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Dear stakeholder

Applications for access to the East Coast Main Line (ECML)

1. Thank you for attending our recent meeting on 4 March on the ECML applications.
2. We have been considering all of the information submitted and representations made. In the attached annex we summarise our position on points raised by stakeholders¹ and the analysis undertaken. These are the views of the case team - the ORR board may take a different view. We have also attached the two further appendices to CH2M's report mentioned in the annex.
3. Please provide us with any comments on the annex and any further final representations on the applications, by 5pm Wednesday 13 April 2016.

Yours sincerely

p.p. John Larkinson

¹ Received up to close on Wednesday 23 March 2016.

Annex

Capacity

1. We recognise the question of what capacity is or will be available is complicated with assumptions about rolling stock choice, service patterns, infrastructure works, power supplies etc. all affecting the answer.
2. We understand VTEC currently uses around 5 off-peak paths/hour and Hull and GC share around 1 path making a total of 6/hour.
3. Our current best view is:
 - (a) Capacity for up to an additional 0.5 paths/hour out of Kings Cross is probably available now. This reflects, for example, information provided by Network Rail on 6 November showing relatively low use of the Welwyn Viaduct in many off-peak hours (compared to an 18 paths/hour theoretical maximum).
 - (b) A further additional 1 off-peak path/hour out of Kings Cross should be available from the May 2021 timetable assuming the infrastructure works at Werrington and Woodwalton are completed in line with Network Rail's latest draft Enhancement Delivery Plan (EDP).
 - (c) A further 0.5 paths/hour may be available beyond this point bringing the total capacity up to 8 paths/hour out of Kings Cross but we would want to better understand the risks to connectivity and freight before that final 0.5 capacity was used. For example, would an 8th off-peak LDHS train out of Kings Cross mean reduced calls at Stevenage or reduced capacity for heavier freight that needs to use the Welwyn Viaduct?
4. We have noted Network Rail's advice that the VTEC and TSGN franchises specify a quantum of services that may not fit over the Welwyn Viaduct in one particular peak hour. Our view is that issue does not need to be - and probably cannot be - settled before we decide the ECML access applications we have.
5. Network Rail's latest power supply study was discussed with stakeholders on 24 February 2016 in York. We understand Network Rail has identified work such as upgrading feeder stations will be needed around Doncaster and further North to meet any increase in electric load beyond today's levels.
6. We understand works in the Doncaster area may be delivered around the end of December 2017, but it seems unlikely the other necessary power supply enhancements will be completed much before the end of 2020, and that is subject to Network Rail working out what exactly it should do and securing funding to do it.
7. We consider the Northallerton freight loops listed in Network Rail's current draft EDP with an indicative completion date of March 2019 are needed to protect freight if extra passenger trains are to run between York and Newcastle.

8. Our view is that no more than 2.5 London to Edinburgh trains per hour could run without unduly impacting freight and local connectivity.

9. Additional capacity on the ECML could be allocated to sub-sets of services taken from up to: 1.0 for an additional VTEC Edinburgh service, 0.5 for VTEC Middlesbrough, 0.5 for FirstGroup Edinburgh, 1.0 for Alliance Edinburgh and 1.0 for Alliance Cleethorpes/WYorks. We recognise these figures are rounded and the services actually proposed would use fewer paths to different degrees.

10. Applicants originally asked for access rights to support additional services starting at various points up to May 2020. None of the dates proposed for full services to start currently appear feasible given the infrastructure issues highlighted.

11. DfT said in its Hendy consultation that its decisions about the ECML connectivity fund might depend on our ECML access decisions. We are exploring with DfT what that statement means. The current position is that we think the value for money concerns raised by DfT are relevant to our duties but we are unclear how much weight we can reasonably give them in our decision-making process in the absence of any information about the assumptions originally made about the value for money of the fund or individual projects, details of how the value for money analysis would change depending on our decisions and how material those changes might be.

Performance

12. All stakeholders agree performance is very important for passengers, freight companies and train operators alike.

13. Network Rail set out its view in December 2014 that increasing the number of LDHS services on the ECML could lead to a worsening in PPM of order 1.8 – 2 percentage points, depending on what mitigations were put in place.

14. Our view is that Network Rail is being unduly risk averse about the performance risks on the ECML and that performance is not a critical issue for us in these particular decisions. Our view reflects the following:

(a) Network Rail's analysis was discussed with stakeholders in September 2015. The analysis was based on the experience of introducing the May 2014 timetable on the Trans Pennine route. TPE and others have said the problems encountered there were due to a range of timetabling, crew and rolling stock issues, that the industry worked well together to quickly address them and that performance subsequently recovered.

(b) All the proposals for new services on the ECML would use new rolling stock which should contribute to improving performance. Introducing a more standardised pattern timetable should also help.

(c) VTEC has committed in its franchise to substantially increase both the number of services run and performance (by up to 2 percentage points on PPM).

(d) DfT has confirmed it evaluated analysis from VTEC and other franchise bidders as part of the franchising process and concluded the proposition to increase both services and performance was robust.

(e) The specification of access rights in contracts as “quantum” rights will give Network Rail flexibility to optimise future timetables, including for performance.

15. Our approach generally is that Network Rail should sell capacity on the basis of its broad understanding of the route in advance of detailed industry timetabling work needed to analyse performance. Nevertheless, if analysis were available we would consider it; in this case the range of possible service combinations means that work could not be completed in a timely way and would not be value for money.

16. Full modelling of performance will be needed in due course and the industry will need to work together to deliver good performance.

Operational viability and consistency with industry plans

17. All of the proposals we are considering appear to be operationally viable (in the case of the Alliance Edinburgh proposal, tilting technology is required but that already works successfully on the WCML).

18. All the proposals we are considering appear broadly consistent with industry plans for the ECML, though we note these are old and due to be refreshed.

Demand modelling

19. Central to the evidence on revenue and economic impacts that we will use in our decision making is the CH2M report that we commissioned, have circulated and which we discussed on 4 March. This report was accompanied by Systra’s audit of CH2M’s work. Separately, the DfT has circulated an updated version of the SDG report that it commissioned, together with a note responding to comments on an earlier draft.

20. Having reviewed the arguments put to us (including those made on 4 March), the Systra audit report and further comments from Systra, we agreed with CH2M that they would do further work, which they would present in two additional appendices to their report:

(a) Appendix H: To test an additional option for the FirstGroup Edinburgh service that has journey times comparable to fast VTEC services (option 16); and

(b) Appendix I: To present results for the Middlesbrough option (option 6) with the impact of the crowding model removed from the revenue projections and economic appraisal.

21. These CH2M appendices and the MOIRA timetable (an spg file) for option 16 are attached with this annex.

22. We consider the CH2M report including these two new appendices is fit-for-purpose as a key source of evidence on the forecast revenue, demand and economic impacts of the applications. As instructed, CH2M does not analyse all effects and its report

is not the only source of evidence for our decision. In addition, we recognise there are some uncertainties in CH2M's estimates of impacts. CH2M investigates some of these in its report through presenting alternative options and sensitivity tests.

23. Reflecting this, when interpreting the CH2M results there are additional points for us to consider. In particular:

- (a) Modelling uncertainties;
- (b) Impacts that were not modelled; and
- (c) Impacts that were modelled in a particular way but on which a decision needs to be taken about their appropriate treatment.

24. We work through these issues in the order of the annexes to the CH2M report:

- B: MOIRA modelling;
- C: Fares Overlay (including the issue of competitive response);
- D: Air competition overlay;
- E: The role of the gravity model in the analysis; and
- F: The crowding model.

25. We have considered but have not sought to include here all of the comments received on the CH2M report. Instead, we have restricted our comments to those issues we consider have potential to affect ORR's decisions.

MOIRA modelling

26. The main issue relating to the MOIRA modelling is the appropriate treatment of the FirstGroup proposal. We do not consider it likely that Network Rail would timetable an overtake manoeuvre, as it is unlikely to make best use of the available capacity (or promote performance). Hence we think that the timetable used for option 15 is more realistic than those for options 7 and 9.

27. Furthermore, we think it possible that the FirstGroup service would operate with journey times comparable to those of the proposed fast VTEC Edinburgh service when different stopping patterns are accounted for. This could result in journey times that are shorter than those included in option 15. For this reason we have commissioned CH2M to undertake a further option, option 16, which tests FirstGroup's application on this basis. This option is set out in CH2M's appendix H.

28. We have reviewed material submitted by VTEC that argues that the timetabling process would lead to FirstGroup achieving comparable journey times to VTEC. We have also reviewed material submitted by FirstGroup that argues the combination of the timetabling process and VTEC's other rights mean it might not achieve a comparable journey time. Inevitably there is uncertainty about what an optimised timetable would look like. Our view is the FirstGroup journey times would likely be shorter than in its original

application and that they could be comparable to VTECs. Reflecting this, we think we should focus on options 15 and 16 when assessing FirstGroup's application, as these scenarios provide evidence about the potential range of impacts that are most likely to result from this application.

Fares Overlay

29. In this section we consider the modelling of lower fares and the competitive response of the incumbent operator, VTEC.

30. We have reviewed arguments on the suitability of CH2M's approach to the modelling of fares, and Systra's audit, and consider it to be reasonable in light of the evidence available.

31. A prominent argument in stakeholders' written comments and those made on 4 March was that the approach assumes that demand growth due to lower fares from one operator would accrue to both operators in the market. However, this is based on a comparison of how passengers would react in practice with just one part of the two-stage modelling process used to understand these likely impacts. Rather the issue is whether the overall modelling result appropriately reflects our understanding of likely passenger responses.

32. As Systra made clear in its report and on 4 March, the lower fares for one operator results (when the two stages of the methodology are applied) in abstraction from the other operator, which is consistent with the expected response of passengers in reality. CH2M's approach ensures that both the market share is consistent with PDFH guidance (which is appropriate given that the methodology's parameters were calibrated with respect to market share) and that the overall change in demand is consistent with the conditional fares elasticities. The alternatives put forward by some parties do not meet one or both of these criteria. The approach therefore both follows the official guidance and produces results that are consistent with evidence. In particular, when both stages of the modelling approach are properly considered, the modelling of fares does not assume or produce estimates that imply growth in passenger numbers for the incumbent operator.

33. The CH2M results are affected by the scale of any competitive response by VTEC to new alternative services. There has been debate around whether there would be a competitive response and how large it might be.

34. In our view, it is highly likely there would be some form of competitive response to both the Alliance and FirstGroup proposed services. While there is evidence of a significant competitive constraint between existing long-distance operators and airlines for flows between the South East of England and Edinburgh, a new high speed train service between London and Edinburgh would be a closer alternative to the incumbent train services than an air service. It would, therefore, be an additional significant competitive constraint on the incumbent operators. This is consistent with, and analogous to, CH2M's forecast of open access services abstracting significant revenue from incumbent services.

35. An implication of this is that we expect there to be a competitive response from VTEC to entry of a rail service that offers passengers a reasonably similar product (i.e. it is a substitute), even where there is existing competition from air services.

36. Turning to the nature and extent of this competitive response, there is inevitably a high degree of uncertainty about the commercial decisions taken by parties in the future. However, to the extent that modelling suggests that passengers would switch from an incumbent service to a new entrant service, we have identified no robust argument to suggest that there would not be a response in terms of the fares offered by the incumbent.

37. VTEC, in particular, has argued that airline competition is sufficiently strong so as to mean that rail fares would not change in response to entry by a competing rail service. Given that the proposed rail services would be a closer competitor to the VTEC service than air, this would only be the case if the current market were ‘perfectly competitive’ – where prices are already equal to the marginal cost of provision in the rail market – or if prices were already being held below the ‘market clearing’ level. Neither alternative looks to be a reasonable description of how the market works today: rail fares are substantially above marginal cost in these markets, as illustrated by the generation of franchise premium payments; air and rail are not perfect substitutes; and the majority of long-distance fares (and Advance fares in particular) are not regulated. Reflecting this, we do not find it convincing that VTEC – acting rationally and commercially – would lose passengers to a new entrant and not respond by varying its pricing strategy.²

38. Some parties have pointed to the Leigh Fisher (LF) study, commissioned by ORR into historical levels of generation and abstraction. In particular, it has been argued that this report provides evidence there was no significant competitive response in response to historical open-access entry on the ECML.

39. In fact, LF said:

“We have performed analysis seeking to identify a difference in yields on flows where ICEC faces competition, relative to those where it does not. We have found no evidence of historical ICEC franchisees having a consistent strategy of reducing yields on flows with competition, relative to those without. This finding does not represent conclusive evidence that there has not been a competitive response, merely that we have not identified conclusive evidence of one.”³

40. Further, the methodology adopted by LF – in light of the data available – is such that little or no inference can be drawn from the lack of evidence of a competitive response. In particular, data was not available for the pricing of Advance fares, preventing a direct analysis of whether competition was affecting the pricing of Advance tickets. Instead, LF used Advance passenger miles as a proxy for the availability of Advance tickets, which in turn they used as a proxy for competitive response. On this basis they could not find consistent evidence of a link between open access competition and lower fares.

² We note this view is consistent with the additional evidence of recent fares changes presented by FirstGroup in its letter of 21 March 2016.

³ Section 5.2.3, page 18, ‘Evidence Of Revenue Generation And Abstraction From Historical Open-Access Entry And Expansion’, Leigh Fisher, December 2015.

41. However, as open access competition might be expected to abstract Advance purchase passengers from the incumbent, it is unsurprising LF did not find incumbent Advance passenger miles increase, irrespective of whether a competitive response had occurred. When taken together with the lack of data available on the pricing of Advance tickets, this provides a basis for explaining why – even if there were a competitive response – the LF analysis would not have been able to identify it. We do not, therefore, agree the LF report implies any response would be limited.

42. More generally, we note there is evidence that points towards the likelihood that an incumbent will respond to competitive entry. Both the CMA report into on-rail competition and the Arup-Oxera analysis we commissioned provide evidence supporting the view that incumbents would respond to additional open access entry.⁴ FirstGroup has also submitted evidence (in its 21 March 2016 letter) that includes examples from across Europe and also points towards the results of the ORR-commissioned report “On Rail Competition Analysis” (December 2009).

43. Overall, we consider that VTEC is likely to respond to entry by an additional open-access operator through changes to its fares, and that this view is consistent both with the available evidence and the application of economic principles of competition to this case.

44. We note it is difficult to predict the precise form that competition might take, particularly many years in advance. Indeed, competition is a process rather than a one-off event and evidence from rail and other industries highlights the potential for competition to drive innovation in products, service levels and business processes; the recent CMA report gives examples.⁵

45. We have sought to identify factors that could have a significant effect on the likely magnitude of any competitive response. First, the extent to which passengers are likely to switch between VTEC and new entrant services (i.e. the degree of demand-side substitutability between the incumbent and new operators). Our view is the CH2M modelling of passenger switching is a useful guide to the scale of this impact, being modelled using PDFH methodology with transparent assumptions and sensitivity tests around the scale of VTEC’s response.

46. Second, the ability of VTEC to set different prices for different passenger groups/types (i.e. its ability to price discriminate), be it through differentiation through standard vs first class, ticket flexibility or how far ahead of time the passenger books. High levels of price discrimination would allow VTEC to target only those passengers likely to switch and so limit any pricing response only to those passengers.

47. In respect of the FirstGroup application, with its single class offer, we do not think that there is likely to be a significant competitive response in the offer to passengers

⁴ See, for example, para 3.20-3.24 of ‘Competition in passenger rail services in Great Britain: A policy document’, Competition and Markets Authority, March 2016, and section 5.2.2 of ‘Impact Assessment of the CMA’s Options for Increasing On-Rail Competition: Final Report’, Arup/Oxera, December 2015.

⁵ ‘Competition in passenger rail services in Great Britain: A policy document’, Competition and Markets Authority, March 2016.

booking first class tickets. In contrast, VTEC would be expected to respond to Alliance's offer through first and standard class pricing, due to the on-board offer proposed by Alliance. FirstGroup and Alliance are proposing a mix of Advance ticket sales and the ability to book until shortly before departure, although an important caveat here is that it is subject to availability of a seat. Again, this ticket offer looks to be similar to VTEC's mix of Advance and 'walk-up' fares.

48. We also note there would be a degree of demand-side substitutability between the various ticket types offered by VTEC (within standard class): it seems likely that some passengers would have some flexibility about when they choose to book, what service to book on and whether to choose flexible or restricted tickets. Consequently, any price response to one group of passengers on a VTEC service may lead to (second-order) impacts on the pricing to other VTEC passengers. This view appears consistent with the use by all parties of load/yield-management software that responds dynamically to demand for various ticket types. The implication of this view on the nature of price discrimination is that we would expect to see VTEC respond to a new entrant by varying its prices across a range of ticket types, rather than – as some parties have suggested – just the pricing of empty seats due to the new entry. For FirstGroup, in light of the standard class only offer, we would not expect a significant response in the pricing of VTEC's first class fares, but would expect to see this in response to Alliance's services.

49. CH2M has presented sensitivities based on different approaches to calculating the competitive response. The scenario presented in option 16 is based on an assumption that prices adjust for all the seats that would become empty following the additional entry. The above argument suggests this might under-state the overall impact of competitive response; we will bear this in mind when interpreting the results.

50. A third factor affecting the extent of any competitive response is the pricing of new entrants. Alliance has proposed a ticket price that is similar to VTEC's, with a faster journey time. This approach to pricing appears credible in light of the limited differences between the on-board offer and the offsetting effects of the faster Alliance journey time and the higher frequency of VTEC services. For this reason, we consider that price effects are not likely to be material in terms of determining the overall level of impacts and we see no reason to vary the approach taken by CH2M in its modelling of Alliance's services.

51. FirstGroup has stated it will offer tickets at a significant discount to those offered by VTEC. CH2M's modelling has, in effect, considered whether such a strategy is realistic in commercial terms and likely to happen. It is not clear that this is the case, as it appears likely that journey times will be comparable to the incumbent VTEC services and that the on-board offer will be of a comparable quality (for passengers choosing to travel standard class). CH2M has investigated this through its modelling and concluded that if FirstGroup were to be revenue maximising, it would offer fares at a higher level than set out in its application (but below that of pre-competitive-response VTEC). We think it is reasonable to assume that FirstGroup would act in a commercial way (i.e. broadly revenue-maximising), and we have not identified any strong argument that explains why commercial pressures would not lead it to respond to high demand by increasing prices.

52. Overall, reflecting the above points, we consider that it is highly likely that VTEC would adjust its fares in response to competition from FirstGroup or Alliance, albeit the response to the latter might be somewhat muted. We also think that if FirstGroup is

operating services with a comparable journey time to VTEC that they would offer fares above the level suggested in their application (but below the VTEC fare level). Indeed we have not identified any significant factors that would lead FirstGroup to price below the profit-maximising level. This view is reflected in the modelling of Option 16, as it combines both journey times that are comparable to VTEC's with fares that are below the VTEC level but above that set out in FirstGroup's application.

Air competition overlay

53. On 4 March stakeholders said the model of air / rail fares competition, originally developed by FirstGroup, was unclear. They also challenged aspects of the model.

54. Although FirstGroup's position is that the model is commercially confidential and so has not been shared with all parties, we are satisfied that CH2M Hill and Systra (who had access to the full model) have rigorously tested it. CH2M confirmed at the 4 March meeting it had calibrated the model using CAA data. Systra confirmed it judged the parameter values to be fair, had confirmed that the time parameters were consistent with PDFH and that the implied elasticities were plausible (as elasticities are an output rather than an input of the logit model). Systra checked that the model was correctly applied.

55. Prompted by stakeholder comments, Systra has now reviewed the air model further, including comparing the model's implied elasticities with those implied by the PDFH recommendations for modelling air / rail competition through changes to journey time. Systra has concluded the model is reasonable.

The role of the gravity model in the analysis

56. We have reviewed the arguments about the suitability of the gravity model. One of the main issues debated by parties was whether the approach is consistent with WebTAG and PDFH guidance. Our criteria and procedures guidance says:

*"We accept that there may be particular circumstances where WebTAG may need to be augmented by other forms of supporting analysis and in such cases we will explain why we have had to deviate from the WebTAG appraisal criteria."*⁶

57. Against this background, the debate around what precisely WebTAG states is less important than ensuring the reasons why we might place reliance on the gravity model are clear.

58. All modelling approaches have relative advantages and disadvantages; this applies to MOIRA as well as a gravity model approach. CH2M sets out in its report the relative benefits of a gravity model approach in certain circumstances and Systra has set out its views on this approach. We have also reviewed the arguments put forward by parties about the suitability of the approach.

⁶ Para 3.28, ORR Criteria and Procedures, available on our website.

59. We see the gravity model approach as a relevant, additional piece of evidence in assessing the proposals. There is an issue about the suitability of MOIRA when modelling significant changes in the services available at previously under-served locations, and the gravity model is a useful way of exploring the magnitude of these effects. We note the model is newly-developed, and that several factors mean the results need to be interpreted with caution. Against this background, our view is the gravity model approach provides useful information to inform the decision-making process, but we will also continue to explore the extent to which any decision is sensitive to any adjustments made as a result of the evidence from the gravity model. We will test whether our recommendations are sensitive to the impact of the gravity model and will make this clear to the ORR Board.

60. At our meeting on 4 March specific concerns were raised about the gravity model:

(a) The modelling of Middlesbrough distinct from Eaglescliffe (with Grand Central concerned that the extent of abstraction from Eaglescliffe may be understated);

(b) The modelling of East Leeds Parkway as distinct from Leeds (with VTEC concerned that the abstraction from Leeds, relative to generation, was understated)⁷; and

(c) The modelling of generated demand at Morpeth (juxtaposed by VTEC against that at Middlesbrough).

61. We have noted each of the concerns and, to the extent that our assessment of the associated uncertainty may be material to the decision, we will reflect this in our advice to the Board.

The crowding model

62. We forecast that most of the options only have a relatively small impact on crowding. The exception to this is option 6, the Middlesbrough option.

63. On 4 March the discussion focused on the modelled crowding dis-benefits of option 6. CH2M accepted that in practice, given the scale of its operations, VTEC would have flexibility to alter the capacity of individual services to better accommodate demand and therefore this overcrowding would not occur. Hence, CH2M is presenting in its new appendix I an update of the option 6 analysis, excluding the impacts of the crowding model from the revenue projections and economic appraisal.

Other issues relating to the demand modelling

64. We have discussed the issue of the seating configuration of the FirstGroup services. Our view is the proposed seating will be of a similar level of comfort to VTEC's

⁷ This relates to modelling treatment and not uncertainty relating to the construction of East Leeds Parkway.

offer to standard class passengers. We have not therefore made any adjustments to the modelling to reflect the FirstGroup on-board offer.

65. We have also reviewed the modelled passenger forecasts for the proposed FirstGroup 05:30 departure from Kings Cross. We note that it is more difficult to travel to Kings Cross at this time in the morning due to the lack of underground and rail services (albeit that this effect is somewhat offset by the faster access by private car or taxi). We also note FirstGroup's argument that the service will stop at Stevenage and offers an alternative to air travel from Luton and Stansted, both of which also rely on private car and taxis for early morning departures. On balance, we think that the modelling for this departure is reasonable and that no further adjustment is needed.

66. We are content that modelling coach competition through PDFH elasticities is reasonable and note that coach competition is likely to have only a relatively small impact on the results.

Implications for the NPA test

67. All of the scenarios modelled by CH2M result in an NPA ratio comfortably above 0.3, other than Option 11. While Option 11 has a lower ratio this has no particular implications for our decision, as it involves a scenario that Alliance is not pursuing.

68. Reflecting these results and the discussion in paragraph 26 we have now set Options 7, 9 and 11 to one side. We now consider the economic appraisal results relating to the remaining options.

Economic appraisal

69. The appraisal of the economic impacts of the applications includes the costs, benefits and the net benefits of each of the applications.

70. On our instruction, CH2M has set out the results of their analysis in terms of the levels of abstraction and generation, and a number of summary metrics (e.g. NPV). These results provide evidence about the likely magnitude of several impacts that are relevant to the overall assessment. However, as clearly set out by CH2M, there are two particular areas where further consideration is needed before interpreting these results: the treatment of 'tilt' infrastructure costs; and the treatment of IEP rolling stock costs.

Infrastructure costs of tilt capability

71. We asked CH2M to ignore the costs of introducing tilt operations on the ECML, reflecting the high degree of uncertainty about the right number to include for this cost. We agree with parties who have emphasised that the costs of infrastructure need to be included in any appraisal. This is what we are doing; it just is not in the CH2M numbers – something CH2M have made very clear.

72. There remains considerable uncertainty over the appropriate costs of introducing tilt capability to the ECML. Alliance has suggested an indicative figure of £50m, but other applicants have suggested that it might be much higher. Network Rail has declined to provide any estimate of potential costs; stating that it has not done sufficient work to provide a view. In any event, when assessing the costs and benefits of the Alliance

application, we will need to reach a view on these infrastructure costs to the extent that it affects our decisions.

73. We also note that tilt capability would increase the capability of the network, which would provide some benefits that have not been quantified. However, in light of the planned use of IEP fleet for the franchise services, we do not see this capability improvement as delivering significant benefits in addition to those associated with Alliance's application in the foreseeable future. The relevant benefits are, therefore, as set out in the CH2M results.

IEP rolling stock costs

74. The CH2M analysis includes rolling stock costs for each of the VTEC options. This means that the CH2M results adopt a consistent assumption about rolling stock costs across the various options and applications.

75. However, for some of the options being assessed, the rolling stock has already been contracted. There is, therefore, an argument that – consistent with standard appraisal techniques – a proportion of this rolling stock cost is sunk and so should not form part of an economic appraisal.

76. This issue only relates to options which – if access rights were not granted – would result in the contracted IEP rolling stock not being effectively utilised. In practice, this implies that the treatment of the contracted IEP rolling stock is only an issue for the assessment of Option 3, as if the VTEC services comprising Option 3 were approved this would result in sufficient paths for the contracted IEP fleet (for the ECML) to be fully deployed. This also implies that when assessing Option 4 and 6, the results do not need any adjustment for rolling stock sunk costs as these are modelled against a baseline of Option 3. Further, when assessing Option 8 we can consider the difference in economic impacts between Option 8 and Option 3, if the latter has already been accepted (as the treatment of rolling stock in Option 3 will not affect this relative assessment).

77. When assessing Option 3, it is useful to consider the proportion of these costs that we consider are 'sunk' in economic appraisal terms. To do this, we are trying to identify the costs that have already been incurred **and** which 'cannot be retrieved'. There is no dispute amongst parties that the costs have been incurred, to the extent that a contract has been entered into for the delivery of the IEP trains. This contract included an option in respect of the volume of rolling stock, but this option has now been exercised. Our understanding, based on evidence provided to us by DfT, is that the order volume is now fixed under the terms of this contract.

78. The next issue is whether the rolling stock costs under Option 3 can be 'retrieved' (using the terminology in WebTAG⁸). Having reviewed the arguments put forward, we consider a proportion of the IEP contracted costs are sunk. However, we do not consider it

⁸ "'Sunk' costs, which represent expenditure incurred prior to the scheme appraisal and which cannot be retrieved, should not be included". TAG Unit A1.2, para 2.3.3.

appropriate to treat the full value of the IEP contract as sunk as it is likely that a proportion of the costs can be retrieved in a combination of the following ways:

(a) *Renegotiation*: There would be costs involved in renegotiating the IEP contract, which would be considered sunk costs. A lower delivery volume would also be unlikely to result in a proportionate reduction in the total contract costs (these diseconomies of scale would also be considered sunk costs). But while inevitably challenging, we think it is reasonable to assume the contract can be renegotiated.

(b) *Alternative use*: There are operational limitations that restrict the deployment of the IEP fleet. But there is also a general trend of growing passenger demand. To the extent that contract volumes are not reduced, this supports the view that surplus rolling stock could (at a cost) be redeployed. This may take time and involve the redeployment of other rolling stock; these costs would be considered sunk.⁹

79. There is, therefore, considerable uncertainty about the appropriate level of costs to consider as sunk. In general terms, and in light of the economies of scale involved in such a train order, we would expect the overall contracted cost to fall by less than the proportionate reduction in contracted volume. To provide some context we note that the relevant rolling stock costs account for ~30-50% of the present value of costs over the 10 year appraisal period. If this impact proves to be important to the overall decision, we may consider seeking further information on this point.

80. Finally, there is an issue about whether ORR's statutory duties – particularly the duty to promote competition for the benefit of users – suggest we should modify the treatment of the rolling stock costs. In particular, we are mindful of the potential for the appraisal of track access applications to be systematically skewed in favour of parties that are able, and who choose, to contract for rolling stock in advance of securing track access rights. Such a precedent risks distorting competition over time, likely in favour of incumbent operators and franchisees in particular.

81. However, it can also be argued that the costs have, in fact, been sunk and the failure to treat them as such might lead to the stranding of investment costs. This could relate to our statutory duties to promote efficiency and economy, to enable operators to plan the future of their businesses with a reasonable degree of assurance, to secure value for money and to have regard to the funds available to the Secretary of State.

82. To the extent that the treatment of rolling stock costs affects our decision on Option 3, we expect to set these arguments out to the ORR Board for them to reach a view on the appropriate treatment against the ORR statutory duties.

⁹ Indeed, we note the comments made on 4 March that other applicants would consider leasing (some) IEP trains.

Interpreting the appraisal results

83. In light of the above, the table below sets out for the key options what we see as the most significant potential adjustments to CH2M's results (noting that there are a range of qualitative factors that need to be assessed when interpreting these results). The table reflects the key options only, consistent with Table 35 of the CH2M report.

Option	Observations
1 Alliance W Yorks / Cleethorpes	The modelled impacts are as set out in the report, except for some uncertainty regarding generation of demand at East Leeds Parkway.
2 Alliance Edinburgh	The assessed NPV excludes capital costs that are relevant to the overall assessment. Alliance suggested these to be ~£50m, but others estimated they would likely be higher. The Alliance view would imply the NPV of this option is close to zero (before any other factors have been taken into account). The degree of competitive response is a relevant factor that could have an impact on the modelled results (as indicated by the modelled sensitivities); albeit that the service offering proposed by Alliance suggests that price competition with VTEC might be somewhat muted, relative to that expected for the FirstGroup proposal.
11 Alliance non-tilt	Not considered further, as applicant is not proposing operation without tilt.
3 VTEC Core	The results include assumed rolling stock costs. Any adjustment to reflect the proportion of rolling stock costs that are sunk would improve the NPV and NPV/path ratios. The relevant rolling stock costs account for ~30-50% of the present value of costs over the 10 year appraisal period. While only a proportion of the relevant costs are likely to be sunk, this gives an indication of the increase in NPV that would result from making an adjustment for these sunk costs.
4 VTEC Lincoln / Harrogate	The modelled impacts are as set out in the report.
6 VTEC Middlesbrough	The modelling of this option included costs associated with crowding that we do not think would occur in practice. CH2M has restated results in its new Appendix I.
7 First Edinburgh	Our view is this is not a realistic scenario due to the timetable used.
9 First Edinburgh (as submitted)	Our view is this is not a realistic scenario due to the timetable used.
15 First Edinburgh, no overtake	Our view is this option is based on a more realistic timetable than options 7 and 9 and we should focus on options 15 and 16 when assessing FirstGroup's application. The degree of competitive response is a relevant factor that could have a significant impact on the modelled results (as indicated by the modelled sensitivities).
10 VTEC Core + Alliance WYorks / Cleethorpes	The modelled impacts are as set out in the report.
16 First with IEP-equivalent journey times	The results for this option are set out in CH2M's Appendix H. The degree of competitive response is a relevant factor that could have a significant impact on the modelled results. We think we should focus on options 15 and 16 when assessing FirstGroup's application.

The funds available to the Secretary of State

84. One of our statutory duties is to have regard to the funds available to the Secretary of State for the purpose of his functions in relation to railways and railway services. The NPA test with its threshold ratio for an entire service of 0.3 : 1 is intended to help balance our duties, particularly this duty and our duty to promote competition for the benefit of passengers.

85. Therefore we need to distinguish between arguments that are already incorporated into the NPA calculation (such as the need to consider the potential impact on future franchise revenues) and any additional arguments. The additional arguments we consider most relevant in this case are discussed below.

86. The NPA test looks at revenue generation relative to abstraction, and gives no additional weight to levels of abstraction that are large in absolute terms. However, we think that it is relevant to assess the absolute scale of abstraction effects and the absolute impact on the Secretary of State's funds.

87. Against this background, we note the following points:

(a) The CH2M report estimates abstraction levels for each option which also allows for an assessment of the absolute size of the likely financial impacts. We think the CH2M results are a better indication of these impacts than the levels modelled by SDG, mainly because the SDG report does not include any competitive response. For the reasons given earlier, we think that some degree of competitive response by VTEC is likely.

(b) The scale of abstraction across a number of options is significantly larger than that seen in previous applications.

(c) These applications come at a time when there is significant pressure on transport spending.

88. We expect to reflect the above points in our advice to the ORR Board.

Other issues

89. A further issue we are considering is the impact of the applications on the existing open-access operators. The modelled impacts are set out in the CH2M report.

90. To the extent we think these impacts are material in our decision-making, we will consider if the effects can be mitigated, for example by contractual means. We would welcome comments on the need to mitigate these effects on existing open-access operators and how that might be achieved should it be necessary.