Rail Delivery Group

National Rail

BRITAIN RUNS ON RAIL

Rail Delivery Group

Submission to ORR on

Schedule 4 cost compensation for CP6

Date: 6 August 2018

Rail Delivery Group submission to ORR on Schedule 4 cost compensation for CP6

Organisation: Rail Delivery Group

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Business representative organisation

Introduction: The Rail Delivery Group (RDG) brings together passenger train operators, freight train operators, as well as Network Rail; and together with the rail supply industry, the rail industry – a partnership of the public and private sectors - is working with a plan *In Partnership for Britain's Prosperity*[1] to change, improve and secure prosperity in Britain now and in the future. The RDG provides services to enable its members to succeed in transforming and delivering a successful railway to the benefit of customers, the taxpayer and the UK's economy. In addition, the RDG provides support and gives a voice to passenger and freight operators, as well as delivering important national ticketing, information and reservation services for passengers and staff. taxpayers and the economy. We aim to meet the needs of:

- Our members, by enabling them to deliver better outcomes for customers and the country;
- Government and regulators, by developing strategy, informing policy and confronting difficult decisions on choices, and
- Rail and non-rail users, by improving customer experience and building public trust

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[1] *In Partnership for Britain's Prosperity,* RDG (October 2017): http://www.britainrunsonrail.co.uk/files/docs/one-plan.pdf

Executive Summary

1. This report details the work that RDG has carried out in reviewing the cost compensation elements of the Schedule 4 possessions regime, namely replacement bus costs and costs (or savings) associated with running a lesser or greater number of train miles as a result of a restriction of use. This report has been developed with RDG's members via the recalibration working group.

2. RDG recommends that for bus cost compensation for CP6, the current CP5 payment rates should be increased to take account of inflation.

3. RDG recommends that for train mileage change payments, for CP6, ORR approve the use of the methodology outlined in this report to calculate train mileage payment rate values, and the use of the values presented in the associated workbook, Appendix 1[2]

Scope of this project

4. In April 2017, ORR presented to operators and Network Rail its views on options for recalibration of the cost compensation elements of Schedule 4: bus replacement costs and train mileage costs.[3]

5. The options considered on replacement bus costs were:

    a. Uplift payment rates in line with inflation (base case)

    b. Update the payment rates

    c. Update the payment rates and weightings (see paragraph 15)

    d. Fundamental review of methodology

6. The options considered on train mileage costs were:

    a. Uplift payment rates in line with inflation (base case)

    b. Review payment rate in light of changes to variable costs including variable usage charges (VUC) and fuel costs. Including considering whether other variable costs should be included.

7. In November 2017, ORR published a summary of the recalibration working group meetings that it had hosted, comprising the points of clarification and agreement from those meetings and confirming the next steps for the recalibration of each aspect of the Schedule 4 and 8 regimes.[4]

8. In relation to replacement bus costs, ORR's note states that, as part of the Schedule 4

[2] subject to the satisfactory completion of the additional work to be carried out, as described in paragraphs 40 to 45.

[3] Recalibration of Schedule 4, Slides from TOC working group and Note of the passenger operator Recalibration Working Group, 10 April 2017

[4] Note summarising ORR-led Schedule 4&8 Re-calibration working group meetings

recalibration, operators would consider whether there is evidence to support updating the bus replacement cost payment rates and whether two payment rates are sufficient to reflect bus costs across the country. The note is clear that it was for the industry to supply the necessary evidence to support any recalibration of Estimated Bus Miles (EBM) rates and that such evidence would need to demonstrate that costs were systematically and materially greater than the payment rates to justify recalibration.

9. In relation to train mileage costs, the note records that the working group agreed that the industry should review underlying costs including whether other variable costs should be included in the train mileage cost payment rate. [5]

10. Therefore, these were the issues that were considered as part of the Schedule 4 recalibration project.

11. RDG has engaged with its members throughout this project and a summary of this engagement is presented at Appendix 2.

Background to Schedule 4 cost compensation

12. Liquidated cost compensation for Type 1 Restrictions of Use was introduced in CP4 (April 2009) to compensate operators for certain operational costs incurred by operating Amended Timetables in response to Restrictions of Use. The structure of this cost compensation regime was mainly informed by recommendations made by Faber Maunsell in its 2007 study for ORR, undertaken as part of PR08.[6]

13. The main component of the mechanism is Estimated Bus Miles (EBM) payment, which compensates operators for their road transport costs. There is also an associated Train Mileage Change (TMC) which is a positive or negative adjustment to the EBM payment based on the number of additional, or saved, train miles.

14. Faber Maunsell found that bus replacement costs accounted for around 90% of costs incurred by operators as a result of possessions. The remaining 10% was associated with other costs, including those associated with the number of train miles operated, train planning, management and publicity.[7]

15. EBM has the following key characteristics:

    - The Estimated Bus Miles Payment Rate (EBMPR) is per train mile.

    - There are two rates: one for London & South East and one for the rest of the network. The rate is applied at Service Group level.

    - The EBM payment is weighted depending on the level of provision: a full rate of 100% and a rate for diverted trains, with buses serving intermediate stops, of 50%.

[5] 'Other variable costs' refers to costs other than those already included within the calculated rates, which are understood by RDG to be variable track access charges, diesel fuel costs and traction electricity costs.
[6] Faber Maunsell, Review of Possessions Cost Compensation: Stage 1 Final Report, September 2007 and Review of Possessions Cost Compensation: Stage 2 Final Report, November 2007.
[7] Review of Possessions Cost Compensation: Stage 1 Final Report, Paragraph 1.2.1 .

- Lookup tables, as negotiated between the Operator and Network Rail and included in each operator's Schedule 4, indicate for each affected Service Group the applicable train miles based on Viable Transfer Points (stations identified as being appropriate as train-bus interchanges) and weighting.

- There is no consideration of any other variables (e.g. number of buses per train, the time of day, etc).

16. TMC has the following key characteristics:

    - The Train Mileage Change (TMC) element of the cost compensation is calculated by multiplying the relevant Train Mileage Payment Rate (TMPR) by the net train mileage change (including non-passenger trains[8]) that Network Rail:

        - adds to the operator's cost compensation where total mileage in a Service Group increases as a result of a Restriction of Use, and

        - deducts from the operator's cost compensation where total mileage in a Service Group decreases as a result of a Restriction of Use.

    - The payment rate is applied at Service Group level.

    - RDG understands that current (CP5) the payment rates comprise the average variable track access charges, diesel fuel costs and traction electricity costs for that Service Group. Other variables (such as vehicle maintenance costs/savings) are not included.[9]

17. While Faber Maunsell's 2007 report set out the proposed principles behind the cost compensation mechanism, there is no available record of the actual calculations through which the EBMPR and TMPR values were derived. Therefore, is it not known precisely how the values were calculated or whether any issues with or shortcomings of the chosen approach were identified at that time.

18. During Periodic Review 2013, ORR assessed the accuracy of the EBMPRs by comparing operators' actual road transport cost data for the year 2006/07 with their Estimated Bus Mile (EBM) payments for the same time period.[10] ORR concluded that the EBMPRs overcompensated operators. As a result, for CP5, ORR revised down the London & South East EBMPR by 5.4% and the non-London & South East EBMPR by 4.9%. ORR saw this as representing value for money for the taxpayer and removing any doubts of perverse incentives, as well as encouraging operators to drive down replacement bus costs.

19. At PR13, TMPR values were inflated in accordance with RPI.

[8] Review of Possessions Cost Compensation: Stage 1 Final Report, Paragraph 1.2.6.
[9] Review of Possessions Cost Compensation: Stage 2 Final Report, Page 42.
[10] Periodic Review 2013: Final determination of Network Rail's outputs and funding for 2014-19, Paragraphs 20.278 - 20.284.

Review of replacement bus cost compensation

Process

20. In October 2017 requested information from industry to support the review of the bus cost compensation element of Schedule 4.[11]

21. RDG requested from all operators the sum received under the bus compensation element of Schedule 4, and the actual amount paid out for bus costs, for the financial years 2015-16 and 2016-17.

22. RDG clarified to members of the working group in autumn 2017 that it understood the current CP5 payment rates (EBMPRs) to include the costs associated with:

    a. hiring scheduled, standby and accessible vehicles, including the driver;

    b. bus co-ordination and customer service staff at stations; and

    c. taxis for traincrew.[12]

    Therefore, RDG requested that operators include in their submissions to RDG actual costs paid against these areas of activity, as applicable.

23. RDG also invited industry views on the appropriateness of updating any parameters of the EBM mechanism, suggesting two areas for consideration and requesting views on any other aspects of the mechanism within the scope of the project. The candidate areas for consideration highlighted by RDG were:

    a) The potential to introduce further tiers to the rate per train mile. Additional tiers could be introduced to reflect more detailed market segmentation at Service Group level e.g. where double-decker buses are primarily used or where more than one bus typically replaces each train. Other variables could also be considered such as Restriction of Use notification date (i.e. to reflect the amount of notice that the operator would have to procure buses).

    b) The potential to introduce additional weightings, or to amend the existing weightings. Currently operators receive 100% of the payment for full bus replacement and 50% of the payment for partial bus replacement (e.g. where trains are diverted and buses are provided to serve intermediate stops). Further weightings could be introduced to capture other scenarios, such as where passengers travel on other operators' services or on service buses, and a commercial payment is made to that company.

24. RDG summarised the Operators and Network Rail responses and provided further information and emerging views to the working group members on 21 December 2017.

Comparison of EBM compensation and actual cost data

25. Seven operators provided data on their EBM compensation and actual bus costs. Data was provided for the two most recent complete years in CP5: 2015/16 and 2016/17. Table 1 shows

[11] ORR also attends the working group

[12] Review of Possessions Cost Compensation: Stage 1 Final Report, Paragraph 3.2.1.

the variances between actual costs incurred and EBM payments received for the seven anonymised respondents.

Table 1 – EBM payments received as a proportion of actual bus replacement costs

Operator	2015-16	2016-17
A	94.1	115.4
B	95	84.1
C	85.4	101.8
D	103.1	112.3
E	147.7	204.4
F	137.9	66.3
G	83.8	82.2
Average	**92.8**	**89.3**

Note: the average variance is based on the total of all operators' EBM payments as a proportion of the total of all operators' actual costs.

Conclusion on replacement bus cost compensation

26. In RDG's view, the average variance for those operators that responded is moderate, with bus compensation being 92.8% of actual costs in 2015-16 and 89.3% of actual costs in 2016-17. There was insufficient data to differentiate between operators with Service Groups that wholly or mostly attract the London & South East EBMPR and those with Service Groups that wholly or mostly attract the EBMPR for the rest of the country.

27. ORR stipulated that evidence would need to demonstrate that actual costs are "systematically and materially greater" than the payment rates to justify recalibration. In RDG's view, based on the data sample, this test has not been met. This is primarily on the basis of the small sample size, which RDG considers insufficient to base a proposal to substantively reconsider the EBMPR, and also the moderate size of the average variance in the submitted data.[13,14]

28. Therefore, RDG's recommendation to ORR is that it reverts to its base case option of increasing the current payment rates to take account of inflation.

[13] As the sample size was not considered sufficient to base a recommendation to substantively reconsider the EBMPR, no assurance work was carried out to ensure the veracity of the submitted evidence.
[14] RDG's expectation that the data sample should be based on evidence supplied by a greater number of operators was guided by the similar exercise carried out by ORR at PR13, where 89% of operators provided data.

Review of train mileage costs

Process

29. As noted above, RDG understands that the TMPR values currently in use were initially developed at Periodic review 2008 for use in CP4 and that those rates were adjusted for RPI inflation for use in CP5. In the course of carrying out this aspect of the recalibration project, it became clear that RDG would not have access to either the precise calculation methodology used at PR08 or the actual calculations. This is because ORR has been unable to locate the relevant documents. RDG's understanding of the methodology is therefore based on the information included in the Faber Maunsell (2008) report, which recommended "*that the rate per train mile for Train Mileage Costs should be derived from the annual variable access charge paid by each Train Operator, and the train miles run by that operator. This would include the following costs train mileage: Variable Track Access Charges, EC4T* [electricity current for traction] *and Capacity Charge.*" The report noted that the fuel costs of diesel trains would also need to be reflected in the rate.

30. Without a consensus view from members that additional cost categories should be included in the calculated rate, RDG proposed a calculation methodology that could be used to generate TMPR values for CP6, based on VUC, variable traction electricity usage charges and fuel costs.[15]

31. RDG proposed that:

    - RDG would calculate charges by Service Group based on the billing information that Network Rail holds relating to chargeable train miles, VUC and traction electricity charges for the year 2016/17.[16,17]

    - RDG would identify or calculate an indicative fuel cost, in order to generate a rate representative of the fuel cost associated with running diesel vehicles.

    - The calculated values would be indexed for inflation and indexed to reflect changes to variable usage charges at the beginning of CP6.

32. RDG provided further information to the working group in an update on 8 February 2018. This update included a draft version of a proposed methodology to inform the TMPR calculations (the TMPR calculator). RDG explained that its intention was for the proposed methodology to mirror the original PR08 methodology.

33. RDG proposed to the working group that a transparent and robust process would be adopted to provide industry confidence in both the calculations and the underlying data. The TMPR calculator was designed to be able to be populated with the relevant data as appropriate, to produce a TMPR value for each by Service Group. There was a consensus that the proposed methodology represented a sensible way of calculating the TMPR values for CP6.

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[15] For the avoidance of doubt, Capacity Charge was not included as ORR had already declared its intention not to include it in CP6.

[16] Being the most recent year for which data was available.

[17] For the avoidance of doubt, the RDG proposal does not involve the calculation for separate rates for peak and off-peak services, as it the case for the CP5 rates.

34. RDG clarified several aspects of the proposed TMPR calculator to the working group:
    - All chargeable trains, including any non-passenger trains that are coded to a passenger Service Code or Group[18], are included in the calculator.
    - Variable traction electricity usage charges to be included in the calculations comprises EC4T and Electrification Asset Usage Charges (EAUC).
    - Capacity Charge data was not to be included in the calculator as it will not be a variable charge in CP6.

35. In April 2018, draft TMPR values for each Service Group that currently has a rate were circulated to operators and Network Rail's route-based customer teams (which received only the rates relevant to them) for comment. The full set of draft rates were also sent to Network Rail's Regulatory Economics team. The majority of members agreed with the proposed draft rates, or raised no queries. Several members provided comments on the draft rates which have been incorporated wherever possible.

TMPR calculation methodology

36. RDG proposes that CP6 TMPR values be calculated on the following basis.

For each Service Group that requires a TMPR value:

$$TMPR = VUC + EUAC + EC4T + F$$

where:

VUC	is the average Variable Usage Charge per train mile
$EUAC$	is the average Electrification Usage Asset Charge per train mile
$EC4T$	is the Electric Current for Traction Charge per train mile
F	Is the fuel cost per train mile

The input data proposed to be used in the calculator are as follows:

VUC	Total VUC for the Service Group / Total chargeable train miles for the Service Group
$EUAC$	Total EUAC for the Service Group / Total chargeable train miles for the Service Group
$EC4T$	Total EC4T for the Service Group / Total chargeable train miles for the Service Group
F	Fuel cost per vehicle mile x Average diesel vehicles per train*

*calculated as follows: Total Diesel Vehicle Miles for the Service Group / Total chargeable train miles for the Service Group

37. RDG used Network Rail-supplied data 2016-17 year to populate the TMPR calculator with data for each Service Group relating to:

- Chargeable train miles
- Diesel vehicle miles
- VUC
- EUAC
- EC4T

38. The fuel cost per vehicle mile figure is based on fuel cost data supplied by train operators (this is described in more detail in Appendix 5).

[18] Non-passenger (Empty Coaching Stock (ECS)) trains are typically coded to a separate Service Code and so will not be included in the audited Network Rail data supplied to RDG.

39. The calculated rates are presented in a separate workbook at Appendix 1.[19] As the input data is actual cost data from 2016/17, the calculated TMPR values have been adjusted by RPI. The relevant uplift to convert 2016/17 rate into 2017/18 prices is 2.2%.[20]

Further work on TMPR values for CP6

40. In order to finalise the TMPR values for use in CP6, RDG intends to undertake a number of additional steps, which are set out in the following paragraphs.

41. Although 2016/17 data has been used to generate the TMPR calculations, RDG proposes that, the calculated values be adjusted to reflect changes to variable charges in PR18. RDG proposes to do this by applying an adjustment to the 2016/17 VUC, EC4T and EUAC input values used in generating the TMPR values.

42. These adjustments would be based on the average change in these charges between CP5 and CP6 rates and would be carried out once the CP6 rates have been released. For the VUC rate, RDG proposes that the arithmetic average change in passenger VUC across all vehicle types would be applied to the VUC input data.

43. An alternative method to reflect the changes in VUC between CP5 and CP6 would be to ask members to calculate the proportion of the mileage operated in each Service Group in 2016/17 that is attributable to each vehicle type and apply a CP6 VUC adjustment value to each proportion, based on the change in the rate for each vehicle type. However, RDG believes that an approach using the average change between control periods is pragmatic and would require less onerous data collection while providing a sufficient level of cost reflectivity.

44. RDG intends to carry out further assurance work on the rate calculator workbook, to provide additional confidence that TMPR values are generated accurately and are faithful to the calculation methodology set out above. Although RDG believes that the risk of systematic errors being present in the workbook is low (for example, because the model is relatively simple and because members have had the opportunity to review the workbook and provide comments, with any identified errors having been corrected), this additional assurance work will give all parties more confidence in the model.

45. RDG intends to revisit the calculation of the fuel cost figure that is used in the TMPR calculator. The fuel cost figure used in the calculation of the values presented in Appendix 1 is an average, based on actual fuel cost data provided by several operators. Although, RDG believes that the figure used is likely to be sufficiently representative for these purposes, additional work could to be undertaken to further refine and provide assurance in this area.[21]

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[19] For the avoidance of doubt, the relevant values are those presented in the worksheet 'Summary output sheet'

[20] In accordance with the indexation methodology used in Schedule 4 this rate is given by: $\frac{RPI\ November\ 2016}{RPI\ November\ 2015}$

[21] This further work could include: collecting data from more operators (or for more years), additional work to ensure that the existing data is consistent and/or further consideration of whether an average figure could be derived from publicly available data (for example, one based on the fuel cost data published by ORR in its Rail Finance statistical releases).

Conclusions on train mileage costs

46. The TMPR values currently in use are based on unknown, decade-old data and calculated using an unknown methodology. RDG believes that this is an unsatisfactory position. RDG believes that the methodology set out in this document represents a simple, reasonable and transparent approach that is a step forward from the current position.

47. RDG recommends that, for CP6, ORR approve the use of the methodology outlined in this report to calculate train mileage payment rate values, and the use of the values presented in the associated workbook, Appendix 1, subject to the satisfactory completion of the additional work to be carried out, as described in paragraphs 40 to 45.

48. RDG recommends that documentation from this recalibration should be retained by ORR so that it is clear how the CP6 rates were calculated, and whether it would be appropriate to adopt the same approach again, or to adapt it (or to take an altogether different approach). All relevant non-confidential information will also be uploaded to the RDG website.

49. Should ORR decide to recalibrate the Schedule 4 cost compensation mechanism again as part of a future Periodic Review, it may wish to consider the treatment of ECS miles. RDG notes that Faber Maunsell's intention was that ECS miles should be included in the calculation of net train miles operated.[22] However in practice ECS miles are excluded from the calculation because ECSs are typically coded to a separate Service Code/s which sit outside the passenger Service Groups to which TMPR values are assigned, and on which the Schedule 4 cost calculations are applied. However, ORR also notes that these costs are not compensated under the Schedule 8 regime.

Report recommendations

50. As set out in the sections above, RDG recommends that:

    - ORR reverts to its base case option of increasing the current replacement bus cost compensation payment rates to take account of inflation.

    - ORR approve the use of methodology for train mileage costs set out in this report, and the use of the values presented in the associated workbook, Appendix 1, subject to the satisfactory completion of the additional work to be carried out, as described in paragraphs 40 to 45.

    - documentation from this recalibration should be retained by ORR so that it is clear how the CP6 rates were calculated, and an audit trial is available for future reviews.

51. RDG was not able to take forward several of the comments and suggestions made by members in the course of this project. These comments and suggestions are presented in Appendices 3 and 4, as they may be of use in any future review of this compensation element. Appendix 3 sets out comments in relation to replacement bus costs and Appendix 4 sets out comments in relation to train mileage costs.

[22] Review of Possessions Cost Compensation: Stage 1 Final Report, Paragraph 1.2.6. Additionally, The Schedule 4 cost compensation formula does not explicitly exclude ECS miles, instead referring to 'train mileage change' in Schedule 4, clause 4.2 (c), which is not a defined term in the contract. The template contract is available here.

Appendix 1 – TMPR calculations

Presented in separate workbook

Appendix 2 – Summary of industry engagement

The recalibration working group was the primary means of engaging with the industry. Key dates were as follows.

Date	Activity
25 September 2017	A presentation was given at the working group meeting, including the background to the recalibration and outline scope. The slides were circulated with the minutes.
18 October 2017	A letter was sent to the working group members requesting data to support the EBM calculation and requesting views on the scope of the EBM and TMC work. This was discussed at the working group meetings on 23 October and 20 November.
21 December 2017	An update was sent to the working group members to update on the EBM and TMC workstreams and to set out a proposed methodology for calculating the TMC rate.
8 February 2018	A update was sent to the working group members. This summarised responses to the 21 December update and included a draft TMPR calculator.
12 February 2018	A presentation was given at the working group meeting, giving an overview of the proposed TMPR calculations. The slides were circulated with the minutes.
6 March 2018	A letter was sent to the working group members requesting data to support the fuel cost calculation. This was discussed at the working group meeting on 12 March.
April 2018	Calculated draft TMPRs were provided to individual operators and their Network Rail Customer Teams for review. The full set of draft TMPRs were also sent to Network Rail's Regulatory Economics team.
4 June 2018	A presentation was given at the working group meeting to update on the feedback from operators and Network Rail on the draft TMPR values. The slides were circulated with the minutes.
2 July 2018	A presentation was given at the working group meeting to update on next steps and timescales. The slides were circulated with the minutes.
13 July 2018	A draft of this document was circulated to the recalibration working group, requesting comments by 25 July. Comments received have been reflected in this final version.

Appendix 3 – Members' comments on bus cost compensation

Comment	RDG commentary
One operator questioned whether other variables such as the number of buses per train, time of day, late notice hire and bus type, could be reflected in the payment rate.	As RDG continued to develop its understanding of the PR08 work it became clear that it was not possible to consider adding discrete variables to the existing EBMPR. The original rate was calculated in 2007 based on the actual costs to six operators of providing road transport for just 10-12 Restrictions of Use per operator in the year 2006/7. The rate was adjusted at PR13 based on ORR's comparison of total EBM and total actual costs incurred. Therefore, all variables that existed in Faber Maunsell's dataset can be said to be reflected in the original rate, to the extent that they were present. Consequently, it would not be possible to identify discrete variables and to include them in the base rate without recalculating the methodology behind it, which was beyond the scope of the review.
One operator noted that the EBM compensation paid to each operator will be influenced by the accuracy of that operator's lookup tables contained in its track access agreement (including the Viable Transfer Points and weightings). It noted that these parameters can be updated at any time through agreement between the operator and Network Rail.	This was a useful reminder of the influence that the lookup tables can have on EBM compensation and the importance of updating the tables as necessary.
One operator expressed a concern that some bus providers have introduced (or may be considering) a late notice charge.	RDG's review of actual bus costs considered actual data (which may well include the cost of such charges where they exist) and not assumptions about potential future costs. Should higher costs be incurred in future years then RDG would expect to see evidence of this at the next opportunity to review actual bus costs (i.e. PR23). Additionally, as noted above it was not possible to consider including a discrete variable such as this in the in base EBM rate.
One operator suggested that EBM payments be disaggregated into Type 1, 2, & 3 to avoid the need to include bus costs in Type 2 & 3 Claims.	The existing drafting of Schedule 4 allows operators to claim for actual bus costs for Type 2 or 3 Restrictions of Use which enables operators to recoup their full bus costs where those costs are comparatively higher than the EBM compensation. Under the suggested arrangements this would not be possible. On a

	practical note, Type 2 and 3 Restrictions of Use only become Type 2 or 3 Restrictions of Use at the point at which Network Rail and the operator agree compensation under the terms of the contract, and so Network Rail is not able to predict which Restrictions of Use would qualify. In any case, bus costs should be generally straightforward to agree with Network Rail because actual bus diagrams/invoices will ordinarily be available.
One operator noted that one rate of pay is applied to entire Service Groups even where a Service Group contains both London & South East and non-London & South East services. The operator suggested that it should actually reflect the geographical area as this is what causes the increase in bus costs.	RDG understands that the EBM formula in Schedule 4 applies one EBM rate of pay to each Service Group and so it is not possible with the current wording of the contract to differentiate between London & South East services and non-London & South East services where they exist in the same Service Group.
One operator specifically did not support the creation of additional rates beyond the existing two rates, because the existing distinction between London & South East and non-London & South East is the only significant difference in pricing that it is aware of. Another operator argued that the two rates should be combined to further simplify the calculation of EBM compensation.	RDG noted the request not to consider the creation of additional EBMPRs and the suggestion of replacing the two rates with just one rate. These comments, and the absence of comments to the contrary, hint that there may be no significant appetite for the creation of additional rates beyond the existing two rates.
One operator explained that where no EBM payment is made because passengers travel on other operators' services (trains or service buses), operators can incur a cost in paying for ticket acceptance. It asked if ticket acceptance be factored into the setting of the EBMPR.	RDG had no sight of the extent of this practice and so asked operators for data to demonstrate the impact of ticket acceptance (for example, the cost of providing ticket acceptance as a percentage of its actual bus costs). RDG was also interested to know if operators or Network Rail had considered the possibility of including particular weightings in the lookup tables in acknowledgement of such circumstances, as a means of compensating the operator within the existing EBM framework, and if so then what practical implications this may have. RDG did not receive any further information.

Appendix 4 – Member comments on train mileage cost compensation

Comment	RDG commentary
One operator expressed its view that variables such as vehicle maintenance costs/savings are already included in the TMPRs as they were originally in the calibration work undertaken at PR08. Another operator felt that there was no value in attempting to calculate traincrew or vehicle maintenance costs/savings as variables because there are no calculable traincrew savings from engineering work overall, and that vehicle maintenance costs would not be altered in any meaningful way as a result of Restrictions of Use.	ORR has not been able to locate the precise methodology used to calculate the TMPR values at PR08 nor of the data on which they were based and how it was applied to different Service Groups. However, the methodology presented by RDG here for the calculation of TMPR values for CP6 represents its understanding of the methodology used at PR08, as described elsewhere in this document.
One operator noted that it might run fewer trains due to a Restriction of Use (and so Network Rail would deduct the applicable TMC value) but operate them in longer formations than usual and so not actually save any mileage.	RDG was not able to isolate such situations using the data available to us and so was unable to identify the extent of this issue. However, RDG notes that, as the input data is based on actual chargeable vehicle miles for 2016/17 year for each Service Group, the applicable TMPR value will reflect the effect of such situations to the extent that they occurred during 2016/17
One operator had noted that the TMC mechanism is based on train miles and not vehicle miles, which could mask situations where trains are amended to operate in longer or shorter formations because of a Restriction of Use.	The effect of this is mitigated to an extent because the TMPR calculation is based on 2016/17 actual billing data which will include by default the average train length within each Service Group for that year.
One operator had noted that the impact of a Restriction of Use can spread across other Service Groups not directly affected by the Restriction of Use (for example, where trains are amended to operate in longer or shorter formations	This was not something that could be addressed as part of the recalibration work because such effects on other Service Groups are not recognised in the drafting of Schedule 4.
One operator had advised that prior to the start of CP6 it expected to make changes to its fleet, and so it was concerned that the TMPRs calculated using the proposed methodology could be inaccurate. **One operator said that its preferred option would be to calculate separate rates for peak and off-peak train services. This is because the number of vehicles per train may vary between**	The purpose of using historic data from the 2016/17 year was to avoid the need for each operator to propose (and justify) average values for each of their Service Groups. RDG advised that it would be possible to calculate bespoke values if it was felt to be necessary and, where justified, on a case by case basis and these could be presented to ORR as an alternative.

peak and off-peak services, meaning that the TMPR value may also vary if calculated separately.	
Several operators asked generally why the proposed draft TMPR values had changed, in some cases significantly, from the corresponding CP5 values. Notwithstanding that there would be certain further adjustments to the calculations, the proposed draft values were on average slightly higher.	ORR has not been able to locate the precise methodology used to calculate the TMPR values at PR08, it is not possible provide a precise response to these queries. It is also worth noting that the CP5 values were derived by indexing the CP4 values. However, logically, the main reasons for the differences are likely to include: • Service Groups having services added or removed, or having been merged or split. • Changes to vehicle types (including traction type) and train lengths • Changes to VUCs • Changes to variable electricity usage charges • Changes to the Capacity Charge (this was excluded from our calculations as it will not exist in CP6) • Changes in the assumed cost of diesel fuel.

Appendix 5 – Calculation of fuel cost value

A request for fuel cost data was put to the working group on 6 March 2018 and discussed at the working group meeting on 12 March. In its letter RDG identified three primary ways to derive a fuel cost value:

a) By using a pre-existing value held by the industry or by DfT, if such a value existed.
b) By applying operators' provided costs on an individual basis to their own TMPR calculations.
c) By calculating the average value of operators' provided costs and apply this average value to all operators' TMPR calculations.

RDG indicated that option c) was preferred. Option a) was discounted because RDG was not aware of any such value being available at the time. While option b) would be more reflective of the costs incurred by individual operators, RDG highlighted several benefits from using option c) including:

- While it can be expected that each operator will naturally seek to minimise their fuel costs, there will still be variances caused by the commercial and operational circumstances of each operator.[23] An average figure would smooth out these many variables and provide transparency and simplicity while retaining a suitable degree of accuracy.
- As it would not be possible to ensure that every operator that responded to our request had produced its data in precisely the same way, the use of an average value would help to reduce the risk of error or bias without the need for RDG to audit every operator.
- This approach would avoid the need for every operator to provide data, for example if they were unable or unwilling to do so. (However, RDG stressed that it expected as many operators as possible to provide data).
- The data provided was to be from 2016/17 year. This would allow us to align the data with the other inputs to the calculation of the TMPR (VUC, EC4T and EUAC) which are also 2016/17 values and would enable the values to be indexed each year.

RDG provided guidance to operators in the request for fuel cost data. RDG requested an average fuel cost per diesel vehicle mile, that met the following criteria:

- Based on the 2016/17 financial year.
- Based on all vehicles powered or hauled by diesel traction.
- Included in its calculation both passenger and non-passenger mileage.
- Included a short description of how the values were calculated, and/or include supporting data e.g. spreadsheets. (RDG advised that it may ask operators to explain their data, where necessary.)

RDG stated that it would round the provided figures to the nearest 1p before taking the average

RDG received fuel cost data from eight operators, which included a cross section of regional, intercity and South East operators with a mixture of diesel rolling stock types (diesel multiple units, HSTs and loco-hauled sets).

[23] Including, for example, hedging strategies; transportation costs; the type, age and maintenance requirements of its rolling stock; the timetable; network topography; and the extent to which Driver Advisory Systems are used.

The table below presents the average fuel costs for each of the operators that submitted data, on an anonymised basis. The average of these costs is £0.32 per diesel vehicle mile and this is the figure that RDG has used in the calculation of the TMPR values in Appendix 1.

Operator fuel costs per diesel vehicle mile

Operator	**Diesel fuel cost (£ per vehicle mile)**
A	0.31
B	0.32
C	0.42
D	0.27
E	0.27
F	0.43
G	0.31
H	0.23
Average	**0.32**

September Update – RDG submission to ORR

VUC uplift

The TMPR values calculated by RDG are based on data from 2016/17. As the Variable Usage Charge in CP6 will be materially higher that was the case in 2016/17, an adjustment needed to be made to the RDG model to ensure that the calculated rates are reasonably representative of the anticipated CP6 VUC costs.

ORR's draft PR18 determination documentation stated that the forecast average increase in VUC for franchised passenger operator (relative to the final year in CP5) is 35% (See Table 1 of ORR's VUC consultation). As the industry had already agreed to uplift the 2016/17 input data using a figure representing the average VUC increase, RDG has 1) uplifted the 2016/17 VUC input data by RPI to convert the figures to 2017/18 prices and then 2) uplifted this figure by 35% to give the new VUC input figure.

Representative Fuel Cost

In the August submission, RDG said that it would revisit the calculation of the fuel cost figure that is used in the TMPR calculations. The fuel cost figure used in the calculation is an average, based on actual fuel cost data provided by eight TOCs, relating to the year 2016/17 (See Appendix 5 of the August submission). The figure was calculated as £0.32 in 2016/17 prices.

Whilst most train operators that expressed a view believe that the figure used is likely to be sufficiently representative for these purposes, Network Rail raised some concerns around this approach, in particular that the fuel cost figure was based on one year's worth of data and that it was not possible to check that all TOCs had produced the fuel cost data on a consistent basis. As a result, RDG said that it would consider what additional work could to be undertaken to further refine this figure.
Therefore, since the August submission, RDG proposed to the working group an alternative methodology for calculating the value.

RDG proposed to use publicly available data on the fuel costs of franchised operators, which ORR publishes as part of its regular UK rail industry financial information releases (the information is sourced from here: http://orr.gov.uk/rail/publications/reports/uk-rail-industry-financial-information). This data included the fuel costs of all franchised operators. This approach uses a publicly available dataset and incorporated data across several years, rather than just one, as well as data on all franchised operators, rather than a subset.

RDG proposed to 1) use the inflation-adjusted GB total diesel fuel costs (from the years 2011-12 to 2016-17 inclusive) to generate an average annual GB diesel fuel cost and 2) divide this number by the number of the franchised operators' diesel vehicle miles in the 2016-17 dataset. Using this approach, RDG calculated a representative rate of £0.54 per diesel vehicle mile. The calculations are set out in the attached spreadsheet. A spreadsheet containing the calculations for the original approach based on TOC-submitted data is also attached.

RDG asked the working group for comments on the new proposal. Network Rail's view was that the new approach should be used, as it addresses the concerns it had previously raised. Most of the operators that responded did not agree with the new proposal.

Network Rail's view is that:

- the new approach is preferable as it incorporates data from more operators and from a greater number of years than the original approach
- this is a recognised industry figure that is publicly available via the ORR's website and so is more transparent.
- ORR's fuel cost figure is likely to be based on the same underlying information from each operator (i.e. all submissions from TOCs are completed consistently to generate an industry figure).

The above points gave Network Rail more confidence in this fuel cost figure to be included in the TMC rates for CP6.

The operators who responded were not generally in favour of the alternative approach. Five TOCs specifically objected to the use of the new methodology. The reasons given were:

- Insufficient time to consider the proposal and evaluate its potential impact relative to the original proposal
- That any dataset used for the calculation should be limited to years within CP5 only
- That it may not be valid to divide the annual average fuel cost figure (derived from several years' worth of data) by the number diesel vehicle miles in 2016/17. This is because electrification, changes to services and rolling stock, infrastructure changes and the trend of increasing delay may have changed the relationship between fuel used and diesel vehicle miles over time.
- The fuel costs in the ORR publication may not have been be prepared on a consistent basis.

One TOC gave a neutral response and one TOC agreed that a different methodology should be developed but the TOC neither agreed nor disagreed with the new proposal.

The spreadsheet attached includes, for each service group, two TMPR values – one calculated using the original fuel cost and another calculated using the newly proposed rate.

Alternative rates proposed by TOCs

In June, ORR and RDG agreed that as part of this project, there would be an opportunity for any TOC or Network Rail to propose alternative TMPR values to those calculated by RDG. Any such proposals were to be sent to ORR within two weeks of the RDG August submission.
In some cases, members indicated that they wished to propose alternative TMPR rates to the ones presented by RDG. This is because:

- For some TOCs, some significant changes to fleet will occur in CP6 – for example, substantial sections of the fleets of some operators will switch from diesel to electric traction in CP6, which has an impact on running costs.
- Some TOCs will move towards billing for electricity usage on a metered, rather than modelled basis.
- In some cases, new service groups are expected to be created for use in CP6, and these service groups will require a TMPR value. Following the RDG approach based solely on 2016-17 data would have resulted in a failure to generate new these required new rates for CP6.
- Some operators think that using data from a year other than 2016-17 (RDG's calculations are based on data from this year) in the calculation of the rates will produce a more accurate figure – for example, where the 2016-17 may not be the best representation of the expected position in CP6 for a particular operator, due to major engineering works taking place in that year.

Three submissions were made to ORR: by GWR, GTR and Scotrail.

However, in September, ORR informed RDG that it did not intend to review these submissions separately and asked that RDG incorporate them into its own submission.

RDG is supportive of these TOCs and Network Rail undertaking the additional work to reflect the particular circumstances that they will face in CP6 and therefore make the rates more representative of actual costs. The three alternative submissions that were made are based on the same core methodology that has been used by RDG. RDG understands that these rates have the support of the relevant Network Rail route teams and is itself happy to support them on this basis. The alternative rates proposed by GWR, GTR and Scotrail have therefore been incorporated into this RDG submission.

Conclusion

Other than those described above, no other changes have been made to the TMPR values that were included in RDG's August submission. The final rates are presented in the spreadsheet attached.

TMPR Risk assessment

Charge/Incentive	*Schedule 4*
Parameter	*TMPR (Train Mileage Payment Rate)*

Risk Score

	Score	Rationale for score
Inherent impact	Low	According to Faber Maunsell, which conducted the study on which the current (CP5) TMPR values are based, the cost of running a greater or lesser number of train miles represents a small proportion of the total costs incurred as a result of a possession. Ninety percent of such costs were found to be associated with replacement bus costs with all other costs combined accounting for the remaining ten percent. Therefore, given the low level of materiality, RDG considers that industry behaviours would only be affected if the TMPR values are very significantly higher or lower than they should be. The precise impact of a weakness or error in the TMPRs will depend on where the weakness or error occurs and whether it is an operator/operators or Network Rail that are most affected. For example, if an error occurs in transposing the value of just one TMPR value in one operator's TAC then the impact will be limited to TMC payments within that Service Group which could be relatively more significant for that operator than for Network Rail. However if a weakness or error occurs in the evidential, methodological, model design or model delivery stages then it could affect all TMPR values in all operators' TACs. The impact is largely mitigated for franchised operators because they are held harmless against any changes to charges and incentives made through Periodic Reviews. Costs and efforts of addressing errors are considered to be low.

Source of risk	Inherent likelihood	Rationale for score
Evidential	Low	The TMPR parameter should reflect the cost or saving to an operator of running one extra train mile, or one less train mile. Evidence is primarily derived from past Network Rail billings data (2016/17 year) which is a large data sample and will have been scrutinised by the applicable operators at the time of billing. Evidence includes the main variable costs of operating a train (VUC and electricity traction costs and/or fuel). It does not include all known factors that would affect the target variable (for example, (as is the case in CP5), it does not include mileage-based maintenance costs. However, this is a relatively small proportion of costs). Evidence is for all Service Groups that existed in 2016/17 year. Some currently Service Groups currently being used did not exist or were not used in that year and so a different approach must be taken to derive values for those.
Methodological	Medium	The methodology has several elements to it but is straightforward and non-complex. It uses inputs from Network Rail's billing team and a fuel cost derived from operators' data. The methodology has been discussed and agreed with the industry.
Model design	Medium	The spreadsheet is new but is simple and uses basic calculations and lookup functions. The unpopulated spreadsheet has been shared with the industry, including the underlying formulae.

Model delivery	Medium	The populated spreadsheets applicable to individual operators have been shared with them, including the underlying formulae, to enable them to follow the calculations and to check inputs.
Transposition	Medium	There are between 1 and 15 values to transpose in each operator's contract. The values are unique to each operator.

Proposed Assurance

Source of risk	Inherent risk	Recalibration lead Assurance Process	Industry Assurance Process
Evidential	Low	Almost all of the input data has been extracted from Network Rail's audited billing systems. This applies to train and vehicle mileage data, VUC, EUAC and EC4T billing data.	RDG shared the calculator spreadsheet with all operators and Network Rail on three separate occasions and invited review and comment. Initially, an unpopulated version of the spreadsheet was circulated followed by a populated version (on two separate occasions). Comments were incorporated into the final spreadsheet. Therefore, RDG Members had several opportunities to review and comment on the methodology, delivery and design of the spreadsheet, as well as on their own input data.
Methodological	Low	The calculation spreadsheet was designed by the RDG Recalibration Lead and reviewed by the RDG Senior Regulatory Advisor. The Final Spreadsheet was reviewed by the RDG Research and Analysis team, which otherwise had no involvement in the project, and raised no issues. In the cases of the TOCs which have proposed alternative TMPR rates to those calculated by RDG, the relevant calculations are based on the same core methodology as used by RDG. The calculations were prepared by the TOCs in question (or by the TOC in conjunction with RDG) and the calculation spreadsheets have been reviewed by RDG and additionally by the relevant Network Rail route teams.	The methodology was discussed in detail with RDG members at the RDG recalibration working group. RDG shared the calculator spreadsheet with all operators and Network Rail on three separate occasions and invited review and comment. Initially, an unpopulated version of the spreadsheet was circulated followed by a populated version (on two separate occasions). Comments were incorporated into the final spreadsheet. Therefore, RDG Members had several opportunities to review and comment on the methodology, delivery and design of the spreadsheet, as well as on their own input data.

Model design	Medium	The calculation spreadsheet was designed by the RDG Recalibration Lead and reviewed by the RDG Senior Regulatory Advisor. The Final Spreadsheet was reviewed by the RDG Research and Analysis team, which otherwise had no involvement in the project, and raised no issues.	RDG shared the calculator spreadsheet with all operators and Network Rail on three separate occasions and invited review and comment. Initially, an unpopulated version of the spreadsheet was circulated followed by a populated version (on two separate occasions). Comments were incorporated into the final spreadsheet. Therefore, RDG Members had several opportunities to review and comment on the methodology, delivery and design of the spreadsheet, as well as on their own input data.
Model delivery	Low	The calculation spreadsheet was designed by the RDG Recalibration Lead and reviewed by the RDG Senior Regulatory Advisor. The Final Spreadsheet was reviewed by the RDG Research and Analysis team, which otherwise had no involvement in the project, and raised no issues.	RDG shared the calculator spreadsheet with all operators and Network Rail on three separate occasions and invited review and comment. Initially, an unpopulated version of the spreadsheet was circulated followed by a populated version (on two separate occasions). Comments were incorporated into the final spreadsheet. Therefore, RDG Members had several opportunities to review and comment on the methodology, delivery and design of the spreadsheet, as well as on their own input data.
Transposition	Medium	The calculation spreadsheet was designed by Chris Dellard (RDG Recalibration Lead) and reviewed by Tom Wood (RDG Senior Regulatory Advisor). The Final Spreadsheet was reviewed by the RDG Research and Analysis team, which otherwise had no invlvement in the project, and raised no issues.	RDG shared the calculator spreadsheet with all operators and Network Rail on three separate occasions and invited review and comment. Initially, an unpopulated version of the spreadsheet was circulated followed by a populated version (on two separate occasions). Comments were incorporated into the final spreadsheet. Therefore, RDG Members had several opportunities to review and comment on the methodology, delivery and design of the spreadsheet, as well as on their own input data.