on intermediate flows, particularly Bicester and High Wycombe to Oxford.
7. The demand forecasts are used to produce three main outputs:
- An assessment of the likely impact on local traffic;
  - An assessment of the likely car park requirements at key local stations; and
  - The economic appraisal, which sets out the economic case for the scheme.

#### Highway Traffic Impact

8. The forecast highway impact has been derived using the catchment analysis and mode choice model to estimate the split of passengers accessing the station by car. A combination of ticket sales and passenger count data has been used to reduce these annual forecasts to peak hour forecasts for this purpose.

#### Car Park Requirement

9. The forecast car park requirements are based on an estimate of the number of car users driving to the station. This has been derived from the forecast highway impact described previously. In addition, 'ins' and 'outs' profiles (surveyed at Bicester North station) have been used to calculate a car park accumulation, which provides a forecast for the maximum number of car park spaces required on an average weekday.
10. The car park requirement has been estimated for:
- Bicester Town at 254 spaces in 2016 and 327 in 2026; and for
  - Water Eaton Parkway at 688 spaces in 2016 and 893 in 2026.
11. An estimate of the requirement for an average Saturday has also been made based on the results of surveys identifying the difference between weekday and Saturday requirements. The Saturday car park requirement has been estimated for:
- Bicester Town at 147 spaces in 2016 and 189 in 2026; and for
  - Water Eaton Parkway at 559 spaces in 2016 and 725 in 2026.

***East West Rail***

12. I do not seek to present or justify the East West Rail business case, but have assessed the potential impact of the scheme in order to inform the traffic modelling and car park requirements, particularly at Water Eaton Parkway and Bicester Town stations. Additional car parking requirements in 2026 for the two stations would be as follows:

- Bicester Town                      145; and
- Water Eaton Parkway        214.

**Economic Assessment**

13. The Order scheme is not dependent on public funding and therefore does not strictly need to meet the Department for Transport's Value for Money test. However, my evidence demonstrates that the scheme is in the public interest through the use of cost:benefit analysis in line with guidance from the Department for Transport.

14. In strategic terms, the scheme helps to achieve transport, economic and environmental benefits, including:

- Enhancing the environmental capacity of Oxford, through:
  - Improved connectivity to/from the city;
  - Enhanced sustainable transport network capacity; and
  - Addressing traffic congestion through mode shift of journeys accessing Oxford and the switching of those accessing the rail network by car at Oxford to more sustainable station locations.
- Providing a competitive choice to/from London for Oxford rail passengers;
- Providing new/restored direct rail links, thus improving accessibility especially for those without access to a car;
- Offering station choice at Bicester and therefore encouraging non-car access to a local station;
- Facilitating future transport investment, noticeably the East West Rail project;
- Encouraging strategic growth plans such as at North Bicester;
- Reducing traffic congestion and carbon emissions through reduced car use;
- Improving road safety through reduced car use; and
- Improving economic productivity through agglomeration and labour market efficiency improvements.

15. My evidence is based on an economic assessment that considers the impacts of the proposed scheme, both monetised benefits (in terms of demand, revenue, time savings and highway user benefits) and costs. This cost:benefit analysis assesses the economic value of the project. The analysis concludes that the benefits of the scheme outweigh the costs of the project by a ratio of 3.8:1, and that the Net Present Value (NPV) is £289m in 2002 prices.

16. The elements of this analysis are as follows:

- Rail passenger benefits of more frequent and quicker services, worth a Present Value (PV) of £222m;
- Benefits to highway users of a mode shift from car, in terms of relieved congestion, reduced accidents, improved local air quality and reduced greenhouse gases of £127m PV.
- Additional revenue to the rail operator, offset by additional operating costs, worth a net £44m PV.
- Capital costs, worth £82m PV; and
- Reduction in tax to Government of £23m PV.

***Sensitivity Tests***

17. There is evidence to show that by bringing businesses closer together in terms of time and convenience, productivity benefits can be expected to accrue through agglomeration effects, imperfect competition benefits, and positive labour market impacts, and these benefits are additional to the conventional measures of transport benefits included as part of the economic appraisal of transport schemes.
18. These wider economic benefits have not been included as part of the economic appraisal, and therefore represent a possible upside to the above analysis, which has been estimated at £44m PV, which would increase the ratio of benefits to costs to 4.2:1.
19. A sensitivity test has also been undertaken which reduces the assumed rate of passenger growth by 50%. This reduces the ratio of benefits to costs to 3.1:1, which still represents good value for money.

**Conclusions**

20. I conclude that the expected demand for the proposed services on the Oxford-Bicester route underpins the need for the planned infrastructure for which powers are being sought.
21. I also conclude that the forecast transport and wider benefits of the proposed services project are substantial and would outweigh the proposed costs by 3.8:1. Sensitivity analysis suggests that this is a robust finding.