

# Appendix J: Consolidated revenue forecasts and economic appraisal results

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DATE: 11<sup>th</sup> May, 2016  
REVISION NO.: 1.1  
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## 1 Background

### 1.1 Disclaimer

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### 1.2 Purpose of this appendix

The purpose of this appendix, which is an addendum to our final report dated 15<sup>th</sup> January 2016, is to present a consolidated compendium of our revenue projections and economic appraisal results, following the completion of the additional analysis requested by ORR. ORR requested that we undertake this additional analysis, having reviewed the evidence submitted by stakeholders prior to and during the Rail Industry Hearing on 4<sup>th</sup> March 2016.

The remainder of this appendix is structured as follows:

- **Section 2** summarises the work undertaken since the Rail Industry Hearing on 4<sup>th</sup> March 2016.

- **Section 3** lists each option presented in either: our January report or appendices H and I issued to stakeholders on 24<sup>th</sup> March, and details cases where our assumptions, and corresponding revenue projections and/or economic appraisal results for these options have changed.
- **Section 4** presents our final revenue projections and economic appraisal results.

## 2 Work undertaken since the Rail Industry Hearing on 4<sup>th</sup> March

CH2M has undertaken three pieces of analysis since the Rail Industry Hearing on 4<sup>th</sup> March.

### 2.1 Additional analysis of the First Group application: Option 16

ORR requested that further analysis was undertaken of the application submitted by First Group (First). This analysis involved the production of a new option (option 16) with revised assumptions relating to:

- Journey times
- In scope demand
- Fares modelling including the competitive fares response
- Economic appraisal of overcrowding impacts

This analysis, along with the supporting assumptions, is detailed in Appendix H, dated 24<sup>th</sup> March 2016.

### 2.2 Removal of the crowding impacts from the Virgin Trains East Coast Middlesbrough service (option 6)

ORR requested that the revenue projections and economic appraisal results relating to Virgin Trains East Coast's (VTEC) proposed London - Middlesbrough service, as presented in our January report, were re-run exclusive of the impact of the on-train crowding assessment.

This analysis is presented in Appendix I, dated 24<sup>th</sup> March 2016.

### 2.3 Correction of an error in estimating the revenue impacts of a competitive fares response

ORR requested that CH2M and ORR's independent auditors Systra investigate potential anomalous results relating to the modelled changes in VTEC's fares, following the introduction of lower fares by Open Access operators.

Whilst the calculation of the demand impact was performed correctly, this investigation identified an error in the application of incumbent operator yields in the revenue calculation. Correction of this error resulted in a small increase in the level of revenue abstraction in the Alliance Rail Holdings (Alliance) London – Yorkshire/Cleethorpes option (option 1) and the First Group option(s), as well as minor changes to the economic appraisal results for the same options.

ORR wrote to stakeholders by email on 11 April to inform them of these amendments and update them on the associated revenue forecasts.

## 3 List of options, and changes to key assumptions

### 3.1 Introduction

This section presents each of the options from our January report and from appendices H and I. If the revenue projections and/or economic appraisal results have changed from the figures stated in these publications we explain why this is the case. Options are grouped by applicant.

### 3.2 Options relating to the applications submitted by Alliance

#### 3.2.1 Alliance Yorkshire/Cleethorpes (Option 1)

Revenue projections and economic appraisal results have been amended as a result of the correction applied to the competitive response calculation (see section 2.3).

We note that the assumptions relating to the calculation of the competitive fares response are not consistent with the new approach taken when assessing option 16 (see section 2.1). Use of the approach taken in option 16 would be likely to increase the level of modelled revenue abstraction, although we have not been asked by ORR to change the approach taken for option 1.

Additionally, the evidence presented in Leigh Fisher's report for ORR suggests that the fares spread parameter for the length of journeys in question is substantially higher than the figure quoted in section B11.4 of the Passenger Demand Forecasting Handbook (B11.4). Use of a higher spread parameter would increase the level of modelled abstraction, although we have not been asked by ORR to calculate and apply in our revenue model the parameter value(s) implied by Leigh Fisher.

#### 3.2.2 Alliance Edinburgh (Option 2)

Revenue projections and economic appraisal results are unchanged from the figures presented in our January report.

#### 3.2.2 Alliance Edinburgh non-tilt (Option 11)

Revenue projections and economic appraisal results are unchanged from the figures presented in our January report.

### 3.3 Options relating to the application submitted by VTEC

#### 3.3.1 VTEC core (Option 3)

Revenue projections and economic appraisal results are unchanged from the figures presented in our January report. In preparing this appendix we noticed a transposition error in the figure reported previously for the NPV excluding operating costs divided by the number of paths. The correct figure is 22.2, versus 24.2 shown previously.

#### 3.3.2 VTEC Lincoln / Harrogate (Option 4)

Revenue projections and economic appraisal results are unchanged from the figures presented in our January report.

#### 3.3.3 VTEC Bradford Forster Square (Option 5)

Revenue projections and economic appraisal results are unchanged from the figures presented in our January report.

### 3.3.4 VTEC Middlesbrough (Option 6)

Revenue projections and economic appraisal results that were presented in our January report have been adjusted to exclude the modelled impacts of the on-train crowding assessment. They are unchanged from the results presented in Appendix I. (See Appendix I and section 2.2).

### 3.3.5 VTEC Full (Option 8)

Revenue projections and economic appraisal results are unchanged from the figures presented in our January report, with one exception. This is the calculation of the NPV / path and NPV per path excluding operating costs, where we have changed the measure of paths from total additional paths resulting from the option to additional paths on the ECML (so that the extensions to Lincoln and Harrogate, for example, are not counted as additional paths).

## 3.4 Options relating to the application submitted by First

### 3.4.1 First Edinburgh (Option 16)

At ORR's request, this option replaces the other options relating to First's application (options 7, 9 and 15), presented in our January report. This is because, having considered all of the evidence that is now available, ORR does not consider the timetables in these other options to be realistic. We also note that the results for these options do not include the refinements in methodology made in the assessment of option 16. (See section 2.1).

Revenue projections and economic appraisal results shown in Appendix H have been amended as a result of the correction applied to the competitive response calculation (see section 2.3).

### 3.4.2 Superseded First Edinburgh options (Option 7, 9 and 15)

Revenue projections and economic appraisal results are no longer reported.

## 3.5 Combined option

### 3.5.1 VTEC core and Alliance Yorkshire/Cleethorpes in combination (Option 10)

Revenue projections and economic appraisal results have been amended as a result of the correction applied to the competitive response calculation (see section 2.3).

We note that the assumptions relating to the calculation of the competitive fares response are not consistent with the new approach taken when assessing option 16 (see section 2.1).

## 4 Final revenue projections and appraisal results

Table 1 below summarises the options for which we have undertaken both revenue projections and economic appraisals. This table presents the same options shown in table 35 on page 6-64 in our January report, except for the inclusion of option 16, which replaces options 7, 9 and 15.

**Table 1: Summary of key results, monetary values are in 2010 £m except where specified**

Option	Do-minimum base timetable	Annual applicant revenue (2014/15 £m)	Absolute annual abstraction (2014/15 £m)	Annual generation (whole industry) (2014/15 £m)	NPA ratio	NPV	NPV excluding operating costs	NPV per path	NPV per path excluding operating costs
Option 1, Alliance Yorks/Cleethorpes*	IEP base	60.6	44.1	16.5	0.37	185.0	341.5	10.3	19.0
Option 2, Alliance Edinburgh*	IEP base	188.6	133.9	54.7	0.41	46.1	671.9	1.4	21.0
Option 11, Alliance Edinburgh non-tilt (Sensitivity test on Option 2)	IEP base	140.5	114.9	25.6	0.22	-299.8	326.0	-8.3	9.1
Option 3, VTEC Core	IEP base	66.9	26.7	40.2	1.50	198.1	576.6	7.6	22.2
Option 4, VTEC Lincoln / Harrogate	VTEC core	13.6	2.7	10.9	4.00	108.7	165.3	5.4	8.3
Option 6, VTEC Middlesbrough	VTEC core	4.6	0.1	4.5	38.0	3.3	60.2	0.3	4.6
Option 8, VTEC Full	IEP base	90.0	30.1	59.9	1.99	379.6	871.5	9.7	22.4
Option 16, First Edinburgh (final)*	VTEC full	34.4	24.3	10.1	0.42	77.4	203.1	7.7	20.3
Option 10, VTEC Core and Alliance/Yorkshire Cleethorpes*	IEP base	Alliance: 49.4 VTEC: 66.9 Both: 116.3	Alliance: 34.9 VTEC: 26.7 Both: 61.6	Alliance: 14.6 VTEC: 40.2 Both: 54.8	Alliance: 0.42 VTEC: 1.50 Both: 0.89	408.3	943.3	9.3	21.4

\*Note: As explained in our January report, the net present value of these options is incomplete. This is because ORR has asked us to exclude certain investment costs from the appraisal. Those costs will, however, be considered by ORR alongside the impacts calculated here.