

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

NOTE TO THE INSPECTOR ON

EVIDENCE OF THE ROBUSTNESS OF THE BUSINESS CASE MODEL

1 Introduction

1.1 This note has been drafted in response to the Inspector's request for evidence that the models used by Leo Eyles in his evidence [CRCL/P/5/A] are robust. Specifically, evidence is required in three areas:

- Evidence of the suitability of MOIRA as an appropriate model for rail demand forecasting;
- Evidence that the catchment model is robust, using out-turn data if possible; and
- References to specific WebTAG modules followed

2 The Models

MOIRA

2.1 WebTAG sets out the Department for Transport (DfT)'s guidance for the conduct of transport studies in England. As such it "*should be seen as a requirement for all projects/studies that require government approval*" and forms a common basis for Government investment decisions in Transport.

2.2 DfT guidance on rail demand forecasting is summarised in WebTAG unit 3.15.4. "*The purpose of this unit is to describe the approach to demand forecasting required by the DfT for estimating future rail patronage.*" This unit (in both its existing version and the draft version which is currently out to consultation) endorses many of the methodologies set out in different versions of the Passenger Demand Forecasting Handbook (PDFH).

2.3 The recommendations include the current PDFH (v5) guidance on the Generalised Journey Time (GJT) approach to estimating the impact of timetable changes on rail demand. This approach is generally undertaken using the MOIRA software (as also described in Unit 3.15.4), which is little more than a calculation device for implementing the recommended GJT approach.

- 2.4 PDFH has been regularly updated to encapsulate all recent research. This research includes comparisons of outturn and forecast demand changes, although usually in an aggregate form together with other variables (such as GDP) in an econometric analysis. DfT have also regularly updated their Guidance for the use of PDFH, as described above. We consider that this endorsement, which has taken place in the knowledge of the use of MOIRA, means that the use of GJT and MOIRA is the most appropriate method for modelling the impact of incremental timetable changes on rail demand in England.

The Catchment Model

- 2.5 Appendix LAE2 to Leo Eyles's evidence [CRCL/P/5/B] gives the background to the development of this method and refers to recent examples of its use, including for stations which have since been built. In addition it refers to the recent 'Station Usage and Demand Forecasting for Newly Opened Railway Lines and Stations' study carried out by Steer Davies Gleave for DfT and Transport Scotland (TS). This study has been completed, although not yet published, and DfT and TS have not yet expressed a formal view on the study's findings.
- 2.6 The aim of this study on new stations was to investigate whether or not actual demand at new stations is significantly different from forecast, and if so, why.
- 2.7 The study included a review of the forecasts for 23 new stations, using a variety of different approaches. A view was taken that a reasonable level of accuracy for the forecasts was +/- 20%, and 9 (approximately 40%) of the forecasts were within this benchmark, while a number were outside the +/- 50% range. To help improve the accuracy of forecasts for new station openings, the study included some guidance for the preparation of demand forecasts for new stations, and a checklist for factors that should be taken into account.
- 2.8 Recommendations were not made on the methodology that should be adopted (aside from what the methodology should cover), although the feasibility of adopting a single standard approach was tested. This involved applying a "station catchment" based method to five case studies. This method incorporated the key influences on station forecasts identified from the analysis and included on the station forecast checklist.
- 2.9 *Table 1* shows the results of the four case studies involving producer (origin) stations, the first three of the forecasts were within +/- 6% of the outturn demand and the fourth within 21%. The latter's poorer performance was attributed to the use of parameters derived in the South East of England. In practice more local parameters would have been derived for a more detailed forecasting exercise. Also, it is likely that part of the reason for the slight overestimation of demand in the middle two cases was that demand was still ramping up to its full potential in 2008/09.

Table 1: Comparison of Standard Catchment Forecasts of Station and Outturn Demand

Station	Opening Date	Forecast Demand (08/09)	Outturn Demand (08/09)	% Difference
Chandlers Ford	Dec 2004	223,115	236,102	-6%
Mitcham Eastfields	June 2008	210,778	199,132	6%
Newbridge	Feb 2008	122,462	115,676	6%
Larkhall – Chatelherault	Dec 2005	602,394	474,902	21%

- 2.10 The station catchment method used for forecasting demand at Water Eaton Parkway and Bicester Town for travel to London, is consistent with this method.

WebTAG

- 2.11 Aside from WebTAG unit 3.15.4 described in the MOIRA section above, the other area in which WebTAG guidance has been followed is in the development of the economic assessment. The specific units which have been followed are:
- 3.5.4, which outlines in full the Cost Benefit Analysis approach
 - 3.5.6, which describes Values of Time
 - 3.5.9, on the treatment of costs, and in particular optimism bias
 - 3.5.14, on Wider Economic Benefits
 - 3.13.2, which sets out the approach for estimating highway benefits due to rail improvements