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Dear John

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

I am writing in response to your letter of 24 March on the ECML open access applications ('your letter') in which you ask for further comments on the views of the case team on the representations made to the ORR to date.

I note that your letter does not reflect my previous letter dated 24 March which raised a number of significant methodological issues, nor my colleague Dan Moore's letter of 23 March regarding the ECML connectivity fund, given the timing of these letters. These issues will, in our assessment, have a material impact on the ORR's analysis. I have therefore not covered them again in detail here, except where they specifically arise in relation to your letter. However, I trust that they will be carefully considered by the ORR during the decision making process.

General concerns with the analysis

Before providing specific comments on your letter, I thought it would be helpful to summarise some of the key areas where we still have material concerns, and which we consider, on the basis of your letter, have still not been appropriately reflected in the case team's consideration. This list should not be read as exhaustive.

- *The reporting of the appraisal continues to mask the financial impacts on Government:* the analysis continues not to show the full financial impacts of the different options on Government, and reports the results of the appraisal solely in terms of NPVs. As we have set out previously, this is an insufficient and misleading metric for reporting the result of an appraisal where options have very different impacts on Government finances (ranging from significantly financially positive, through to substantially negative). It is also contrary to well established Green Book and WebTAG guidance. To demonstrate the significance of this, we have asked SDG to try calculate the BCRs for each option implied by the CH2M Hill analysis, from the data tables in their report. This analysis, set out in the following section, shows that the BCRs for the open access applications are low, despite all of the issues we discuss below which skew CH2M's appraisal in their favour. We are concerned

that, by not presenting BCRs, the case team would be masking the true economic effect of the applications and therefore potentially misleading the ORR Board.

- *The approach continues to make illogical assumptions on fares:* which as we have previously discussed continue to be inconsistent with economic theory and evidence presented by Steer Davies Gleave (SDG). We can see no justification for the current treatment of fares in the appraisal. It clearly does not reflect what will happen in reality, but it is also skewed in favour of the open access operator (OAO) applications. For instance, on the London-Edinburgh route CH2M Hill assume a competitive response from Virgin trains East Coast (VTEC), despite the fact that the majority of trips are by air, and therefore this response should already be present. Similarly, the First Group fares assumptions lead to load factors which are well above those of even Ryanair. At this level of demand First Group would rationally increase its fares to increase profits, but this has not been reflected in the analysis. Given the significant impact these assumptions have on the analysis, at the very least we consider that multiple versions of the appraisal should be presented to the ORR Board, both with and without these assumptions.
- *The appraisal uses a Gravity Model where forecasting guidance says it is not applicable:* this increases the forecast demand for the OAO options. While we have noted the case team's comments in relation to this issue, we still consider that this is contrary to PDFH and therefore WebTAG guidance, which we continue to consider important to ensuring a robust approach. This is because most of the areas which the OAOs want to serve already have sufficiently good services (so the standard forecasting framework should be used). While we have noted your comments that the advice to the ORR Board will note uncertainties about the gravity model and appropriate sensitivities, we continue to consider that the overall approach in using a gravity model remains inappropriate.
- *The appraisal treats many of the IEP costs as incremental when they are sunk:* whilst your latest letter has recognised a (unspecified) proportion of the IEP costs as sunk we do not believe this has gone sufficiently far in the light of the contract that has been entered into. You indicated that the case team will present the arguments on this issue to the ORR Board for them to reach a view. However, it is unclear to us how this element will be calculated (particularly without using the IEP mileage information discussed below) and we are concerned that we are not able to appropriately comment on what will be key information before it is submitted to the ORR Board. We believe that it is inappropriate and misleading, and inconsistent with standard appraisal methods, to present any information which purports to show that IEP costs are not sunk.
- *Not considering IEP mileage information:* the ORR has chosen not to consider evidence regarding IEP mileage information, which is directly relevant to the analysis, despite a willingness by the Department to share this information on appropriate terms of confidentiality. We note, in contrast, that the ORR's consultants have considered it appropriate to accept information provided by First Group on a confidential basis to use in its economic appraisal.
- *Capital costs associated with the open access options are not appropriately considered:* as the ORR recognises, the open access options would require capital investment costs and "*need to be included in any appraisal*". However, it remains unclear how these will be reflected from your letter, limiting our ability to provide meaningful comment on this (indeed your letter states that the case team still "*need to reach a view*"). Our position remains that in the case of the Alliance Edinburgh option the tilting upgrade costs will be very large, but some capital costs are also incurred in the other options; failure to fully and appropriately include these costs in the appraisal of the options results in the appraisal being excessively positive and hence misleading.
- *Performance impacts are being substantially disregarded:* all else being equal, operation of more trains within the capacity will lead to worsened operational performance, a position which is supported by evidence from Network Rail, which the ORR has chosen to dismiss as "*unduly risk adverse*" on the basis of very limited evidence. Overall, it is not clear

whether or how performance impacts, which are likely to be significant, will be taken into account in by the ORR's Board, in line with its statutory duties.

- *Capacity considerations are not evidenced appropriately:* the completed work on capacity is highly limited, and lacks a suitable evidential basis – for instance through illustrative timetable and modelling work – to make significant decisions of this kind. In particular any decision which leads to other services being compromised would have significant dis-benefits that have not currently been quantified.
- *Trade-offs between communities:* an implication of granting an open access application is that it could lead to negative impacts on specific communities, for instance potentially leaving Middlesbrough passenger without a direct London service, which do not appear to be being considered appropriately by ORR.
- *The analysis makes no reference to the impact on HS2:* as we have noted in previous correspondence the impacts on HS2 from greater open access will be significant and could make it significantly more difficult to run an appropriate service pattern. At the moment the case team does not appear to be taking these impacts into account at all in its consideration despite the significant impact this may have on communities and the considerable financial impact this will have on Government. As well as generally negatively impacting HS2 business case by abstracting revenue, any decision to allow open access services to run to Edinburgh via Newcastle will undoubtedly complicate the provision of high speed services to Newcastle, and may prevent them from being offered. This is because Newcastle will require a balance of High Speed and classic services to meet its connectivity needs, and assigning some classic capacity to non-stop open access services to London may not leave sufficient capacity to provide a reasonably level of high speed and other connectivity.

Finally, we note, both from your letter and in discussions regarding the applications, that the ORR appears to place a very significant weight on sensitivity analysis to address methodological concerns. However, we are concerned that the sensitivity tests that ORR has conducted or has said it will conduct all represent small deviations from a heavily distorted base case. On their own, these sensitivity tests may not show a large impact on the appraisal, but we continue to consider that the combined effect of all of the assumptions that ORR has adopted is to substantially skew the appraisal in favour of the open access applications, both through overstating their benefits and by understating their costs to Government, as compared to standard appraisal methodology. Our own analysis, which we commissioned to be of assistance to the ORR, shows that the results of the appraisal would be very different without these assumptions.

All of the issues above are material, and the cumulative impact of them will substantially change the outcomes of the appraisal – even at this late stage, we consider that they merit further careful consideration.

Specific points arising from your letter

Turning to specific issues in your letter we have some further areas of concern, which we discuss below. However, before doing so, we note that the limited detail disclosed in your letter, and particularly the lack of cross references to appropriate evidence, has had some impact on our ability to provide comments.

Comments raised by Steer Davies Gleave

Our expert consultants, SDG, have provided further detailed comments on the CH2M Hill methodology, which we consider and highly material to the economic appraisal and which further develop some of the points above. These include:

- The updated First Edinburgh scenario;

- The treatment of demand growth resulting from fare changes;
- Competitive response including the unequal treatment of uncertain impacts;
- The assessment of additional services to Middlesbrough; and
- The risks related to network capacity.

These comments are included at annex A to this letter. We consider it to be important that the ORR gives these comments, which are intended to be of assistance, careful consideration.

Low BCRs for the open access options

As you will be aware, the Benefit Cost Ratios (BCR) are usually the key output from economic appraisals. The BCR considers the impacts to the economy, society, the environment and the public accounts and offers an estimate of the value of benefit generated for every £1 of public expenditure on a project or scheme. This allows the value of schemes and interventions that require public expenditure to be compared and evaluated on a consistent basis. As we have explained before, an NPV is an insufficient and misleading metric to use when different options have different impacts on public expenditure.

The benchmark value for Medium Value for Money (VfM) is set in WebTAG at 1.5:1. As noted above, we have asked SDG to estimate the BCR of the applications under consideration, including the First Edinburgh scenario which accompanied your letter, using the information provided in the CH2M report.

SDG has estimated that, apart from the variants of the First Group option that the case team has already discounted, only one variant of the open access applications would pass the Medium VfM threshold of 1.5:1. This is option 15. As your letter notes, it is likely that FirstGroup journey times would be shorter than in its original application and that they could be comparable to VTEC's. Reflecting this, we believe option 15 is not a realistic scenario; the variant of the First Group application that reflects more realistic journeys times (Option 16) achieves a BCR below the 1.5:1 benchmark and therefore represents 'low' VfM. In contrast the VTEC applications have strongly positive BCRs other than the Middlesbrough option which, as set out below, CH2M's analysis appears not to be treating correctly.

SDG has had to make a number of assumptions to create these estimates from the figures report in CH2M's report, and as such the values produced should be treated as indicative. As CH2M Hill has access to the full set of analytical files, it should be very easy for it to estimate these ratios, and we consider that it is essential that this should be presented to the ORR Board to help inform their decision – otherwise there is a significant risk that the Board will be misled. SDG's estimates are set out in the table below.

Option Number	Option Description	BCR	Comments
1	Alliance Yorkshire/Cleethorpes	1.45	
2	Alliance Edinburgh	1.04	
3	VTEC Core	4.48	
4	VTEC Lincoln / Harrogate	Financially Positive	
5	VTEC Bradford Forster Square		No Appraisal Results
6	VTEC Middlesbrough	0.66	
6a	VTEC Middlesbrough Update excl. Crowding Model	1.15	
7	First Edinburgh	3.08	
8	VTEC Full	30.61	Very small PVC (hence

			high BCR)
9	First Edinburgh as Submitted	3.28	
10	VTEC Core and Alliance/Yorkshire Cleethorpes	2.26	
11	Alliance Edinburgh No Tilt		No Appraisal Results
12	VTEC Middlesbrough offset		No Appraisal Results
13	VTEC Middlesbrough switch		No Appraisal Results
14	VTEC Full, no overtake		No Appraisal Results
15	First Edinburgh No Overtake	2.45	
16	First Edinburgh Faster Journey Times	1.42	

Competitive response

In addition to the specific methodological concerns raised in the SDG note, we have more general concerns that much of the competitive response analysis seems to us to be highly speculative in nature, despite its obvious significance to the ORR's analysis, and over-reliant on First Group evidence. We note the ORR's view that such a response is only 'likely', rather than demonstrated and the ORR refers to the negative conclusion of Leigh Fisher that its findings do not represent conclusive evidence that there has not been a competitive response rather than a positive finding based on evidence. And further, that it overstates the conclusions of both Arup and the CMA when referring to the "likelihood" of a competitive response.¹

Placing insufficient weight on performance despite acknowledging its importance

In your letter you specifically acknowledge the importance of performance to passengers, freight companies and train operators. However, as we mentioned above, your letter then goes on to dismiss performance as not being a critical issue in these open access decisions. We consider this to be inappropriate given the size of these applications, the impact they could have on performance across the entire ECML, and ORR's statutory duties.

Of particular concern is the treatment of evidence from Network Rail which the ORR considers is "unduly risk averse". It is clear that ORR's opinion is not based on a detailed (or any) evidence base (such as appropriate performance modelling), such that it is likely to be highly speculative in nature.² We are also concerned that it is overly optimistic. Additional services can have considerable, unforeseen consequences (e.g. following timetable changes at London Bridge) which must be carefully considered. Whilst we fully accept that Network Rail should be able to optimise performance for a given level of capacity, for some levels and mixes of usage, that might still mean an unacceptably poor level of performance which should be an evidenced part of the ORR's analysis.

Your letter also makes a number of points in support of its position which appear to us to have limited relevance and consequently limited evidential value. For example, it notes the fact that VTEC committed in its franchise bid to substantially increase both the number of services run and performance. However, the improvement in performance forecast by VTEC was predicated on a

¹ The CMA, for example, bases its view on a very limited fare analysis and anecdotal examples, noting only that the fares set by First Hull Trains "may also constrain" the lead operator and that franchised operators "may" offer certain products as a result of these being offered by an open access operator; the CMA advances no evidence for the proposition in paragraph 3.22 that passengers for that specific ticket type benefit from lower prices as a result of on-rail competition. Arup is also clear that the analysis of yield growth which underlies its relevant analysis of this issue does not account for factors other than competition which may have an influence; in our view these factors will clearly be material. Arup also notes that its market share analysis, as it relates to competitive response, is only tentative and suggestive, rather than conclusive.

² Indeed, at paragraph 16, it notes that appropriate modelling of performance will only occur "in due course".

range of performance improvement initiatives including the introduction of new rolling stock, and investment funded by the Department in enhanced infrastructure capacity, which offset the negative performance impact of additional services. However, even with all of these initiatives in place, the operation of more trains than had been planned is still likely to lead to worsened operational performance. Similarly, the fact that the Department evaluated VTEC's bid as being deliverable does not in any way imply that we considered that operation of other additional services would not have an impact on performance.

Impact on private sector operators

At the end of your letter you note that the ORR will take into account the impact of the applications on existing open access operators. The letter goes on to suggest that the ORR will consider the need to mitigate these effects on existing open access operators, and how that could be achieved.

In this context, SDG's appraisal of the applications found that the additional open access services would have a significant financial impact upon VTEC. Given the scale of the forecast financial impact, there is significant risk that the proposed additional open access services could cause VTEC substantial financial difficulties. It is unclear why the ORR is considering the significant impact of its decision on some existing private sector rail operators, but not on all.

Concluding remarks

I hope that you have found these points to be of assistance. I also hope that all of the concerns we have raised in both this letter and previous correspondence will be given full consideration before your advice is put to the ORR Board. My team and I would be happy to discuss any of the points raised with you if more detail is required.

Yours sincerely,

Simon Smith
Director, Passenger Services Design

Annex A – Steer Davies Gleave comments following ORR letter 24 March

See separate note.

To Department for Transport
From Steer Davies Gleave
Date 12th April 2016
Subject Response to ORR letter and additional CH2M Hill
appendices

Project No. 22611404

Introduction

Steer Davies Gleave (SDG) acted as technical advisor to the Department for Transport (the 'Department') on the specification and procurement of the InterCity East Coast (ICEC) franchise. Following the successful award of the franchise to Stagecoach / Virgin who are operating the franchise under the Virgin Trains East Coast (VTEC) brand, SDG has supported the Department by assessing the relative value of track access applications, and by estimating the impact of each on the income that will accrue from the ICEC franchise.

On 24th March the Office of Rail and Road (ORR) circulated a letter and additional appendices to CH2M Hill's report: 'Assessment of Aspirations for Track Access on the East Coast Main Line: Phase 2 Final Report, January 2016'. This letter and the report appendices raise a number of issues that are discussed in this note.

This note covers five topics:

- The updated First Edinburgh scenario;
- The treatment of demand growth resulting from fare changes;
- Competitive response including the unequal treatment of uncertain impacts;
- The assessment of additional services to Middlesbrough; and
- The risks related to network capacity.

Updated First Edinburgh scenario

The ORR and CH2M Hill have taken into account certain of our previous comments in relation to the First Edinburgh scenarios. This has resulted in the development of an updated version of the First Edinburgh option. This is documented in Appendix H to the CH2M Hill report.

We welcome these changes, however we still have concerns that the assumed loads on First Group services are too high, and the assumed fares too low. We contend that CH2M Hill is currently underestimating the loads on First Group services and that in reality higher load factors would result from the assumed fares and journey times of this service. If this is the case then as a revenue maximising operator, First Group would be incentivised to offer increased fares to balance demand and capacity.

There are a number of elements of CH2M Hill's modelling approach that will lead to an unrealistically low estimate of the loads on First Group services. Examples of these issues include:

- CH2M Hill has chosen to cap demand and revenue growth from 2020 onwards to prevent the load factors increasing further. In reality potential demand would continue to grow over time (as assumed in the other options tested) and as a commercially minded operator First Group would increase fares as demand grows to prevent demand exceeding available capacity.
- CH2M Hill's crowding approach appears to cap demand on individual trains in addition to capping demand growth in aggregate (a fuller discussion of this issue is contained in our note of 24th March).

- CH2M Hill allocates the demand growth arising from discounted fares offered by First Group, to both operators on the route. This will lead to an under-estimate of the demand for First Group services as in reality we would expect passengers attracted by lower fares to travel on the services on which those lower fares are valid. This issue is covered in more detail later in this note.
- CH2M Hill has assumed that Standard Class Full fare journeys and revenue purchased on the day of travel would not be within scope of the First Group services. CH2M Hill argue that in practice there would be limited space available for these passengers, given its assessment of First's load factors for the options tested previously. In reality, if First Group could generate additional revenue by holding back capacity for higher yielding Full fare passengers then it would be commercially incentivised to cap the number of Reduced fare tickets offered in advance of the day of service. This is one of the key principles applied by revenue management systems.
- CH2M Hill also assumes that all First Class journeys are out of scope as First Group intends to offer standard class accommodation only. Although we accept that First Class passengers paying full First Class fares are unlikely to transfer to First Group services, many current First Class passengers are travelling on Advance purchase tickets, which at certain times of the day are not much more expensive than Standard Class tickets. The passengers travelling on these tickets may well have travelled in standard accommodation if the price differential were greater. This portion of the market would be in scope for transfer to First Group services.

By underestimating the loads achieved on First Group services, and hence underestimating the fares that First Group will offer, the CH2M Hill forecasts result in the First Group service performing better on the NPA test than it should (because it reduces apparent abstraction) and also better in terms of economic benefits (because it increases the purported fare reduction benefitting passengers).

Growth from fares

CH2M Hill assumes that the demand growth that will occur following a fare reduction should apply to the entire rail market. The ORR believes that this approach is reasonable as the spread parameters CH2M Hill applies were calculated considering market shares after fare competition. This is central to ratio of generated to abstracted revenue (the NPA ratio) achieved. We contend that their approach is erroneously allocating the demand growth from decreased fares to the incumbent operator. By considering the market shares in one combined step this erroneous assumption is effectively hidden.

This is apparent when you consider the number of forecast journeys on incumbent services given different fare elasticities. Fare elasticities describe the market response to a fare change. If the elasticity is -1.00 (referred to as a unity elasticity) then the amount of revenue lost from a fare reduction for existing journeys is expected to be equally and oppositely matched by the revenue from additional journeys generated by the fare reduction. If elasticities are more negative than -1.00 , it is forecast that a fare reduction will increase revenue overall as the revenue from the additional journeys generated by the fare reduction will outweigh the loss of revenue from the fare cut.

If we test the impact of the market being more responsive to fare changes (so that more demand is generated following a fare reduction) by increasing the assumed elasticity to -1.25 , the CH2M Hill approach leads to a forecast increase in the number of journeys on the incumbent operator compared to the number forecast assuming a -1.00 elasticity. This indicates that the demand increase from fares is being incorrectly allocated to the incumbent operator, rather than just being allocated to the new entrant.

Two of the worked examples of the CH2M Hill approach, that CH2M Hill included in the first version of its report¹ (which was then modified in subsequent versions) showed the incumbent receiving an increase in passenger numbers following a fare reduction from a competitor. Although ORR states that it has checked that this type of anomalous result is not contained in the adopted forecasts the fact that the approach can lead to such inappropriate results casts significant doubt on its applicability.

In our appraisal we applied an alternative approach that we contend is more appropriate for this situation.

CH2M Hill has adopted the approach set out in section B11.4 of the Passenger Demand Forecasting Handbook version 5.1 (PDFHv5.1). We applied the approach set out in section B11.3.1 of the PDFHv5.1. This section sets out an approach to determining market share when a competing minor operator offers an undercutting fare. We see no clear rationale why the impact of an open access undercutting fare should differ from the impact of any other minor operator offering an undercutting fare and so suggest that this approach should be suitable. This approach has the benefit that the impact of fare changes on market growth is not included in the estimated market shares. This allows the forecaster to estimate the impact of market growth once market shares have been identified, and hence allows the forecaster to correctly allocate this demand growth to the operator offering the reduced fares. This is the approach we adopted in our analysis.

We have estimated the NPA ratio suggested by the approaches set in in B11.4 and B11.3.1 of PDFH, supplementing the market shares suggested by B11.3.1 by considering market growth as an additional step. We have used the MOIRA SPG files and fares assumptions that CH2M Hill has adopted for the latest First Edinburgh option. These two approaches lead to a notably different NPA ratio, as set out below:

- London – Edinburgh: (1.25 elasticity) 0.22 (B11.3.1 approach) vs 0.27 (B11.4 approach)
- London – Newcastle: (1.25 elasticity) 0.24 (B11.3.1 approach) vs 0.32 (B11.4 approach)

The values above do not include the impact of further demand overlays applied by CH2M Hill such as the air competition overlays. However this analysis does suggest that the correct treatment of demand growth from fare changes could reduce the NPA ratio by between 0.5 and 0.8. This would reduce the latest CH2M Hill forecast of the NPA ratio for option 16 from 0.42 to 0.37 or 0.34.

Given the issues related to the approach adopted by CH2M Hill we recommend that the alternative approach is considered, allowing demand growth from fares to be correctly allocated to the operator offering the reduced fares.

Competitive response

In its letter the ORR sets out its reasons for believing that VTEC will reduce fares in response to additional on rail competition (referred to as competitive response). We have previously set out our view that competitive response is unlikely to occur, particularly on the London to Edinburgh flow. However, even if we accept the view that competitive response would occur we have concerns about the assumed scale and scope of the competitive response. These concerns are set out below.

Inconsistency between assumed market characteristics and competitive response

CH2M Hill assumes that certain major market segments are fare elastic, meaning that a reduction in fare will increase total revenue. These market segments are so significant that this leads to the overall

¹ See Figure 1 and Figure 2, Appendix C, Assessment of Aspirations for Track Access on the East Coast Main Line: Phase 2 Interim Report on forecasting and appraisal methodology

revenue base increasing when fares are reduced. This assumption in turn is central to the forecast balance of generated and abstracted revenue, and hence the NPA ratio achieved.

However, this is not consistent with the assumed scope of competitive response. If on average the overall market was fare elastic, then as a rational operator VTEC would already be incentivised to reduce fares in that market, as it would raise total revenue.

Either the argument of competitive response should only hold for price inelastic (or unity) markets, or it should be assumed that the market is actually inelastic (or at unity).

In our opinion it is not rational to assume both competitive response and an increase in revenue from reduced fares in the same market. These inconsistent assumptions mean that either the revenue generated by fare reductions is overstated or that the assumed scope of competitive response is too wide.

Unequal treatment of uncertain impacts

ORR states in its letter that it has instructed CH2M Hill to ignore the costs of introducing tilt operations on the ECML, reflecting the high degree of uncertainty about the appropriate value to include for this cost.

We have previously criticised this approach on the basis that the benefits of infrastructure schemes should not be included in an appraisal without the costs. However, ORR has been firm in its position that given significant uncertainty around the cost of this infrastructure enhancement, it would not be appropriate to include it in the appraisal.

The scale of any competitive response is equally uncertain. This is acknowledged in the ORR letter which states:

“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.”

And that:

“We note it is difficult to predict the precise form that competition might take, particularly many years in advance.”

This position is supported by information provided in CH2M Hill’s report. In Appendix H to its report CH2M Hill states that the approach it has adopted to estimate the scale of competitive response does not accord with official forecast guidance (as official forecasting guidance does not contain recommendations in respect to this factor). CH2M Hill also states their approach is just one of several methods that could be used to calculate the scale of competitive response. As such it is clear there is significant uncertainty around the assumed degree of competitive response.

Despite this uncertainty the ORR has instructed CH2M Hill to include the impact of competitive response in its analysis. Previous sensitivities undertaken by CH2M Hill show that the assumed level of competitive response is central to the results achieved (although equivalent sensitivities do not seem to have been undertaken for the latest version of the First Edinburgh option). It is unclear why the ORR has chosen to treat these two uncertain impacts in such different ways.

Middlesbrough option

VTEC is seeking rights to operate additional services on the ECML. These rights would enable a new two-hourly service between London and Middlesbrough, as part of a wider proposed timetable pattern. The

addition of the Middlesbrough service would enable the removal of some intermediate calls from London to Edinburgh services, leading to a reduction in journey times to these and intermediate destinations.

CH2M Hill has attempted to estimate the incremental value of these Middlesbrough services. In its January 2016 report CH2M Hill analysis forecast that the Middlesbrough service would lead to increased overcrowding. Since the hearing they have accepted that this is not a logical result, and have created a version of the Middlesbrough increment that shows no change in crowding costs or benefits for this option.

Following the hearing of 4th March the ORR requested that the DfT provide an estimate of the incremental impact of the Middlesbrough services on the funds available to the Secretary of State. DfT asked SDG to develop this estimate. As part of this analysis we also assessed the economic case for these additional services. Our analysis suggests that the Middlesbrough option is, in fact, associated with a significant crowding benefit. We estimated that £53m PV of crowding relief would be generated by the operation of the Middlesbrough services. This accords with the rationale for the Middlesbrough services that VTEC set out during the meeting of 4th March, when it was stated that they would have a dual purpose: to serve Middlesbrough and to address crowding.

This suggests that CH2M Hill's approach of ignoring any potential crowding impact will disadvantage the case for the additional Middlesbrough services by excluding any user benefits associated with reduced crowding and reducing the forecast revenue and other passenger benefits associated with this option.

Network capacity

ORR's letter highlights the considerable uncertainty in regard to network capacity. Given this degree of uncertainty it is not possible to undertake a robust analysis of the likely outcomes following the provision of access rights. In particular any decision which leads to other services being compromised would have significant dis-benefits that have not currently been quantified.