2018 periodic review draft determination

Supplementary document – Scorecards and requirements

June 2018

Contents

About this document

The 2018 periodic review is the process through which we determine what Network Rail[1] should deliver in respect of its role in operating, maintaining and renewing its network in control period 6 (CP6)[2] and how the funding available should be best used to support this. This feeds through into the:

- service that passengers and freight customers receive and, together with taxpayers, ultimately pay for; and

- charges that Network Rail's passenger, freight and charter train operator customers will pay for access to its track and stations during CP6.

This document forms part of our draft determination, which sets out our overall decisions on PR18 for consultation. We have also published an overview document, setting out:

- our proposed decisions in all the main areas of PR18 and next steps; and

- a summary of how we will regulate Network Rail's delivery in CP6; and

In addition, there are high-level summaries of our main decisions for each of England & Wales and Scotland. The full set of documents that form the draft determination is set out in the diagram below. After taking account of consultation responses, we will publish our final determination in October 2018.

A map of our earlier consultations and conclusions that have led up to our draft determination is available here.

Responding to the consultation on our draft determination

We welcome comments on this document and/or the other documents that form part of our draft determination by **Friday 31 August 2018**. Full details on how to respond are set out in Appendix B of our overview document. This includes how we will treat any information provided to us, including that which is marked as confidential. Subject to this, we expect to publish responses alongside our final determination in October 2018.

We have provided a pro-forma, should you wish to use this when responding. If you choose not to use the pro-forma, we would be grateful if you would make clear in your response that you are commenting on this supplementary document. This will assist our process for reviewing comments.

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[1] All references to Network Rail in this document are to Network Rail Infrastructure Limited.

[2] CP6 will run from 1 April 2019 to 31 March 2024.

Our draft determination documents (includes weblinks)*

PR18 draft determination overview document

England & Wales summary

Scotland summary (and supporting annex)

Draft settlement documents

- FNPO route
- System Operator

Route review summaries

England & Wales:
- Anglia route
- LNE & EM route
- LNW route
- South East route
- Wales route
- Wessex route
- Western route

Other documents
- Glossary
- Consultancy & reporter studies

Supplementary documents

SBP assessment:
- Scorecards and requirements
- Health & safety
- Review of Network Rail's proposed costs
- Other single till income
- Stakeholder engagement

Policy:
- Financial framework
- Review of network licence
- Overview of charges & incentives decisions
- Infrastructure cost charges consultation
- Variable usage charge consultation

Conclusions to earlier consultations
- Conclusions to working paper 8 on managing change
- Conclusions on our approach to assessing efficiency & wider financial performance

* Please note that some documents, including consultancy and reporter studies and impact assessments, will be published following 12 June 2018.

Summary

Context

1. The context for how we encourage Network Rail to deliver effectively has been affected by two particular changes. First, at the start of CP5 Network Rail was confirmed as being part of the public sector, which reduced the likely effectiveness of certain financial incentives on the company. Consequently, our approach in CP6 will be to make better use of reputation alongside financial incentives and our existing licence enforcement powers. This has implications for how we monitor performance, and the steps we take when addressing under-performance.

2. Second, Network Rail has chosen to implement a number of changes to how it is organised. This has led to the creation of more distinct route businesses, who are now responsible for more of the decisions in their geographic areas, and are now better-placed to involve customers in the decisions that affect their use of the network. Network Rail also created a distinct system operator, which is responsible for a range of functions that improve decision-making and maintain the benefits of having an integrated national network (not least, by delivering effective timetables).

3. Our regulation of Network Rail will reflect these changes, and make use of the following elements:

   ■ **Scorecards** will capture what each route and the system operator plans to deliver over (at least) the next year. This provides a vehicle for recording what each customer wants, agreeing how it should be measured and what level of performance is reasonable.

   ■ Supporting **improved stakeholder engagement**, including between each route, the system operator and their customers. Building on scorecards and the improved levels of engagement in the PR18 strategic route plans, we expect routes and the system operator to involve key stakeholders in the decisions that affect them.

   ■ Making **greater use of comparison** between routes when we monitor and report on performance. This will sharpen incentives on each route to perform and to provide a stimulus to sharing of best practice across Network Rail.

Purpose

4. This document sets out the detailed analysis we have undertaken of Network Rail's Strategic Business Plan (SBP) in respect of what the routes (geographic and FNPO) and the system operator (SO) plan to deliver. In particular, it considers two broad issues:

- whether the PR18 scorecards included in the business plans are such that we can take them into account in our regulation of Network Rail over CP6; and

- whether the trajectories proposed for key aspects of Network Rail's delivery provide a reasonable baseline against which to monitor its performance.

Overall suitability of Network Rail's PR18 scorecards

5. We made three central requirements of scorecards in order that we would be able to take them into account in our regulation of Network Rail in CP6. These were that Network Rail's scorecards should be:

- balanced;

- enable route comparison; and

- reflect the HLOSs where appropriate.

6. These are discussed in turn below.

Balanced scorecards

7. For us to make full use of Network Rail's scorecards, they need to contain a balanced set of measures across Network Rail's activities, and to reflect the interests of current and future users.

8. Network Rail has largely reflected this in the scorecards in its SBP. In terms of balance across Network Rail's activities, each route scorecard and the SO scorecard includes safety, financial and other measures appropriate to the part of Network Rail to which it relates. In terms of current and future users, route scorecards reflect current users (e.g. through safety, train performance and asset management measures) and future users (e.g. through the network sustainability measure).

9. In addition, Network Rail is proposing to use a 'route comparison scorecard' (which contains a set of comparative data looking across routes), and for this to reflect additional measures specifically focused on end user outcomes: passenger satisfaction and measures of passenger and freight volumes.

10. We also said routes should take account of the needs of all passenger and freight operators using their route. This has largely been achieved although we have some concerns about the representation of national passenger operators, and CrossCountry in particular. This is a particular issue as the nature of CrossCountry's operations are such that there is a risk that each route fails to adequately consider its needs.

Route comparison

11. For geographic routes, we required the inclusion of a consistent set of measures to enable comparison between routes. This will enable us to compare how each route is performing. It should also contribute towards improving route performance, by providing a stimulus on routes to improve, and to share best practice.

12. Network Rail also needs to be able to compare the performance of its routes. In its SBP route scorecards, Network Rail included a number of consistent measures of its own, as well as three of the measures we proposed. Most consistent measures are included on the route scorecards. Performance against all consistent measures – including the full set specified by ORR – will be shown on a single '**route comparison scorecard**' which will be used to enable quick and easy route comparison.

13. We have some reservations around Network Rail's governance and assurance processes in relation to consistent measures – whether these are consistent across routes or measures with a standard industry definition. All scorecard measures should be clearly defined, and any consistent route (or industry) measures should have the same definition on each route scorecard. This is important to support transparency of scorecards for stakeholders who may look across a number of scorecards. It is also important that Network Rail has processes in place to verify that the targets are being set consistently across the routes.

14. We will keep the transparency and consistency of scorecard measurement under review, and may test this during CP6 using the Independent Reporters if we have significant remaining concerns.

Reflecting the HLOSs where appropriate

England & Wales

15. The England & Wales HLOS focused on a number of outcomes. The Secretary of State highlighted the need for continued safe operation of the network, increased volume of renewals and for Network Rail to work with its stakeholders to agree stretching yet realistic targets for performance. He set out that the expected enhancements and accessibility improvements would need to be made, but outside of the periodic review process.

16. Network Rail's scorecards support delivery of these requirements in a number of these areas. They contain measures of safety, asset management (including renewals and network sustainability) and train performance.

Scotland

17. The HLOS contained a number of requirements, including specific performance targets for ScotRail and Caledonian Sleeper, and targets for freight growth.

18. We have worked with Network Rail and Transport Scotland to achieve greater clarity about how each of the HLOS requirements might be measured. Where appropriate, these have now been reflected in the Scotland scorecard, and also in the SO and FNPO scorecards (where relevant). For example, the Scottish HLOS requirements for ScotRail performance are reflected in the Scotland route scorecard.

19. A number of requirements were not suited to being captured in scorecards. We have set out in the supporting annex to the Scotland summary more information on how Network Rail will deliver the Scotland HLOS requirements.

ORR assessment of key scorecard trajectories

20. We reviewed route scorecards to assess whether key trajectories (for passenger performance; freight performance; and network sustainability) were sufficiently challenging.

21. We also reviewed other requirements that sit alongside scorecards such as network availability and network capability.

22. In our overall framework conclusions we also decided to set 'regulatory minimum floors' for passenger and freight performance and for network sustainability. These provide an indication of the point at which we are very likely to investigate the route / SO for breach of its licence obligations. We are not setting any regulatory minimum floors for the SO, and we set out more about how we will regulate the SO in our separate SO draft settlement document.

Passenger performance

23. In respect of performance, it is important to distinguish clearly between two different sets of measures. First, the routes were asked to agree suitable performance metrics with their customers. In most instances, passenger operators wanted performance to be measured using the public performance measure (PPM)[3]. PPM captures both Network Rail and train operator performance, and so is a reflection of the overall performance experienced by passengers.

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[3] PPM is the proportion of trains that arrive at their final destination 'on time'. A train is defined as 'on time' if it arrives within five minutes of the planned destination arrival time for London & South East and regional services; or ten minutes for long distance services. PPM measures delays attributable to both Network Rail and train operators.

24. Second, routes were also required to agree an overall performance metric to reflect the route contribution to train operator performance, using the consistent route measure of passenger performance: CRM-P. CRM-P is a measure of Network Rail's performance and is based on delay minutes[4].

25. We put particular emphasis on the potential for routes to agree suitable performance metrics and trajectories with their customers. Overall, while there was good initial high-level discussion on route objectives, this was not consistently repeated as discussions moved onto the detail of individual targets, where a generally late start was made to these discussions.

26. The additional planning that Network Rail now needs to undertake provides a valuable opportunity for all parties to reach greater levels of agreement. This will require train operators to engage more effectively, build on the lessons learnt from the process to date, and focus on what can be delivered (and how this can be achieved) in practice – it will not be sufficient for franchised train operators to point to their franchise targets, if there are good reasons why these cannot be delivered.

27. This process also provides an opportunity for all parties to review the risks and opportunities put forward by operators in April 2018 and for routes to either amend their trajectories or justify why they should not be amended. Network Rail will need to provide us with an updated set of performance trajectories by 13 July 2018. It remains the case that where the industry is unable to reach agreement we will take a view on performance as part of the final determination.

28. We also undertook a detailed review of Network Rail's performance models, which informed both its train operator trajectories and the CRM-P. This review identified concerns in how three routes calculated their performance trajectories:

- South East: this route took a robust approach to producing its performance trajectories, using simulation modelling, but based this on an 80% confidence scenario. This is a much greater level of confidence than other routes have proposed. We have required that it revise its performance trajectories to be based on a 50% confidence rating.

- Wessex: this route's projections included an allowance for 'historical decline' which were not fully explained. This allowance was extrapolated through the control period. Unless the route can demonstrate what these unknown risks are, it should recalculate its performance trajectories to exclude this 'unknown' decline.

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[4] CRM-P measures primary and reactionary delay minutes to passenger services caused by each Network Rail route, normalised per 100 train kilometres. It focuses on the delay that a route causes, rather than delay caused by train operators.

- Anglia: this route's performance model methodology gave rise to concern as each year was treated independently, which meant performance improvements / deteriorations early in the control period were not carried through to later in the control period. We have required that the route consider our findings and amend this element of its modelling methodology. If Network Rail concludes this update is not required, it should explain this.

29. Reflecting this, we have asked each route to make adjustments to their performance models, update their performance trajectories and carry these changes through into discussions with customers about the customer performance trajectories.

30. We also set a regulatory minimum floor for passenger performance. Our decision is that this should be set at a consistent margin below Network Rail's target for each year of CP6 (i.e. the floor reflects the trajectory). The size of this margin should reflect a performance level of 20% of the average performance for CP4 and CP5. This was not what Network Rail proposed, but we consider this level is a better indication of the point at which ORR has typically investigated passenger performance issues.

31. As set out in our overview document, severe problems have been caused by the May 2018 timetable change. We are currently investigating Network Rail's role in this and carrying out a wider inquiry at the SoS's request into why the system as a whole failed to produce and implement an effective timetable.

Freight performance

32. As with the passenger market, we emphasised the potential for routes to agree suitable performance metrics and trajectories with their freight customers. Again the discussion of specific target levels has not been as strong as early discussions under the process for developing plans.

33. We reviewed Network Rail's proposals for freight performance. We have accepted the FNPO's trajectory for Freight Delivery Measure (FDM) at a national level, and the route level FDM-R trajectories. We expect Network Rail to consider the impact of any adjustments it makes in summer 2018 on the freight trajectories.

34. We also accepted Network Rail's proposal for a regulatory minimum floor for freight performance set at 30% more failures than target as this was an appropriate level for the level of freight services.

Network sustainability

35. We are concerned that Network Rail's plans for CP6 forecast a decline in levels of sustainability for the control period and in the longer term. Network Rail's February SBP does not adequately address this trend. In general terms, routes have justified

this decline on the grounds that they have prioritised safety and performance over sustainability.

36. We have asked Network Rail to make adjustments to its sustainability trajectories to reflect additional planned renewals. It will provide these to us by 13 July 2018, after which we will review the calculations and expect to see these reflected in updated values on the company's scorecards.

37. We will also set a floor for network sustainability which is equivalent to a drop of 10% in its planned renewals.

Network capability

38. We expect Network Rail to protect and maintain the baseline capability of the network and expect all changes to go through the recognised industry processes throughout CP6. We will work with Network Rail to set the baseline for 1 April 2019 at route level, using Independent Reporters. As part of this work we will consider whether the base requirement should be as we set out for CP5 (in terms of track mileage & layout, line speed, gauge, route availability, electrification type) or whether this should be amended.

Network availability

39. We have not set a target or regulatory minimum floor for network availability for CP6. However, this remains an important area for our monitoring in CP6 in terms of the impact on end users.

Other issues

40. **Transparency of scorecards:** There are a number of issues which contribute to scorecards not being readily transparent to stakeholders. This includes issues such as clearly and visibly defining measures so stakeholders can understand what Network Rail is holding itself to account for, the consistent definition of consistent route or industry measures and providing an appropriate level of detail in the definitions provided.

41. **System operator:** we concluded that the SO scorecard was balanced across the activities that it delivers. The potential for comparison between routes and the SO is limited, so our requirement for scorecards to support comparison was not assessed for the SO. The SO contributes to delivering the England & Wales and Scotland HLOSs. However, some Scotland HLOS measures are still to be addressed, with measures yet to be developed. We set out more detail about this in our SO draft settlement document and supporting annex to the Scotland summary.

42. **FNPO route:** we concluded that the FNPO scorecard is balanced between Network Rail's activities and customers, although we have some concerns about the level of representation of national passenger operators. The FNPO has few consistent measures with geographic routes but this is appropriate due to its different nature, and we have considered the alignment with measures on the route scorecards (e.g. in respect of route and national freight performance). The scorecard met the England & Wales HLOS but some Scotland HLOS measures are still to be addressed, with measures yet to be developed. We set out more detail about this in our FNPO draft settlement document and supporting annex to the Scotland summary.

1. Our policy approach

Introduction

1.1 In PR13 we set a framework of regulated outputs, indicators and enablers for CP5[5]. During CP5 Network Rail introduced scorecards to align its priorities with its customers and help it incentivise its management to deliver these priorities.

1.2 We set out in our [Overall Framework](#) consultation in July 2017 that we wanted to incorporate Network Rail's scorecards into our approach to regulation in CP6, to better support our focus on routes and the system operator (SO).

1.3 We have a number of expectations of what Network Rail will deliver for the funding it receives in CP6. These include that it must comply with relevant health and safety legislation, efficiently manage the network and maintain network capability as at the end of CP5.

1.4 It must maintain sustainability of the network in line with the end CP6 target we include in our Final Determination (which is reflected on scorecards). It will report to us its progress in achieving this on an annual basis.

1.5 Regarding train performance in England & Wales, Network Rail is funded to deliver levels of performance that in the early periods of CP6 are broadly in line with the trajectories we include in our final determination. During CP6, we expect Network Rail to operate a high quality engagement process with its operator customers to set stretching but realistic annual targets (which may vary up or down from these trajectories) aligned where appropriate with performance objectives set by funders, and reflecting how circumstances have changed.

1.6 For the Scotland route, there are a number of specific requirements in the Scotland HLOS, including for train performance, which we have reflected in our [supporting annex to the Scotland summary](#).

1.7 Scorecards form one part of how we propose to monitor and hold Network Rail to account for delivering these expectations. They provide evidence of how the company is performing and whether it is meeting its licence requirements.

1.8 Scorecards also form part of the incentive framework encouraging Network Rail to deliver, by:

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[5] See Chapter 3 of our PR13 Final Determination [here](#).

- providing transparency about what routes / the SO should deliver and how it has been performing, thereby sharpening reputational incentives on the company to improve;

- supporting comparison across routes, providing additional incentives on routes to improve and to share best practice; and

- forming part of the measurement of the performance of route teams, which then feeds through into the remuneration of relevant managers.

Our requirements for Network Rail's scorecards

1.9 We said in our January 2018 overall framework document that for us to use Network Rail's scorecards in the way we regulate in CP6, they must:

- **be balanced**, and so reflect the full range of outcomes that Network Rail is required to deliver. This includes current end-user interests, but also that of the taxpayer and longer term interests of future passengers and freight customers (notably their interest in network sustainability and improved safety outcomes);

- **support comparison between routes** (and, where appropriate, the SO), so that they provide an additional source of incentives on each route to improve performance and a stimulus for sharing best practice; and

- **capture requirements specified in either the England & Wales or Scotland HLOSs,** where this is appropriate.

1.10 We asked Network Rail routes and the SO to develop the content of their scorecards, working with their customers and stakeholders. We noted that the SO and route scorecards would be different.

1.11 In our February 2017 SBP guidance to Network Rail we also made requirements around stakeholder engagement which would inform the scorecard content, including that as a minimum, we expected that:

- each route would develop objectives that balance the needs of stakeholders, but which are ultimately consistent with the priorities of end-users and value for money;

- wider stakeholders would have opportunities to engage with the routes' strategic plans on an individual route-level basis, including workshops / meetings that are open to all stakeholders; and

- given anticipated funding constraints, the focus of much of the engagement should be on priorities and trade-offs, identifying cost-effective ways forward.

1.12 We expected the routes and the SO 'strategic plan scorecards' and associated interventions to relate transparently to stakeholder priorities supported by proportionate business cases. We set out our expectations on stakeholder engagement and supporting information in the preparation of these in our SBP guidance. We discuss our assessment of Network Rail's stakeholder engagement further in our stakeholder engagement supplementary document.

Network Rail's scorecard framework

1.13 Network Rail has a number of different scorecards for different parts of its business and at national level. We are focused on Network Rail routes (including the FNPO) and the SO.

Figure 1.1 – A simplified representation of Network Rail's current scorecard structure
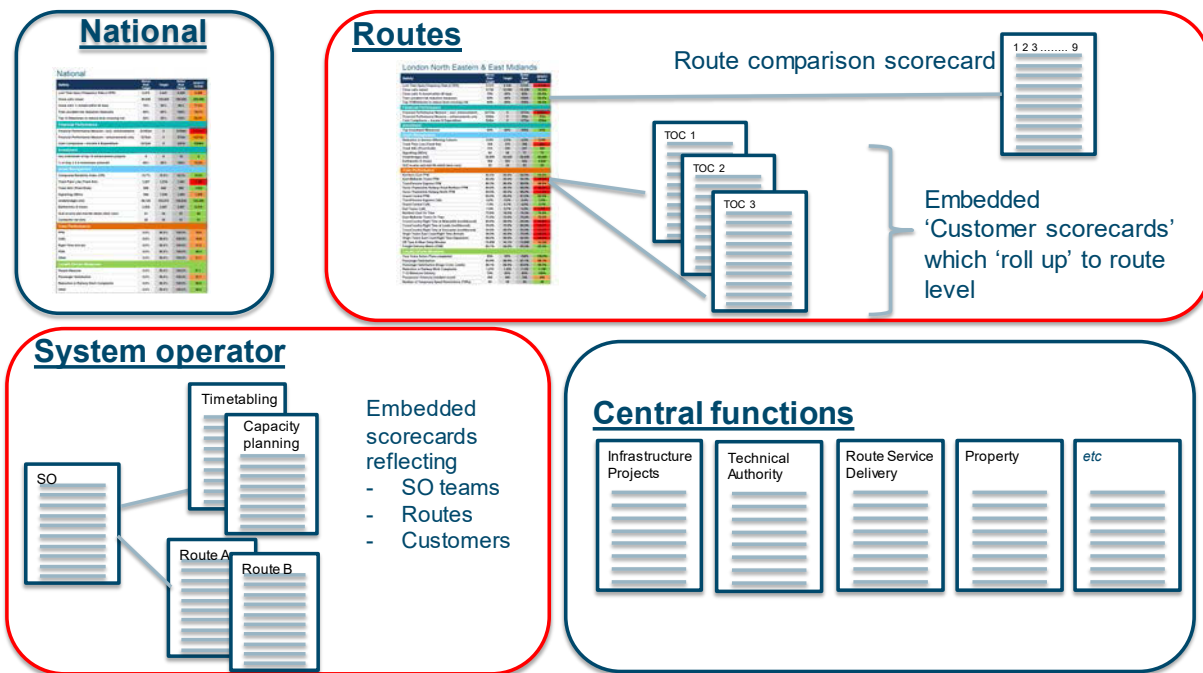
1.14 Network Rail describes this structure as set out in Figure 1.2 below.

1.15 We recognise that Network Rail's scorecards structure reflects its complex stakeholder network, and the differing outputs delivered by different parts of its business. We also recognise the way that scorecards feed into Network Rail's internal governance processes and the associated cascade of objectives.

Figure 1.2 – Network Rail's representation of its scorecard framework[6]
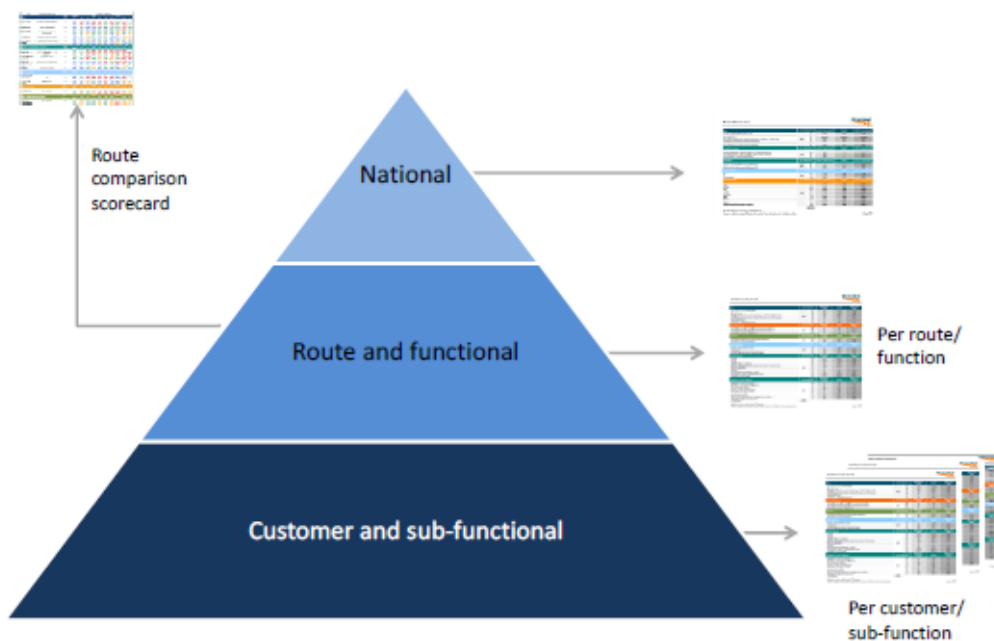
1.16 Network Rail provided us with a [planning, reporting and regulatory framework](#) document as part of its SBP. This document set out Network Rail's approach for developing, agreeing and monitoring against its scorecards. It also covered changes to scorecards and its proposals for transparency. We are placing weight on a number of the proposals from Network Rail from this document.

Customer agreement of Network Rail's scorecards

1.17 In CP6, for Network Rail to deliver effectively for train performance of the network, it will need to deliver a high quality engagement process between Network Rail and its operator customers. This will need to set stretching but realistic targets (which are reflected on scorecards), which are informed by what operators want and their plans for using the network.

1.18 In order to achieve this, Network Rail routes should actively seek to secure agreement of their customers to the targets in its scorecards. We expect all routes to:

- do this in a timely, clear and constructive manner;

- work with other routes to ensure cross-border issues are addressed (i.e. borders between all routes, not just England & Wales);

- obtain agreement at an appropriate level of seniority with the operator in question; and

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[6] From Network Rail's [Planning, Reporting and Regulatory Framework](#) (part of the Strategic Business Plan).

- keep a clear and appropriate record of what has been agreed and when.

1.19 Similarly, we expect all Network Rail's operator customers to:

- engage with Network Rail in a timely and constructive manner;

- secure agreement at an appropriate level of seniority; and

- keep a clear and appropriate record of what has been agreed and when.

1.20 Should we receive complaints or have concerns that Network Rail is not operating a high quality engagement process, we will expect to use the records kept by both Network Rail and operators in our investigation into whether or not Network Rail has breached its network licence.

Transparency

1.21 Network Rail must be transparent about the targets it is setting itself. Network Rail has stated its commitment to transparency on its scorecards:

> **"We believe that being transparent and accountable to our customers, funders, wider stakeholders and the public will drive continuous improvement to help us to become more efficient and responsive in delivering for all users of the railway."**
>
> **Network Rail Planning, Reporting & Regulatory Framework document**

1.22 In this context, Network Rail has committed to publishing the following:

- a delivery plan at the start of each financial year, reflecting planned delivery over the remainder of the control period (including its scorecards);

- an assessment of its annual performance in its:

  - annual report and accounts;

  - annual return (including route comparison data and scorecard); and

  - regulatory financial statements;

- route scorecards (including the route comparison scorecard) on a quarterly basis.

1.23 We welcome these commitments. However, Network Rail needs to take steps to improve transparency around scorecards, as transparency cannot be achieved through simply publishing scorecards. We address this further in Chapter 2.

Change to Network Rail's scorecards in CP6

1.24 The SBP included scorecard measures and trajectories for the routes and SO over the five years of CP6.

1.25 For any given year of the control period, Network Rail expects to set an annual scorecard with measures and targets which reflect its priorities in that year.

1.26 These may differ from the trajectories Network Rail included in its SBP, reflecting changes in customer requirements or to reflect external events, such as the delivery of an enhancement project. We expect that reasonable and justified changes will be made to:

■ Network Rail's own targets; and

■ Network Rail's customer-aligned/agreed targets.

1.27 When monitoring Network Rail's performance we will initially have particular regard to the expectations set out in our final determination. However, over time, we would increasingly put weight on the annual targets in our monitoring, where these have been explicitly agreed with customers (with an appropriate level of governance around this).

1.28 Similarly, our formal reporting on Network Rail's performance will focus particularly on any updated trajectories, where these have been agreed with customers. We also expect to report on how the company is performing relative to the expectations set out in our final determination.

1.29 Some aspects of Network Rail's scorecards will be subject to our change process[7]:

■ **changes to the consistent route measures:** a material change to the availability of the consistent route measures or to how they are calculated could fundamentally affect our ability to compare performance. Consistent with our overall approach, we would therefore require Network Rail to submit to us the case for making the proposed change (so-called 'Level 3' change control). We would subsequently issue a formal opinion on the change and could prevent it from making these changes if we judge it to be an 'exceptional change'.

■ **CP6 baseline:** a change could occur which is outside the route/SO's control and which fundamentally undermines the relevance of a CP6 baseline trajectory for a consistent measure. We would consider requests that the impact of the

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[7] More information on types of change in CP6 is set out in Working paper 8: managing change affecting the PR18 settlements.

change is taken into account by changing the baseline for our monitoring and reporting.

1.30 Separately, it is for ORR to set the regulatory minimum floor, which we are doing as part of PR18. We do not expect there to be any changes to this floor once set for CP6. But it might be necessary following, for example, enforcement action for poor performance. In such cases, we might need to establish a new floor so that it has a practical impact on a forward-looking basis.

1.31 We set out more information the managing change process in our [working paper and conclusions on managing change](#).

Impact assessments

1.32 We have updated the impact assessments that we consulted upon alongside our Overall Framework and Route Requirements and Scorecards consultations in July 2017. These will be available on our website [here](#) shortly.

2. Our assessment of Network Rail's scorecards

Introduction

2.1 Network Rail uses scorecards as a way to improve how its business performs, including through closer alignment with train and freight operating companies' objectives. We support Network Rail's use of scorecards and the potential for them to improve outcomes, consistent with our PR18 aims.

2.2 In our overall framework consultation we noted that there is an opportunity for scorecards to be used as part of our regulatory framework. We set out various requirements for scorecards in order for us to do this.

2.3 In this section we set out:

■ what our requirements are for Network Rail's scorecards;

■ our approach to reviewing scorecards in the SBP; and

■ our analysis of whether Network Rail has met our requirements in respect of:

  – Transparency

  – Geographic Routes

  – FNPO

  – SO

  – Other parts of Network Rail

Our analysis

2.4 We have reviewed the scorecards and related elements of the Strategic Plans for the routes (geographic and FNPO) and for the SO.

2.5 We have also conducted detailed analysis for key outcomes:

■ train performance for passenger and freight operators; and

■ network sustainability.

2.6 We have not reviewed in detail the input targets that Network Rail has set for itself on its scorecards, for example its proposed trajectories for the expected reduction in service affecting failures, or its cash compliance measure.

Has Network Rail met our requirements for scorecards?

2.7 As per our approach to PR18, our focus has been on the routes (geographic and FNPO) and the SO.

Balanced

2.8 We said balanced scorecards would have the following features:

- reflect the full range of outcomes that Network Rail is required to deliver – including health and safety, financial performance, asset management, train performance and investment delivery milestones;

- reflect current end-user interests, but also those of the taxpayer and longer term interests of future passengers and freight customers (notably their interest in network sustainability and improved safety outcomes); and

- take account of the needs of all passengers and freight operators using their route and not just those for which the route is their lead route.

2.9 We consider that scorecards are broadly balanced across the activities that Network Rail undertakes, accepting that it is not practical to include measures to reflect every outcome Network Rail delivers. Each route includes measures relating to: the safe operation of the network; key measures of financial performance; train performance measures that align with customer requirements; measures which reflect Network Rail's stewardship of the network; and other customer and locally-driven measures. The SO (and other functions in Network Rail) also reflect a spread of measures in categories which reflect key activities in their respective parts of the business.

2.10 We have not mandated measures or trajectories for health and safety or financial performance. However, we are clear that these are important areas that must be included on scorecards. If these were removed, there would be a risk that they were no longer balanced and so we would likely be unable to use them in our regulation of Network Rail. We have discussed with Network Rail its measures in these areas. We will continue to seek to influence Network Rail on the measures it uses in these areas.

Enable comparison

2.11 Our SBP guidance set out that scorecards should support comparison across routes. Again, Network Rail has reflected this in its approach to scorecards, by requiring a number of consistent measures on its route scorecards. It intends to use these to enable it to compare route performance.

2.12 It has also reflected our requirements in doing so, as set out in our route requirements and scorecards consultation. Our required consistent measures were:

passenger performance; freight performance; network sustainability; end user measures (passenger experience); use of the network (passenger and freight); and a third party investment measure.

Route comparison scorecard

2.13 Network Rail has committed to produce a 'route comparison scorecard'. It has committed to publish scorecards on a quarterly basis and the route comparison scorecard will be published alongside route scorecards.

2.14 This scorecard reflects all the consistent measures mandated by Network Rail centre that all routes must report on. It also includes four measures that we have requested, these are highlighted in the table below.

2.15 We set out in our route requirements and scorecard document that we wanted a consistent measure of third party investment. We no longer consider that this should be a consistent measure, as each route is likely to have a different scale and type of third party investment. However we do expect route scorecards in CP6 to reflect third party investment.

2.16 If Network Rail stops using these measures on its route comparison scorecard we will continue to require that the measure is reported to us and look at other ways to use reputational incentives in this area (e.g. with our own public reporting of these measures in our monitor).

Table 2.2: Route comparison scorecard measures

Area	Measure	Definition	Notes
Safety	Lost Time Injury Frequency Rate (LTIFR)	The number of injuries leading to absence from work among staff and contractors per 100,000 hours worked.	The SBPs include targets in this area that we consider stretching but achievable.
	Train accident risk reduction measures	Measures Network Rail achievement of key milestones and metrics to reduce train accident risk.	The inclusion of this measure is consistent with a target to reduce catastrophic risk so is appropriate for scorecards.
	Top 10 milestones to reduce level crossing risk	Measures Network Rail achievement of top 10 milestones to reduce level crossing risk.	We are comfortable with Network Rail's proposal to include a measure in this area.
	RM3	*This measure remains in development by central teams within Network Rail.*	We support the inclusion of RM3 in Network Rail's scorecards. The measure for RM3 on all route scorecards does not have trajectories or targets associated with it because it is in the process of being fully embedded across routes. We would expect a consensus to be reached during 2018/19 about how RM3 should be best used by Network Rail to drive improvement across routes and expect this to be reflected in appropriate targets from the start of CP6.
Performance	Consistent Route Measure – Passenger Performance (CRM-P)	CRM-P: Network Rail caused delay minutes to all train operators from incidents occurring in the route normalised by train kilometres travelled on the route.	See our analysis on Network Rail's train performance in Chapters 3 and 5 of this document
	Consistent Route Measure – Freight Performance	FDM-R: Freight Delivery Metric: regulatory measure of Network Rail's ability to deliver freight trains to destination within 15 minutes of booked time.	See our analysis on Network Rail's freight performance in Chapters 4 and 6 of this document

Area	Measure	Definition	Notes
Financial performance	Financial Performance Measure (FPM) – Gross Excl Enhancements (£m)	Measures how Network Rail are performing against income, Opex and renewals budget.	We support the inclusion of the financial performance measures that Network Rail have included on its scorecards in its SBP.
	Financial Performance Measure (FPM) – Gross Enhancements only (£m)	Measures how Network Rail are performing against the enhancement expenditure budget.	
	Cash Compliance – Income & Expenditure	Measures Network Rail compliance with funding envelope.	
Sustainability and asset management	Reduction in Service-Affecting Failures (SAF)	Measures the impact of asset failures on train performance.	For both SAF and CRI our views were as follows: We were concerned that routes had not set themselves sufficiently challenging targets in this area. We asked Network Rail to compare its Route Strategic Plan (RSP) against their network-wide assessment to determine whether the routes SAF and CRI targets were within an expected range, cautious or a lower than expected level. In response to our challenge STE concluded that: – Anglia and South East had set themselves targets lower than expected. – LNW and Wessex had been cautious in their target setting. – All other routes were within expected range. Where a route has been assessed as being cautious or at a level lower than expected then we would expect that route to revisit its scorecard targets to determine if they have been set at a sufficiently challenging level.
	Composite Reliability Index (CRI)	A measure of the short-term condition and performance of Network Rail assets including track, signalling points, electrification, telecoms, buildings, structures and earthworks.	

Area	Measure	Definition	Notes
	7 Key Volumes	Measures delivery against budget of seven key renewals volumes	The seven key volumes for CP6 are the same as reported in CP5. These being: – Plain Line - Linear track m – S&C - No. of – Signalling (SEUs) – No. of – Embank/Soil Cut/Rock Cut - No. of – Underbridges - m^2 plan deck area worked on – Wire runs - No. of – Conductor Rail renewal – Km Network Rail will report 4-weekly on the above key volumes (same as CP5) in its route scorecards. Network Rail will also need to report all asset renewal volumes and not just the seven key volumes by sub-class on a quarterly and annually basis at both national and route level.
	Top Investment Milestones	Measures Network Rail achievement of interim milestones of top 10 renewals and enhancement projects	The milestones are still under development by Network Rail.
	Composite Sustainability Index (CSI)	An indicator of the remaining life of the asset or its underlying condition. It estimates the depreciated asset value	We would not expect Network Rail to focus on improving the CSI measure at the expense of safety, performance or expenditure on assets that are not included in the CSI calculation. In a similar vein for those assets that are included within CSI we would not expect one to be advanced at the expense of another in order to achieve CSI score compliance.

End user measures* *required by ORR*	Passenger satisfaction for the route	Measures overall passenger satisfaction with the journey by route.	This measure is based on outputs from Q16 of the National Rail Passenger Survey (NRPS) - "Taking into account the station and the actual train travelled on after being given this questionnaire, how satisfied were you with your journey today?" The NRPS is carried out two times a year. Network Rail will include both an absolute figure and a rate of change based on previous out-turn results on the route comparison scorecard for each route. We recognise that there may be latent seasonal reasons for differences in the results and would reflect this in our reporting. This should be reported on a twice-yearly basis when the updated information is available.

Area	Measure	Definition	Notes
	Passenger satisfaction with managed station(s)	Measures overall passenger satisfaction with Network Rail managed station(s) by route.	This measure is based on outputs from Q8 of the NRPS - "Overall, how satisfied were you with the station?" Where a route has more than one managed station the score will be aggregated to include all managed stations and Network Rail will benchmark stations within the route. The NRPS is carried out two times a year. Network Rail will include both an absolute figure and a rate of change based on previous out-turn results on the route comparison scorecard for each route. We recognise that there may be latent seasonal reasons for differences in the results and would reflect this in our reporting. This should be reported on a twice-yearly basis when the updated information is available.
	Use of the network – passenger	Passenger train miles travelled per route - The total distance travelled by passenger trains within the reported devolved route.	Route performance will be measured against base traffic growth rates, the measure should be expressed in absolute terms i.e. comparing train miles and freight net tonne miles against baseline growth targets. Baseline levels will be disaggregated to routes for inclusion on the Route Comparison Scorecard.

Area	Measure	Definition	Notes
	Use of the network – freight	Freight net tonne miles travelled per route - The product of the distance travelled and tonnage of cargo transported within the reported devolved route.	A baseline will be set for the control period and reported in the Route Comparison Scorecard. This should be reported on an at least quarterly basis to align with Network Rail's publication of its route comparison scorecard.
Third party investment* ***required by ORR**	*This measure remains in development by Network Rail*	*This measure remains in development by Network Rail.*	A measure should be developed during CP6 for third party investment. This measure should take account of the wider approach to enhancements in CP6. Network Rail should be committed to encouraging and facilitating third party investment. We will work with Network Rail and DfT to agree a measure.

Consistent route measures

2.17 We are concerned that Network Rail routes have not taken a consistent approach to defining the consistent measures in their scorecards. As set out in Chapter 1, it is crucial for the effectiveness of scorecards that Network Rail is clear to all stakeholders (and, indeed, its own employees) exactly what targets it is setting itself to deliver. Stakeholders also need confidence that they can compare metrics across different routes.

2.18 We have concerns about Network Rail's governance around consistent measures on scorecards:

■ routes defined 'consistent route measures' in an inconsistent manner in their RSPs which could undermine transparency and stakeholder understanding. Network Rail subsequently provided us with more consistent definitions; and

■ we understand that there are standard industry definitions for many of the key performance measures, but these are not used in a consistent manner; for example LNE&EM initially calculated its cancellations metric incorrectly (as it was not calculated according to the industry-agreed definition). South East has two different definitions for the same measure of cancellations.

2.19 This suggests that quality control around the definitions has not been sufficiently effective. As route devolution becomes more embedded, and routes have more freedom to take their own approach, ensuring consistency will become more important.

2.20 We expect Network Rail to do further work on how it is defining its scorecard measures, and improve both route and central governance in this area. We expect Network Rail to adopt and publish clear and comprehensive definitions for its scorecard measures. Where these relate to comparison measures, these need to be consistently defined across all scorecards. Where these relate to industry measures, these should reflect standard industry definitions.

2.21 In light of these issues, consistent with our existing approach, we may use the Independent Reporters to carry out spot checks on the consistent measures used in Network Rail's scorecards.

Reflect the HLOSs

2.22 We said scorecards must reflect the HLOS requirements where appropriate, in light of the role that scorecards play in setting out what the company is planning to deliver, how it is monitored and how its staff are rewarded.

2.23 We set out our analysis for each of England & Wales and Scotland below.

England & Wales

2.24 The England & Wales HLOS focused on the outcomes that the Secretary of State wanted to achieve. In particular the Secretary of State set out that he wanted to see improved efficiency, reflected in an improvement in productivity and achievement of outcomes through operations, maintenance and renewal activity. It highlighted the importance of the continued safe operation of the railway, and expected this to be achieved through the continued control of risk across the railway through existing processes and funding. The HLOS also highlighted that enhancements would be dealt with outside of the periodic review.

2.25 The Secretary of State accepted our advice that an increase in the volume of renewals was required compared to CP5, to improve on the outcomes delivered in the context of rising demand and to better meet user priorities. To address this we expect to take an increased focus on network sustainability in CP6, including via a specific measure on route scorecards. We have set a regulatory minimum floor for this measure.

2.26 The Secretary of State did not set national top-down performance targets. He stated his belief that the best way to deliver performance is for Network Rail to work with its stakeholders to agree stretching yet realistic targets, and that ORR should be able to benchmark on a consistent basis. We have required that train performance is reflected on scorecards as follows:

■   measures of train performance that Network Rail and its customers agree;

■   consistent route performance measures reflecting the passenger market; and

■   consistent route performance measures reflecting the freight market.

2.27 We have also required the introduction of a regulatory minimum floor for the consistent route performance measures which we expect would underpin the measures and targets agreed by Network Rail and its customers.

Scotland

2.28 The Scotland HLOS contained a number of requirements. We have reflected in our supporting annex to the Scotland summary how we have reflected these requirements, and identified those measures which are already on a scorecard.

2.29 We consider that these requirements can be grouped into four distinct categories:

■   quantitative requirements that can be measured (i.e. PPM), most of these measures feature on Network Rail's CP6 Scotland route scorecard;

- strategic requirements, most of which require Network Rail to have a plan in place or to develop and implement a plan by the start of CP6 to deliver a specific output;

- procedural requirements; and

- resourcing considerations.

2.30 We have separated the HLOS requirements into each of the above categories and for each we include a description of the HLOS requirement, our analysis of how Network Rail proposes to deliver it and our decision for each area.

2.31 Not all the requirements are readily quantifiable and therefore suitable to be reflected on a scorecard. However, we note that Transport Scotland may wish to discuss further with Network Rail what opportunity there is for including these measures on the Scotland, FNPO or system operator scorecards in order to better incentivise delivery of HLOS outcomes via Network Rail's management incentive plan.

2.32 Reflecting our principle of proportionate regulation, we have identified a number of areas that we expect to target our monitoring activity on in CP6.

Stakeholder engagement

2.33 We would like all relevant scorecard measures and targets to be agreed with customers. This will enable us to place greater reliance on scorecards. Network Rail sought agreement to all customer measures with its customers.

2.34 However, the level of agreement between Network Rail and its customers in relation to scorecards has been mixed and it is clear that Network Rail needs to do more work on its processes for discussing and agreeing scorecard measures and trajectories/targets with its customers.

2.35 Failure to achieve customer agreement to a performance trajectory may be due to a number of factors which may or may not be in Network Rail's control e.g. the level of ambition in the franchise target that the operator has agreed with the franchising authority.

2.36 However, Network Rail's governance around this process – at route level and centrally – needs improvement. Routes should set out in advance a plan for engagement with clear deadlines, and should be able to provide evidence of agreement and lack of agreement.

2.37 There are some good examples where a route has not been able to sign off the trajectories in the scorecard but have still reached an explicit understanding with the operator at a senior level – the best example of this was Wessex. However, there are also examples where some operators on a route have stated that they have not been

consulted about changes – for example CrossCountry has various concerns about what scorecards it is being represented on and how, and the level of discussion that there has been around this.

Achievability

2.38 Routes included achievability red/amber/green (RAG) ratings on their scorecards. The routes applied this RAG status in terms of the extent to which a measure was under their control or not, as opposed to whether there were material known issues with meeting the target.

Geographic Routes

2.39 Our assessment suggests that Network Rail's geographic route scorecards are balanced in terms of the activities that Network Rail is responsible for delivering. They also support route comparison through inclusion of consistent measures (noting earlier concerns on definitions). In addition the route comparison scorecard provides additional consistent measures.

2.40 Network Rail's geographic route scorecards include:

- a suite of consistent measures, mandated by Network Rail centre;

- customer-driven/agreed measures; and

- locally-driven measures which reflect the interests of the route.

2.41 CrossCountry's lead route is the FNPO. Our route requirements and scorecards consultation suggested that CrossCountry would be represented through the consistent route measure for passenger performance. This was in the context that CrossCountry was also largely reflected as a customer on the geographic scorecards in CP5.

2.42 Since reviewing the SBP we have reconsidered the level of risk that CrossCountry is exposed to as a franchised operator running timetabled services across the network. In Network Rail's SBP, five of the seven[8] geographic routes that CrossCountry runs on included measures for this operator on their scorecards (generally reflecting the level of service into or out of key stations). However, two routes have not. More generally, our review of the FNPO business plan and responses received to our consultation on the SBPs have raised some concerns around the likely focus the FNPO will, in practice, give to national passenger operators. As such we expect all Network Rail routes (except South East) to reflect appropriate measures for CrossCountry on their scorecards.

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[8] CrossCountry does not have a material number of services on the South East route.

2.43 We have summarised our analysis of each route's scorecard in the tables that follow. Further detail on our analysis on each route's performance trajectories can be found in Chapters 3 to 6 of this document, and in our [route scorecard performance summaries annex](#).

Table 2.3: Anglia scorecard assessment

Theme	Summary
Balanced	- Our assessment suggests the scorecard is balanced across safety, train performance, customer, sustainability/asset management and financial performance measures. - The scorecard includes the consistent route measures for performance and network sustainability as well as locally agreed customer measures.
Comparison	- All routes and Network Rail centre need to do more to adopt and publish clear and comprehensive definitions for its scorecard measures. Where these relate to comparison measures, these need to be consistently defined across all scorecards. Where these relate to industry measures, these should reflect standard industry definitions.
HLOS	- We consider that each route has reflected the England & Wales HLOS requirements, although all England & Wales routes are being asked to reassess their performance and sustainability trajectories in light of targeted adjustments we have asked Network Rail to make to its plans.
Clarity of scorecard	- Definitions of measures are not included on the scorecard or elsewhere in the RSP. We consider this constitutes a lack of transparency. - All measures on the scorecard had trajectories associated with them with the exception of RM3 which is determined by central policy. - The scorecard refers to both MTR Crossrail and TfL Rail in different sections of the scorecard. It may be helpful to explain for all stakeholders that these are the same entity.
Interests & agreement of customers	- CrossCountry has raised a concern that it is not included on the scorecard, and we consider it should be reflected. - Performance measures and trajectories are not agreed with operators beyond 2018/19. - Discussions continue between Network Rail and operators to reach agreement.
Other comments	- No further comments

Table 2.4 London North Eastern & East Midlands (LNE&EM) scorecard assessment

Theme	Summary
Balanced	- Our assessment suggests the scorecard is balanced across safety, train performance, customer, sustainability/asset management and financial performance measures. - The scorecard includes the consistent route measures for performance and network sustainability as well as locally agreed customer measures.
Comparison	- All routes and Network Rail centre need to do more to adopt and publish clear and comprehensive definitions for its scorecard measures. Where these relate to comparison measures, these need to be consistently defined across all scorecards. Where these relate to industry measures, these should reflect standard industry definitions.
HLOS	- We consider that each route has reflected the England & Wales HLOS requirements, although all England & Wales routes are being asked to reassess their performance and sustainability trajectories in light of targeted adjustments we have asked Network Rail to make to its plans.
Clarity of scorecard	- Definitions were included on the scorecard, however, there are limitations with the accuracy of some of the definitions. - Some measures on the scorecard did not have trajectories associated with them, these were: ▪ LTIFR ▪ RM3 (determined by central policy) ▪ Network Rail caused delay minutes by the route - Freight Delivery Metric ▪ On-Time at all recorded stations - Freight Delivery Metric ▪ Level of Cancellations - Freight Delivery Metric - We are not clear what the last three of these measures are and the response received from the route did not provide us with further clarity. - The route stated that LTIFR did not have a trajectory associated with the measure due to alignment with central Network Rail policy. (although a CP6 exit position was included). LNE&EM are the only route that stated this.
Interests & agreement of customers	- CrossCountry has raised a concern that it is not included on the scorecard. They are included on the LNE&EM scorecard in CP5. We consider it should be reflected.

Theme	Summary
	- Stagecoach (representing East Midlands Trains (EMT) and Virgin Trains East Coast (VTEC[9])) has raised a concern that the performance targets represent a worsening of PPM.
	- Discussions continue between Network Rail and operators to reach agreement.
	- Govia Thameslink Railway (GTR) is not included on the CP6 scorecard, it has not raised any concerns but we note it was included on the LNE&EM scorecard in CP5.
	- TransPennine Express (TPE) is not included on the CP6 scorecard, it has not raised any concerns but we note it was included on the LNE&EM scorecard in CP5. Nexus (Tyne & Wear Metro) has raised a concern that it is not represented in the RSP and has suggested it should be included on the LNE&EM scorecard in CP6.
	- Grand Central has raised a concern that it has not had meaningful engagement with the route team to understand the methodology used to derive the performance trajectories.
Other comments	- The scorecard is extensive due to the large number of operators on the route. The route has included customer scorecards in its RSP.

Table 2.5 London North Western (LNW) scorecard assessment

Theme	Summary
Balanced	- Our assessment suggests the scorecard is balanced across safety, train performance, customer, sustainability/asset management and financial performance measures. - The scorecard includes the consistent route measures for performance and network sustainability as well as locally-agreed customer measures.
Comparison	- All routes and Network Rail centre need to do more to adopt and publish clear and comprehensive definitions for its scorecard measures. Where these relate to comparison measures, these need to be consistently defined across all scorecards. Where these relate to industry measures, these should reflect standard industry definitions.
HLOS	- We consider that each route has reflected the England & Wales HLOS requirements, although all England & Wales routes are being asked to reassess their performance and sustainability trajectories in light of targeted adjustments we have asked Network Rail to make to its plans.
Clarity of scorecard	- Definitions of measures are not included on the scorecard or the RSP. We consider this constitutes a lack of transparency.

[9] VTEC's franchise ends in June 2018 and will be replaced by London North Eastern Railway Limited.

Theme	Summary

	- Some measures on the scorecard did not have trajectories associated with them, these were:
	
	   ▪ RM3 (determined by central policy)
	   ▪ Chiltern infrastructure Delay
	   ▪ Merseyrail infrastructure delay
	   ▪ TPE infrastructure delay
	   ▪ Virgin Trains infrastructure delay
	   ▪ West Midlands Trains (WMT) infrastructure delay
	   ▪ Arriva Rail London T-3 MAA Euston to Watford service group
	   ▪ CrossCountry right time arrivals at Birmingham New Street
	
	- Financial performance measures did not include targets for 'worse or better than' ranges across CP6.

Interests & agreement of customers	- Network Rail has informed us that discussions are ongoing with TPE, Virgin West Coast (VWC) and WMT. - Network Rail has told us that 'targets are broadly agreed' with Chiltern & Merseyrail.
Other comments	- The scorecard is extensive due to the large number of operators on the route. The route has included customer scorecards in its RSP.

Table 2.6: Scotland scorecard assessment

Theme	Summary
Balanced	- Our assessment suggests the scorecard is balanced across safety, train performance, customer, sustainability/asset management and financial performance measures. - The scorecard includes the consistent route measures for performance and network sustainability as well as locally-agreed customer measures.
Comparison	- All routes and Network Rail centre need to do more to adopt and publish clear and comprehensive definitions for its scorecard measures. Where these relate to comparison measures, these need to be consistently defined across all scorecards. Where these relate to industry measures, these should reflect standard industry definitions.
HLOS	- Network Rail has not represented all HLOS requirements on scorecards. We recognise that not all requirements can be included on the scorecards and will continue to hold Network Rail to account for delivering the HLOS requirements.
Clarity of scorecard	- Definitions of measures are not included on the scorecard or the RSP. We consider this constitutes a lack of transparency. - Some measures on the scorecard did not have trajectories associated with them. The RSP stated that some

Theme	Summary

	definitions/forecasts for some metrics are in development. These were:
	  - RM3 (determined by central policy)
	  - Abellio ScotRail passenger numbers
	  - Average speed of freight services
	  - Carbon emissions reduction
	- Abellio ScotRail average timetabled minutes per mile travelled did not include targets for worse or better than ranges across CP6.
	- Financial performance measures did not include targets for 'worse or better than' ranges across CP6.

Interests & agreement of customers	- Not all operators are represented on the scorecard but we are not aware of any concerns raised by operators. - The scorecard includes a measure for CrossCountry right- time departures from Edinburgh Waverly
Other comments	- Our separate [supporting annex to the Scotland summary](#) sets out more information.

Table 2.7: South East scorecard assessment

Theme	Summary
Balanced	- Our assessment suggests the scorecard is balanced across safety, train performance, customer, sustainability/asset management and financial performance measures. - The scorecard includes the consistent route measures for performance and network sustainability as well as locally-agreed customer measures.
Comparison	- All routes and Network Rail centre need to do more to adopt and publish clear and comprehensive definitions for its scorecard measures. Where these relate to comparison measures, these need to be consistently defined across all scorecards. Where these relate to industry measures, these should reflect standard industry definitions.
HLOS	- We consider that each route has reflected the England & Wales HLOS requirements, although all England & Wales routes are being asked to reassess their performance and sustainability trajectories in light of targeted adjustments we have asked Network Rail to make to its plans.
Clarity of scorecard	- Definitions of measures are not included on the scorecard or the RSP. We consider this constitutes a lack of transparency. - All measures on the scorecard had trajectories associated with them with the exception of RM3 which is determined by central policy. - Two measures have been included called 'level of cancellations' and 'CaSL', but these are two different measures.

Theme	Summary
Interests & agreement of customers	- The trajectories for passenger performance are not agreed between Network Rail and Southeastern or Govia Thameslink Railway (GTR). - Network Rail has informed us the process for developing the trajectory has been broadly agreed. - London Overground are not included on the scorecard but South East route is not the lead route for London Overground. We do not consider this a material omission and the operator has not raised any concerns.
Other comments	- We have no further comments.

Table 2.8: Wales scorecard assessment

Theme	Summary
Balanced	- Our assessment suggests the scorecard is balanced across safety, train performance, customer, sustainability/asset management and financial performance measures. - The scorecard includes the consistent route measures for performance and network sustainability as well as locally-agreed customer measures.
Comparison	- All routes and Network Rail centre need to do more to adopt and publish clear and comprehensive definitions for its scorecard measures. Where these relate to comparison measures, these need to be consistently defined across all scorecards. Where these relate to industry measures, these should reflect standard industry definitions.
HLOS	- We consider that each route has reflected the England & Wales HLOS requirements, although all England & Wales routes are being asked to reassess their performance and sustainability trajectories in light of targeted adjustments we have asked Network Rail to make to its plans.
Clarity of scorecard	- Definitions of measures are not included on the scorecard or the Route Strategic Plan (RSP). We consider this constitutes a lack of transparency. - All measures on the scorecard had trajectories associated with them with the exception of RM3 which is determined by central policy.
Interests & agreement of customers	- ATW have agreed the performance trajectory up to the end of the franchise (2018-19). - The route has received a letter from Welsh Government supporting the plan. - Some useful measures that are in the current CP5 scorecard and which the route refers to throughout its plan (e.g. on availability) are

Theme	Summary
	not included on the CP6 scorecard. The route has stated it will discuss these measures with the new operator once announced. - The scorecard includes measures for CrossCountry and Great Western Railway (GWR).
Other comments	- The route produced an "Outcomes Framework Sensitivity Tool" – while this is a high-level model, it demonstrates a considered and structured approach to link the scorecard outputs to the detail of the plan. We have not seen evidence of other routes producing anything similar for all scorecard measures. - The RSP has been produced based on the existing franchise. The new franchise may result in approximately 10% of the Wales route network being transferred from Network Rail. We therefore expect there to be early change control in CP6 for this scorecard.

Table 2.9: Wessex scorecard assessment

Theme	Summary
Balanced	- Our assessment suggests the scorecard is balanced across safety, train performance, customer, sustainability/asset management and financial performance measures. - The scorecard includes the consistent route measures for performance and network sustainability as well as locally-agreed customer measures.
Comparison	- All routes and Network Rail centre need to do more to adopt and publish clear and comprehensive definitions for its scorecard measures. Where these relate to comparison measures, these need to be consistently defined across all scorecards. Where these relate to industry measures, these should reflect standard industry definitions.
HLOS	- We consider that each route has reflected the England & Wales HLOS requirements, although all England & Wales routes are being asked to reassess their performance and sustainability trajectories in light of targeted adjustments we have asked Network Rail to make to its plans.
Clarity of scorecard	- Definitions were included in the RSP, however, there are limitations with the accuracy of some of the definitions. - All measures on the scorecard had trajectories associated with them with the exception of RM3 which is determined by central policy. - Not all measures have been attributed to a specific operator.
Interests & agreement of customers	- The route has taken effort to achieve clarity on what is agreed with SWR. SWR has stated its support for the plan, vision and outcomes but cannot agree the precise trajectory. - CrossCountry raised a concern regarding changes to a measure of right time arrivals at Reading station. Network Rail proposed to

Theme	Summary
	measure right time arrivals up to the last timing point on Wessex route. CrossCountry has stated this change was not discussed or agreed.
Other comments	- No further comments

Table 2.10: Western scorecard assessment

Theme	Summary
Balanced	- Our assessment suggests the scorecard is balanced across safety, train performance, locally driven customer measures, sustainability/asset management and financial performance measures. - The scorecard includes the consistent route measures for performance and network sustainability as well as locally-agreed customer measures.
Comparison	- All routes and Network Rail centre need to do more to adopt and publish clear and comprehensive definitions for its scorecard measures. Where these relate to comparison measures, these need to be consistently defined across all scorecards. Where these relate to industry measures, these should reflect standard industry definitions.
HLOS	- We consider that each route has reflected the England & Wales HLOS requirements, although all England & Wales routes are being asked to reassess their performance and sustainability trajectories in light of targeted adjustments we have asked Network Rail to make to its plans.
Clarity of scorecard	- Definitions were included in the RSP, however, there are limitations to the accuracy of some of the definitions. - All measures on the scorecard had trajectories associated with them with the exception of RM3, which is determined by central policy.
Interests & agreement of customers	- Network Rail informed us that the performance trajectories are agreed with GWR for 2019-20.
Other comments	- No further comments

Freight & National Passenger Operator route

2.44 Our assessment of the Freight and National Passenger Operator (FNPO) route scorecard (FNPO scorecard) suggests that it is balanced in terms of the activities that Network Rail is responsible for delivering.

2.45 The FNPO scorecard includes:

- train performance measures;

- locally driven customer measures;

- investment and asset management measures;

- financial performance measures; and

- people measures.

2.46 National passenger operators have also agreed the inclusion of specific measures with Network Rail on geographic route scorecards such as:

- Caledonian Sleeper right time performance metric on the Scotland geographic route scorecard; and

- CrossCountry right time departures at Bristol Parkway on the Western geographic route scorecard.

2.47 The FNPO scorecard includes six measures that are currently 'TBC' in Network Rail's FNPO Route Strategic Plan (RSP). The FNPO is reviewing these scorecard measures and is developing 'Milestone Plans' which seek to establish the targets and trajectories for these measures in advance of April 2019. The status of these measures varies as some have been included to address a Transport Scotland HLOS requirement, whereas, others are locally-agreed customer measures. The FNPO will continue to work closely with the Scotland route and SO function to agree targets and trajectories for measures that reflect a Transport Scotland HLOS requirement. We have set out further detail on this in our supporting annex to the Scotland summary.

2.48 The FNPO scorecard reflects Network Rail's stakeholder engagement with freight and national passenger and charter operators. We have reviewed the extent of agreement between Network Rail and its customers. Some concerns have been raised by CrossCountry and Freightliner on the agreement of performance trajectories which are addressed in the FNPO scorecard assessment table below.

2.49 There should not be any ambiguity about whether Network Rail has agreed performance trajectories with its customers and clear documented evidence should be maintained that confirms stakeholder views have been sought, providing evidence of agreement or disagreement to any proposed changes.

2.50 We are also concerned about the general lack of transparency and clarity about the governance arrangements relating to the FNPO, which are also important in the context of understanding what happens to deliver against scorecard commitments and what happens if things go wrong. Reflecting this, the FNPO should publish (and maintain) a document that explains how Network Rail's wider governance interfaces

with the FNPO. This is addressed in more detail in our [FNPO draft settlement document](#).

Table 2.11: FNPO scorecard assessment

Theme	Summary
Balanced	- Our assessment suggests the scorecard is balanced across safety, train performance, locally driven customer measures, sustainability/asset management and financial performance measures. - The scorecard includes the consistent measure for freight performance as well as locally-agreed customer measures. - All operators are reflected on the scorecard but to varying degrees; there are more freight measures than national passenger operator measures. - The scorecard appears to achieve balance over the various activities that the FNPO covers.
Comparison	- It is not always possible/desirable to compare the FNPO in many areas with Network Rail's geographic route. We will continue to review route comparison during CP6 as in some areas this may be possible e.g. RM3 and financial performance. - All routes and Network Rail centre need to do more to adopt and publish clear and comprehensive definitions for its scorecard measures. Where these relate to industry measures, these should reflect standard industry definitions.
HLOS	- We consider that the FNPO route has reflected the England & Wales HLOS requirements, although all routes are being asked to reassess their performance and sustainability trajectories in light of the targeted adjustments being made by Network Rail. - However, there is further work for Network Rail to complete in order to fully reflect the Transport Scotland HLOS. We have set out more detail in our [supporting annex to the Scotland summary](#).
Clarity of scorecard	- Definitions were included on the scorecard, however there are limitations to the accuracy of some of the definitions. - Some measures on the scorecard did not have trajectories associated with them, these were: ▪ RM3 (determined by central policy) ▪ Precursor indicator model freight ▪ Delay per incident freight ▪ Average speed freight ▪ Average speed improvement on baseline freight Scotland ▪ Freight asset reliability
Interests & agreement of customers	- The scorecard should be balanced for freight operators, national passenger operators and charter operators, but we are not confident that this has been achieved. - We received an industry letter from the Rail Freight Group that confirms support for the RSP without confirming acceptance or agreement for performance trajectories and targets.

Theme	Summary
	- Freightliner raised concerns regarding a change to the FDM target in the scorecard. We have established that the FNPO notified Freightliner of the changes to the FDM target. - The FNPO is the lead route for CrossCountry who has raised concerns relating to measures on other geographic routes (it only has measures on five out of seven routes). We consider that CrossCountry should have measures on all relevant geographic scorecards, due to the nature of this national franchised operator's business.
Other comments	- No further comments.

System Operator

2.51 Our review of the SO's scorecard is discussed in our [SO draft settlement document](#). The key points were:

■ The SO has proposed to report on its performance through three 'tiers' of scorecards, which reflects the breadth of its customer base.

– The 'tier 1' scorecard will include measures from its range of activities. These will relate to, for example, strategic planning milestones, franchise milestone delivery and the number of train delays caused by the timetable;

– The 'tier 2' scorecards will provide a greater level of granularity on the performance of each of the SO's directorates; and

– The 'tier 3' scorecards are aligned to each route, and reflect the routes' and operators' local priorities.

■ The SO has also committed to report on its performance qualitatively by way of an annual narrative report. This will discuss the SO's performance in activities that do not lend themselves to quantified measurement, including on the quality of the SO's work.

■ Over the past two years we have worked with Network Rail and with industry to identify the material issues and opportunities associated with system operation and to identify possible measures of the SO's performance (given that there are only a limited number of them). Taking account of this, we consider that the SO's proposed scorecard is a reasonable and balanced commitment of what it can deliver to stakeholders over CP6.

■ However, some more work needs to be done to develop an effective measure of the SO's performance in meeting Transport Scotland's HLOS requirement to improve passenger and freight journey times.

- We do not consider there is any need to set a regulatory minimum floor for the SO's performance (and/or any of its measures). We consider that to do so would potentially create perverse incentives to focus on some aspects of the SO's activities at the expense of others. Stakeholder responses to our July 2017 consultation supported this approach.

- Our requirements in this determination are focused on ensuring the SO maintains transparency in its reporting, so that we and its customers can hold it to account.

2.52 In turn, as part of our determination, we will require the SO to deliver the following commitments that it has made in its CP6 plan:

- **report on its performance through the (national) tier 1 scorecard, as well as the tier 2 (directorate level) and tier 3 (geographically-disaggregated) SO scorecard structure**. The SO should also set out what each measure means (e.g. what data it is based on) so that its stakeholders can interpret what the scorecards are saying about the SO's performance;

- **produce and publish an annual narrative report to explain those elements of its performance that do not lend themselves to scorecard reporting**, and to reflect on the quality of its service and areas for improvement. To ensure the report is sufficiently comprehensive we require the SO agree the content of its annual report with its Advisory Board; and

- **embed the external governance framework as set out its in strategic plan to enable stakeholders to influence the SO's priorities and, where necessary, to challenge its performance**. These governance arrangements should support the SO's objectives of being impartial, expert and transparent.

2.53 In addition, we are also requiring the SO to:

- **lead the development of a plan for journey time improvements**, working with other parts of Network Rail (including the Scotland route and the Freight and National Passenger Operator (FNPO) route) and with industry, which meets the requirements of the Scottish Ministers' HLOS[10]. The SO must also work in cooperation with the Scotland route to implement the plan;

- **implement the recommendations of the Nichols' review of the SO's capital expenditure controls and processes,** which we commissioned jointly with Network Rail to provide assurance that these controls and processes can enable the SO to deliver £61m of proposed investment in its systems. To support this, we also require the SO to produce an action plan of how it will implement each of these recommendations (and by when) by 31 August 2018,

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[10] Those requirements are to deliver a ScotRail minutes per mile target of 1.587 by December 2019 and 1.576 by December 2024 and a freight speed increase of 10%, by December 2024.

and provide a statement on its progress against this plan in the SO's first annual narrative report; and

■ **take account of lessons learnt from the May 2018 timetable change**, including our ongoing investigation into Network Rail's role and our wider inquiry into why the system as a whole failed to produce and implement an effective timetable.

Table 2.12: SO scorecard assessment

Theme	Summary
General impressions	- The scorecard structure is relatively complicated, but this is driven by the SO's diverse customer base. - Some measures are still in development. This reflects fact that the SO needs to agree certain measures with its customers e.g. customer advocacy measures. - The SO is unable to forecast with sufficient certainty some of the milestone-based measures on its scorecard e.g. enhancement-related milestones, as they are subject to funders' decisions about enhancement pipeline priorities. - The SO has set out a three-tier scorecard framework. This now needs to be followed through effectively in order to provide assurance.
Balanced	- We consider that the SO's proposed tier 1 scorecard is 'balanced', because it reflects the full range of outcomes that it is expected to deliver and the range of its stakeholders' interests.
Comparison	- There is limited scope for comparison between the SO and the geographic routes. - The tier 3 scorecard structure may allow us to compare the quality of the SO's service to and impact on each of the routes.
HLOS	- The England & Wales HLOS does not put any specific requirements on the SO, but we consider that the SO's plan will enable it to meet the general objectives of the HLOS. - The SO still needs to develop a plan for journey time improvements in Scotland – we have reflected this in our requirements for the SO.
Clarity of scorecard	- As above, some of the measures are still in development across all of the scorecards. Network Rail provided a supporting document 'System Operator Strategic Plan: CP6 scorecards' which gave an explanation of all of the tier 1 scorecard measures, the tier 3 scorecards and the tier 2 capacity planning scorecard measures, which is reasonably clear.
Interests & agreement of customers	- Tier 3 scorecard measures will be agreed with customers on a year-by-year basis. The tier 1 scorecard will be reviewed and endorsed by the SO Advisory Board (as part of its work on the SO's annual business plan) each year. The Advisory Board will also review and endorse the annual narrative report.

Other parts of Network Rail

2.54 We have not focused in detail on the scorecards for other parts of Network Rail (e.g. Corporate Services, Group Digital Railway, Telecoms, Investment Projects and Safety Technical and Engineering (STE)). However, we have looked at these as part of our assessment of Network Rail's wider governance structures.

2.55 We noted in particular that Group Digital Railway and Telecoms give particular attention to the impact that their activity has on routes. Both these functions have included measures of train performance including reduction in train delay minutes (e.g. associated with traffic management) and fibre transmission network reach, as well as service availability of services (linked to service affecting failures).

2.56 Property has demonstrated end-user focus by including measures designed to improve the national passenger survey for managed stations (which is included on the route comparison scorecard).

3. England & Wales passenger train performance

Introduction

3.1 Due to the different requirements and approaches to train performance for the passenger market in the HLOSs for England & Wales and Scotland, we have separated out our analysis into two separate chapters.

3.2 The Secretary of State's HLOS for England & Wales did not set a top down target but included a number of outcome-based requirements. We have also made requirements of Network Rail in relation to passenger train performance.

3.3 This chapter sets out our policy and analysis in this area.

3.4 We set out below what we and governments in their HLOS asked Network Rail to do, what Network Rail proposed, what analysis we did and our conclusions. We have assessed the performance trajectories proposed by Network Rail's routes' for CP6, and its proposals for a regulatory minimum floor.

3.5 Performance, particularly for passenger services, is affected by a large number of factors and consequently very hard to forecast with any degree of accuracy (particularly over longer periods of time).

CP5 context

3.6 The [Secretary of State's HLOS](#) in July 2012 set out two targets for performance and reliability to be achieved by the end of CP5. These were:

- a public performance measure (PPM) target of 92.5%; and

- cancellations and significant lateness (CaSL) of no more than 2.2%.

3.7 Against these targets, train performance has been poor in CP5. PPM moving annual average (MAA) in England & Wales fell from 89.8% in April 2014 to 87.6% in March 2018. CaSL (MAA) increased (i.e. worsened) from 3.0% to 3.9% during the same period.

3.8 CP5 has been a difficult period for Network Rail in terms of train performance. In the first year of CP5, Network Rail caused 7.6 million delay minutes to franchised operators. In the fourth year of CP5, it caused 8.8 million delay minutes to franchised operators. LNE&EM was the only route to reduce its delay minutes to franchised operators in that period (by 13%), with Wessex and South East and having the biggest increase (of 19% and 35%), with the remainder increasing by about 10%.

Figure 3.1 – England & Wales PPM and CaSL performance through CP4 and CP5
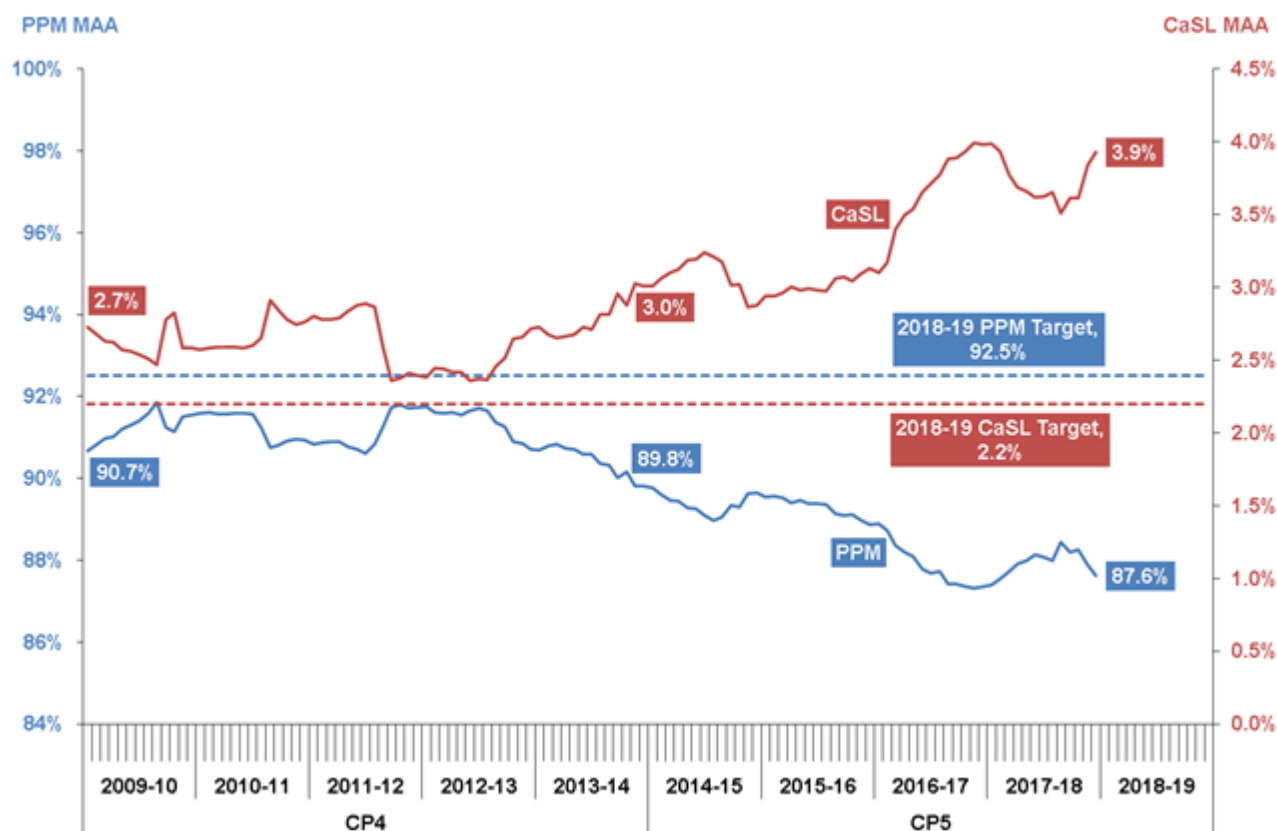
Source: ORR

3.9   In CP5, TOCs and Network Rail have also agreed local targets for PPM and CaSL, and Performance Strategies for delivering these. However, many of these targets have been missed during CP5. In response, during CP5 we investigated Network Rail's delivery to Southern, Southeastern and Govia Thameslink Railway (GTR)[11].

3.10 In 2017-18, train performance has been particularly poor. Every passenger operator missed both their PPM and CaSL jointly-agreed performance strategy targets.

3.11 Historically when industry performance in this area has worsened it has typically been due to factors such as poor asset reliability, train unit reliability or severe weather. More recently new underlying factors have begun to have a more significant impact on performance, which include:

   ■   train crew resource levels (as highlighted on GTR by the recent NAO report);

   ■   the indirect impact of enhancement work, such as on Great Western and North West Electrification where there is a noticeable correlation between major enhancement projects and lower train performance;

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[11] We also investigated Network Rail's delivery of performance targets in Scotland.

- the 'hard-to-quantify' effects on employee relations (during the worst period of industrial unrest on GTR, which mainly operates in South East route, industry and Network Rail performance declined significantly, although this has now recovered); and

- increase in delay per incident for incidents caused by track and non-track asset failures.

3.12 Network Rail's delivery to the South Western Railway (SWR) has been a concern. Reflecting this, we have assessed Wessex Route's plan for CP6 with a performance 'deep-dive' and also assessed its performance in CP5 in more detail. We have undertaken a programme of detailed scrutiny in a number of areas and our deep-dive concluded that while the route has undertaken some short-term interventions to address the performance issues, which should drive improvements, we remain concerned about whether it has robust plans in place to sustain the performance improvement into CP6.

3.13 Based on our findings, we have concluded our review with a series of recommendations to Network Rail, which we expect the route to address. Network Rail is also in the process of embedding many of its plans and has committed to these being finalised by August 2018. Furthermore, running parallel to our detailed assessment is the review of SWR and Network Rail performance by Sir Michael Holden. This is due to conclude in summer 2018. Therefore, we think it is prudent to revisit our recommendations once the review by Sir Michael Holden has concluded and Network Rail's plans are finalised, as both could impact the recommendations we make and how we monitor Network Rail going forward.

CP6 context

3.14 Our review of the RSPs was focused on Network Rail's approach and the level of agreement in three areas:

- the trajectories it included for the CRM-P;

- the regulatory minimum floor for this measure; and

- the operator trajectories.

3.15 In preparation for CP6, the industry (through the National Task Force (NTF[12])) also developed a suite of new performance and reliability measures, with a view to ultimately replacing PPM[13].

3.16 Network Rail and its TOC customers could select from this suite the most appropriate measures to reflect each operator's business. The measures developed by NTF include: punctuality at each recorded station stop; cancellations – measuring the reliability of the service; and severe disruption – capturing the number of days where a substantial number of services have been cancelled. In addition, Network Rail and the TOCs could also use the measures of PPM and CaSL used in previous control periods. These measures will be incorporated as appropriate into the rolling two-year performance strategies that Network Rail agrees with all its operators.

3.17 We have assessed the performance trajectories (based in PPM) for all operators (including those for who the FNPO is the lead operator). We looked at how these link to the CRM-P, to ensure that they are consistent, realistic and include a similar amount of stretch.

Network Rail's train performance commitments

3.18 Network Rail has stated in its Strategic Business Plan (SBP) executive summary that despite a significant increase in the number of trains run in CP6 that it will reduce the number of trains that are delayed by 15%.

3.19 It is unclear to us whether or how these commitments flow through to, and are reflected in, its RSPs. There is no other detailed document on performance within Network Rail's SBP. Our subsequent analysis is therefore based on the performance numbers contained within each RSP. For planning purposes, each route based its initial performance analysis in PPM, and then translated this into different measures including the CRM-P. The CRM-P reflects the route contribution to train operator performance.

3.20 In addition to the trajectory for the CRM-P, Network Rail's routes set out in their scorecards for each operator for which it is the lead route, a number of metrics for the level of performance that it will deliver with operators. These measures are not consistent across the routes but reflect the individual priorities of the operator. They will be incorporated into the performance strategies[14] for each operator.

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[12] NTF is the is the body through which the industry cooperates to improve performance.

[13] More information about these measures can be found here.

[14] Network Rail and each TOC jointly develop a performance strategy each year. This details how operational performance will be managed during the year – laying out the processes and procedures to manage and improve performance. A subset of the Performance Strategy is the Performance Plan – this includes an assessment of previous performance, a list of quantified performance improvement schemes to

3.21 The underlying PPM performance trajectories for each route are reviewed in detail later in this document. In general, from the information available to us, operators appear to have agreed the measures with Network Rail but have not signed off the level of performance that will be delivered. In most cases, this is because the levels of performance committed to by Network Rail are below or do not support those specified in the individual operator's franchise agreement.

3.22 The approach that we have taken for CP6 reflects the England & Wales government's aspirations that stretching yet realistic targets are generated through the interaction of Network Rail and its passenger operator customers

3.23 We have then reviewed and assessed the proposals in the RSPs to ensure that they are consistent with governments' aspirations, and in particular for England & Wales, are stretching yet realistic and protect the interests of passengers.

A consistent route measure for passenger train performance

3.24 The measures Network Rail has agreed with its TOC customers reflect the specific requirements of the operator (e.g. its franchise or concession requirements) and are not consistent across all operators or routes. Therefore, we also required a consistent measure of performance to enable comparisons across routes.

3.25 In our July 2018 consultation on the Overall Framework we set out the purpose of a consistent passenger train performance measure. This is to:

■ enable transparent and accurate comparison between routes and over time in CP6; and

■ provide a focus on Network Rail's expected contribution to the punctuality and reliability of the network, rather than using measures that reflect both Network Rail and operator performance such as PPM and CaSL.

3.26 There has been broad agreement across the industry to the concept of a consistent measure to support route comparison and we are continuing with this stated purpose for the measure.

3.27 In CP5 we used whole-industry metrics, PPM and CaSL, to assess how well Network Rail was delivering its performance requirements. As mentioned previously, NTF has developed a suite of new measures. This includes a new measure of 'On Time at All Recorded Stations', which measures punctuality of trains to within 59 seconds of booked arrival at approximately 80% of recorded station stops (in contrast PPM measures whether a train arrives at destination within 5 or 10 minutes). Transport

address identified areas of performance loss and a list of quantified risks to performance and associated mitigations. The Performance Strategy and Performance Plan should both be dynamic, in that they are continually updated to reflect emerging challenges and issues.

Focus were strongly in favour of using this measure, as they consider it reflects their research into what farepaying passengers want.

3.28 We note Network Rail's statement in its SBP Executive Summary that it intends to "work with the industry to migrate scorecards to on time metrics as new franchises are put in place"[15]. We also note that the industry launched a MyTrainJourney online tool in 2016 to better enable passengers to compare the performance of different trains and routes.

3.29 We concluded that we wanted a measure that would enable us to focus on Network Rail's contribution to train performance and enable us to compare routes. We considered that this is best assessed through the delay minutes attributed to the route[16]. We worked with Network Rail to develop a new measure for passenger train performance. We considered a number of different options for how this measure should be configured in order to best meet our purpose. The variables we considered included:

- whether the measure should consist of delay minutes that a route caused (either on its own route, or across the network), or the delay that was suffered by the route;

- if we should include Network Rail caused delay only or delays caused by operators;

- how to treat reactionary delay; and

- whether and how to 'normalise' the measure, to reflect that routes are all different in size and intensity of service.

3.30 The new measure is based on delay minute data, which the industry already collects. It is referred to as the 'Consistent Route Measure – Passenger Performance' or CRM-P.

Delay caused or suffered by the route

3.31 We concluded the CRM-P on the geographic route scorecard should consist of **only Network Rail delay where it is caused (rather than suffered),** on the grounds that this:

- enables a sharper focus on each route's direct contribution to overall delay;

- enables a clearer and more precise comparison between routes; and

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[15] Page 12 of Network Rail's SBP Executive Summary.

[16] Delay minutes are measured through Network Rail's system that monitors train running and allocates delays – the TRUST Delay Attribution system.

■ aligns with our views on any potential changes to delay attribution arising from our review of the delay attribution process.

Network Rail only or operator delay

3.32 We concluded that we should only include Network Rail delay in the measure to help us assess what impact each route was having on the network. We expect Network Rail to continue to record and publish other measures including PPM, cancellations and 'on time'. The customer-aligned measures on scorecards will continue to provide a whole-industry view of train performance.

Reactionary delay

3.33 We concluded the CRM-P would exclude TOC-caused reactionary delay and operator-on-operator delay. This was to enable us to focus on the matters largely within the control of each route, so as to ensure Network Rail had clear responsibility for delivery of the measure. We required Network Rail to specify how it intends to ensure that it discharges its responsibilities for managing these forms of delay.

Cancellations

3.34 We acknowledge that the CRM-P will not reflect the level of cancellations whether caused by Network Rail or an operator. This includes full cancellations, where a service does not run at all and part-cancellations where a service terminates short of its timetabled destination or where it misses scheduled station stops (skip-stopping). A number of routes have included a cancellation measure in their scorecards but, regardless of this, we will ensure that we continue to receive cancellations data from Network Rail. We will monitor this data and will challenge Network Rail should any trend in the cancellation data that is inconsistent with its targets for CRM-P and operator targets for PPM become apparent.

Normalising the measure

3.35 The CRM-P measures primary and reactionary delay minutes caused by each Network Rail route, normalised per 100 train kilometres. Normalisation enables route comparison. This shows how many minutes of delay caused by Network Rail a passenger would experience per 100 kilometres travelled on a route. Therefore, we advised Network Rail that in its February 2018 RSP updates we expected it to set out:

■ final proposed train performance trajectories for each geographic route for CP6; and

■ narrative providing assurance that the measure and trajectories have been calculated using a consistent methodology across the routes.

Passenger train performance trajectories

3.36 In this section we set out our assessment of Network Rail's plans for passenger train performance in CP6. We address our analysis and decisions in relation to:

- operators' views of the performance plans in the SBP;

- the performance trajectories using the consistent route measure;

- the regulatory minimum floor; and

- TOC-on-TOC and TOC-on-self reactionary delay.

3.37 Each geographic route developed performance models in PPM, which were then converted into customer performance trajectories and a consistent route measure.

Operators' views of the customer train performance trajectories in the RSPs

3.38 Our approach to train performance on scorecards encouraged Network Rail routes and the TOCs for which they are 'lead route' (each TOC has only one 'lead route') to seek to agree CP6 trajectories.

Process followed by routes and operators

3.39 In general, TOCs and Network Rail have agreed the appropriate metrics from the new NTF performance measures (on train punctuality, cancellations and severe disruption), but not the trajectories for these metrics, with significant gaps between the two parties.

3.40 There has been minimal agreement of trajectories as demonstrated by:

- Network Rail's SBP and RSPs (February 2018);

- responses to our consultation on the SBP (March 2018); and

- NTF's consultation with its passenger operators (April 2018).

3.41 A particular issue cited by operators is that the levels of performance committed by the routes do not support those specified in the individual operator's franchise agreement, for all but two operators. Our assessment of the performance trajectories in each of the RSPs is summarised in our route scorecard train performance summaries annex.

3.42 CrossCountry has performance targets in the FNPO scorecard. Five out of the seven routes that CrossCountry runs on have included additional measures reflecting certain important priorities for the operator. However, this is not the case for LNE&EM and Anglia routes.

3.43 NTF worked with England & Wales passenger operators and Network Rail to assess the level of agreement between them regarding CP6 performance. Pro formas were submitted to NTF. We received a summary of its review on 11 April. We have assessed this and noted in particular that:

- two operators (Merseyrail and Caledonian Sleeper) stated that they have agreed their CP6 trajectory in the RSP. GWR has agreed the first 2 years of CP6;

- the remaining 19 operators have not agreed trajectories;

- the trajectories only meet franchise requirements for Merseyrail and Caledonian Sleeper;

- 19 operators agreed that there is a supporting performance plan (Grand Central, VTEC and Virgin West Coast do not);

- 12 operators agreed that the plan is a joint plan incorporating the operator's initiatives;

- six operators agreed that there were risks that have not been included in the trajectory; and

- ten operators considered that there were significant opportunities that had not been factored into the trajectory.

Issues affecting route-operator agreement

3.44 In their responses to NTF, operators identified a number of risks and opportunities that they felt had not been reflected in Network Rail's plans.

3.45 Discussion at the April NTF demonstrated that operators continued to support the principle of industry-led trajectories but recognised the significant gap between current performance and franchise trajectories.

3.46 We have concluded that Network Rail should review all opportunities and risks identified by operators through the NTF process. If it concludes that these can be realised it should amend its customer trajectories and make any consequential adjustments to the routes' CRM-P trajectories. If it concludes that they do not provide a basis for any performance adjustments, it should provide evidence as to why it thinks this. This should be concluded by 13 July 2018. We will review and reflect as appropriate in our final determination.

3.47 For their part, train operators will need to engage constructively, build on the lessons learnt from the process to date, and focus on what can be delivered (and how this can be achieved) in practice – it will not be sufficient for operators to point to their franchise targets, if there are good reasons why these cannot be delivered.

3.48 We will review the revised trajectories and reflect our decisions as appropriate in our final determination.

# Network Rail's proposed route performance trajectories

3.49 We advised Network Rail that in its February 2018 RSP updates that we expected it to set out final proposed performance trajectories for each geographic route for CP6 using the CRM-P measure. We also asked it to provide narrative giving us assurance that the measure and trajectories had been calculated using a consistent methodology across the routes.

3.50 Network Rail's plans include performance trajectories for the various measures which align with its customers, and performance trajectories for the CRM-P. In order to create its plans for CP6, Network Rail routes created their performance projections using PPM, and then reflected these into other customer-aligned measures (where appropriate) and also into the CRM-P. This was done using a standard conversion tool. This tool was developed by Network Rail's National Performance Team, which we have authenticated as a valid method. Network Rail's performance trajectories must meet the HLOS requirement of setting stretching yet realistic targets and provide a good basis for comparison in CP6. As such, the CRM-P trajectory should have a consistent level of stretch, taking account of local circumstances, such as its geography and TOC/ FOC customers. On average, the target will be stretching enough so that a route will miss its target as often as it achieves it – a probability range in the region of 50% (P50).

3.51 The CRM-P trajectories were developed by the central Network Rail performance team, using its conversion tool and based on the outputs of the performance modelling carried out by each route. All routes calculated a performance trajectory for each of their lead TOCs based on assumptions around the performance impact of contributing factors such passenger growth, renewal investment and timetable changes amongst others.

3.52 Figure 3.2 below shows CP5 and CP6 performance trajectories that have been included in each RSP. Figure 3.2 states whether performance against this measure between 2014-15 and 2018-19 (final year of CP6) and between 2018-19 and 2023-24 (final year of CP6) is expected to get better, worse or remain the same. For CRM-P a higher number means that performance has got worse.

Figure 3.2 – Network Rail Routes' CRM-P projections - CP5 and CP6
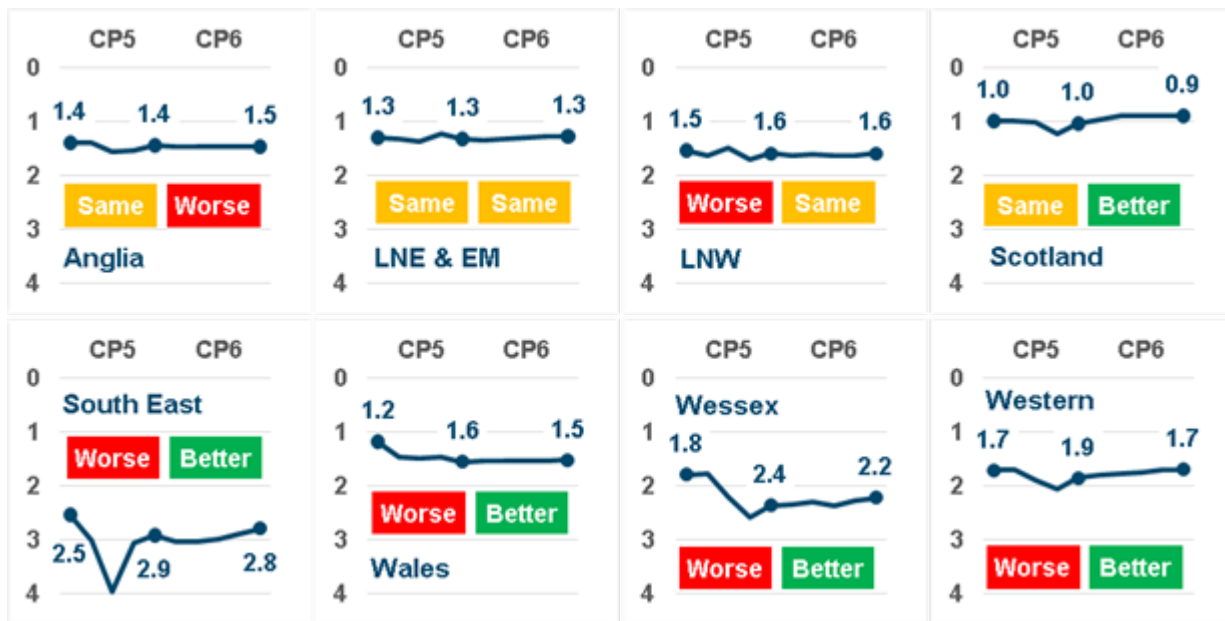
Source: Network Rail's RSPs/ORR

Our analysis

3.53 We have reviewed all the RSP customer measures and related plans. We attended up to three route challenge meetings with each route, as well as analytical reviews. We also undertook 'deep-dives' for three routes. The purpose of these reviews was to provide further insight into:

- how the RSP and any other plans support the performance numbers;

- the proposed CP5 exit and CP6 entry and how plans support these numbers; and

- the level of stretch and challenge in the PPM trajectory and range.

3.54 ORR and Network Rail also commissioned the Independent Reporter (Arup, supported by Winder Phillips) to assist with the review of the performance trajectories included in the RSPs. This provided independent assurance around the operational deliverability of the plans and achievability of the performance trajectories.

3.55 In conducting this assessment we were seeking confidence that all RSP performance targets and plans:

- represented a consistent level of stretch, with a similar level of realistic achievability;

- were underpinned by robust projections; and

- provided a reasonable account of risks and opportunities around performance delivery.

3.56 We undertook 'deep-dives' in three routes in E&W. These were LNE&EM, South East and Wessex, where we have undertaken a more detailed assessment of the routes' plans. We selected these routes because we identified specific issues in our initial analysis of the RSPs that warranted more in-depth scrutiny. The Independent Reporter undertook a more detailed review across all of the routes.

3.57 Our analysis has indicated that Network Rail routes have taken different approaches to developing performance trajectories for CP6, albeit using similar principles. These include applying the cumulative effect of performance initiatives and other factors to the CP5 exit point to generate a CP6 trajectory (LNW) and a 'Monte Carlo' simulation (South East).

3.58 The majority of routes have based their approach on forecasts of traffic and passenger growth. Network Rail centre believes the traffic growth forecasts are robust as they are based on known service changes including the full impact of the Thameslink and Crossrail services which will materialise in CP6.

3.59 In addition, a number of generic issues have also been identified that impact all or most routes. These include:

■ *Passenger growth.* Network Rail centrally has assessed that passenger growth will continue in CP6. We have reviewed the methodology for producing these forecasts and observed they are based around historical increases in passenger journeys. We have noted that the growth in passenger journeys has slowed recently and a decline has occurred within the LSE sector between 2015-16 and 2016-17[17]. It is not yet clear if this is a temporary change in trend, but current evidence suggests that that growth in passenger journeys may be lower than that forecasted by Network Rail. However, we do accept that introduction of the full Crossrail and Thameslink timetables is likely to have a significant impact on the number of passenger journeys. The magnitude of these changes means the actual level of impact on performance will be hard to assess but we agree that there is potentially a downward pressure on performance in these cases. As set out in our overview document, severe problems have been caused by the May 2018 timetable change. We are currently investigating Network Rail's role in this and carrying out a wider inquiry at the SoS's request into why the system as a whole failed to produce and implement an effective timetable.

■ *Impact of new rolling stock.* There will be a significant introduction of new stock by many operators at the end of CP5 and during CP6. Typically, introduction of new rolling stock causes performance to decline immediately after introduction followed by a performance benefit from improved reliability. This will largely impact on operator-caused delays and will consequentially affect the customer

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[17] See our data portal here

trajectories to a greater extent than the CRM-P, although the CRM-P would also be impacted through a consequential loss of resilience. Network Rail will need to manage the reactionary delay caused by any increase in fleet failures.

■ *Delay-per-incident for track and non-track asset failures* has increased in five out of seven routes in England & Wales in CP5, and plans to reduce it have been included in the majority of RSPs, based around a more robust approach to incident response. The effectiveness of these plans will have a significant impact on routes' abilities to achieve their performance trajectories, as many assumptions are based on a reduction of reactionary delay.

3.60 We have reviewed all Network Rail's PPM projections that have been used to develop its CRM-P trajectories to assess if they represent a stretching but achievable level of performance over CP6. The Independent Reporter (Arup supported by Winder Phillips) has also assured the credibility of the routes' performance trajectories. Our analysis below is a result of the analytical meetings conducted by ORR and the recommendations made by the Independent Reporter (available on our website here).

3.61 In cases where we identify that the CRM-P is too low (or high) we will comment as to which customer trajectories have contributed to this conclusion as the customer commitments supporting the CRM-P will need to be re-visited by Network Rail.

3.62 Table 3.1 below sets out Network Rail's stated confidence in achieving the PPM trajectories for each operator used to calculate the CRM-P trajectories set out in its RSPs. Different routes took a different level of sophistication to assessing the confidence in their trajectories, ranging from Monte Carlo analysis (South East route) to professional judgement (LNW and others).

Table 3.1: Routes' stated probability of achieving operators' PPM trajectories

Route	Lead TOCs				
Anglia	c2c - 70%	GA - 56%	LO - 60%	TfL Rail - 48%	
LNE&EM	VTEC - 40%	EMT - 60%	Northern - 40%	Grand Central - 50%	Hull Trains - 50%
LNW	TPE - 65%	VTWC - 60%	Merseyrail - 70%	WMT - 60%	Chiltern - 70%
South East	GTR - 80%	Southeastern - 80%			
Wales	ATW - 54%				
Wessex	SWR - 65%	(subsequent Monte Carlo simulation suggested 48%)			
Western	GWR >50%	Heathrow Express >50%			

Route	Lead TOCs				
FNPO	CrossCountry - 50%	Caledonian Sleeper*			

Source: Network Rail's responses in analytical challenge meetings

* PPM performance modelling not performed due to small number of trains operating per day.

Our conclusions on the CRM-P and operator trajectories

3.63 In the majority of cases we have concluded that the CRM-Ps proposed by Network Rail's routes are reasonable given the performance achieved in CP5 and the significant impacts of timetable change, new services such as Thameslink and Crossrail and the introduction of new rolling stock by numerous operators.

3.64 However, we have also concluded that there are specific issues with the calculations in South East, Wessex and Anglia routes that are discussed in the following paragraphs.

South East Route

3.65 South East route has used simulation modelling to produce performance trajectories and has based its published trajectory in its RSP on the 80% confidence scenario. This is a much greater level of confidence than other routes have proposed - they are broadly in the range 40% - 70% confidence. The charts below indicate the range of performance outcomes for probabilities in the range 20% to 80% for the route's two major operators - GTR and Southeastern.

3.66 Network Rail has advised us that these trajectories are based on:

- improvements from the CP5 Plan (including £300m funding for Southern and Thameslink rail improvement works)[18];

- improvement through maintenance, operations, asset management, TOC initiatives and resolution of current industrial action;

- Digital Railway benefits; and

- expected downward pressure on performance from passenger growth and asset risk.

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[18] Further information can be found here.

Figure 3.3: GTR and Southeastern PPM projections 2017-18 to 2023-24
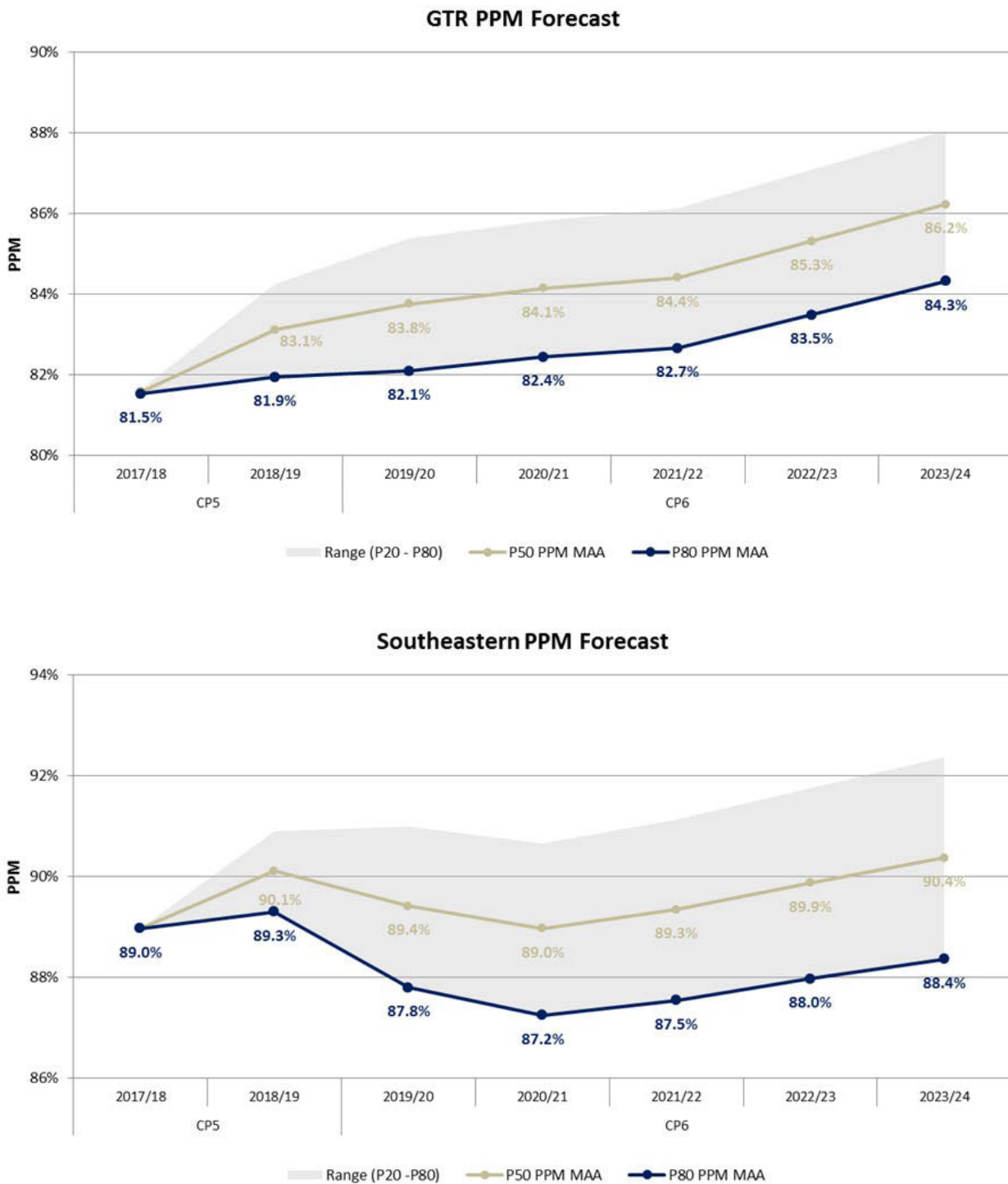
Source: Network Rail SE route RSP presentation 2 February 2018

3.67 At the time of preparing its plan, the Thameslink programme is considered to be neutral in performance terms in CP6 with some improvement through refining the timetable in the final years of the control period. As set out in our overview document we are currently investigating Network Rail's role in the severe problems caused by the May 2018 timetable change, and carrying out a wider inquiry at the SoS's request

into why the system as a whole failed to produce and implement an effective timetable.

3.68 The South East route has explained that, in the context of performance in CP5 South East route, it has been cautious when setting CP6 targets due to the uncertainty surrounding Thameslink, which makes target setting more difficult on this route. In spite of this, it is important that the targets for each route are comparable and have an indicative achievability of around 50%.

3.69 Overall we have concluded that the South East route has taken a robust approach to producing its performance trajectories but that it should revise the CRM-P trajectories to be based on a probability of P50. This would be consistent with the original plans presented by the route in December 2017. This would represent the mid-point of its range and be broadly in line with other routes.
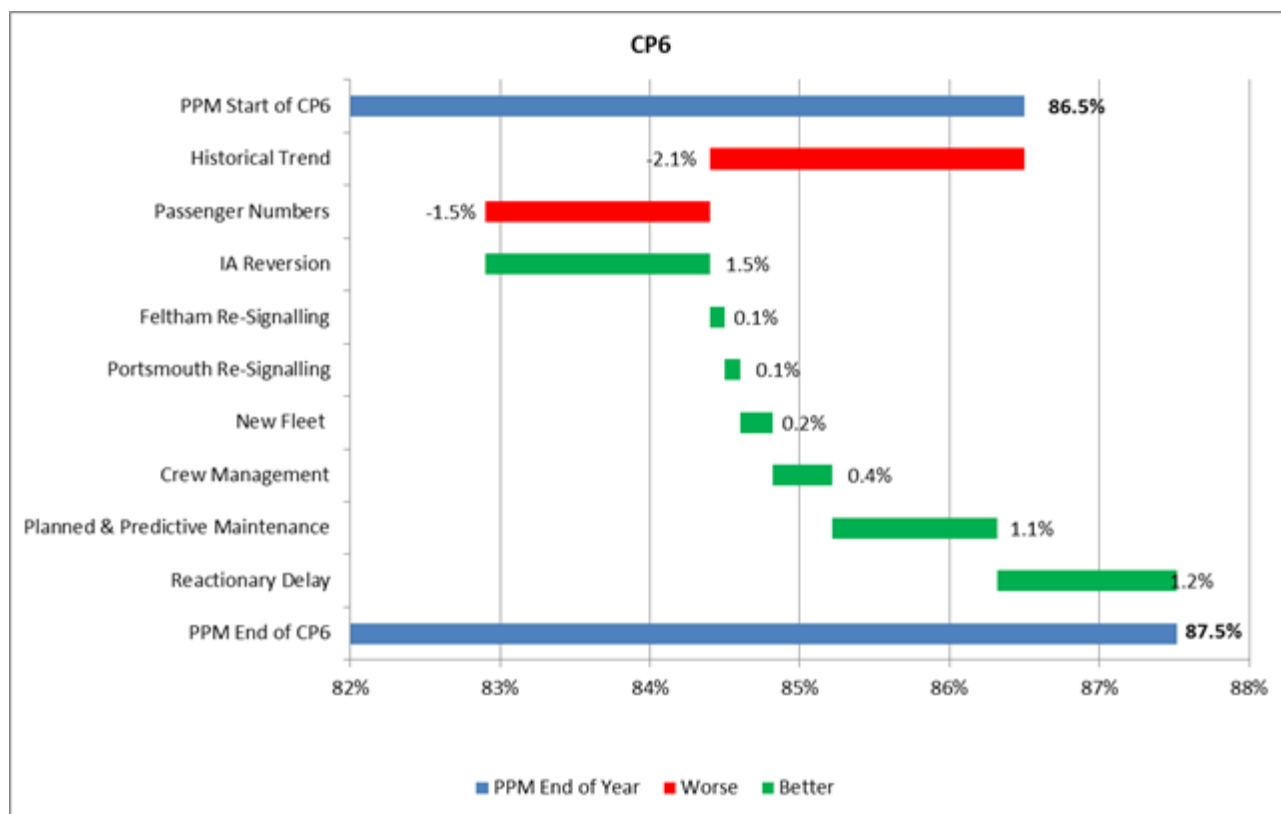
Wessex Route

3.70 Wessex Route's projections included an allowance for historical trend. The route identified the downward pressures on performance from issues such as passenger growth and the impact of major events. This does not fully explain the decline in performance and it has therefore added an element of decline caused by unknown factors in its CP5 trajectory. It has extrapolated this decline through into its CP6 trajectory. We accept that there are risks to performance in CP6 for Wessex route, including the impact of passenger growth and new timetables, but these factors have been separately factored into the route's projections.

3.71 However, it is the only route to have included an element of 'unknown' historical decline in its calculations, which we consider is not justified. Unless the route can demonstrate what these 'unknown' risks are, it should recalculate its performance trajectories to exclude 'unknown' decline (stated as 0.4 percentage points per annum in its calculation).

3.72 We acknowledge that this might cause a reduction in the level of confidence of delivery but the route's level of confidence is currently high at P65 and it is likely that any such adjustment will still mean confidence remains in the P40 – P70 range.

3.73 Current levels of performance on the Wessex route are a cause for concern. We have applied closer scrutiny to this route, focusing on current issues affecting performance of the South Western Railway and the plans to deliver performance improvements to achieve the CP5 exit figure, which in itself will impact on the deliverability of Wessex Route's CP6 projections. In addition, the gap between the PPM assessment that underpins the route's CRM-P and SWR's franchise commitment is currently the largest of any operator (5.0 percentage points).

Figure 3.4: South Western Railway PPM start of CP6 to end of CP6

Source: Network Rail Wessex Route

3.74 Separate to our assessment of the Wessex route business plan we have carried out a detailed review of Network Rail's current performance in relation to SWR services given the performance decline since 2015-16. We will publish findings and recommendations from our deep dive shortly, we expect the route to consider our findings and initiate actions to mitigate these issues where appropriate.

Anglia Route

3.75 The Independent Reporter review conducted by Arup highlighted a concern around the robustness of the methodology used by Anglia route to develop their performance trajectories.

3.76 Arup's opinion is primarily due to Anglia's performance model treating each year of CP6 independently. The model calculates the performance in each year of CP6 by considering all the factors that the route considered would impact performance (either positively or negatively) (e.g. OMR plans, passenger growth, fleet changes) and applying these to its forecast exit point from CP5 (31 March 2019).

3.77 This approach may be appropriate for some scenarios, for example new fleet introductions that are assumed to negatively affect performance upon introduction before being performance neutral. However, there are other inputs that should be continuous throughout the control period once introduced (e.g. passenger growth and

the impact of timetable changes). Anglia route's current approach appears to only take in to account the performance impact in the year of introduction and not subsequent years. We are therefore concerned that the assumptions made in defining the input values for Anglia's modelling may not be fully aligned with the overall modelling process or consistent with the approach taken by other routes, and that therefore the impact of a number of factors have not been fully reflected throughout the performance trajectory.

3.78 We have concluded that Anglia route should reconsider the appropriateness of the modelling methodology and/or the calculation of the input values in order to consider the longer term impact of performance affecting factors. It should be noted that this may affect both performance-improving and performance-worsening factors, so the overall impact of this on the performance trajectories is hard to predict. However, initial analysis by ORR suggests that making these changes may worsen the performance trajectories, and hence widen the gap between the route's trajectories and the franchise targets of its operators.

3.79 If Network Rail accepts the findings of the Independent Reporter, it should amend this specific element of its modelling methodology and/or the calculation of the input values to address this. If Network Rail concludes that this update is not required, it should provide commentary to explain this.

Wales Route

3.80 The Independent Reporter has also suggested that the CP6 performance trajectory for Wales route is the least ambitious of all the England & Wales routes. However, it has also suggested that it has high confidence in the process employed by the route for developing its trajectory.

3.81 The Wales & Borders franchise has just been awarded. Earlier in the process, the route agreed an approach with the franchising authority, and will update the trajectory once the franchise agreement is finalised.

3.82 We are therefore not requiring Network Rail to review its trajectory for this route but would expect it to consider the Independent Reporter's comments.

Impact of performance trajectory adjustments on Route's CRM-P trajectories

3.83 When Network Rail revisits customer commitments on Wessex, South East and Anglia Routes there will be a consequential impact on the CRM-Ps of other routes over which these operators run. Network Rail needs to demonstrate that it has considered these in its re-calculations of the CRM-Ps.

3.84 We have assessed the level of challenge assumed by each route in its plans. We have concluded that if Network Rail makes the above adjustments, that there will be

a broadly consistent level of challenge across all the routes' performance projections in their customer measures and the CRM-P. We expect each route to carry these changes through into discussions with customers about the customer performance trajectories.

3.85 The additional planning that Network Rail now needs to undertake provides a valuable opportunity for all parties to reach greater levels of agreement. This will require train operators to engage more effectively, build on the lessons learnt from the process to date, and focus on what can be delivered (and how this can be achieved) in practice – it will not be sufficient for franchised train operators to point to their franchise targets, if there are good reasons why these cannot be delivered.

3.86 This process also provides an opportunity for all parties to review the risks and opportunities put forward by operators in April 2018 and for routes to either amend their trajectories or justify why they should not be amended. Network Rail will need to provide us with an updated set of performance trajectories by 13 July 2018.

Regulatory minimum floor for CRM-P

3.87 As set out in our draft determination overview document, we have set a regulatory minimum floor for the CRM-P.

3.88 The regulatory minimum floor is the point at which ORR is highly likely to formally investigate Network Rail for breach of its licence. We may take action above this point under certain circumstances if we were concerned about serious or systemic issues (for example, sustained failure to meet customer metrics in a route's scorecard or any other behaviours not in the interest of passengers, such as, cancelling services to protect the CRM-P).

Network Rail's proposed floor

3.89 We required Network Rail to propose a regulatory minimum floor for train performance in each RSP.

3.90 Reflecting guidance from the centre of Network Rail, routes have proposed a consistent method for determining the regulatory minimum floor. This method proposed calculating the floor as 30% of the CRM-P MAA from 2017-18 P10, which is added to the CRM-P targets in CP6. Network Rail has stated that it set the floor at this level in order to ensure that it was not breached when performance was impacted by external factors beyond its reasonable control and only in cases of systemic failure.

Our analysis

3.91 As set out previously, a regulatory minimum floor marks the point at which we will be highly likely to take regulatory action in the event of poor performance. We considered Network Rail's proposal by looking at levels of underperformance in previous control periods and where we considered it appropriate to investigate Network Rail's performance.

3.92 This found that, had we applied Network Rail's proposal in CP4 and CP5, the threshold would not have been met, even though we launched several performance investigations in these periods. Further, this threshold would also have been at a point beyond which we consider that significant passenger harm would be likely to have resulted.

3.93 We do not agree with Network Rail's approach to external factors when setting the level of the regulatory minimum floor. We always take into account external factors in deciding whether or not to investigate Network Rail, and these would be identified in any assessment of whether Network Rail has done everything reasonably practicable to meet its performance trajectories.

3.94 Figure 3.5 below shows the progression of the PPM MAA of Southern, and the South East route's CRM-P, from 2010-11 to 2015-16, when Southern became part of Govia Thameslink Railway. ORR has previously investigated Network Rail for a breach of Licence Condition 1 of its Network Licence in relation to delivery of performance targets to Southern (and other operators). This action was taken in response to Southern ending 2014-15 with a PPM MAA of 83.1%, well short of the target of 87.8%.

3.95 Using regression analysis we have produced an estimate of the CRM-P target for the South East route that would be equivalent to Southern's PPM target of 87.8%; this equates to a 2014-15 CRM-P target of 2.16. Using the methodology proposed by Network Rail for calculating the regulatory minimum floor, a 30% margin would equate to 0.57 (calculated from the 2013-14 P10 CRM-P value). This therefore represents a 2014-15 CRM-P regulatory minimum floor for the South East route of 2.72. The South East route CRM-P MAA ended 2014-15 at 2.54, well within the estimated regulatory minimum floor. Therefore, using this CRM-P regulatory minimum floor methodology, ORR would not have intervened and investigated Network Rail for its delivery to Southern, despite this level of performance being deemed to have caused a licence breach.

3.96 We looked at alternative floor levels, including 15% and 20%. We considered 15% would imply numerous investigations, and so undermine one of the purposes of the floor (which is to support route-customer engagement, including in resolving performance issues), whereas 20% would be broadly consistent with the approaches

we have taken in the past. Accordingly, we have concluded that the CRM-P regulatory floor should be 20%.

Figure 3.5: Southern PPM and South East Route CRM-P, 2010-11 to 2015-16
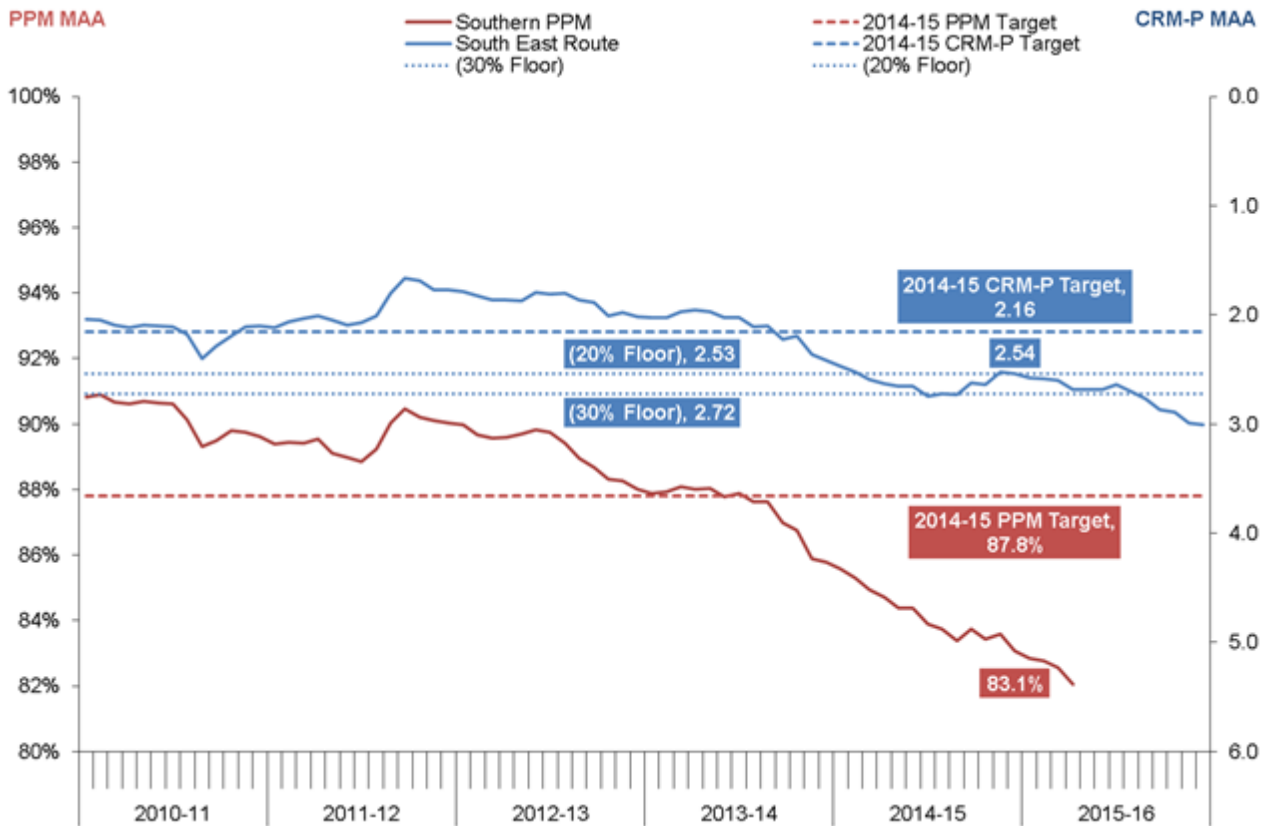
Source: ORR

3.97 Given the level of performance achieved in CP5 was considerably below expectations for both regulatory and customer commitments, we consider it is not appropriate to use this performance as the basis for setting a regulatory minimum floor as Network Rail has proposed. We therefore propose Network Rail use a CRM-P calculated across the whole of CP4 and CP5 to set a regulatory minimum floor (this approach smooths the effects of significant one-off events that may have impacted the level of the CRM-P MAA in 2017-18 P10 as used in Network Rail's methodology).

ORR proposed regulatory minimum floor methodology

3.98 Based on the above analysis we have determined that Network Rail should use an alternative methodology for calculating the regulatory minimum floor. Our decision is that this should be set at a consistent margin below Network Rail's target for each year of CP6 (i.e. the floor reflects the trajectory). The size of this margin should reflect a performance level of 20% of the average performance for CP4 and CP5.

3.99 Table 4.61 below shows current performance compared with a 20% regulatory minimum floor based on the CP4 and CP5 total. It shows that the CRM-P MAAs for

six of the eight routes have, at some point since the start of CP4, exceeded the proposed regulatory minimum floor for the last year of CP6 (2023-24). For three of these routes – Scotland, Wessex and Western – the current CRM-P MAAs fall outside of this band, which reflects our current performance concerns.

Table 3.2: Indicative route CRM-P regulatory minimum floors

Theme	CRM-P MAA			ORR Proposed regulatory minimum floor (CP4/5 Total +20%)					
	17-18 P13	Worst since start of CP4	When highest	18-19	19-20	20-21	21-22	22-23	23-24
Anglia	1.54	1.80	10-11 P09	1.74	1.76	1.77	1.76	1.76	1.76
LNE&EM	1.22	1.71	11-12 P07	1.60	1.62	1.61	1.58	1.56	1.55
LNW	1.71	1.74	13-14 P01	1.94	1.94	1.93	1.94	1.94	1.91
Scotland	1.23	1.48	10-11 P09	1.24	1.17	1.10	1.10	1.10	1.10
South East	3.06	3.96	16-17 P11	3.43	3.54	3.55	3.51	3.41	3.30
Wales	1.47	1.56	17-18 P07	1.82	1.81	1.81	1.81	1.80	1.79
Wessex	2.58	2.58	17-18 P13	2.71	2.70	2.65	2.71	2.62	2.57
Western	2.05	2.10	14-15 P07	2.20	2.15	2.12	2.10	2.06	2.04

Key

Red	Current (2017-18 P13) CRM-P MAA exceeds (is worse than) the proposed regulatory minimum floor
Amber	CRM-P MAA has exceeded the proposed regulatory minimum floor at some point since the start of CP4

Source: ORR

3.100 We also assessed a 15% regulatory minimum floor but our analysis showed that this would have been unduly arduous, with numerous regulatory interventions throughout the control period.

3.101 In earlier sections of this document we have identified some changes that Network Rail may be required to the PPM trajectories which in turn will change its CRM-P trajectories. Furthermore, in its review of operators' responses to NTF Network Rail may identify further risks and opportunities that could impact on the published performance trajectories. Also, in some cases it may revise its scorecard commitments based on the end of CP6 outturn not being consistent with its forecast.

3.102 Following recalculation of the performance trajectories we expect Network Rail to calculate a regulatory minimum floor from the baseline trajectory as per the methodology outlined above; i.e. calculated from 20% of the CP4/CP5 overall CRM-P score. While we recognise that the baseline trajectories on the scorecards may change throughout CP6 based on discussions with operators, we do not intend to

recalculate the regulatory minimum floor throughout the control period. In other words, the regulatory minimum floor is set according to the expectations at the start of CP6.

TOC-on-self and TOC-on-TOC reactionary delay

3.103 As set out earlier in this chapter, the CRM-P does not include TOC-caused primary and reactionary delay. Network Rail remains responsible for managing TOC-on-TOC delay. We asked Network Rail to develop proposals for how it will continue to give this delay an appropriate level of commitment. Network Rail currently reports reactionary delay to NTF (which reviews this delay) and other industry fora.

Network Rail's proposal

3.104 Network Rail acknowledges its responsibilities for managing reactionary delay as controller of the network under the Railway Operational Code. Network Rail has provided an explanation of how it will ensure continued focus on reactionary delay under the route and system operator framework. It commits to managing all types of reactionary delay "with the same level of attention". It states that "in CP6 Network Rail intends to increase the visibility of reactionary delay within our organisation" and sets out how it intends to carry out this enhanced monitoring and improve the quality of the data available to it.

3.105 In the executive summary to its SBP Network Rail states that with 70 per cent of all delay being 'reactionary', it is currently focused on reducing the delay per incident (DPI) (which reactionary delay contributes to), and that its strategies will continue into CP6. Planned improvements include creation of incident management teams to improve the way in which it responds to incidents, improving the use of Intelligent Infrastructure capability and promoting a strong culture of 'every second counts'. It states that its focus on DPI has already delivered a reduction of 450,000 delay minutes (around five per cent) in 2017-18 and an improvement of around £40m in Schedule 8 payments to TOCs[19].

Our analysis

3.106 Network Rail remains responsible for managing delay from all incidents regardless of cause and culpability. A risk is that the CRM-P measure could make Network Rail less incentivised to focus on TOC-caused reactionary delay; we need to be assured that it will continue to manage this appropriately. Network Rail's proposal (above) indicates that it will remain focussed on its responsibilities for whole industry performance and its proposal to manage this under the auspices of the railway operational code is an appropriate approach to delivering its responsibilities. We also

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[19] See Network Rail's SBP executive summary here.

welcome this commitment and need to see ongoing focus on reducing DPI, which will have a consequential impact of reducing all forms of reactionary delay, whether Network Rail- or operator-caused.

3.107 It is important to manage reactionary delay effectively, and include? additional protections to reflect that it is not included in CRM-P. Reactionary delay is affected by a range of factors, including: the quality of the timetable; approach to signalling; and decisions taken at route level. Reflecting this, we want the Network Rail to produce and publish – at least annually – data, analysis and explanation of the root causes behind trends in reactionary delay. This should include reporting of this delay by cause and operator type (e.g. Network Rail-caused, FOC-caused and TOC-caused).

3.108 We will ensure that Network Rail provides us with the data on a periodic basis, necessary to monitor reactionary delay caused by itself and operators.

Our conclusion on reactionary delay

3.109 Reflecting the importance of ensuring there is sufficient visibility of reactionary delays, we expect Network Rail to go further by reporting this publicly in CP6. Accountability for the reporting could sit with the SO (noting that while it only contributes to levels to reactionary delays, it could have a role in reporting across routes through its annual narrative report); or elsewhere in Network Rail.

3.110 In CP6, we will review levels of reactionary delay through our regular monitoring and may intervene if evidence emerges that Network Rail is not adhering to its commitments to manage reactionary delay effectively, regardless of cause.

Cancellations

3.111 The England and Wales HLOS did not mandate a target for Cancellations and Significant Lateness (CaSL) as it did in CP5. It also did not specify any cancellations target. The CRM-Ps proposed in the RSPs include an adjustment for minute and miles from part cancellations (i.e. trains that terminate short of their final destinations or miss planned station stops) but exclude full cancellations. However a number of operators have a CaSL or cancellations target in their franchise agreements and it remains an obligation for the industry to keep the level of cancellations to a minimum.

Network Rail's proposal

3.112 With the exception of LNW and Wales, all routes in England & Wales have included targets for the level of cancellations for their lead TOCs. However, the FNPO route has included both a cancellations and a CaSL target for CrossCountry.

Our analysis

3.113 For operators with a CaSL target set by DfT in their franchise commitments, we have derived an equivalent cancellations target and compared these with the level of cancellations that have been included in the Network Rail CP6 scorecards. This is based on full cancellations and 50% of part cancellations.

Table 3.3: Cancellations in Network Rail's RSPs vs franchises

TOC	2017-18	Cancellations targets		
		Network Rail	Cancellations (derived from DfT CaSL target)	Difference
Great Western Railway	3.2%	1.8%	1.4%	0.4 pp
Greater Anglia	2.4%	2.1%	1.6%	0.5 pp
Northern	1.7%	1.6%	1.0%	0.6 pp
South Western Railway	2.9%	2.3%	1.2%	1.1 pp
Virgin Trains East Coast*	2.5%	2.4%	1.2%	1.2 pp
CrossCountry	2.5%	2.9%	1.6%	1.2 pp

Source: Network Rail RSPs/ORR

Note: the targets are for 2023-24 except the DfT CrossCountry target which is for 2020-21 P7.

* Virgin Trains East Coast franchise will end in June 2018 and be replaced with London North Eastern Railway Limited.

3.114 This shows that with the exception of CrossCountry, Network Rail routes are proposing to reduce the level of cancellations through CP6, but to a level less than that required by the operator's franchise commitments. Network Rail has confirmed that the increase in CrossCountry cancellations is an error and is currently reviewing the calculation.

Our conclusions

3.115 As stated above we acknowledge that the CRM-P measure excludes full cancellations but it remains important for the industry to focus on reducing the level of cancellations (either full or part) that it causes.

3.116 We will continue to receive data from routes for CaSL and cancellations for all its lead operators regardless of whether there are scorecard targets for them. We will monitor this data and will raise with Network Rail should any trend in the cancellation data that is inconsistent with its targets for CRM-P and operator targets for PPM become apparent.

Performance innovation fund

3.117 We want to encourage new and innovative ways to improve performance on the network. We also want to ensure that our regulatory processes are able to adapt to support new approaches and circumstances. Reflecting this, in November 2017, we published a [working paper](#) setting out our initial thinking on what an industry-led collaborative approach could look like and seeking industry views.

3.118 Over the coming months we will be exploring with industry different ways that we can support innovation in this area in CP6. In particular, we will be considering:

- establishing an innovation fund which could provide essential backing to innovative projects or ways of working that help improve the performance of the railway network. We are considering a fund of around £10million, which could be made available to projects that are anticipated to unlock benefits beyond CP6; and

- a tailored approach to providing regulatory comfort for new approaches which do not neatly fit within the existing framework. We will explore, for example, the extent to which we could disapply certain aspects of the regulatory framework that might prohibit trialling a particular proposal. This would essentially allow innovative proposals to operate within a bespoke regulatory environment whilst longer term solutions are developed.

3.119 For example, such approaches might include proposals to: trial locating additional staff at particular high-impact locations; fund changes to rolling stock that deliver system-wide benefits but which have no commercial case to an individual operator (e.g. changes to freight operations that unlock significant passenger benefits, or vice versa); or try different approaches to communicating with passengers (e.g. in the event of disruption).

3.120 We will engage with industry over the coming months on these issues. We also invite comments on the issues discussed above including the potential size of any innovation fund. The fund would apply to England & Wales and Scotland.

3.121 At this stage, we have asked Network Rail to identify £10m of initial funding for this purpose.

Our conclusions on England & Wales passenger train performance

3.122 For passenger train performance in England and Wales in CP6 we have concluded that:

- the CRM-P trajectories proposed for all routes other than Anglia, South East and Wessex represent an appropriate level of stretch, however Network Rail should review the opportunities and risks identified by operators in their responses to NTF and ensure that these are adequately reflected in the trajectories or set out why it has rejected them;

- the operators' trajectories for which Anglia, South East and Wessex are lead routes[20] should be recalculated to reflect the revised CRM-P trajectories, after addressing the following:

    - South East's and Wessex's CRM-P trajectories should be recalculated based on the factors set out above and any consequential impact on other routes should also be calculated; and

    - Anglia route should reconsider the assumptions made when generating the performance trajectories for this route and make adjustments to ensure that performance affecting factors (both positive and negative) are appropriately rolled forwards through the control period.

- Network Rail should recalculate the CRM-P regulatory minimum floor using the 20% approach set out above;

- Network Rail must produce and publish at least annually a report on trends in reactionary delay;

- we will continue to monitor CaSL and cancellations data for all routes and will raise any concerns about the inconsistency with CRM-P and operator targets for PPM with Network Rail; and

- we encourage new and innovative ways to improve performance and will be exploring with industry different ways that we can support the performance innovation in CP6.

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[20] These operators are: c2c, Greater Anglia, London Overground, TfL Rail, Southeastern, GTR and SWR.

# 4. Scotland passenger train performance

Introduction

4.1 This chapter sets out our analysis of passenger train performance in Scotland.

4.2 The Scottish Minister's HLOS set out a number of specific requirements about passenger train performance, with a PPM target for ScotRail and a right time target for Caledonian Sleeper.

4.3 We want to be able to compare all routes' contributions to passenger train performance. As such we required Network Rail to propose a trajectory for the consistent route measure for passenger performance for Scotland. We have also set a regulatory minimum floor for this measure.

4.4 This chapter sets out our policy and analysis in this area:

■ We set out below what we and the Scottish government in their HLOS asked Network Rail to do, what Network Rail proposed, what analysis we did and what our conclusions are.

■ We have assessed the performance trajectory proposed by the Scotland route for CP6, and its proposal for a regulatory minimum floor.

4.5 Performance, particularly for passenger services, is affected by a large number of factors and consequently very hard to forecast with any degree of accuracy.

CP5 Performance context

4.6 In CP5 passenger train performance in Scotland was in the range of 89.5% to 92.0% and at the end of 2017-18 it was at the lower end of that range. It has been consistently below the target of 92.0% PPM MAA, having only reached this level an one occasion (2014-15 period 4). The target rises to 92.5% in year 5 (2018-19).

4.7 In Scotland in CP5 we have held Network Rail to account for delivering the regulatory performance target (92.0% PPM (MAA) 2014-15 to 2017-18 and 92.5% in 2018-19).

4.8 In 2015 we investigated performance during the first year of CP5 in Scotland. We concluded that in 2014-15, Network Rail had breached Condition 1 of its Network Licence because it did not do everything reasonably practicable to achieve its regulated PPM MAA output in Scotland[21]. It missed its targets primarily as a result of the impact of the errors that occurred in the May and December 2014 timetable changes.

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[21] For further information, see here.

Figure 4.1: ScotRail PPM performance 2009-10 to 2017-18
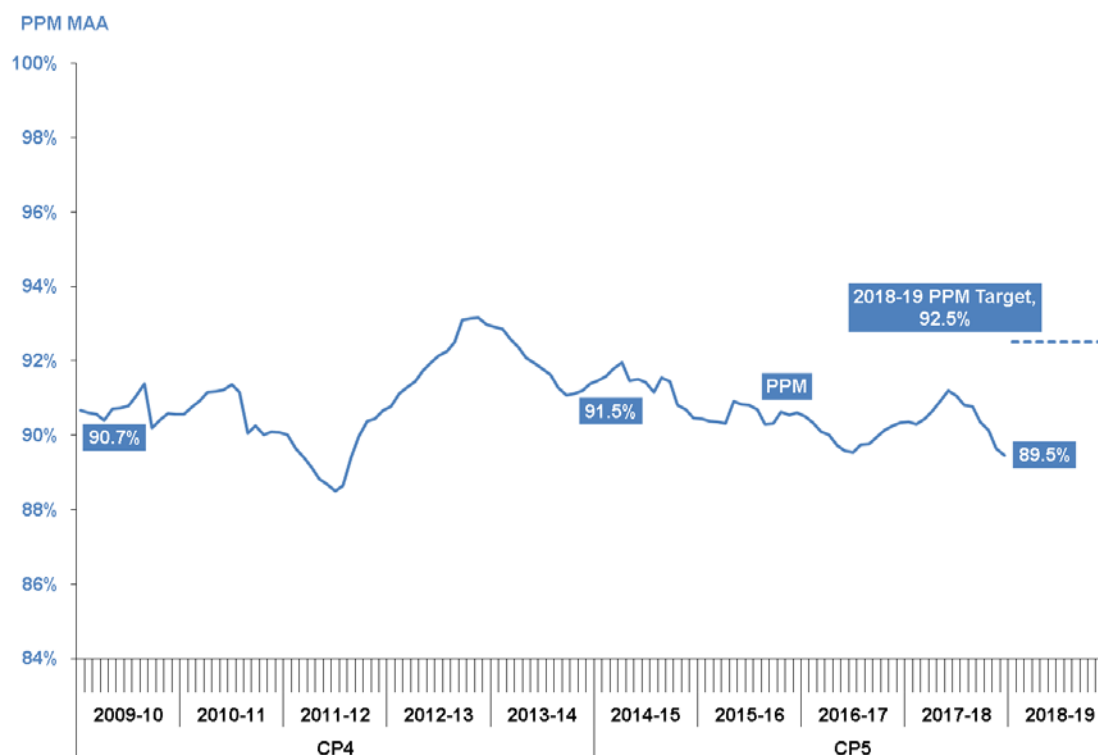
Source: ORR

4.9   Following a gradual decline in performance in the first half of 2016-17, in October 2016 the ScotRail Alliance published its performance improvement plan (PIP)[22].

4.10   This plan aimed to deliver improvements in infrastructure, operations and fleet areas. We carried out a detailed review of the plan and were encouraged by assurance from the Scotland route that its plan is designed to deliver longer term benefits. Since implementation of the improvement plan we have continued to monitor performance in Scotland closely and engage with Network Rail to obtain assurance that all elements of its performance improvement plan are being delivered. We have concluded that the Alliance has taken reasonable steps to deliver the plan.

CP6 performance context

4.11   In CP6, the Scottish Ministers require the outputs of the network to be maintained in such a manner as to enable the operators of the ScotRail Franchise to deliver a PPM target of 92.5% for every year of the control period and the operators of the Caledonian Sleeper franchise to meet their right time targets. There is also a requirement for the outputs of the network to be maintained to recognise the performance requirements of other operators on the Scottish network and for

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[22] See the published performance plan here

Caledonian Sleeper services to achieve a right time arrival performance of 80% throughout CP6.

4.12 We want to be able to compare all route's contributions to passenger train performance. As such, we required all routes, including Scotland, to include a CRM-P trajectory in their plans.

Scotland passenger train performance trajectories

4.13 We have set out below what Network Rail has proposed, our analysis and our conclusions. This is also set out for completeness in the [supporting annex to the Scotland summary](#).

Network Rail's performance proposals

4.14 In its CP6 scorecard published in February 2018, to meet both the HLOS and our requirements Network Rail Scotland has included the following performance measures:

Table 4.1: Performance trajectories included in the Scotland Route's February RSP

Measure	2019-20	2020-21	2021-22	2022-23	2023-24
ScotRail PPM MAA	92.5%	92.5%	92.5%	92.5%	92.5%
Right Time Arrival measure for Caledonian Sleeper	80%	80%	80%	80%	80%
CRM-P	0.96	0.95	0.95	0.96	0.95

4.15 It also included targets for CrossCountry (right -time departures from Edinburgh Waverley).

4.16 The Scotland route rated achievability of the 92.5% ScotRail PPM target as very challenging, particularly in the first two years of CP6. A confidence rating of 85% for the Caledonian Sleeper target was provided by the FNPO (which is the lead route for this operator).

4.17 Furthermore, in our analytical review of the performance plan in Network Rail Scotland's strategic plan it advised us that it had identified potential risks to the achievement of the PPM trajectory for ScotRail in CP6. These include:

■ *the delayed introduction of the new electric Hitachi Class 385 trains* to run between Edinburgh and Glasgow, which will create performance issues in the early years of CP6 due to a shortage of rolling stock and subsequently as post-

implementation performance issues are resolved, however there will be a performance benefit by the end of CP6;

■ *infrastructure change*s driven by the delivery of significant enhancement programmes;

■ *potential performance conflicts in the timetable*;

■ *passenger and traffic growth*;

■ *business as usual performance improvement processes decline* due to focus on other issues; and

■ *extreme weather events*.

4.18 To address some of the above risks, Network Rail Scotland route has set out plans to develop three areas which it considers will reduce service affecting incidents and help drive improvements in performance:

■ investing in providing increased physical resilience avoiding closures such as Lamington (where scour damage caused the West Coast Mainline to be closed for seven weeks in 2016);

■ Delivery Unit (DU) autonomy for local 'small scale' reliability improvement works; and

■ a maintenance and renewal 'predict and prevent' strategy that uses Remote Condition Monitoring, risk-based maintenance, train-borne measurement and other technologies to try to prevent unplanned disruption to passengers.

4.19 Scotland route has also committed to retaining existing CP5 good practice, for example the Asset Improvement Plan (AIP) and Performance Improvement Plan (PIP). The AIP is an initiative that Network Rail Scotland introduced in 2016 to make greater allowance for DU autonomy to enable small scale asset improvements to be identified and actioned at a local level. In CP6 the Scotland route has informed us that it is proposing a dedicated £8m per annum fund be included for this.

4.20 In response to current performance and its view that the delivery of HLOS expectations in the early years of CP6 will be challenging, the ScotRail Alliance commissioned an independent review of performance (by former TransPennine Express managing director Nick Donovan). It has accepted and committed to implement all the recommendations in this review[23].

4.21 The Scotland route has subsequently revisited its forecast trajectory for PPM to the end of CP5 and early years of CP6. In April 2018 it advised us that it has reduced its

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[23] The recommendations from the report are published here.

expectation for ScotRail PPM MAA at the end of 2019-20 to 91.5%, one percentage point below the HLOS requirement. It has also revised its projected out-turn for 2018-19 from 91.3% to 90.5%.

4.22 Network Rail has also included a proposed CRM-P trajectory in its plan. This has been calculated using the same calculation tool as for England & Wales routes, based on the route's assessment of the PPM that will be achieved in 2019-20, as set out in section 3. It has also recalculated its CRM-P trajectory to 0.96.

4.23 Its revised targets are as follows:

Table 4.2: Network Rail Scotland's revised performance trajectories

Measure	2019-20	2020-21	2021-22	2022-23	2023-24
ScotRail PPM MAA	91.5%	92.5%	92.5%	92.5%	92.5%
CRM-P	0.96	0.89	0.89	0.89	0.89

Our analysis

4.24 We have assessed Network Rail's plans for Scotland through analysis of its RSP and meetings with key staff. We have used the Independent Reporter (Arup supported by Winder Phillips) to provide an independent assessment of the performance proposals in the plan.

4.25 Our analysis in Scotland has been constrained by the route amending its performance trajectories after publication of the RSP and a lack of robust numerical evidence to support these changes.

4.26 The route has shared the output from the independent review referred to above and has reviewed the findings with us. While Network Rail has accepted all the recommendations of this review, it has concluded that implementation of most of the recommendations will not have an immediate impact on performance in the majority of cases. As such it has not revised its view that it will achieve a ScotRail PPM MAA of 91.5% in 2019-20. It considers that delivery of the recommendations will improve the probability of achieving the HLOS requirements in subsequent years of CP6. We have reviewed the report and have concluded the recommendations are pragmatic and appropriate and share Network Rail's view that it will increase the probability of achieving HLOS performance requirements particularly in the later years of the control period.

4.27 We have noted that in Scotland the ratio of Network Rail caused delay to TOC-caused delay is around 50:50, whereas in England & Wales it is typically in the range

60:40 to 70:30. This means that TOC-caused delay has a proportionately greater impact in Scotland. The Donovan report addresses both Network Rail and operator issues.

4.28 Based on the data available to us, and in light of the HLOS requirements, we have concluded the ScotRail PPM target for each year of CP6 should be set at 92.5%. While we recognise that there are some potentially significant risks in 2018-19 and in the early years of CP6, we consider that the steps that Network Rail is proposing to take should help to deliver performance improvements. We also consider that retention of CP5 best practice measures such as the AIP and PIP and full implementation of the recommendations in the Donovan report will help support this. We will take these factors into account in our approach should Network Rail fail to deliver its HLOS commitments for performance.

4.29 We also acknowledge that if the HLOS outputs are to be delivered, a proportionate contribution will need to be made by ScotRail and we will also take this into account should Network Rail fail to deliver its HLOS commitments on performance.

4.30 Caledonian Sleeper Right-Time Arrival performance (MAA) out-turned 2017-18 at 75.1% and fluctuated between 80.5% and 75.1% during the course of the year, with the out-turn value impacted by severe weather at the end of the year. The route has included a performance level of 80% in its scorecard for 2018-19 and in every year of CP6. We consider that this represents a stretching but achievable level of performance.

4.31 We also note that the Scotland HLOS also includes a number of other operational requirements including to reduce journey times and increase freight traffic. We will monitor how Network Rail manages the requirement to reduce journey times and freight traffic, and are mindful of the interplay between these requirements.

4.32 In addition, we will use delivery of the CRM-P measure to support our overall assessment of performance in Scotland.

4.33 The CRM-P will highlight the level of delay apportioned to Network Rail and help us to understand whether or not Network Rail is maintaining and managing its network in such a manner as to enable the operators of the ScotRail franchise and all other operators on the route to deliver their targets.

4.34 The CRM-P target in Scotland includes delay that Network Rail causes to all operators that run over its route and is therefore important in ensuring that Network Rail delivers its commitments to all its customers.

4.35 The CRM-P target for the Scotland route should have a consistent level of stretch to the targets in England & Wales routes. Reflecting this, the CRM-P target will be stretching enough so that a route will miss its target as often as it achieves it – a

probability range in the region of 50% (P50). In light of the changes that it has made to the CRM-P calculation (noted above) we are asking the route to confirm whether it considers the latest CRM-P target represents this level of stretch.

Independent Reporter findings

4.36 The Independent Reporter has noted that it has not been provided with enough detail to enable it to assess whether the route's process for setting the trajectory is robust.

4.37 However, based on the evidence that has been provided, it has concluded that the level of stretch in the route's performance trajectory is 'medium' and consistent with the majority of routes in England and Wales.

4.38 The Independent Reporter has noted that there are some shortcomings in Network Rail Scotland's analytical capabilities and we share these concerns. We will require Network Rail to confirm that it has the appropriate level of analytical resource in Scotland.

Our conclusions

4.39 Our conclusions on performance in Scotland are set out below. Our full set of conclusions in relation to the Scotland HLOS can be found in the supporting annex to the Scotland summary.

4.40 Network Rail must deliver the HLOS target of 92.5% for ScotRail PPM, and support Caledonian Sleeper in delivering its Right- Time target. We recognise that Network Rail has stated that it will not achieve the requirements of the HLOS for ScotRail PPM in year 1 of the control period. It has set out the reasons for this and developed a comprehensive plan to deliver performance improvement. We will take delivery of the recommendations in this plan (by Network Rail and ScotRail) into account should Network Rail not achieve the HLOS target in any year of the control period.

4.41 The CRM-P should be set at an achievable level of delivery (reflecting a probability range in the region of 50%) and we require Scotland route to confirm whether the CRM-P trajectory for CP6 reflects this level of stretch.

4.42 We will use delivery of the CRM-P and an associated regulatory minimum floor in supporting our understanding of any performance shortfalls, culpability for any issues and in ensuring that commitments to other operators are also delivered.

4.43 We accept Network Rail Scotland's proposal to deliver a right -time arrivals performance (MAA) of 80.0% for Caledonian Sleeper services.

Regulatory minimum floor

4.44 We have taken a consistent approach to setting a regulatory minimum floor in both Scotland and England & Wales.

Network Rail's proposal

4.45 Network Rail's RSP for Scotland includes a proposal for a regulatory minimum floor, based on the CRM-P. This proposal is based on a 30% underachievement of the CRM-P, consistent with is proposals for England & Wales.

Our analysis

4.46 We considered whether it was appropriate to set a regulatory minimum floor for Scotland, and if so, what level this should be set at.

4.47 We reviewed all routes' proposals and the overall methodology proposed by Network Rail. We compared these to historical levels of underperformance that have triggered an ORR performance investigation that went on to conclude that Network Rail has not done everything reasonably practicable to achieve its regulated performance targets. Further detail on our methodology is set out in the England & Wales chapter of this document.

4.48 Our analysis shows that had a 30% regulatory minimum floor been applied for the CRM-P in CP4 and CP5 it would have been worse than the level at which we had concluded that Network Rail had breached its licence and at a level where significant passenger harm would have resulted.

Our conclusions

4.49 In Scotland we will be holding Network Rail to account for delivery of the PPM performance trajectory in the HLOS.

4.50 In Scotland, we propose to use the CRM-P in a different way to England & Wales. In England & Wales if performance drops below the regulatory minimum floor we will be highly likely to take regulatory action. While we can still use the regulatory minimum floor as a basis for intervention, in practice we expect that the PPM trajectory would worsen before the regulatory minimum floor was passed. The CRM-P will be used to provide further insight into Network Rail Scotland's contribution to delivery of the overall ScotRail PPM target.

4.51 The regulatory minimum floor should be set at a margin equivalent to 20% of the CRM-P value for CP4 and CP5 (the same methodology proposed for England & Wales) below the CRM-P trajectory. Network Rail has based its calculation on a 30% margin so should recalculate the regulatory minimum floor to reflect a 20% margin. Network Rail should recalculate the regulatory minimum floor to reflect this.

5. England & Wales freight performance

Introduction

5.1 This chapter sets out our analysis of freight train performance in England & Wales. We set out below what we and government in its HLOS asked Network Rail to do, what Network Rail proposed, what analysis we did and what our conclusions are.

5.2 The FNPO is the lead route for freight operators (together with national passenger operators, charter and aspirant open-access operators). However, the geographic routes will drive day-to-day performance. We consider it important that freight performance is protected both at a national and geographic route level.

5.3 We have assessed the performance trajectories proposed by the FNPO route and Network Rail's geographical routes for CP6, and its proposals for a regulatory minimum floor.

5.4 Freight performance is measured differently to passenger performance. Freight performance targets have previously been set at national (Great Britain) level, with monitoring of performance the 22 Strategic Freight Corridors (SFCs).

5.5 We also intend to set a regulatory minimum floor for FDM (and FDM-R discussed later in this chapter) as set out in our initial consultation.

CP5 context

5.6 In CP5 we set a target for the Freight Delivery Metric (FDM) at Great Britain level.

5.7 FDM is a measure of the percentage of freight trains arriving at final destination within 15 minutes of the scheduled arrival time. Only delays caused by Network Rail count towards FDM. The freight community developed and introduced this measure in late CP4.

5.8 The MAA for FDM has remained above the regulatory target of 92.5% throughout CP5. The MAA was 93.5% at the end of 2017-18 and the FNPO route forecasts that it will out-turn CP5 at 94.0%. We have acknowledged Network Rail's outperformance in this area in the Network Rail Monitor.

5.9 As part of Network Rail's move to route devolution, the FNPO route was created in during CP5. It also created a new measure of 'FDM-R' which is a measure of all Network Rail caused delay minutes contributing to FDM failures on an individual route. It was changed in autumn 2017 to incorporate all delay minutes attributed to Network Rail, and now better reflects the freight community's requirements. An individual routes' FDM-R is a proportional measure of the contribution of each route

to national FDM failures, weighted by the proportion of freight services that have run on that route.

CP6 context

5.10 Network Rail proposes to continue to use FDM and FDM-R in CP6. There is broad consensus between the freight community and Network Rail routes that FDM is an appropriate and fit-for-purpose measure to incentivise Network Rail's performance. Recognising the freight community's support, we also intend to continue to use this measure in CP6.

5.11 As part of our overall framework consultation, we were clear that Network Rail geographic routes should continue to focus on freight performance. There is a risk that if geographic routes are not also measured on freight performance, they will unduly focus on the passenger market at the expense of freight end-users.

Freight performance trajectories

5.12 In this section we set out Network Rail's proposals for performance trajectories, our analysis of these and our conclusions.

Network Rail's proposals for national performance

5.13 In its RSP, FNPO proposed an FDM target of 94.0% for each year in CP6. This is consistent with its forecast for its CP5 exit point and represents a flat trajectory for CP6. This is higher than the regulatory target we set for Network Rail in CP5 of 92.5%.

5.14 The freight industry has been generally supportive of Network Rail's plans and in this context out analysis of its plans has been proportionate.

Our analysis

5.15 Our assessment of the FNPO RSP as a whole was primarily through the work of our project teams. To support this work we carried out:

- three main meetings with the route overall, including the route managing director. This included a presentation by the route on its plan in December 2017. This followed on from our engagement with the route prior to the SBP submission;

- analytical review meetings looking at performance trajectories for freight and passenger train operators which included meeting with the specialists in each relevant area. The meetings we held with other routes also helped to inform our assessment of the FNPO RSP; and

- attendance at a series of engagement customer service workshops dedicated for both freight and national operators to understand and assess their views of Network Rail's proposals as set out in the RSPs.

5.16 If considered solely at face value, the proposed CP6 trajectory for FDM could be seen to be conservative, particularly given performance throughout CP5 has been strong and at times at a higher level (peaking at 94.3% in 2016-17 period 2). However, there are a number of underlying factors that contribute to the amount of stretch this target represents.

5.17 The reduction in the amount of coal traffic is one factor that presents a significant challenge to maintaining the FDM levels at those seen previously. As a traditionally high-performing flow, and representing a large market share, a reduction in coal traffic means performance improvements are required from other flows to be able to maintain FDM at comparable historical levels. However, we consider that as coal traffic has already declined significantly in CP5, while this affects the comparison to performance in the earlier years of CP5, we would not expect this to be a significant factor reducing performance from the CP5 exit point.

5.18 We also note that there are some other one-off factors relating to this decline, in particular that there was a period where a number of freight operators had a significant level of contingency in terms of assets and drivers, which improved performance in other commodities. Following restructuring of the industry, the levels of contingency are now understood to be back to normal levels.

5.19 Reflecting the above, when reviewing the forecast performance levels we have reviewed data at a commodity level, so as to appropriately strip-out the effects caused by the decline of coal. In this context, we are also mindful of the comments made by freight operators about the relative priority that should now be attached to improvements to average velocity, relative to further incremental improvements to performance.

5.20 There have been improvements in FDM for the other commodity flows. However, there is a natural limit to this once performance has reached a certain point. Without substantial further investment, it would be expected that performance would start to plateau.

5.21 Network Rail's management of SFCs throughout CP5 had a positive impact in driving performance improvements in key freight corridors through collaborative working between the company, freight operators and end users and wider stakeholders. However, there are 22 specific corridors and there are overlaps in some locations e.g. Southampton is covered by corridors SFC007 and SFC902 and this means issues can be duplicated in discussions at separate meetings and engagement is resource heavy for the industry. We welcome Network Rail's review of the

effectiveness of the SFC corridors and consolidating them based on ports of entry to the UK and the type of commodity conveyed. It has also worked well with FOCs to establish root performance issues for each corridor and provide clarity and context for discussions with its customers.

5.22 There is also uncertainty arising from changes in passenger services and the potential impact of significant new timetables across the network. It is currently difficult to estimate the impact of this on freight services, noting that these impacts could be positive or negative over time. However, generally, it could be expected that an increased volume of traffic would increase perturbation on the network, and this can have a disproportional impact on freight services due to the nature of their workings.

5.23 Network Rail has assumed that the amount of freight trains planned will increase in line with the centrally developed traffic forecasts. It has also assumed that the current performance level for each of the commodity types will be maintained, there will be a negative influence on performance from the predicted passenger traffic growth and that the number of 'managing freight services during disruption' (MFSDD, which counts as an automatic FDM failure) and the number of cancellations will remain stable.

5.24 Overall, these assumptions look reasonable, for the purposes of setting an FDM trajectory, particularly in light of the general level of agreement with operators on the appropriate target level of performance.

5.25 We also looked at historical data to consider whether the FDM forecasts were achievable. However, as Network Rail has agreed these performance levels, this was a relatively limited part of our review.

5.26 There was a separate issue in respect of the way in which the FDM trajectory was establish, discussed and agreed with operators. In particular, in its response to the publication of the RSP, Freightliner questioned why the proposed FDM target was 94.0% stating that Network Rail had advised it that the target would be 94.5%. This is discussed in more detail in the FNPO settlement document.

Our conclusion on the FDM

5.27 Network Rail's proposal for the FDM target of 94.0% is reasonable because it is consistent with the forecast for the CP5 exit point, and our limited review indicates that this forecast has been given appropriate consideration to the main factors affecting forecast performance levels. In CP5, the FDM MAA has been in a range between 93.2% and 94.3%.

5.28 In addition, there was a good degree of agreement around the general level of performance, noting the failure of FNPO to document clearly the agreement that it

considered had been achieved. On balance we consider that the 94.0% level is reasonable.

## Network Rail's proposals for route level performance

5.29 All geographic RSPs include a trajectory for FDM-R, as was our requirement. Network Rail has advised us that if all FDM-R targets are delivered, this should deliver national FDM.

5.30 Network Rail used a two year average of historical data in its FDM-R methodology to establish, by route, the number of allowed delay failures each route should contribute in order to achieve the national FDM target of 94.0%.

5.31 We required routes to agree route level FDM ('FDM-R') to protect freight performance at route level. The level of performance proposed by each route is variable; the FNPO has acknowledged "…further discussion is required on route scorecard metrics for freight customers". We agree that it is essential that the FDM-Rs accurately reflect regional variations and cumulatively deliver the FDM proposed by the FNPO. The latest RSPs propose FDM-R in figure 5.1 below:

Figure 5.1; FDM-R targets for all routes
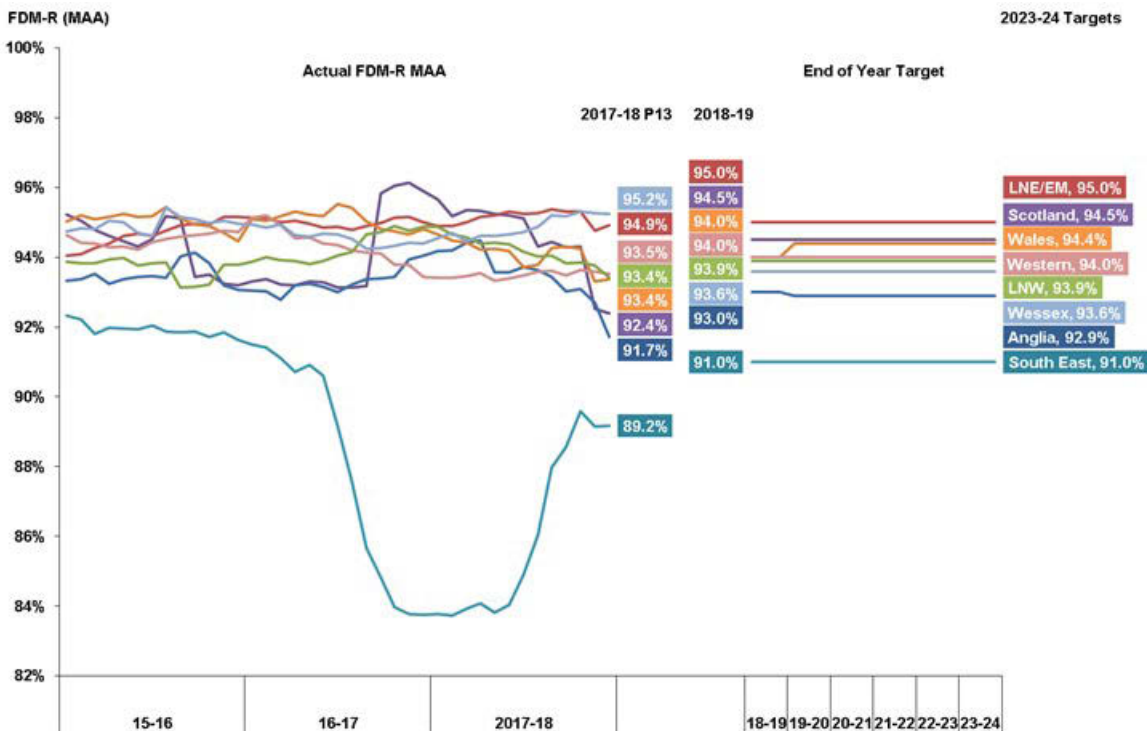
Source: Network Rail's RSPs (since submission of the RSPs LNE&EM has informed ORR of a transcription error in its FDM-R targets. This figure shows the corrected values).

Our analysis

5.32 All but one of the FDM-R targets for CP6 are higher than the 2017-18 period13 MAA. South East route is an outlier with a lower trajectory but this is due to the volume of passenger services in that route and relatively smaller volume of freight services.

5.33 We set out in the section above on national FDM trajectory the various factors affecting freight performance.

Our conclusion on the freight performance at a route level

5.34 The FDM-R targets included in the RSPs look to be reasonable, however:

- Network Rail has told us the FDM-R targets have been set at a level sufficient to meet the national FDM target; and

- in the event that they are not, we will require Network Rail to adjust these so that they do deliver the national FDM.

5.35 We are mindful that FDM-R is a relatively new measure, the calculation of which has recently been adjusted to better meet freight operator's requirements. However, we consider that it is a reasonable basis upon which to measure route performance and, alongside other evidence, to understand whether routes and the FNPO are meeting their customers' reasonable requirements.

5.36 We also have some minor reservations about the FNPO's analytical capabilities and modelling and will take this forward with the route.

Regulatory minimum floors

5.37 We required routes to propose a regulatory minimum floor for operational performance in their RSPs, including the FNPO. This represents the level of performance at which we would be highly likely to formally investigate Network Rail for breach of its licence. We may consider intervening above this point if concerned about serious or systemic issues.

Network Rail's proposals

5.38 Network Rail has proposed a national regulatory minimum floor of 92.5% for FDM. The FNPO plan stated "This is a level that is considered to be significantly below the levels of expected performance". Nationally this is 92.5%.

5.39 Across the geographic routes it proposed to set a regulatory minimum floor at 30% more FDM-R failures than target.

5.40 It has calculated route level regulatory minimum floors for the FDM-R as in the table 5.2 below.

Table 5.2: Network Rail Routes' proposed FDM-R regulatory minimum floors

Route	Anglia	LNE&EM	LNW	South East	Wales	Wessex	Western	Scotland[24]
Proposed FDM-R floor	90.8%	93.9%	92.0%	88.2%	92.7%	91.7%	92.1%	92.5%

Source: Network Rail's RSPs

5.41 Network Rail used a two-year average of historical data to calculate the FDM-R methodology, which establishes, by route, the number of allowed delay failures each route should contribute in order to achieve the national FDM target of 94%.

5.42 The regulatory minimum floor calculation adds 30% to these 'allowed delay failures'. Network Rail selected 30% because given the small number of freight trains run on some routes, it would only take one or two big events to breach a regulatory minimum floor of less than 30%.

5.43 Network Rail has selected 92.5% as the national regulatory minimum floor. This value has been selected to be in line with the regulatory target for CP5, and because at a national level, where the train numbers are greater, a 30% threshold seemed too lenient.

Our analysis

5.44 This regulatory minimum floor for national FDM proposed by Network Rail represents the level of performance that was targeted in CP5 as a regulated output. We therefore consider that this is appropriate to use as a regulatory minimum floor, particularly in light of the overall balance of performance pressures noted earlier.

5.45 We consider that the methodology proposed for the FDM-R regulatory minimum floors in each route is suitable. It represents a consistent and robust methodology. We considered whether the FDM-R regulatory minimum floor should also be 20% to keep in in line with our decision on the CRM-P regulatory minimum floor. We decided against this because there are fewer freight trains running daily than passenger trains, and that the pattern of services can change in response to shifting market demand. Therefore, 30% represents a more reasonable threshold for freight services.

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[24] FDM in Scotland is discussed further in Chapter 6

5.46 We note that Network Rail has advised us that achievement of the route level FDM-R regulatory minimum floor proposals should deliver the national FDM regulatory minimum floor.

Our conclusions

5.47 The freight regulatory minimum floors should be as follows:

■ national FDM regulatory minimum floor of 92.5%; and

■ route level FDM-R regulatory minimum floors should be as proposed by Network Rail.

5.48 We expect route performance to remain above the levels of FDM-R, and we may intervene at a level above this if we have reason to believe that a route's performance will jeopardise delivery of the national FDM regulatory minimum floor or customers' reasonable expectations.

6. Scotland freight performance

Introduction

6.1   This chapter sets out our analysis of freight train performance in Scotland. We set out below what we and government (in its HLOS) asked Network Rail Scotland to do, what Network Rail proposed, our analysis and our conclusions.

6.2   The lead route for freight operators (together with national passenger operators) is the FNPO route. Day-to-day performance however will be driven by the Scotland route.

6.3   We have assessed the performance trajectories proposed by the FNPO route and Network Rail Scotland for CP6, and its proposals for a regulatory minimum floor.

6.4   Freight performance targets have previously been set at national (Great Britain) level, with monitoring of performance the 22 Strategic Freight Corridors (SFCs).

6.5   The Scottish Ministers require that freight trains on the Scotland route achieve a FDM of a minimum of 93% at the start of CP6 moving through staged improvements towards 94.5% at the end of CP6.

6.6   The FDM measure is a GB-wide one, whereas FDM-R reflects each route's impact – or in this case Scotland's impact – on the GB-wide FDM measure. Each routes' FDM-R is a proportional measure of the contribution of each route to national FDM failures, weighted by the proportion of freight services that have run on that route. We therefore propose to reflect the HLOS requirement for an FDM target in the form of FDM-R.

6.7   We intend to set a regulatory minimum floor for FDM (and FDM-R discussed later in this chapter) as set out in our initial consultation, using a comparable methodology to the CRM-P regulatory minimum floor.

Network Rail's proposal

6.8   Network Rail's Scotland and the FNPO RSPs both reflect the same measure and target for freight performance in Scotland. Both plans set a target for Scotland FDM-R of 94.5% throughout CP6. This exceeds the Scotland HLOS which required 93% at the start of CP6, rising to 94.5% at the end of the control period.

6.9   The FNPO route has also proposed a regulatory minimum floor for the FDM-R in Scotland of 92.5%.

Our analysis

6.10 Our analysis of freight performance trajectories proposed for Scotland was primarily through our engagement with the FNPO route as set out in Chapter 5.

6.11 The target that Network Rail has proposed for the Scotland route FDM-R reflects the HLOS target at the end of CP6 but exceeds the entry point of 93.0%. We expect Network Rail to do everything reasonably practicable to deliver the Scottish government's HLOS trajectory for freight.

6.12 Network Rail's latest data shows Scotland Route FDM-R for 2017-18 is out-turning at 92.4%, with performance impacted by severe weather in the last periods of 2017-18 (See figure 6.1 below). For 2018-19 its scorecard has set a target of 94.5%. We have noted that Network Rail Scotland will have to deliver a significant improvement in the FDM-R in 2018-19 if this is to be achieved.

Figure 6.1; 2017-18 FDM-R Scotland performance
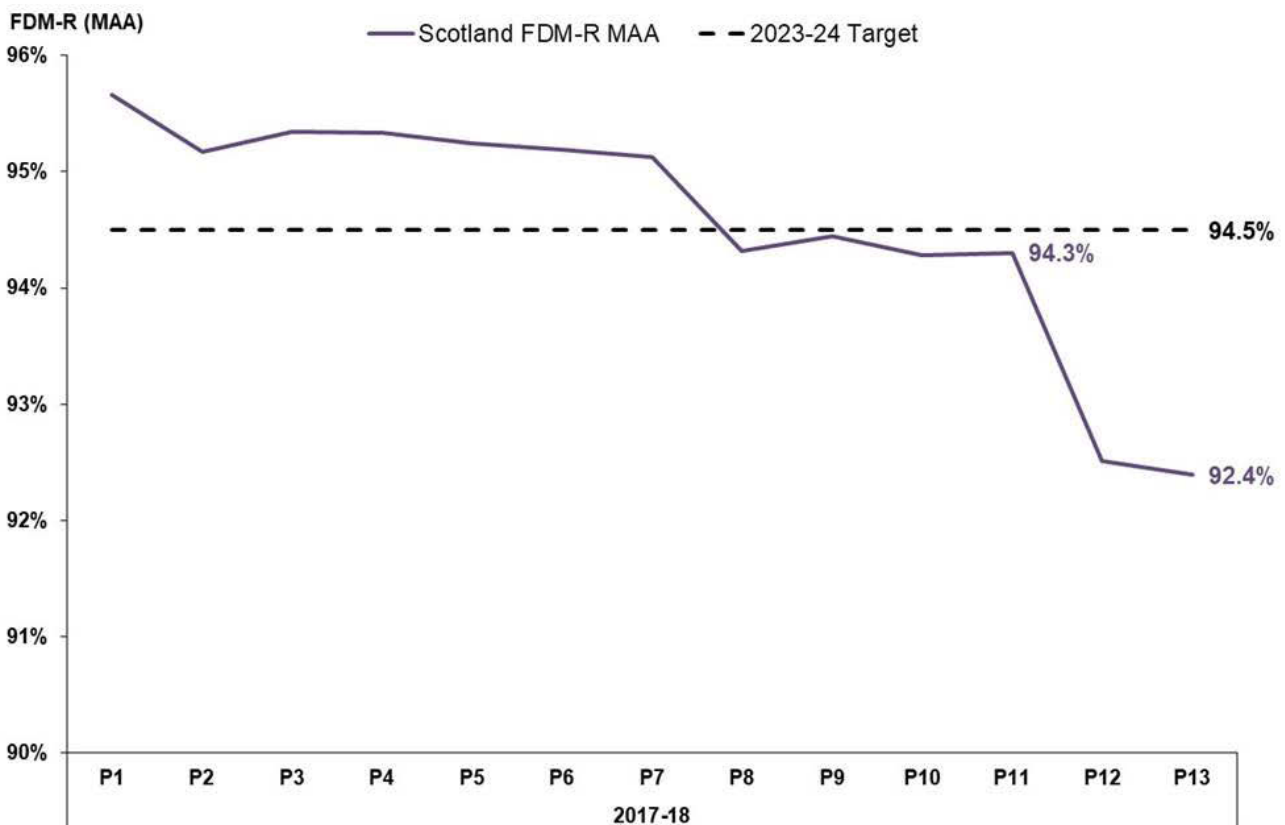
Our conclusions

6.13 As noted above, the Scotland route's proposal for the FDM-R exceeds the HLOS entry point of 93.0%. While we have noted that its delivery could be challenging in the early years of CP6, we accept the company's proposals.

6.14 Consistent with the points made in the previous chapter, we accept the principle that the regulatory minimum floor be set with an additional 30% margin, and we accept Network Rail's proposal for an FDM regulatory minimum floor of 92.5% through CP6.

7. Network capability

Introduction

7.1 Maintaining the "quality and capability of the network" is a requirement of Network Rail's licence[25].

7.2 At the start of CP5, we set a base requirement of network capability in terms of track mileage and layout, line speed, gauge, route availability and electrification type. This was a minimum baseline for the control period, and will be described in Network Rail's Sectional Appendices, Geographic and Infrastructure System (GEOGIS) Database and National Gauging Database.

7.3 We recognise the importance of setting a baseline against which we and other stakeholders can assess the capability of the network. This is important to freight and charter operators in particular.

7.4 We set out in our route requirements and scorecards consultation that we wanted to continue to make network capability a requirement in CP6.

CP5 context

7.5 We have been concerned about network capability in CP5, in particular the consultation process for changes to the network and the accuracy of the Sectional Appendices and other databases.

7.6 As set out in Part G of the Network Code[26], Network Rail can change the capability of the network through consultation with its stakeholders (the formal industry process known as "Network Change").

7.7 However, a number of stakeholders – including freight operating companies, DfT and Transport Scotland – have raised concerns around the way that Network Rail manages network capability, and in particular around the provision of information.

7.8 Network Rail have publicly acknowledged this in their 2017 Annual Return:

"Some customers have raised concerns about our management of the process to change network capability and have challenged the accuracy of some information that Network Rail holds regarding the capability of the network, which stakeholders rely upon to plan their businesses with a reasonable degree of assurance. Additionally, there are some

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[25] See Licence Condition 1, condition 1.1 of Network Rail's Network Licence here. Note that we will be updating the licence as part of PR18, but that we expect to retain this requirement.

[26] See Part G of the Network Code here. The Network Code is a multilateral set of industry rules which is incorporated into every Track Access Agreement between Network Rail and its train operator customers.

long-standing discrepancies between actual and published capability of the network that we are seeking to resolve with our stakeholders."

7.9 To address these concerns Network Rail undertook an Internal Audit of the LNE&EM route. This audit concluded that Network Rail's compliance with Network Change was "unacceptable" and provided a series of recommendations to address this.

7.10 Network Rail is undertaking an improvement programme to meet these recommendations, however, we do not yet have the confidence that this programme will fully address the concerns.

Network Rail's proposals

7.11 For England & Wales, Network Rail did not include any specific proposals to address our concerns around network capability.

7.12 For Scotland, Network Rail did include proposals for developing the 'Scottish Gauge Requirement'. We have set out more detail on this in the supporting annex to our Scotland summary.

Our analysis

7.13 As network capability is a requirement of the Network Licence and the processes around changing it are set out clearly in the Network Code, we consider that Network Rail is funded to deliver this.

7.14 We continue to have concerns about how well Network Rail is delivering in this area. We are in the process of commissioning an Independent Reporter to review the current situation on network capability in England & Wales and Scotland, including whether Network Rail is on track to deliver the end of CP5 regulated output target. This work will inform our monitoring position and assessment of network capability in England & Wales and Scotland in CP6. The findings from this work will be published in autumn 2018 and we expect Network Rail to implement any recommendations that the reporters make, in CP6.

7.15 In Scotland, Scottish Ministers have recognised the issues with network capability and as a result are requiring, by the end of CP6, all Scotland routes to be maintained as capable of accommodating all locomotives and passenger rolling stock that have run in Scotland in CP4 and CP5 and that will run in CP6. There is a clear requirement in the Scottish HLOS to implement a gauging strategy to achieve this outcome.

7.16 Scotland route has already shared its plans to develop its gauging strategy, which involves funder and industry engagement and consultation. Network Rail has assured ORR the strategy will be in place for the start of CP6. Once in place we will monitor

the delivery of this strategy throughout CP6. We have covered this in more detail in the [supporting annex to the Scotland summary](#).

Our conclusions

7.17 As part of our overall approach for CP6, we expect Network Rail to protect and maintain the baseline capability of the network and for all changes to go through the recognised industry processes throughout CP6.

7.18 Through the Independent Reporter work, we will continue to work with Network Rail to set the baseline for 1 April 2019 at route level. As part of this work we will consider whether the base requirement should be as we set out for CP5 (in terms of track mileage & layout, line speed, gauge, route availability, electrification type) or whether this should be amended.

8. Network availability

Introduction

8.1 Network availability is an important passenger and freight end-user outcome. Network Rail should balance the level of disruption to passengers and freight customers, and the level of planned engineering work necessary to maintain, renew and enhance the network.

8.2 The Schedule 4 regime and the requirements of the Network Code contribute to incentivising and managing Network Rail's behaviour in relation to network availability.

8.3 In March 2017, Network Rail identified a number of issues with the reporting of the Possession Disruption Index (PDI) which has affected the accuracy and value of the measure. Network Rail states this has led to PDI being misleading as it no longer reflects the activity on the network.

8.4 Network Rail currently reports a suite of availability measures and has recently proposed two Early Warning Indicators (EWIs) as alternatives to PDI, which are reported in its Possession Indicator Report. These are the number of access disputes raised and 'Notification Discount Factors'[27].

8.5 To help inform of our view of Network Availability in CP6, we commissioned consultants SNC-Lavalin in February 2018 to help identify potential options for assessing Network Rail's delivery of network availability.

CP5 context

8.6 In CP5 we set a regulated output for network availability, which was the Possession Disruption Index (PDI) for Passengers (PDI-P) and Freight (PDI-F). These measures are intended to provide an indication of the level of disruption caused to end users of the railway as a direct result of possessions being taken by Network Rail.

8.7 Network Rail's targets implied that it needed to reduce the level of disruption to rail users in CP5 as exit targets for both PDI-P and PDI-F reflected an improvement compared to the end of the previous control period.

8.8 The calculation used for PDI is complex and relies on a number of estimates of elements such as the number of passengers travelling, extended journey times and cancellation minutes per train.

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[27] The number of passenger possessions notified at different stages under the Schedule 4 Notification Discount Factor process. This serves as an incentive to plan possessions as far in advance as possible.

8.9 The final determination for CP5 acknowledged the complexity of PDI. However, in the absence of any suitable alternatives, it was decided that PDI would continue to be used until the industry defines improved measures[28]. The final determination also referenced the development of a working timetable measure that had the potential to replace PDI.
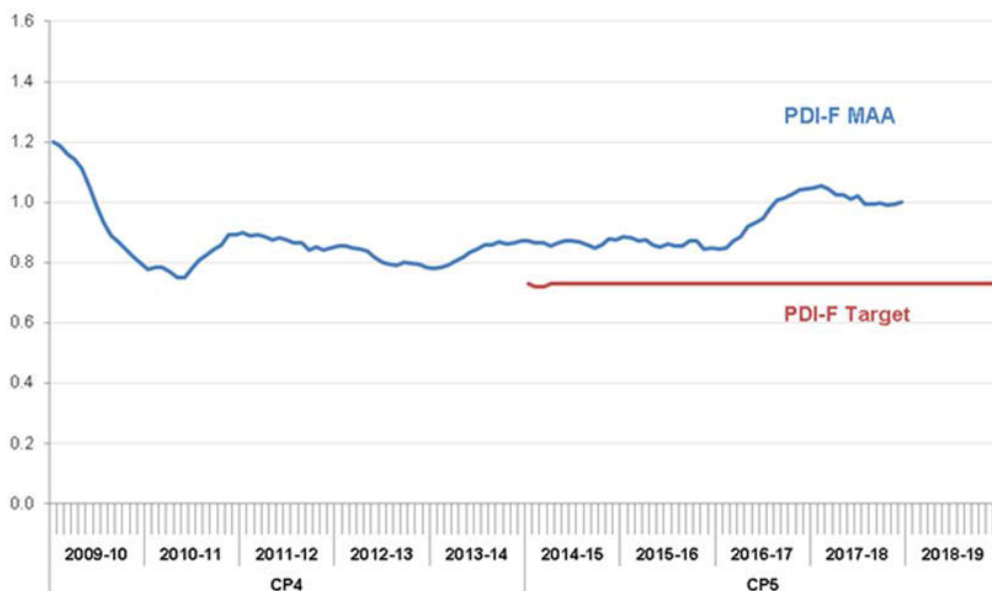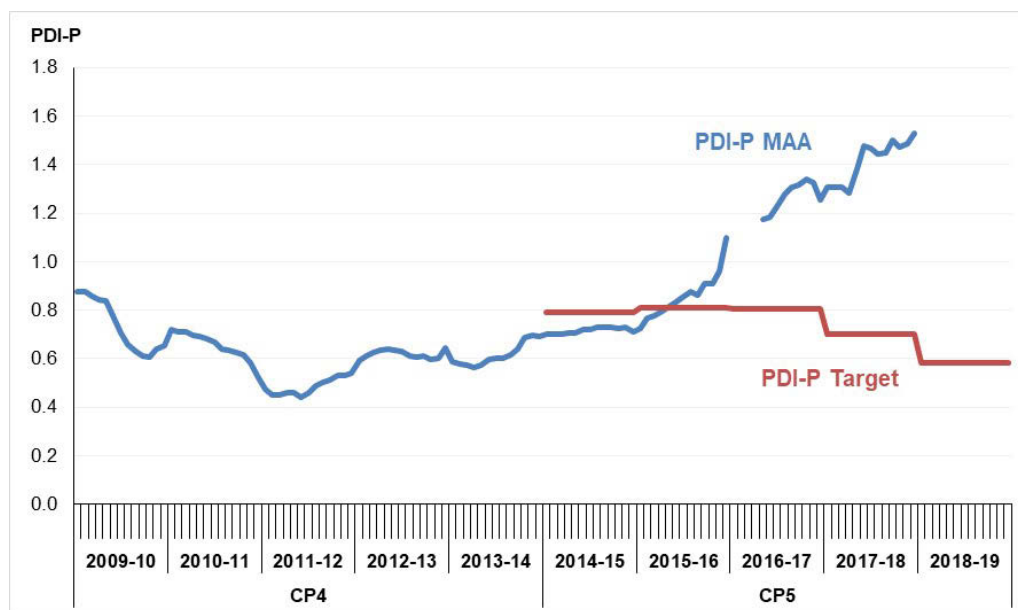
8.10 Network Rail's performance against PDI-P and PDI-F has historically been on track to deliver the end of CP5 target. See Figure 8.1.

8.11 In March 2017, Network Rail identified a number of issues with the reporting of PDI which has affected the accuracy and value of the measure. Network Rail states this has led to PDI being misleading as it no longer reflects the activity on the network. The issues can be summarised as:

■ an error was found in the calculation, where the formula refers to the wrong number of periods. It is thought this error was introduced when the system was programmed for 2008-09 (Control Period 4);

■ changes to service groups following franchise changes, particularly since the beginning of CP5, have altered the PDI-P value. Trains for each service group are allocated a passenger weighting. If those trains change service group, they are assigned a different passenger weighting. As a result, similar possessions under different franchises can produce a significantly different contribution to PDI-P, even though it is unlikely a different number of passenger have actually been affected;

■ where track access agreements have not been signed off in time, there are some franchises where PDI-P could not be reported for a period of time. It is not possible to update this after the event therefore the value of PDI-P will always be incorrect for these periods; and

■ when introduction of additional train services has also affected the value of PDI-P. For example, the introduction of Sunday services would mean that a weekend possession would affect more services and therefore an increased number of passengers.

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[28] Paragraph 3.123 of the PR13 Final Determination states that 'until the industry defines new measures, we will continue to monitor PDI-P and PDI-F carefully with a number of supplementary indicators from the Possession Indicator Report'

Figure 8.1: PDI-P and PDI-F 2009-10 to 2018-19

8.12 In March 2017, Network Rail identified a number of issues with the reporting of PDI which has affected the accuracy and value of the measure. Network Rail states this has led to PDI being misleading as it no longer reflects the activity on the network. The issues can be summarised as:

- an error was found in the calculation, where the formula refers to the wrong number of periods. It is thought this error was introduced when the system was programmed for 2008-09 (Control Period 4);

- changes to service groups following franchise changes, particularly since the beginning of CP5, have altered the PDI-P value. Trains for each service group are allocated a passenger weighting. If those trains change service group, they are assigned a different passenger weighting. As a result, similar possessions under different franchises can produce a significantly different contribution to

PDI-P, even though it is unlikely a different number of passenger have actually been affected;

■ where track access agreements have not been signed off in time, there are some franchises where PDI-P could not be reported for a period of time. It is not possible to update this after the event therefore the value of PDI-P will always be incorrect for these periods; and

■ when introduction of additional train services has also affected the value of PDI-P. For example, the introduction of Sunday services would mean that a weekend possession would affect more services and therefore an increased number of passengers.

8.13 In May 2017, Network Rail notified ORR that the CP5 exit target for PDI-P is not likely to be met, largely as a result of the issues identified above, with the possibility of the PDI-F target also being missed.

8.14 As reported in the [Network Rail Monitor in July 2017,](#) we acknowledge the complexities and inaccuracies present within the calculation. However, we required Network Rail continues to report PDI, with some modifications, until such time that it is possible to present an appropriate and industry-agreed solution that reflects the experience of passengers and freight customers.

8.15 In late 2017, we also undertook an industry-wide engagement exercise to gather further evidence of Network Rail's behaviour in respect to upholding the spirit of PDI, obtaining views from passenger and freight operators. The main themes from this focused on:

■ **planning** - operators feel they are asked to agree to possessions before the plans are sufficiently developed and that often the information required to be able to make these decisions, such as capacity studies, is not shared in a timely manner;

■ **Access Dispute Committee (ADC)** - operators generally have confidence in the ADC. It is seen as a last resort with many disputes being resolved before having to be formally taken to the ADC, however, it was suggested that the number of disputes taken to the ADC has been increasing; and

■ **late notice changes** - operators stated the majority of late notice changes are being forced through from the necessity to deliver major projects. Alternatively, they are being made as the requirements of the work are not accurately scoped at the time the possession is requested.

8.16 The findings from this work will be published in early summer 2018.

8.17 In light of the operator feedback, we will be engaging more closely with Network Rail, in particular the SO, to understand how it is working to optimise the balance between

the level of disruption to passengers and freight customers and the level of planned engineering work necessary to maintain, renew and enhance the network. This is particularly important in the context of Network Rail stating CP5 targets for PDI may not be met.

8.18 Network Rail currently reports a suite of availability measures and has recently proposed two Early Warning Indicators (EWIs) as alternatives to PDI, which are reported in its Possession Indicator Report[29]. These are the number of access disputes raised and Schedule 4 'Notification Discount Factors'.

Consultant's findings

8.19 SNC-Lavalin's review recommended developing an Extended Journey Time metric, supported by a suite of other measures including:

- delay and cancellation minutes due to possession overruns metric, to understand the impact of possession overruns;

- bus-vehicle hours metric, to monitor the deployment of bus replacement services;

- disruptive late changes post T-26, T-12 and T-6; and

- critical freight infrastructure, to monitor incidents of non-availability of access to key freight interchanges.

8.20 The Extended Journey Time (EJT) metric captures the increase in journey time and cancellation minutes in the plan of the day compared to the corresponding day timetable.

8.21 SNC-Lavalin recommend the use of an EJT metric as part of a suite of measures as stated above.

Network Rail's CP6 proposals

8.22 Network Rail did not include in its SBP any specific proposals for addressing or assessing network availability in CP6 (in the sense of achieving an optimal balance between end user interests and maintenance, renewal and enhancement of the railway).

8.23 The System Operator plan included the following assumption:

- "Network Rail will not be reporting Network Availability by the Possession Disruption Index metrics in CP6. The Network Availability Reporting System

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[29] Network Rail's possession indicator reports are published here.

(NARS) will be redundant by the start of CP6. Any requirement to report Network Availability (other than through the mechanisms proposed in our Scorecard supporting document) will require additional investment as outlined in Appendix D".

Our analysis & conclusions

8.24 Network availability remains an important area for our monitoring in CP6 in terms of the impact on end users; this was reinforced by our recent consultation on route requirements and scorecards in July 2017.

8.25 Network Rail needs to be incentivised to take possessions in the most efficient way and manage the impact of possessions on passenger and freight customers. It is also important that Network Rail plans these possessions within an appropriate time frame to enable customers and end users to plan ahead. Schedule 4 largely provides these incentives.

8.26 We remain of the view that there is no need to set an additional specific target in this area for CP6. We will monitor Network Rail's delivering of network availability in CP6.

8.27 We are also considering productivity measures and leading indicators as part of our work on our approach to assessing Network Rail's efficiency and wider financial performance in CP6[30].

8.28 The EJT measure proposed by SNC-Lavalin is based on existing data (derived from the existing Schedule 4 mechanism) and indications are that it can be disaggregated to route level. We are discussing the development and implementation of a new extended journey time measure with Network Rail as part of a suite of measures for assessing Network Rail's delivery of network availability in CP6.

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[30] Our conclusions on this work are published here.

9. Network sustainability

Introduction

9.1 This chapter sets out our analysis and decisions in relation to Network Rail's proposed CSI target for CP6, our decisions in relation to the regulatory minimum floor. Our analysis here links to the analysis we carried out of Network Rail's plans for renewals, which is summarised in our [review of Network Rail's proposed costs supplementary document](#).

9.2 We are concerned that Network Rail's plans for CP6 forecast a decline in levels of sustainability for the control period and in the longer term. Network Rail's February SBP does not adequately address this trend. We have asked Network Rail to review this in a targeted update of its plans over the summer of 2018. We also require Network Rail to develop a new measure of network sustainability.

9.3 We want Network Rail to do more to understand and protect the long-term sustainability of the network, and to ensure that these long-term issues attract sufficient attention relative to more immediate pressures.

9.4 Network Rail could choose, or be pressured by stakeholders, to prioritise short-term performance and enhancement issues at the expense of longer term asset stewardship. If network sustainability is not actively managed, in future years the railway may become unaffordable and an untenable level of disruption may be needed to ensure the safe and reliable running of the network. This would have a negative impact on funders (and taxpayers), and paying users of the network, both passenger and freight end-users.

9.5 Maintaining and renewing the network in the short-, medium- and long-term to meet reasonably foreseeable future demand for railway services is one of Network Rail's key obligations, as set out in its Network Licence (LC1).

9.6 All routes forecast a decline in sustainability in CP6. In general terms, routes have justified this decline on the grounds that they have prioritised safety and train performance over sustainability. We are also concerned both by these forecasts in light of the deferral of renewals during CP5.

9.7 We have required a measure of network sustainability in CP6 in order to help us assess Network Rail's progress against this important outcome. This measure is the Composite Sustainability Index (CSI), and Network Rail has included this on the scorecards in its SBP.

9.8 Understanding network sustainability essentially involves an assessment of the life left in the assets. When assets near the end of their useful life, routes must plan to replace those assets that are still required for the effective operation of the network.

9.9 Demonstrating that the underlying trends in remaining life of the infrastructure are within manageable 'boundaries' is important in assuring the effectiveness of asset management activity. A measure of network sustainability therefore allows us to monitor that Network Rail can 'sustain' current asset performance on the railway in future control periods. It also provides an understanding of whether Network Rail's planned renewals work is consistent with minimising the whole-life cost of the railway. In simplistic terms, we are trying to measure the 'remaining asset value' on the network, and considering whether this remains stable over time.

9.10 Network Rail defines network sustainability as follows:

> Continued application of policy compliant activity levels in maintenance and renewals which deliver acceptable level of long term asset performance without generating undeliverable bow wave of renewals.

9.11 In a similar vein, we defined it as:

> Delivering sufficient renewals to counter the on-going deterioration of network assets through ageing and wear-out in order to protect the interests of future users and funders.

Measuring network sustainability

9.12 Before the start of CP5 Network Rail developed a sustainability measure (CSI) to monitor changing patterns of asset life and some aspects of asset performance and risk. This measure uses models that measure changing asset life by modelling patterns of degradation and improvement from interventions. The models were re-run annually using updated survey and work records.

9.13 In our route requirements and scorecards consultation, we set out our requirement for a consistent measure of network sustainability on geographic route scorecards. We suggested that we use CSI as the measure. An alternative would have been to use a measure based on the overall cost of delivering any shortfall in the planned renewals, in effect the future liability. However, it is not a direct measure of sustainability, and it does not take into account that actual residual life can differ from forecast because the rate of degradation turns out to be greater or less than expected.

Calculating CSI

9.14 The CSI measure is calculated using the same methodology used since the inception of the measure in CP5. For CP6 however, three asset groups have been excluded (light maintenance depots, tunnels and drainage). This is because Network Rail's tier

1 models do not, at present, calculate long-term forecasts for these assets. These excluded assets represent <10% of the renewal budget.

9.15 As the CSI measure consists of a representative sample of assets, this means it also excludes some further assets. In total, excluded assets make up about 18% of the renewal budget. Asset values already excluded in the CP5 CSI are: retaining walls, non-station footbridges, coastal & estuarine defences, major structures, culverts, mining, off-track, lineside buildings, maintenance buildings, level crossings, sub-stations, huts and cables.

9.16 CSI is calculated and reported by Network Rail using a number of bespoke and standalone models the outputs of which are then combined to produce the CSI forecast. The models are run by specialised central resources rather than being produced by the route, however it is based on the renewals plans for each route.

9.17 The CSI itself is the percentage change in the residual asset value. We decided to use the start of CP5 CSI calculation as the benchmark against which change will be reported against for CP6. Each route will report on its scorecard annually against their CSI score.

9.18 Figure 9.1 illustrates the basic principles behind its calculation, demonstrating how interventions arrest the modelled decline in asset remaining life, and result in an improved sustainability score.

9.19 Unless there is an increase in work volume then the CSI modelled score will decrease over CP6 and beyond. This additional volume can be achieved by one or a combination of:

■ reducing expenditure currently allocated to other priorities, to allow an increase in expenditure on asset renewal; and
■ increasing the efficiency of asset renewal, allowing more volume for the same expenditure.

9.20 While a slight drop in CSI in any single control period might not in itself be a cause for concern, allowing this to compound over a number of control periods will result in a bow wave of required activity that will become undeliverable without significant disruption to customers.

Figure 9.1: CSI How the Measure Works
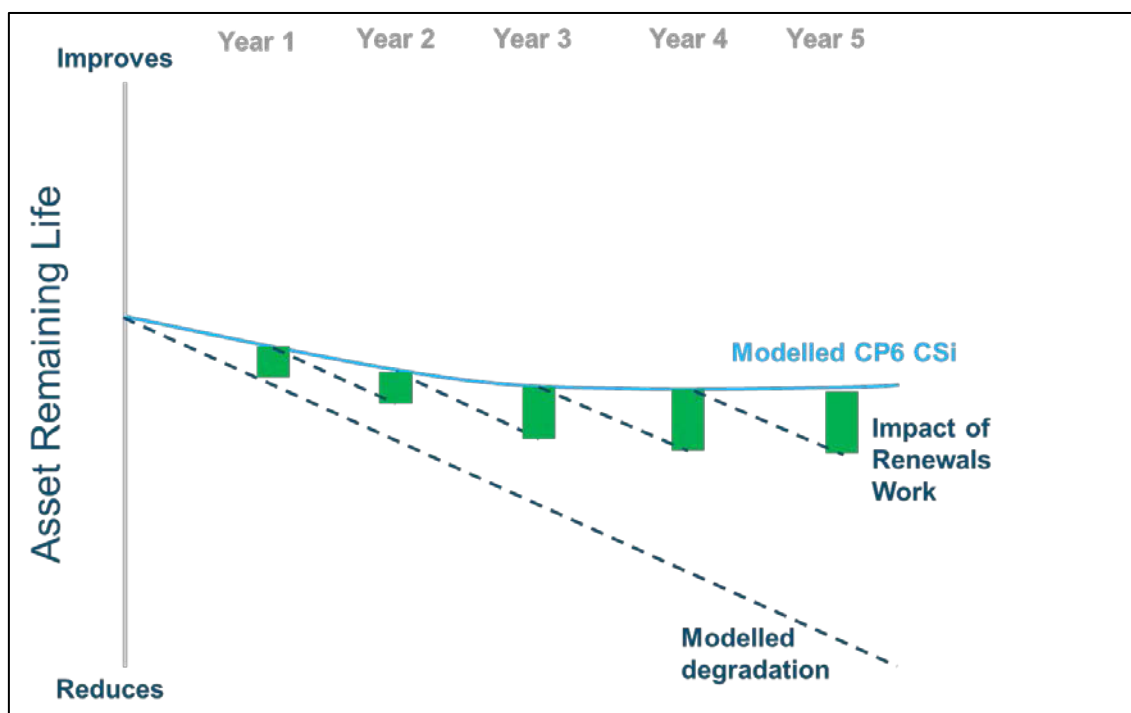
Source: Network Rail

9.21 More generally, there may be other factors that address the underlying issue of asset sustainability (and, for example, change the efficient profile of renewals over time). For example, further technology advances may allow some life asset extensions. However these normally have long term development requirements and so we do not have evidence that gives us a basis to anticipate such advances that would happen in CP6, and which Network Rail has not already allowed for in their plans.

9.22 We are mindful of the limitations of any composite modelled forecast and that a stable CSI measure does not guarantee that individual assets or groups of assets that contribute to it, will not become life-expired or that they will not fail in service. CSI needs to be seen as one measure within a broad range of performance indicators used to monitor asset management.

Aggregating asset specific data for CSI

9.23 The CSI measure determines an overall residual value of the infrastructure. It therefore takes the derived residual value from each model and aggregates them (without applying weighting to any specific asset type).

Assessing Network Rail's performance on network sustainability

9.24 Due to the importance of network sustainability, we wanted Network Rail to include a consistent route measure on its route scorecards. This will help maintain appropriate

focus on network sustainability. This will be the case both within Network Rail routes and the centre, and with its various stakeholders who may also use scorecards to assess how well Network Rail is delivering outcomes.

9.25 CSI is a single, composite measure and is based on input data (e.g. on renewals undertaken and regular asset condition assessments undertaken) that changes slowly over time. This means an end of control period target has been set rather than year-on-year targets. A positive change in CSI indicates the asset value has increased. A negative change in CSI indicated the asset value has decreased.

9.26 We want to focus our attention on understanding Network Rail's progress in achieving the *outcome* of a sustainable network. CSI in itself cannot be used in isolation to hold routes to account, due to its composite and slow moving nature. The composite nature of the measure means that fluctuations in different asset classes which contribute to the measure could be masked. For this reason it is important for us to also take into account other information in reaching our assessment of whether Network Rail is doing everything reasonably practical to deliver a sustainable network. We will use other, more input-based, indicators including:

■ Network Rail's own management data, including indicators such as Network Rail's planned and delivered renewals volumes, which we will use to assess whether routes are seeking to drive the CSI score at the expense of those assets that do not contribute to the CSI calculation;

■ Network Rail must produce an annual engineers report for each route and for each asset type on that route, which will provide an assessment of Network Rail's progress towards meeting the end-of-CP6 target;

■ quarterly liaison meeting with Network Rail's Asset Engineers to monitor work plan compliance; and

■ reporting within Network Rail's Annual Return.

9.27 Again, reflecting the importance of this issue, we have set a regulatory minimum floor for the CSI measure and set out our analysis around this below.

Changes to the baseline target in CP6

9.28 It is important to reflect new information into any forward plans and measures as we progress through the control periods. This will include the requirement to include additional volumes to contend with emerging knowledge of risks and to allow the baseline targets to be revised where new opportunities have been revealed and acted on. Therefore, Network Rail's baselined target will be reviewed at each year-end to ensure:

■ areas of new key 'risk' knowledge are reflected in forward plans;

- the proven benefits of new methods or asset management techniques that reduce rates of change in the assets (and hence improve the sustainability of a specific asset type) are factored in; and

- transfer of assets between routes or any changes in accountabilities of assets.

9.29 Proposed changes to the baseline will be formally recorded with justification and the rationale for changes in the baseline target to be provided for our review and comment. We will only adopt a change to a baseline target is we are satisfied with the information provided.

Improving the measurement of network sustainability

9.30 CSI is the best available measure of network sustainability that is currently available to us, and is a useful part of the overall evidence available on asset sustainability.

9.31 The CSI measure proposed for CP6 has some limitations, in that it does not encompass 100% of assets or all their attributes. Rather it takes a representative sample on the basis that assets not included in the model would be in a similar condition and treated the same as the ones included. We have seen no evidence that Network Rail favoured those assets or attributes included within the CSI model at the expense of those not included.

9.32 Late in 2017, Network Rail outlined a potential alternative sustainability measure methodology to us. The proposal was for a new common measure across all asset types which would seek use 'effective life added' to monitor progress year-on-year, rather than the combination of asset age and condition measures currently used.

9.33 While we think this alternative methodology may have some merit, we have yet to see a detailed proposal and as such we were unable to reflect it in our PR18 determination.

9.34 We have decided to retain the current CSI measure for CP6 as the best available measure of network sustainability. Network Rail included this in its route strategic plan updates in February 2018. CSI provides a view of longer term patterns of change beyond a single control period and allows a clear perspective to be taken on the longer term impacts of route strategic plans. Beyond this assessment, the most meaningful indicator of how well Network Rail is delivering asset sustainability, is how well its renewals plan is delivered and how this compares with the original plan.

Our decision on a new measure of network sustainability

9.35 We require Network Rail to continue to develop an alternative, improved measure of network sustainability. Network Rail must provide a plan for development of the composition and scoring of an alternative measure for our approval by end of September 2018. It must then develop the plan within the timescales identified within

that plan. Our intention is that the new measure would be in place for trialling by the start of year 2 of Control Period 6. If Network Rail does not develop an appropriate measure within the timeframe set out in the plan, we will ask the Independent Reporter to develop a measure on its behalf.

9.36 We will take a view at the time whether this will be supplementary to CSI or whether we seek Network Rail's agreement to replace it in our monitoring.

Network sustainability target in CP6

9.37 In this section we set out what Network Rail proposed in its SBP, what analysis we carried out and our conclusions.

Network Rail's proposed CSI target

9.38 Each route has developed plans for maintenance and renewal of the assets on their part of the network. As set out above, the central STE team in Network Rail then assessed the impact of these plans for using the CSI model.

9.39 All routes have stated that sustainability will decline during CP6 from the end of CP5 scores in their Route Scorecards. The national percentage change between the end of CP6 and baseline (at the end of CP4) was initially projected in the SBP at -2.1%.

Table 9.1 CSI calculation all Routes – Feb 2018

Route	End CP5	End CP6
Anglia	-1.2%	-4.0%
LNE&EM	0.4%	-2.0%
LNW	0.2%	-3.6%
Scotland	3.0%	2.3%
South East	-2.0%	-4.3%
Wales	0.3%	-1.5%
Wessex	-2.3%	-5.4%
Western	2.3%	1.3%
National	0.3%	-2.1%

9.40 Network Rail has indicated that this is because within the funding available they have prioritised safety and performance over asset sustainability. Figure 2 below shows Network Rail's estimated end-CP5 exit positions based on the SBP CP6 funding and Network Rails estimated baseline funding up to CP12 (when measured against the end-CP4 baseline).

Anglia Route CSI

9.41 We checked Network Rail calculation of CSI as submitted as part of the SBP and found no errors in the supplied data. In May 2018, as part of our discussions on the proposed regulatory minimum floor, Network Rail identified an anomaly in that

Anglia's CP6 original CSI was calculated against an incorrect baseline in their original numbers. This was due to inconsistency in accounting for inclusion / exclusion of the long-lease stations between the two control periods (in the CP5 definition they were included, in CP6 they will be excluded due to a change in responsibility for their upkeep to the TOC under the terms of a Full Repairing Insurance (FRI) lease). This reduces the remaining value of Anglia's assets and thus its estimated CSI.

9.42 The residual value of Anglia Operational Property in the CSI baseline model is £222m. Removal from the total Anglia residual value (around 10,000) resulting in a fall in CSI of 222/10200 = 2.2%, which is the same as the difference in the CSI when the values were adjusted (-4.0% to -1.8%).

**Table 9.2 CSI calculation Anglia – Feb 2018**

Feb 2018		Revised (May 2018)	
End CP5	End CP6	End CP5	End CP6
-1.2%	-4.0	-1.5%	-1.8%

9.43 Similarly, the impact on national CSI is proportional to the national value, 222/123000 = 0.2%, again the same as the impact on the national CSI (-2.1% to -1.9%).

Route CSI forecasts

9.44 Figure 9.3 shows Network Rail's forecast changes to sustainability by route. This demonstrates that there is a reduction in the CSI value between end-CP5 and end-CP6 across all routes. The longer term forecasts is subject to funding from CP7 onwards.

Figure 9.2: CSI long term projects from baseline at end of CP4 - May 2018 (baseline funding requirements)
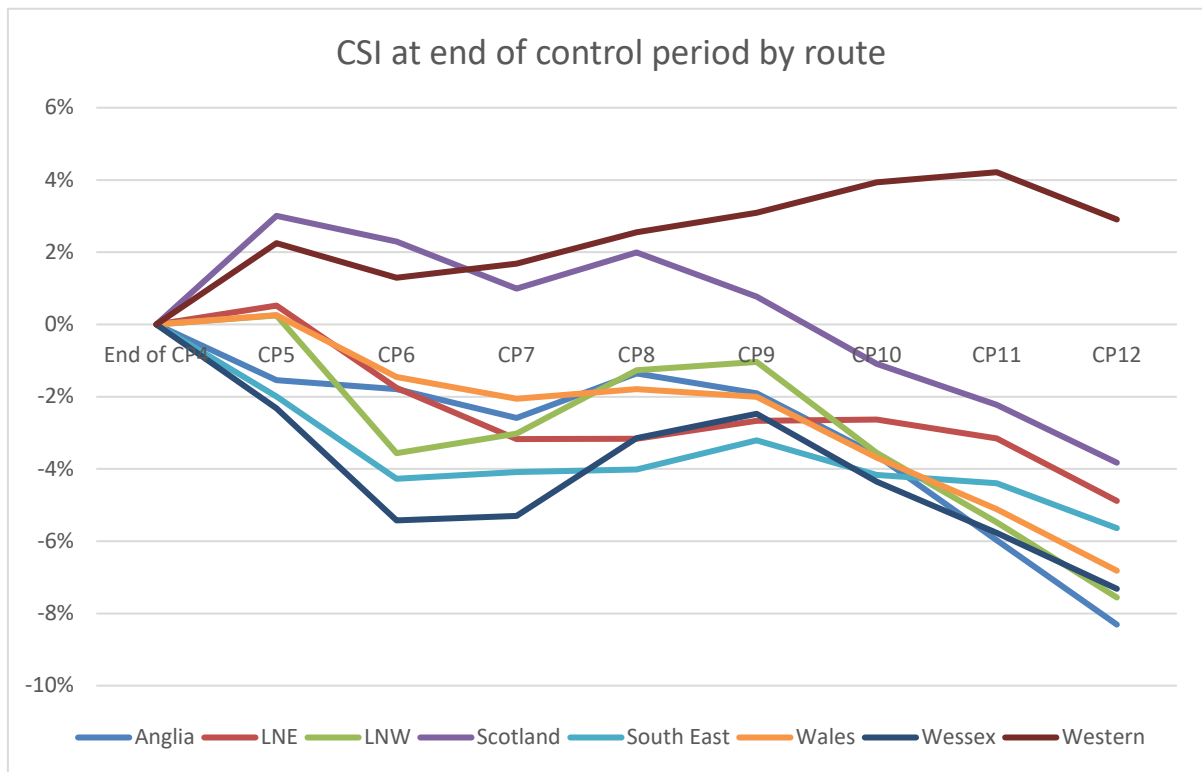
Our analysis

9.45 We have analysed Network Rail's Route plans in detail, and the detail of this analysis is set out in our review of Network Rail's proposed costs supplementary document. As part of our analysis of the evidence, we undertook:

- twenty-four route challenge meetings;

- thirteen technical challenge meetings with Network Rail's STE Team on CSI methodology and future development;

- six technical analytical reviews - Network Rail's WLCC model narratives; and

- forty-one asset-specific deep-dives.

9.46 This built our understanding of Network Rail's plans in respect of asset sustainability and the underlying reasons behind the forecast decline in asset sustainability across all routes.

9.47 CSI appeared not to deteriorate during CP5. Network Rail suggests that this is due to two reasons. Firstly in some cases more assets were added to the population that the model draws upon, which affects the out-turn position. Secondly, Network Rail has reviewed and where appropriate extended the asset remaining life available. We would not expect to see a repeat of these factors in CP6.

9.48 It is generally accepted that the CSI metric has a number of limitations. Furthermore, we might expect some variation across routes and across asset types, reflecting the timing of enhancements and major renewals, and to reflect differences in the average asset life in routes and asset types at the start of CP5. However, there is a consistent reduction in the forecast asset sustainability across routes and across asset types. We are also mindful of the longer term forecasts, which show further deteriorations in asset sustainability.

9.49 Each route has a set of investment options for additional schemes which would be carried out in addition to their baseline plan assumptions, should they receive additional funding. Some of these schemes may improve the sustainability position.

9.50 Regarding the error of including franchised stations in the Anglia Route CSI calculation, we agree that long-lease stations should not be included with the CP6 CSI measure as Network Rail is not responsible under the terms of a FRI lease. No other routes are affected by this change, however should subsequently the status of assets in other routes also change, then those routes' CSIs and national figures would also need to be recalculated as part of any change control process. We have checked the recalculated figures and are satisfied that this has been assessed correctly and that the impact on the network-wide number looks to be correct.

Our conclusions

9.51 We are concerned that Network Rail's plans for CP6 forecast a decline in levels of sustainability for the control period and in the longer term. The routes have justified this decline on the grounds that they have prioritised safety and performance over sustainability.

9.52 We have asked Network Rail to review this in a targeted update of its plans over the summer of 2018. We will review and assess the revised targets.

9.53 CSI needs to be seen as one measure within a broad range of performance indicators used to monitor asset management. These other indicators are defined within our general periodic reporting requirements of Network Rail.

Regulatory Minimum Floor

9.54 In this section we set out Network Rail's proposal, our analysis and our decisions in relation to the regulatory minimum floor for network sustainability.

Network Rail's proposal

9.55 Network Rail's sustainability modelling is based on routes delivering 100% of their CP6 planned volumes. Network Rail's own assurance suggested that a small part of

the overall plan can be deferred and remain deliverable in future control periods, without have a significant detrimental impact on their expected level of sustainability.

9.56 Network Rail proposed that the regulatory minimum floor for network sustainability should be set at this level (i.e. taking account of a small element of deferral). This was assessed to be limited to a 10% loss in proposed plan activity across the control period. It proposed that routes will be required to demonstrate that delivery is kept to a level to perform above the 90% threshold and demonstrate that forward plans will allow this to remain the case at the end of the control period.

9.57 In addition to the regulatory floor, Network Rail proposed that their internal assurance and review will monitor delivery through an annual route specific threshold. Network Rail would monitor whether a single year's delivery falls to <85% of the plan (assessed via a report from the head of the relevant asset class). If so, a route specific improvement plan will be required for Executive approval and monitoring.

Our analysis

9.58 We recognise why Network Rail has proposed this methodology. However as set out above, our focus is on understanding whether Network Rail is doing everything it must to deliver the outcome of a sustainable network.

9.59 As such, we would prefer to set any regulatory minimum floor based on an output rather than linking it to an input. We challenged Network Rail to convert its proposal into an output (instead of input) target, i.e. the level of CSI resulting from delivering 90% of work volumes.

9.60 In response to our request Network Rail revised their regulatory minimum floors floor proposal in May 2018. The methodology that Network Rail used to do this was to calculate the floor based on 90% of the CP6 forecast, as set out in Figure 9.4 below.

Figure 9.3: Floor calculation example- Nationally
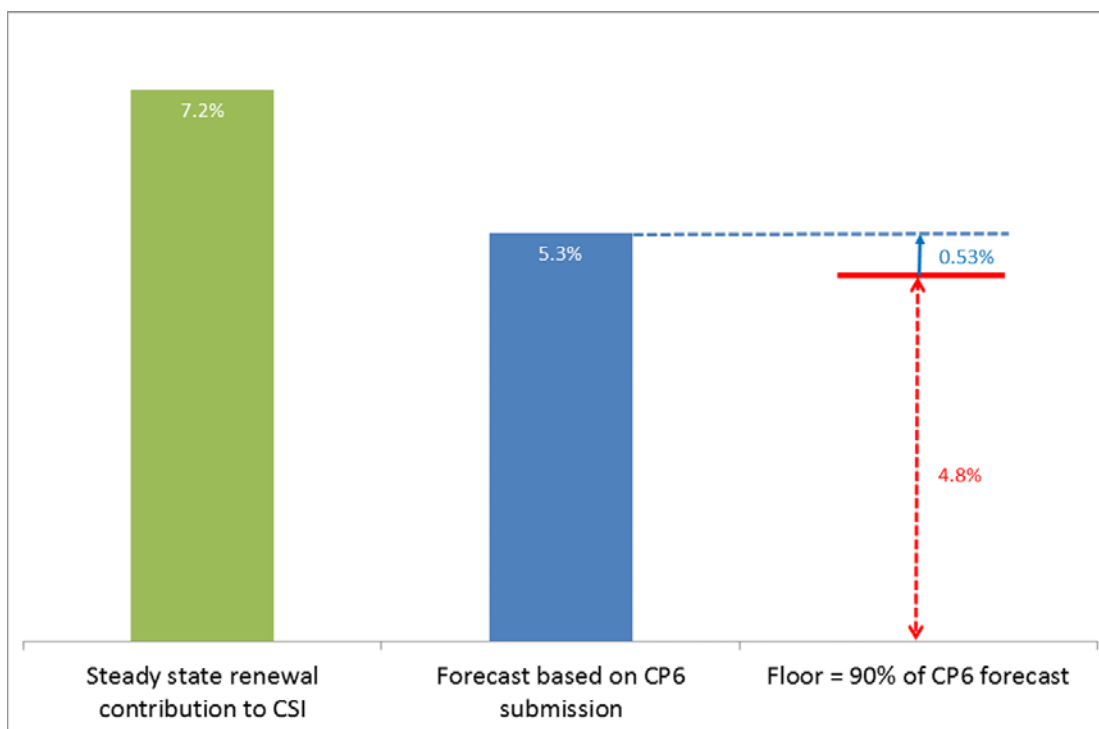
Source Network Rail

Our conclusions

9.61 Based upon the forecast change in sustainability and the agreed methodology the following indicative regulatory minimum floors for each route and nationally have been derived (see Table 9.5).

Table 9.2: Revised CSI and Regulatory Floor (May 2018)

Route	End CP5	End CP6	Regulatory Minimum Floors End CP6
Anglia	-1.5%	-1.8%	**-2.6%**
LNE&EM	0.4%	-2.0%	**-2.3%**
LNW	0.2%	-3.6%	**-3.7%**
Scotland	3.0%	2.3%	**1.8%**
South East	-2.0%	-4.3%	**-5.1%**
Wales	0.3%	-1.5%	**-1.8%**
Wessex	-2.3%	-5.4%	**-5.9%**
Western	2.3%	1.3%	**0.6%**

9.62 These figures will need to be updated to reflect any revisions to network sustainability that Network Rail proposes as a result of the targeted adjustments being made by Network Rail in July 2018. This will be done using the same methodology as set out above. At the end of year 3 of CP6 we will require Network Rail to commission an independent review of each routes to ascertain the likelihood of them achieving their forecasted CSI score. The objective of which will be to provide assurance and if

necessary clear guidance for routes to follow to ensure that the regulatory minimum floor for asset sustainability at the end of CP6 will be met.

Scotland

9.63 In Scotland, in common with all other routes, there is a projected reduction in the CSI score. However this reduction is minor and remains an improvement in relation to the baseline at the end of CP4.

9.64 In particular, the Scotland forecast is that network sustainability will move from +3% in CP5 to +2.3% at the end of CP6, a reduction of 0.7% against CP5 (but still above the baseline at the end of CP4). This in itself is not a major cause for concern with the CSI long-term trend for Scotland being projected to remain stable for the next 20 years, indicating that broadly assets would be replaced at the rate at which they become life expired, subject to continuing adequate funding. As set out above, we expect to continue to focus on the management of individual asset classes as part of our assessment of network sustainability.

9.65 The indicative regulatory minimum floor for asset sustainability in Scotland is to be set at 1.8% at the end of CP6, but is subject to Network Rail's revisions to its network sustainability projections in July 2018.

Table 9.3 Scotland CSI and regulatory minimum floor

Route	End CP5	End CP6	Regulatory minimum floors End CP6
Scotland	3.0%	2.3%	**1.8%**

Our decisions on network sustainability

9.66 In summary our decisions on network sustainability are as follows:

■ Each route should revisit its sustainability trajectories as part of the targeted adjustments to the SBP, and updated values provided by 13 July 2018.

■ Each Network Rail route must do everything reasonably practicable to deliver its proposed end of CP6 target for CSI. In the event that network sustainability drops to the level of the regulatory minimum floor in any route, we will be highly likely to undertake a formal investigation for licence breach.

■ In each year of CP6, Network Rail must produce an annual engineers' report for each route and for each asset type on that route, which will provide an assessment of Network Rail's progress towards meeting the end of CP6 CSI target. This report must cover assets not included within the CSI calculation.

■ Network Rail must develop a plan for development of the composition and scoring of an alternative sustainability measure for our approval by end of

September 2018. It must then develop the plan within the timescales identified within that plan. Our intention is that the new measure would be in place for trialing by the start of year 2 of Control Period 6.

■ We will set regulatory minimum floors for network sustainability in our final determination with reference to any revised CSI values Network Rail provides, following the methodology outlined above.

9.67 Where we require access to Network Rail's management data to support our assessment of network sustainability we will request this through the data protocol.