2018 periodic review final determination

Supplementary document: Scorecards and requirements

October 2018

Contents

About this document

The [2018 periodic review](#) (PR18) 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 best be used to support this. This feeds through into:

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

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

In June 2018, we consulted on our [PR18 draft determination](#)[3], setting out our proposed decisions in all of the main areas of PR18. Following receipt of consultation responses, we have reviewed stakeholders' comments and these have helped to inform the final decisions set out in our final determination. We are grateful to all those who responded to the consultation.

Accordingly, the [final determination](#) sets out our overall decisions on PR18. Among the documents that we have published is an [overview document](#), setting out:

■   our decisions in all the main areas of PR18;

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

■   next steps in PR18.

In addition, there are high-level summaries of our main decisions for each of [England & Wales](#) and [Scotland](#).

We have also published a [document](#) summarising stakeholders' comments on the PR18 draft determination and our response to these.

The full set of documents that form the final determination is set out in the box overleaf[4].

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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.

[3] The full suite of PR18 draft determination documents are available from this [webpage](#). To access earlier consultation and conclusions documents that led up to the PR18 draft determination, please see the map of these documents [here](#).

[4] Our policy on managing change will be published in November 2018. Some documents, such as the consultancy and reporter studies, will be published shortly after the final determination.

Our final determination documents (includes weblinks)

PR18 final determination overview document

England & Wales summary

PR18 draft determination consultation – summary of comments and our response

Scotland summary (and settlement details)

Supplementary documents

Settlement documents

SBP assessment

- Scorecards and requirements
- Health & safety
- Review of NR's proposed costs
- Other single till income
- Stakeholder engagement

FNPO route

System Operator

England & Wales

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

Policy

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

Other documents

Glossary

Managing Change Policy

Consultancy & reporter studies

Grading of Network Rail's route and System Operator strategic plans for CP6

Summary

Context

1. At each periodic review, we must consider the best way to encourage Network Rail to deliver effectively. This 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 greater 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, which 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 (SO), 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:

   - **setting a number of key requirements on Network Rail** that capture our expectations of the delivery to passengers, freight, operators and funders. This includes, in particular, measures of Network Rail's contribution to passenger and freight delay, and of the sustainability of assets;

   - **scorecards** will capture what each route and the SO 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 customers and each route and the SO. Building on scorecards and the improved levels of engagement in the PR18 strategic route plans, we expect routes and the SO to involve key stakeholders in the decisions that affect them; and

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

4. Since Network Rail's February Strategic Business Plan (SBP), and at the time of our draft determination, severe problems were caused by the May 2018 timetable

change. We carried out an investigation into Network Rail's role in this and are carrying out a wider inquiry at the Secretary of State's (SoS's) request into why the system as a whole failed to produce and implement an effective timetable. The outcome of the investigation and first phase of our subsequent inquiry are set out in more detail here. We expect to make our recommendations in December, following consultation with the industry and taking into account the rail review.

5.   This has introduced greater levels of uncertainty about what it is reasonable to expect of Network Rail in terms of its contribution to passenger delays. One particular issue is whether and how quickly we might expect the delays attributed to Network Rail to fall over time. One perspective is that there are a number of one-off events in recent periods – such as exceptionally cold and then hot weather and the disruption caused by the May 2018 timetable change – and that these will rapidly reverse out. An alternative perspective is that there is a long-term decline in performance, with these events unlikely to reverse-out fully in coming years. We have reflected on the available evidence when reaching our decisions.

Purpose

6.   This document sets out our final decisions in relation to scorecards and requirements as part of our PR18 final determination.

7.   It reflects the detailed analysis we undertook of Network Rail's Strategic Business Plan (SBP). It also reflects the decisions we made in our draft determination, in which we asked Network Rail to make a targeted set of important adjustments to its plans. The changes most relevant to scorecards were:

- ■ **sustainability of assets:** we asked Network Rail to do more work to improve asset condition beyond the levels indicated in its SBP, and to also address safety risks that we have identified. We said there should be an extra circa £1bn of expenditure on a range of assets, with particular priorities including earthworks, drainage, track and structures. We said this work should be included in the baseline route plans, and would improve safety, the resilience of the railway and, when completed, have a positive impact on the performance levels delivered to passenger and freight users.

- ■ **performance trajectories:** we required three routes – Anglia, Wessex and South East – to review the trajectories relating to their contribution to overall passenger performance (referred to as the consistent route performance measure), as their proposals were not prepared on a basis consistent with the other routes. This would support better comparison between the routes and, ultimately, outcomes for passengers. The focus on improving asset condition would also improve passenger and freight performance over time.

8.   We also asked Network Rail to include in its baseline plans £80m of additional safety-related expenditure; launch a performance innovation fund and address concerns with the profile of expenditure.

9.   In reaching our final decisions, we have taken into account:

■   our analysis of the targeted adjustments and any changes to performance trajectories that Network Rail proposed in July 2018, including its subsequent draft determination consultation response which include its final proposals to us;

■   the consultation responses from operators in relation to performance, including any evidence provided in relation to performance trajectories; and

■   the wider consultation responses that we received in relation to our draft determination.

10. Our document considers two broad issues:

■   whether the PR18 scorecards as included in Network Rail's business plans, and its own policy for scorecards, 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 (reflecting the targeted adjustments put forward by Network Rail) provide a reasonable baseline against which to monitor its performance.

11. Broadly, the consultation responses we received were supportive of our approach to using scorecards in CP6, although a number of specific concerns were raised in relation to performance measures and trajectories.

Overall suitability of Network Rail's PR18 scorecards

12. 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.

13. These are discussed in turn below.

Balanced scorecards

14. 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.

15. 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 addition, 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).

16. Network Rail is also proposing to use a 'route comparison scorecard' (which contains a set of comparative data looking across routes). This will compare performance between routes in relation to all consistent route measures. This will also reflect additional measures specifically focused on end user outcomes: passenger satisfaction and measures of passenger and freight volumes.

17. 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 in our draft determination we raised some concerns about the representation of national passenger operators, and CrossCountry in particular. CrossCountry runs the majority of its services on LNE&EM, LNW and Western routes. CrossCountry has a similar proportion of services on Anglia route as it does on Wales, Wessex and Scotland routes, and the latter routes have all reflected this operator on their scorecards. However, Anglia has not agreed to do this. We remain concerned that the nature of CrossCountry's operations are such that there is a risk that each route fails to adequately consider its needs. We will be reflecting this in how we monitor and hold the route to account, as it raises the risk that the route fails to place sufficient weight on the needs of this operator.

Route comparison

18. For geographic routes, we required a consistent set of measures to 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.

19. 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 geographic route scorecards. Performance against all consistent geographic route scorecard measures – including the full set specified by ORR – will be shown on a single '**route comparison scorecard**'. This will be used to enable quick and easy route comparison.

20. 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 trajectories are being set consistently across the routes. Network Rail responded to our concerns, and made a number of commitments in relation to assurance and transparency in this area, which we have accepted.

21. 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

22. 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 mostly outside the periodic review process.

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

24. In its response to the draft determination the Department for Transport noted that it was critical that "an appropriate balance is struck between ambition and realism" in terms of train performance. It also made clear that it expected train operators to make every effort to work closely with Network Rail to improve train performance.

Scotland

25. The HLOS contained a number of requirements, including specific performance targets for ScotRail and Caledonian Sleeper, targets for freight growth and passenger and freight journey time improvements.

26. We have worked with Network Rail and Transport Scotland to achieve greater clarity about how each of the HLOS requirements might be measured.

27. 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.

28. A number of requirements were not suited to being captured on scorecards. To manage this, Network Rail has created an HLOS tracker which sets out what activity

is being undertaken by which parts of its organisation to deliver all the HLOS requirements.

29. We have set out in the [PR18 final determination – summary of conclusions and route settlement – Scotland](#) more information on how Network Rail will deliver the Scotland HLOS requirements.

ORR assessment of key scorecard trajectories

30. We reviewed route scorecards and Network Rail's subsequent adjustments to assess whether key trajectories (for passenger performance, freight performance and network sustainability) were sufficiently challenging. We have set CP6 baseline trajectories for these three key measures, which reflect our expectations regarding Network Rail's contribution in these areas. These are set in light of the funding available to Network Rail. They will act as a baseline against which we will measure Network Rail's delivery to current and future passengers and freight end users over the control period in our monitoring and reporting. Through its business planning process and agreement of annual scorecards, Network Rail's annual targets may vary from this CP6 baseline trajectory, which we will take into account in our monitoring and reporting, particularly where these are agreed with customers (where appropriate).

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

32. 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 below which we are highly likely to investigate formally whether or not Network Rail has breached its licence (this applies to all routes apart from the Scotland route where we are adopting a different approach to reflect the HLOS PPM requirement of 92.5%). 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 [PR18 final determination CP6 settlement document - System Operator](#).

Passenger performance

33. We asked routes to seek operator views and agreement to the performance trajectories for CP6. In respect of performance, it is important to distinguish clearly between two different sets of measures.

   ■ **Consistent route measure for passenger performance:** We asked Network Rail to set out proposals reflecting each route's 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[5]. The final determination includes CP6 baseline trajectories for each route's CRM-P, which act as a baseline against which to measure how well the route is performing. The regulatory minimum floors are expressed in terms of CRM-P.

- **Customer-agreed passenger performance measures:** the routes were asked to agree suitable performance metrics with their customers covering CP6. In most instances, passenger operators wanted performance to be measured using the public performance measure (PPM)[6], alongside other measures such as 'on time'[7] or cancellations[8]. These measures capture both Network Rail *and* train operator performance, and so are a reflection of the overall performance experienced by passengers. The customer-agreed measures will also be reflected in Network Rail's annual scorecards. This means that performance against these measures will affect route-level management pay.

34. 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 performance trajectories, where a generally late start was made to these discussions.

35. The additional planning that Network Rail undertook to produce its targeted updates provided a valuable opportunity for all parties to reach greater levels of agreement. We required Network Rail and 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. We were clear that it would not be sufficient for franchised train operators to point to their franchise targets, if there are good reasons why these cannot be delivered.

36. This process also provided an opportunity for all parties to review the risks and opportunities put forward by operators in April 2018 as part of the National Task Force (NTF[9]) consultation and for routes to either amend their proposed trajectories

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[5] 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.

[6] 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.

[7] 'On time' is the percentage of recorded station stops called at on time (within 59 seconds of the scheduled arrival time) or early.

[8] 'Cancellations' is the percentage of planned trains which either did not run their full planned journey or did not call at all their planned station stops.

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

or justify why they should not be amended. For some routes and operators, this time was impacted by serious operational issues arising from the May timetable.

CRM-P baseline trajectories

37. Network Rail provided us with an initial set of updated performance trajectories on 13 July 2018. It then provided a revised set of trajectories with its response to our draft determination on 31 August, which for some routes represented a material change[10]. All routes amended their CRM-P trajectories at both July and again in August.

38. While this included changes to reflect our draft determination requirements for the South East, Anglia and Wessex routes, and operator feedback to the NTF in April 2018, it also reflected a material worsening in levels of performance on the network. As the level of funding was uncertain, Network Rail did not change the performance trajectories to reflect the increased level of works to improve network sustainability.

39. We built on our analysis over the summer, and considered any evidence provided by operators about why they felt that the proposed trajectories should be different. Responses from operators identified a number of concerns but very few provided evidence of what the trajectory should be instead. After our own review of these trajectories – supported by the work of Arup, as an Independent Reporter[11] – we have accepted Network Rail's revised CRM-P trajectories for all routes except LNE&EM.

40. For LNE&EM, two operators provided convincing evidence that their operator level trajectories should be different to those proposed by Network Rail. We accepted these operators' proposals; this results in a small change to the CRM-P for the LNE&EM route.

41. The CRM-P CP6 baseline trajectories are set out in this document and in our route settlement documents.

Customer-agreed performance measures

42. The majority of routes and operators have remained unable to reach agreement on performance trajectories with only five operators able to agree trajectories with Network Rail. Those who agreed are:

- c2c and Anglia;
- Arriva Rail London and Anglia;
- Great Western Railway and Western;

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[10] This was also subsequently updated to correct a small number of minor errors and for Network Rail to complete central assurance.

[11] The Arup report will be published shortly after our Final Determination here.

- ■ Merseyrail and LNW; and

- ■ Caledonian Sleeper and FNPO[12].

43. Where trajectories were agreed, we have reflected these in the route settlement documents and will place weight on this agreement in our monitoring. These may be updated or revised through annual scorecards during CP6.

Regulatory minimum floor (CRM-P)

44. We have also set a regulatory minimum floor for passenger performance for each route.

45. In our draft determination we said that this should be set at a consistent margin below Network Rail's CRM-P target for each year of CP6 (i.e. the floor reflects the trajectory), and be reflective of the point at which ORR has typically investigated passenger performance issues in the past. In light of this, we proposed that the margin should reflect a performance level of 20% of the average performance for each route in CP4 and CP5.

46. We have reviewed the methodology further in light of the responses to our draft determination, including from Network Rail, which highlighted the variability in challenge for routes.

47. Our final decision is to link the performance floor to forecast route performance levels, with the floor being calculated at a 20% margin of the CP6 baseline trajectories. In contrast to Network Rail's and our original proposals, this approach is forward-looking. Consequently, it provides a margin which is focused on future expected performance and results in a consistent level of challenge between routes.

Freight performance

48. 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 detailed performance trajectories has not been as strong as the early discussions under the process for developing plans.

49. We reviewed Network Rail's proposals for freight performance. We have accepted the FNPO's proposed trajectory for Freight Delivery Metric (FDM)[13] at a national level and have no evidence to change this from the responses we received.

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[12] A top down target was set in the Scotland HLOS for Caledonian Sleeper.

[13] The industry definition of this measure is: The percentage of trains which Network Rail has delivered successfully. Failed to deliver is the percentage of commercial freight services that do not reach their destination within 15 minutes of their booked arrival time; and which have either been cancelled, or delayed 15 or more minutes, by Network Rail or another operator that is not a commercial freight operator (FOC).

50. This national trajectory needs to be reflected on each geographic route's scorecard. To do this, the national FDM numbers need to be translated into appropriate route-level measures, FDM-R[14].

51. We accepted Network Rail's proposed FDM-R trajectories in our draft determination. However, Network Rail has recently identified an improved methodology for calculating FDM-R. This improves the accuracy of the measure (e.g. capturing delays which might fail national FDM, but where no individual route creates 15 minutes or more of delay). The FDM-R trajectories in the SBP, which we were considering in our draft determination, were calculated using the original methodology.

52. Having reviewed Network Rail's new approach, we consider that it is an improvement and so should be used for reporting in CP6. We want the trajectories and reporting to be consistent and so have set out CP6 baseline trajectories for each route according to the revised methodology. This does not change the level of challenge between routes, but rather improves the accuracy of the allocation between national and route-level FDM. Further, we continue to expect the sum of the FDM-R trajectories to be sufficient to deliver the Great Britain level FDM trajectory.

53. We expect the FNPO and routes to use these updated FDM-R CP6 baseline trajectories. We would only expect these to change from those in the final determination where the route has set out publically strong evidence that the CP6 baseline trajectory is no longer appropriate. We also expect the route level freight trajectories to be sufficient to deliver the national FDM trajectory.

54. For Scotland, the FDM-R CP6 baseline trajectory reflects the requirements of the HLOS.

55. We have accepted Network Rail's proposal for a regulatory minimum floor for route level freight performance set at 30% more failures than the trajectory for each year of CP6 as this was an appropriate level for the level of freight services.

Network sustainability

56. We were concerned that Network Rail's SBP implied a forecast decline in levels of sustainability for over CP6 and in the longer term. Network Rail's February SBP did not adequately address this trend. In general terms, routes justified this decline on the grounds that they had prioritised safety and performance over sustainability.

57. We asked Network Rail to allocate additional spend to renewals work, and make targeted adjustments to its sustainability trajectories, on the assumption that an

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[14] The industry definition of this measure is: A measure of Network Rail's ability to deliver commercial freight services to destination within 15 minutes of scheduled time. Where this is not met, responsibility is assigned to a Network Rail Route based on the Delay, Cancellation or Service Variation events affecting each qualifying train.

additional £1bn should be spend on improving sustainability. It provided these adjustments to us in July 2018, including a prioritised set of schemes and an estimate of the impact of these on CSI.

58. Network Rail provided a final proposal in its full response to our draft determination on 31 August 2018. This reflected its position that the same level of sustainability could be achieved with a lower level of additional spend.

59. As described in our [review of Network Rail's proposed costs](), we have accepted Network Rail's revised proposal. Reflecting this, we have reviewed the CSI trajectories and have recalculated the regulatory minimum floor. The floor methodology remains as set out in our draft determination (a CSI score equivalent to a drop of 10% in planned renewals).

Network capability

60. The capability of the network to accept particular types of rolling stock (operating in particular ways) is an important element of what Network Rail delivers to operators. It is a particular consideration for freight operators, who use a range of rolling stock, operate nationally and respond to changing patterns of demand. In CP5, we set a minimum baseline for network capability (covering track mileage and layout, line speed, gauge, route availability and electrification type).

61. We have been concerned with how well Network Rail has been managing network capability in CP5 and are aware of concerns raised by stakeholders on this. Indeed, the Scottish Ministers included a specific HLOS requirement regarding gauging and in response to this the Scotland route has said it will have a gauging strategy in place for the start of CP6. This was discussed further in the annex to our draft determination [Scotland summary]().

62. The Independent Reporter review has highlighted some concerns over the reporting of network capability in CP5 and also outlined some recommendations for monitoring and assessing network capability in CP6. We are engaging with Network Rail on the development and implementation of these recommendations.

Network availability

63. Network Rail must achieve an efficient balance between the necessary maintenance, renewal and enhancement of the network and keeping the network open to business. We have not set a baseline trajectory or regulatory minimum floor for network availability for CP6 as there is no single measure which appropriately captures this requirement. Network Rail reports a number of measures in this area and will continue to do so, including some new measures. This remains an important area for our monitoring in CP6 in terms of the impact on end users.

Other issues

64. **Transparency of scorecards:** Network Rail has responded to the concerns we raised in our draft determination regarding scorecards not being readily transparent to stakeholders. Network Rail has made a number of commitments in relation to governance and assurance in this area to improve transparency. This includes clearly, consistently and publically 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.

65. **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, but we have reviewed whether it supports delivery of the HLOSs. Some Scotland HLOS requirements are still to be addressed, in particular the requirement to improve journey times in Scotland, with a plan currently in development. We set out more detail about this in our SO settlement document and Scotland route settlement document

66. **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 route settlement document and summary of conclusions and route settlement document – Scotland.

1. Our policy approach

Introduction

1.1 In PR13, we set a framework of regulated outputs, indicators and enablers for CP5[15]. 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 SO. We summarised our policy again in our draft determination in both the overview document and this document, and provided a further opportunity for stakeholders to comment on our policy.

1.3 Broadly the responses that we received were supportive of the use of scorecards, although some concerns were raised particularly in relation to performance measures and trajectories. We have set out the main issues raised and our response to them in our consultation on the draft determination – summary of comments and our response. In this document we have only reflected responses where they have changed our final determination or are particularly important to understanding how we arrived at our final position. This chapter sets out our conclusions on the role of scorecards in our CP6 policy framework. This is also summarised in the design framework which will be published shortly.

Key requirements on Network Rail

1.4 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[16] as at the end of CP5.

1.5 Network Rail must maintain sustainability of the network in line with the CP6 baseline trajectory 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[17].

1.6 We have also set out our expectations regarding Network Rail's contribution to overall passenger and freight performance, in the form of CRM-P (passenger) and FDM(-R) (freight) CP6 baseline trajectories. These are set in light of the funding available to Network Rail, and will act as a baseline against which to measure Network Rail's delivery to passenger and freight operators in our monitoring and

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[15] See Chapter 3 of our PR13 Final Determination here.

[16] Chapter 7 of this document sets out our requirements in this area

[17] Chapter 9 of this document sets out our more detailed reporting requirements

reporting. Through its business planning process and agreement of annual scorecards, Network Rail's annual targets may vary from this CP6 baseline trajectory. We will take this into account in our monitoring and reporting, particularly where these variations are agreed with customers (where appropriate).

Role of scorecards

1.7 Network Rail's scorecards will play a significant role in encouraging effective delivery by routes and the SO. They capture customer requirements and provide a link to management pay.

Figure 1.1 - Scorecards capture customer requirements and link outcomes to management pay
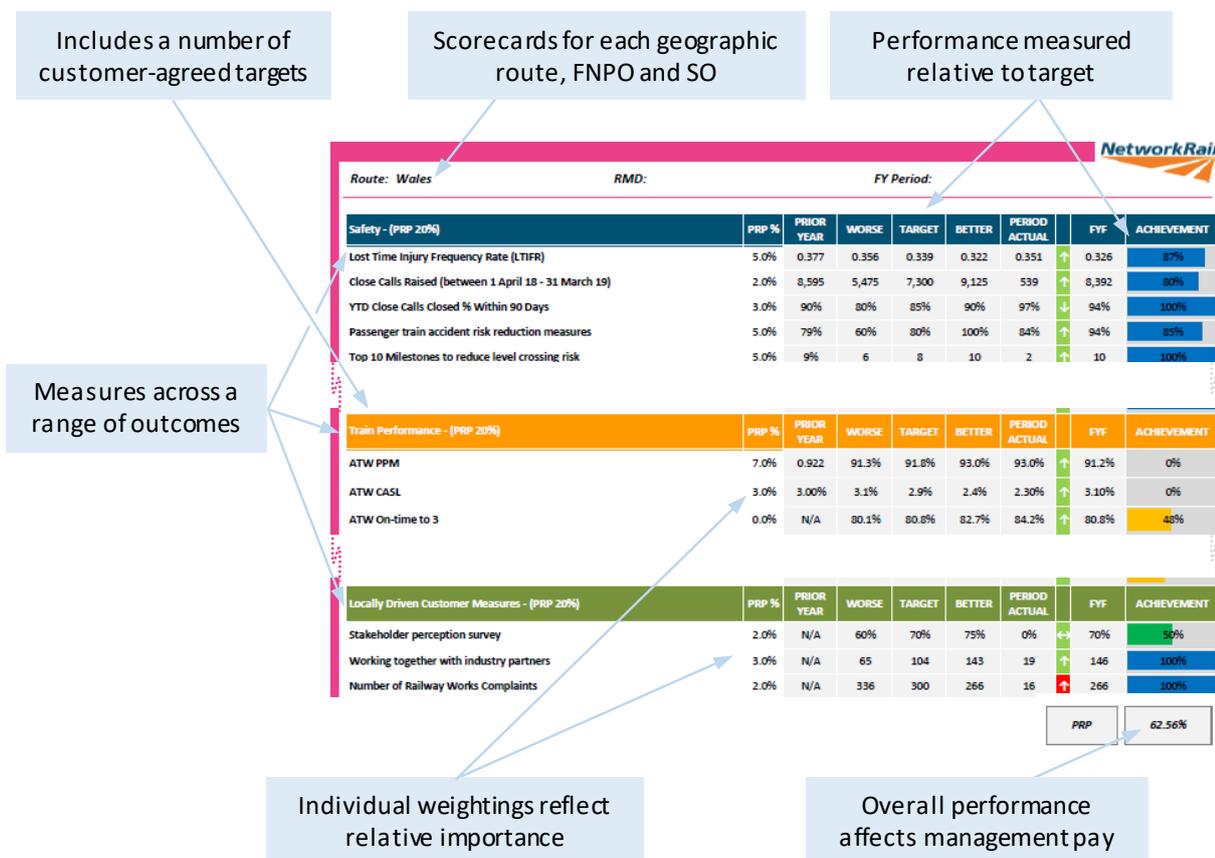
1.8 We expect Network Rail to operate a high quality engagement process with its operator customers to set stretching but realistic annual targets on scorecards through CP6. Where appropriate these should be aligned with performance objectives set by funders, and reflect how circumstances have changed. Where agreement cannot be reached with operators, Network Rail must continue to ensure that each route has a stretching but realistic target in each year of CP6.

1.9 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 PR18 final determination – summary of conclusions and route settlement – Scotland.

1.10 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. Our consultation on monitoring & enforcement policy for Network Rail, which will be published in November 2018 sets out more information on our approach in this area.

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

- providing transparency about what routes / the SO should deliver and how they have 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.

1.12 In this document we set out our final decisions in relation to Network Rail's scorecards, and these are summarised in decision boxes which include which part of Network Rail we consider to be accountable. In the event that it considers the accountability specified is no longer appropriate at any point during CP6, Network Rail must advise us, and propose an alternative accountability for our approval in accordance with our managing change process. In some cases we have not specified that the routes or the SO are accountable and here we specify "Network Rail" as being accountable.

Our requirements for Network Rail's scorecards

1.13 We said in our January 2018 overall framework and again in our draft determination scorecards supplementary 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 those 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.

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

1.15 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 were 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 were 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.

1.16 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.

1.17 We discuss our assessment of Network Rail's stakeholder engagement further in our [PR18 final determination supplementary document – stakeholder engagement](#). We also discuss our grading of each route's strategic plan which formed part of Network Rail's strategic business plan in our [grading of Network Rail's route and System Operator strategic plans for CP6](#). As we were reviewing the SBP, our grading does not reflect the changes over the summer and in the responses to the draft determination.

Network Rail's scorecard framework

1.18 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 (see figure 1.2 below).

Figure 1.2 – A simplified representation of Network Rail's current scorecard structure
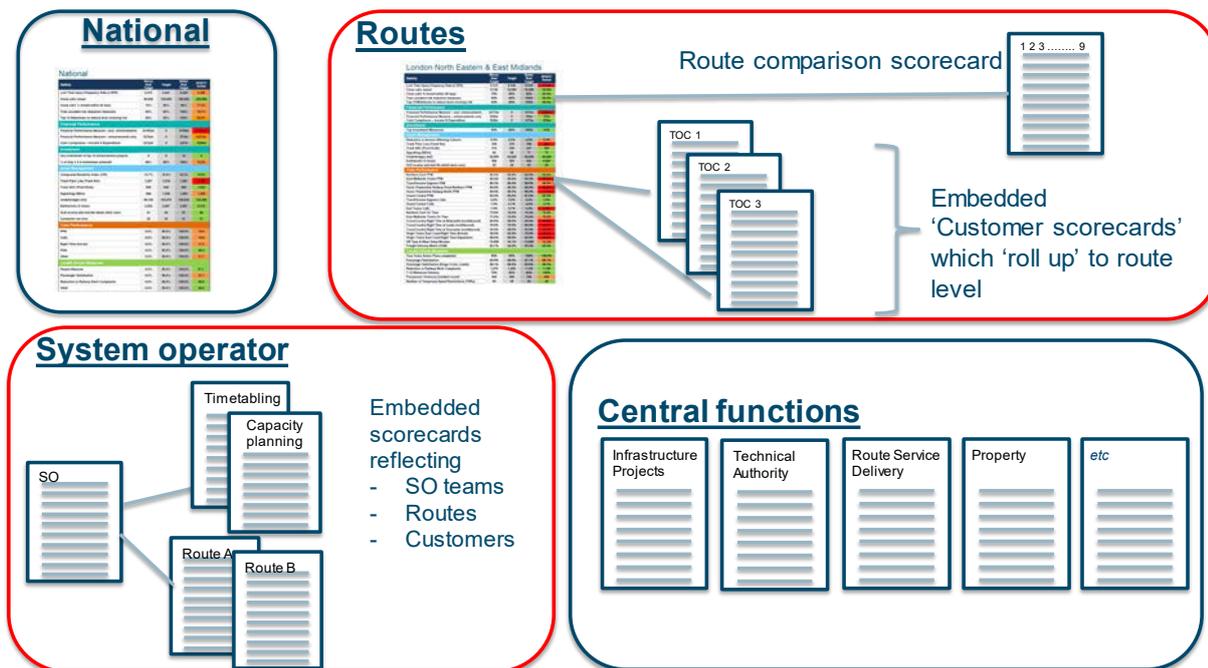
1.19 Network Rail describes this structure as set out in Figure 1.3 below.

1.20 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.

1.21 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 said we would place weight on a number of the proposals from Network Rail from this document. In its response to our draft determination (in particular, our scorecards and requirements supplementary document), Network Rail responded to some of the areas we identified for improvement with further commitments, in particular regarding improving the transparency around scorecards through central governance around defining measures.

Figure 1.3 – Network Rail's representation of its scorecard framework[18]
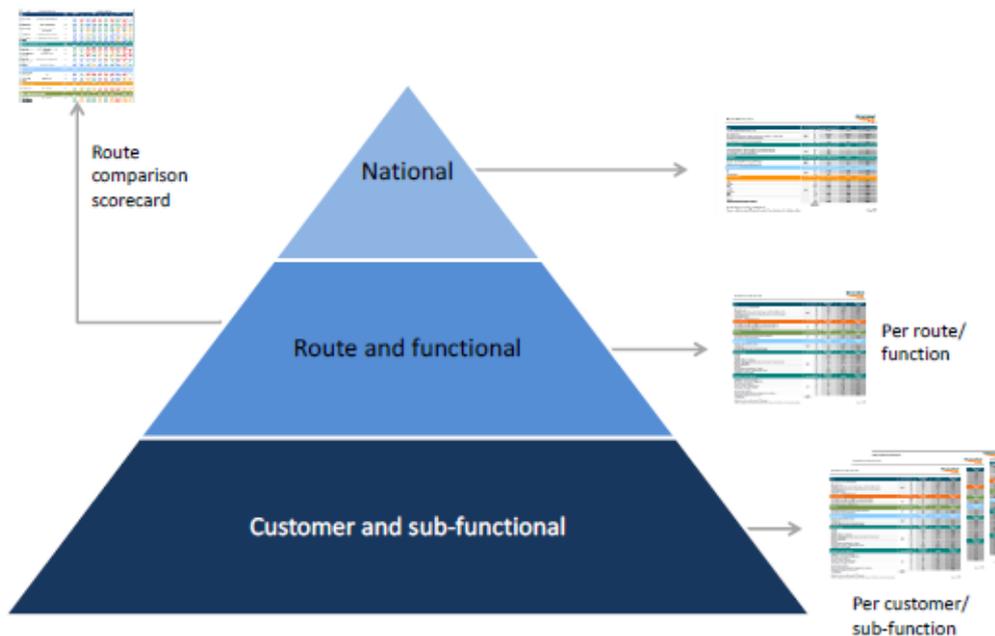
Customer agreement of Network Rail's scorecards

1.22 In CP6, for Network Rail to deliver effectively for its customers, it will need to deliver a high quality engagement process. This process will need to be well-governed, and will need to result in stretching but realistic targets (reflected on scorecards), which are informed by what operators want and their plans for using the network.

1.23 In order to achieve this, we were clear that Network Rail routes should actively seek to secure agreement of their customers to the trajectories on its scorecards. We recognise that the industry has found it difficult to reach agreement as part of the periodic review process. This has been impacted by current poor performance, and the material gap between what Network Rail has proposed as stretching yet realistic performance and some existing franchise targets.

1.24 However, we consider that Network Rail and operator agreed annual targets (or multi-year trajectories) are an important way to support the principle of devolution while also enabling Network Rail routes to be more focused on their customers interests instead of targets specified by the regulator. This should be supported by the continuing agreement of local joint performance strategies. If Network Rail routes and their customers agree targets we will be able to place greater weight on these in our monitoring and reporting. If they continue to be unable to agree targets we will be likely to focus our attention on the Network Rail contribution to performance.

1.25 The governance around this process needs improvement. Looking ahead to the annual scorecard process, we expect all routes to have set out a plan for

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

engagement with clear deadlines, to be able to provide evidence of agreement and lack of agreement. They should:

- seek to agree trajectories 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

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

1.26 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.

1.27 We see a continued role for the National Task Force in supporting the process of agreement of performance trajectories and joint performance planning.

1.28 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 as part of an investigation into whether or not Network Rail has breached its network licence.

Transparency

1.29 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**

1.30 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.

1.31 In its response to the draft determination, Network Rail also committed to:

- centrally assuring and challenging scorecard measure definitions and publishing them on an annual basis;

- making sure there is a consistent level of stretch within route trajectories, by making the following changes:

    - Network Rail's Business Review Team (BRT) will oversee the assurance processes carried out by the individual teams within Network Rail;

    - routes are also strengthening their processes to develop and report scorecards.

1.32 Network Rail also highlighted its proposed process for how scorecards would be updated and reported against. It said it would:

- update scorecards annually to reflect changes in circumstances and customer priorities, starting with its Delivery Plan;

- explain how its plan had changed, highlighting the engagement that had taken place and the level of agreement where appropriate;

- explain changes to scorecard trajectories with reference to its previous plan during CP6; and

- reference the latest scorecard/plan in its in-year and year-end reporting.

1.33 We welcome and accept these commitments. As set out in our summary of responses document, we expect Network Rail to carry out an appropriate level of stakeholder engagement in defining measures and when making any updates to trajectories. We require that there should be consistent definition and calculation of measures for recognised industry measures (such as the public performance measure (PPM), 'on time' or cancellations measures) as well as to consistent route measures (such as the consistent route measure – passenger performance (CRM-P)). Where Network Rail creates measures that are bespoke to a route or operator, it

should clearly define the measures and the source of data. We expect appropriate levels of assurance to be in place to ensure consistency of reporting during the control period and over time.

1.34 Since submitting its response to our draft determination Network Rail has suggested that it should report on a twice-yearly, rather than quarterly basis. We note that it is open to Network Rail to make alternative proposals as the monitoring and reporting arrangements take shape ahead of, and through, CP6. We will give consideration to any changes, which should be subject to appropriate consultation with stakeholders.

Monitoring & enforcement

1.35 In November 2018 we will publish our consultation on monitoring & enforcement policy for Network Rail. This will set out our wider framework for monitoring and enforcement in CP6, including clarifying the role that scorecards and regulatory minimum floors (below) have in the wider picture.

Regulatory minimum floors

1.36 A regulatory minimum floor is the point below which we will be highly likely to consider a formal investigation into whether or not Network Rail has breached its licence (i.e. whether Network Rail is doing everything reasonably practicable to deliver the reasonable requirements of its customers and funders, having regard to all relevant circumstances, including the ability of Network Rail to fund its licensed activities). The floor is set at a level below which we consider performance to be unacceptable.

1.37 Reflecting that there are specific HLOS targets for passenger performance in Scotland (whereas there are none in the England & Wales HLOS), the role of the CRM-P trajectory will be different in Scotland. While we will hold the route to account against its PPM and RTA targets, in the event of performance being below expectations, we will use CRM-P to provide further insight on the route's contribution to overall performance (reflecting that CRM-P records Network Rail-caused delay only).

1.38 We have set a regulatory minimum floor for four of the consistent route measures that we are requiring the geographic routes to include in their scorecards (relating to the route's contribution to train performance for passenger and route and GB-level freight services, and to network sustainability).

1.39 We may choose to escalate our monitoring and enforcement before performance falls below the minimum floor, depending on the available evidence, including whether routes, the SO and customers are taking effective, agreed actions to remedy any under-performance.

Change to Network Rail's scorecards in CP6

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

1.41 These may differ from the trajectories Network Rail included in its SBP, reflecting changes in customer requirements or 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.

1.42 When monitoring Network Rail's performance we will initially have particular regard to the CP6 baseline trajectories 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).

1.43 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.

1.44 Figure 1.4 below illustrates the various elements of our determination, and how these interact using performance as an example.

Figure 1.4 - How will CP6 baseline performance trajectories be used and what can change?
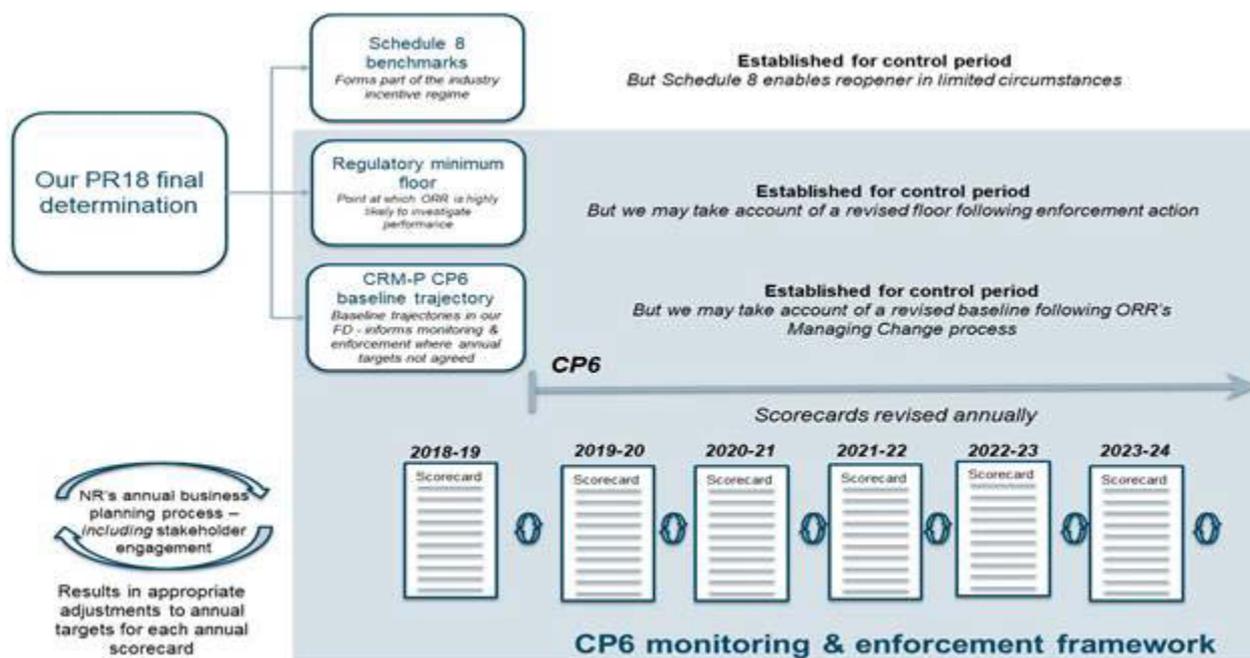
1.45 Some aspects of Network Rail's scorecards will be affected by our Managing Change policy[19]:

- **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 Network Rail from making it 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 change is taken into account by changing the baseline trajectory used for our monitoring and reporting.

1.46 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, although we may need to review it in very limited circumstances such as when enforcement action has been necessary.

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

1.47 We set out more information on the managing change process in our [managing change policy](#).

Impact assessments

1.48 We published a set of impact assessments alongside our Overall Framework and Route Requirements and Scorecards consultations in July 2017. We updated and published these again in June, shortly after our draft determination. We did not receive any specific comments as part of our draft determination consultation, but have updated them to reflect any changes in policy. The final version of these assessments can be found [here](#).

Our decisions

1.49 Our final policy decisions, and how these have been reflected in Network Rail's proposals, are set out at the end of chapter 2.

2. Our assessment of Network Rail's scorecards

Introduction

2.1 Network Rail uses scorecards as a way to improve its business performance , 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. The responses to our draft determination were similarly supportive of using scorecards.

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 to allow us to do this. In this section we set out:

- our requirements for Network Rail's scorecards;

- our approach to reviewing scorecards in the SBP;

- our approach to reviewing the subsequent adjustments provided by Network Rail; and

- our assessment of whether Network Rail has met our requirements in respect of:

  - transparency;

  - geographic routes;

  - FNPO;

  - SO; and

  - other parts of the company.

2.3 Network Rail has not updated its proposed CP6 scorecards since it provided its updated strategic business plan in February 2018. These will be updated in its Delivery Plan. This chapter reflects our final decisions as set out in our draft determination and reflecting the responses we received to our consultation. Chapters 3 to 9 of this document set out more detail about the targeted adjustments that Network Rail made to its performance and sustainability proposals.

Our analysis

2.4 We reviewed the scorecards and related elements of the strategic plans for the routes (geographic and FNPO) and for the SO, and set out our draft conclusions in our draft determination scorecards supplementary document.

2.5 We have also conducted detailed analysis against key outcomes:

- train performance for passenger and freight operators; and

- network sustainability.

2.6 For these key outcomes, the decisions in our draft determination document reflected our analysis of Network Rail's SBP and our subsequent challenge meetings. In our draft determination we asked Network Rail to make a targeted set of important adjustments to its plans. The changes most relevant to scorecards were:

- **Improve asset sustainability:** more work should be included to improve asset condition beyond the levels indicated in Network Rail's plans, which should also address safety risks that we have identified. Consequently, we asked Network Rail to identify an extra £1bn or so of expenditure on a range of assets, with particular priorities including earthworks, drainage, track and structures. We highlighted the link between additional renewals work and improved safety, the resilience of the railway and, when completed, the positive impact on performance levels delivered to passenger and freight users.

- **Review the calculations underlying performance trajectories:** we required three routes – Anglia, Wessex and South East – to review how they had calculated their contribution to overall passenger performance (referred to as the consistent route performance measure), as their proposals were not prepared on a consistent basis to the other routes. We noted the need to support comparison between the routes and that this would help improve outcomes for passengers.

2.7 We also asked Network Rail to include in its baseline plans £80m of additional safety-related expenditure; launch a performance innovation fund and address concerns with the profile of expenditure.

2.8 In reaching our final decisions, we have taken into account:

- our analysis of the targeted adjustments that Network Rail has proposed in July 2018, including its subsequent draft determination consultation response and final proposals[20] to us;

- the consultation responses from operators in relation to performance trajectories; and

- the wider consultation responses that we received in relation to our draft determination.

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[20] Network Rail provided a response to our draft determination on 31 August 2018; it then subsequently provided a corrected data set on 14 September 2018.

2.9 We did not review in detail the input targets that Network Rail has set for itself on its scorecards in its SBP, for example its proposed trajectories for the expected reduction in service affecting failures, or its cash compliance measure. These were not updated as part of the targeted adjustment process.

Has Network Rail met our requirements for scorecards?

2.10 Consistent with our overall approach to PR18, our focus in respect of scorecards has been on the routes (geographic and FNPO) and the SO.

Balanced

2.11 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.

2.12 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 encompass a spread of measures in categories which reflect key activities in their respective parts of the business.

2.13 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 scorecards would no longer be balanced, which would reduce the role that scorecards would play in our regulation of Network Rail. We have discussed with Network Rail its measures in these areas, and will continue to work with the company when it considers which measures to use.

2.14 Where Network Rail is unable to reflect customer or stakeholder priorities on its scorecards we expect it to find other suitable ways to meet its customer or

stakeholder needs (e.g. provision of separate information or reporting, regular engagement, etc.).

Enable comparison

2.15 Our SBP guidance set out that scorecards should support comparison across routes. Network Rail has appropriately 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.

2.16 It has also reflected the requirements we 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. Network Rail's proposals balance the need for comparison against the practical limits on how many issues could reasonably be included on a scorecard for them to remain a useful management tool. While a number of responses to the draft determination continued to identify other areas of focus, we do not intend to require any further consistent route measures at present.

Route comparison scorecard

2.17 To meet our requirements on comparison, Network Rail has committed to produce a 'route comparison scorecard' on a quarterly basis, alongside route scorecards. Figure 2.1 below shows Network Rail's draft route comparison scorecard.

2.18 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 table 2.1 below).

2.19 If Network Rail stops using these consistent 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).

2.20 We would like a measure of third party investment to be included on scorecards, enabling comparison between routes in this important area. Network Rail has suggested that this area needs more work and that even a tailored measure for each route would be premature. It has committed instead that it will report on third party investment in its scorecard report. We welcome this proposal as it will enable greater transparency on third party investment for each route.

Figure 2.1 – Network Rail's route comparison scorecard – an illustrative, draft example

Weighting determined by Network Rail Centre; corresponds to staff's performance-related pay (bonuses)

The route's performance against own target based on full year forecast

Measures across a range of outcomes

Colours indicate performance against target;
Red: < 25%
Orange: 25-50%
Green: 50-75%
Blue: >75%

'Score' of route's overall performance
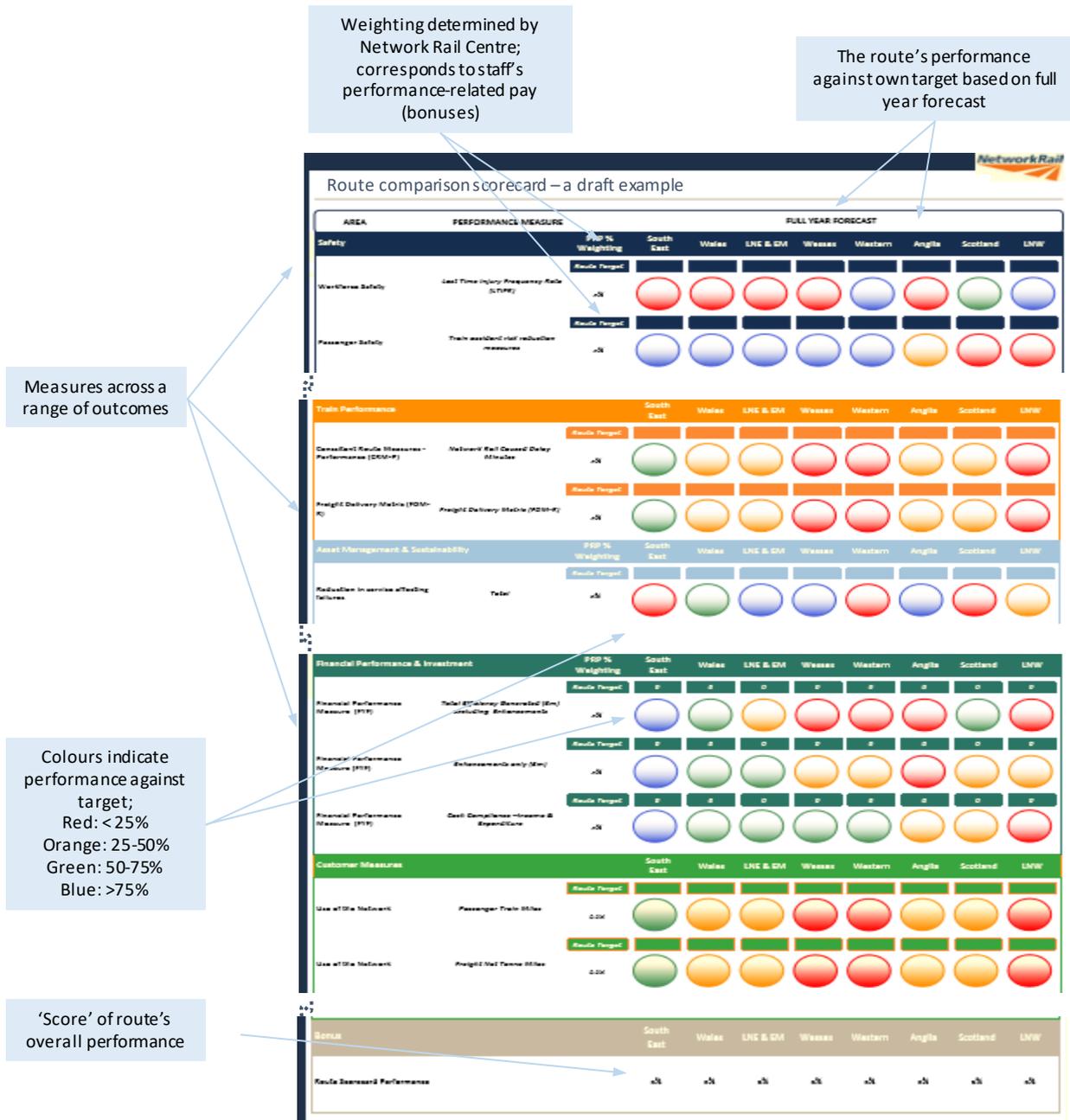
Table 2.1: Route comparison scorecard measures

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 Route Strategic Plans (RSPs) 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 on 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.
			Network Rail should provide information to ORR on how RM3 will be best used by the company to drive improvement across routes. This should be reflected in appropriate targets on route scorecards from the start of CP6
Performance	Consistent Route Measure – Passenger Performance (CRM-P)* ***Required by ORR***	CRM-P: Network Rail caused delay minutes to all train operators from incidents occurring in the route normalised by train kilometers travelled on the route.	See our analysis on Network Rail's train performance in Chapters 3 and 4 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 5 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 financial performance measures on Network Rail's scorecards. We require 'FPM – gross excluding enhancements' to be reported to us, alongside our wider measures to assess efficiency and financial performance. We consulted on this in January 2018 and concluded our approach alongside the draft determination.
	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.	We were concerned that routes had not set themselves sufficiently challenging targets for SAF and CRI. We asked Network Rail to compare its 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

Area	Measure	Definition	Notes
	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.	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. Following the draft determination, we required Anglia, LNW, South East and Wessex routes to review their trajectories and consider if route specific factors such as the impact of additional traffic and new rolling stock together with potential benefits from improvements to prevent asset failure had been reflected in their target setting. The routes all responded to the effect that they considered the trajectory of the targets to be both realistic and challenging and that no change should be made. We will monitor performance in these area and undertake benchmarking activities across routes during CP6. If it becomes apparent that the targets are not sufficiently challenging then we will re-open our dialogue at route level in CP6

Area	Measure	Definition	Notes
	Seven 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 four-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)* *Required by ORR*	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. See our analysis of Network Rail's CSI in chapter 9 of this document.

Area	Measure	Definition	Notes
End user measures* ***required by ORR*** ***These measures only appear on the***	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?" Results will be compared on a seasonal basis. Network Rail will include both an absolute figure and a rate of change based on the previous season results i.e. spring vs spring. The NRPS is carried out two times a year. This measure should be reported twice a year on the route comparison scorecard when the updated information is available. NRPS data used should be the same weighted dataset used in the main Transport Focus published results reports and therefore not include any boosted data for Network Rail managed stations. Route scores should be calculated from the underlying data and not be a simple average of station scores.

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?" Results will be compared on a seasonal basis. Network Rail will include both an absolute figure and a rate of change based on the previous season results i.e. spring vs spring. The NRPS is carried out twice a year. This measure should be reported twice a year on the route comparison scorecard when the updated information is available. 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. NRPS data used should include the 'boosted data' for Network Rail managed stations. Routes scores should be calculated from the underlying data and not be a simple average of station scores. *Note: Wales route currently has no managed stations they will not have a score for this measure.*
	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.
	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.	Baseline levels will be disaggregated to routes for inclusion on the route comparison scorecard. A growth forecast will be set on an annual basis for each year of CP6 and will be used as the baseline for reporting purposes in the route comparison scorecard. This should be reported on an at least a quarterly basis to align with Network Rail's publication of its route comparison scorecard.

Area	Measure	Definition	Notes
Third party investment* ***required by ORR***	*This measure remains in development by Network Rail*	*This measure remains in development by Network Rail.*	A measure for third party investment is not yet sufficiently developed to include on the route comparison scorecard. Network Rail should continue to develop its thinking in this area and develop a measure 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

2.21 In our draft determination we raised concerns that Network Rail routes had 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.

2.22 Network Rail has responded to our concerns in these areas. It has committed to centrally assuring and challenging scorecard measure definitions, and to publishing them on an annual basis. We accept Network Rail's proposals in this area.

2.23 Consistent with our existing approach, we may use the Independent Reporters during CP6 to carry out spot checks on the consistent measures used in Network Rail's scorecards.

Reflect the HLOSs

2.24 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.

2.25 We set out our analysis for each of England & Wales and Scotland below. However, Network Rail confirmed to us in its response to our draft determination that its Executive Committee also monitors milestones and progress in workstreams developed to deliver improvements in key areas, consistent with the HLOSs.

2.26 The assessment of affordability of HLOSs is set out in our PR18 final determination supplementary document – financial framework.

England & Wales

2.27 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 the periodic review.

2.28 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 through

a specific measure on route scorecards. We have set a regulatory minimum floor for this measure.

2.29 The Secretary of State did not set national top-down performance targets. He stated 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.

2.30 Reflecting this, 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.

2.31 In its response to the draft determination the Department for Transport (DfT) noted that it was critical that "an appropriate balance is struck between ambition and realism" in this area. It also made clear that it expected train operators to make every effort to work closely with Network Rail to improve train performance.

2.32 During CP6 we expect Network Rail to operate a high quality engagement process with its operator customers. It should 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.

2.33 We have also required the introduction of a regulatory minimum floor for the consistent route performance measures.

2.34 The Secretary of State also expected Network Rail to continue to work to manage the resilience of the network to severe weather. Each route has a weather resilience and climate change adaptation (WRCCA) plan. These are focused on high priority interventions to manage safety and performance risk. Network Rail must take all reasonable steps to manage the resilience of the network in this area in CP6.

Scotland

2.35 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.

2.36 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.

2.37 We have identified a lead part of Network Rail (either the Scotland route, the SO or the FNPO) which is responsible for delivering each HLOS requirement. Network Rail has produced an HLOS tracker to assess progress against delivering the HLOS. This reflected that not all issues were suitable to be tracked on a scorecard, and that progress would be spread across more than one scorecard. Transport Scotland has welcomed use of the tracker. Transport Scotland also noted in its response to the draft determination that Network Rail was still developing plans in a number of areas (e.g. journey time improvements and gauging strategy) and placed importance on us continuing to monitor progress rigorously.

Stakeholder engagement and agreement of scorecards

2.38 We would like all relevant scorecard measures, trajectories and annual 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.

2.39 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 with its customers. As set out previously, we expected Network Rail to operate a high quality engagement process with its stakeholders, including its operator customers, in developing its Strategic Business Plans, and for this to continue throughout CP6.

2.40 We set out our broader assessment of how well Network Rail's routes and System Operator (SO) engaged with their stakeholders in developing the CP6 Strategic Business Plans in our final determination supplementary document – stakeholder engagement. We discuss our expectations for the routes'/SO's stakeholder engagement in CP6 in chapter 3 of our final determination overview of approach and decisions.

2.41 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.

2.42 While there was some improvement after the draft determination, we continued to have concerns. A number of operators raised issues about the level of engagement and information provided to support discussions about performance trajectories. In some cases concerns were strongly stated. In addition, Network Rail provided a further set of proposed trajectories to us as part of its draft determination response but its process for sharing these with its customers was inconsistent. Finally, where trajectories have been agreed, it has not been straightforward for Network Rail and operators to provide evidence of this.

2.43 Network Rail's governance around this process – at route level and centrally – needs significant 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.

2.44 Our summary of responses document addresses the interaction between the franchising process and the scorecard agreement process, and the role that the System Operator will have to play in the franchising process.

Achievability

2.45 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 trajectory.

Geographic route scorecards

2.46 Network Rail's geographic route scorecards all 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.

2.47 Our draft determination included a series of tables assessing how each route had complied with our policy, and other points that we had identified e.g. in relation to clarity of the scorecard. Network Rail's response to the draft determination addressed a number of the points raised in these tables and we have not repeated them here. **We expect to see the route-specific issues we identified in our draft determination addressed in the delivery plan scorecard submission, and subsequent scorecards.**

2.48 We have summarised our analysis of the route scorecards in Table 2.2 below, which assumes that all routes continue to follow the same structure and reflect our policy.

Table 2.2: Summary of our assessment of geographic route scorecards

Theme	Summary
Balanced	- Our assessment suggests route scorecards are balanced across Network Rail's activity as they include safety, train performance, customer/local, sustainability/asset management and financial performance measures. - Our only remaining concern relates to the balance of operators represented, due to CrossCountry not being represented on the Anglia route scorecard (see below for further detail).
Comparison	- The scorecard enables comparison between routes through use of consistent route measures (some required by us and some set by Network Rail centrally) - Ability to compare will be improved through the adoption by all routes of the centrally assured definitions of consistent route and industry measures.

HLOS	- We consider that each route supports the delivery of the England & Wales HLOS requirements – provided that:
	
	- In relation to train performance:
	
	    • there is continuous improvement in the area of stakeholder engagement in relation to performance measures and trajectories; and
	    • regardless of whether agreement with operators is achieved, Network Rail sets stretching yet realistic targets in each annual scorecard.
	
	- In relation to network sustainability:
	
	    • the route maintains sustainability of the network in line with the end CSI CP6 baseline trajectory we have set out in our final determination (and delivers the reporting requirements we have specified)

2.49 In our draft determination, we identified some concerns about the level of representation of CrossCountry, whose lead route is the FNPO. The level of risk that CrossCountry is exposed to as a franchised operator running timetabled services across the network meant that it should be represented on the scorecards for all seven geographic routes[21] that it runs on. We were concerned that the FNPO business plan and responses received to our consultation on the SBPs suggested that the focus the FNPO will, in practice, give to national passenger operators was not as strong as it could be.

2.50 Network Rail has only partially addressed our concerns in this area. We welcome LNE&EM's inclusion of measures which reflect CrossCountry, and also Nexus. The Anglia route has not done this; Anglia's response emphasises our concern in this area, as do the recent performance challenges relating to CrossCountry. Given this,

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

we may carry out further detailed monitoring and engagement with Anglia route in relation to CrossCountry performance. Our proposals to amend Network Rail's licence would require the company as a whole to put in place appropriate arrangements to meet the challenges presented by operators that operate across multiple routes.

2.51 Further detail on our analysis on each route's performance trajectories can be found in Chapters 3 to 6 of this document, and further route by route detail is found in our route scorecard performance summaries annex.

2.52 We also discuss our grading of each route's strategic plan which formed part of Network Rail's strategic business plan in our grading of Network Rail's route and System Operator strategic plans for CP6.

Freight & National Passenger Operator route

2.53 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.

2.54 The FNPO scorecard includes:

- train performance measures;

- locally driven customer measures;

- investment and asset management measures;

- financial performance measures; and

- people measures.

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

- Caledonian Sleeper right time arrivals[22] performance metric on the Scotland geographic route scorecard; and

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

2.56 In response to our draft determination for the FNPO, Network Rail confirmed that all measures within its RSP had been confirmed and it had removed all 'TBC'

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[22] Right time arrivals measures the percentage of Caledonian Sleeper trains which arrive at their final destination within one minute of the advertised time having called at all booked stations. When a specially advertised revised timetable is in operation, at times of engineering work for example, they are measured against the revised times.

references. These changes will be included in an updated iteration of the FNPO RSP that will be shared with stakeholders.

2.57 These changes include requirements that Transport Scotland set out in its HLOS that relate to a number of areas that the FNPO is responsible for, notably:

- targets for the growth of rail freight in Scotland;

- ensuring that the network in Scotland is appropriately gauge-cleared with diversionary options at times of disruption on the network; and

- proposals to improve journey times, capacity and timetables.

2.58 The FNPO needs to provide more details on the specific steps it will undertake to meet the specified requirements of the Transport Scotland HLOS and provide assurance of its delivery. These specific requirements are set out in more detail in [ORR's final determination - summary of conclusions for Scotland](#) and the [Scotland HLOS tracker](#).

2.59 The FNPO scorecard reflects Network Rail's stakeholder engagement with freight and national passenger and charter operators. We raised some concerns in the draft determination regarding the extent of agreement of performance trajectories for freightliner and the inclusion of measures for CrossCountry on geographic route scorecards. In its response Network Rail told us:

- LNE&EM route had accepted this challenge and included a measure for CrossCountry on its route scorecard;

- Wessex route would continue to work with FNPO to monitor performance for CrossCountry on the Wessex route scorecard; and

- The Anglia route did not include (as we had requested) a measure for CrossCountry on its route scorecard. It said that it did not consider it appropriate, as it was not the lead route for CrossCountry. However, it has committed to regular joint sessions on cross-route performance with CrossCountry.

2.60 There should not be any ambiguity about whether Network Rail has agreed performance trajectories with its customers. It is important that the FNPO and Network Rail's geographic routes are able to provide clear documented evidence that seek stakeholders views and also obtain their consent or objection to any proposed changes. The concerns raised highlight that improvements need to be made by the FNPO to ensure that geographic routes understand and commit fully to the agreed proposals and the processes.

2.61 On 20 September 2018, DfT announced that it was undertaking a review of Britain's railways that will examine the structure of the whole industry. DfT stated that due to the unique geographic nature of the CrossCountry franchise, awarding this franchise in 2019, when its review was due to complete, could impact on the review's conclusions. In light of the change in circumstances for the CrossCountry franchise, Network Rail will need to work closely with the current franchise holder to develop trajectories and metrics for CP6 to support its franchise commitments and work closely with DfT in the development of future franchise requirements. In particular, the FNPO must address the difficulties encountered by CrossCountry in getting its performance requirements included in all the geographic route scorecards within which it operates. We note that FNPO acknowledges that its current performance delivery to CrossCountry is not where it needs to be and will work with each geographic route to identify their glide path to reduce delays to CrossCountry.

2.62 We are also concerned about the general lack of transparency and clarity about the governance arrangements relating to the FNPO. Reflecting this, the FNPO should publish (and maintain) a document that explains how Network Rail's wider governance interfaces with the FNPO, including the role of scorecards within this.

2.63 The FNPO has also committed to undertaking further reporting on its contribution to meeting its stakeholders requirements, including through an annual report and supporting stakeholder engagement. More information about the governance arrangements and additional reporting is included in the [FNPO settlement document](#).

Table 2.3: 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.

Theme	Summary
	- FNPO should provide more details on the specific steps it will undertake to meet the Transport Scotland HLOS. We have set out more detail in [ORR's final determination - summary of conclusions for Scotland](#) document.
Clarity of scorecard	- Definitions were included on the scorecard, however there are limitations to the accuracy of some of them.
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.
	- Freightliner reiterated its concerns regarding the process for agreement of the FDM trajectory but noted our analysis and acceptance of the FDM trajectory.
	- We consider that CrossCountry should have measures on all relevant geographic route scorecards, due to the nature of this national passenger operator's business. We do not fully accept Network Rail's view that Anglia does not need a measure for CrossCountry on its scorecard.

System Operator

2.64 Our review of the SO's scorecard is discussed in our [SO draft settlement document](#). The key points are summarised below.

2.65 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.

2.66 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.

2.67 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 on what it can deliver to stakeholders over CP6.

2.68 However, some more work needs to be done to develop a credible plan to meet Transport Scotland's HLOS requirement to improve passenger and freight journey times. We consider that the SO is the most appropriate part of Network Rail to lead on both the development of this plan by the end of November this year, and to oversee the delivery of the actions set out within the plan during CP6.

2.69 We do not consider that there is any need to set a regulatory minimum floor for any of the measures of the SO's performance. 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, particularly given that important aspects of the SO's work do not lend themselves to scorecard reporting. Stakeholder responses to our July 2017 consultation on possible measures of the SO's performance supported this approach.

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

2.71 In turn, as part of our determination, we 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[23]; and

2.72 **embed the external governance framework[24] as set out in its strategic plan and in line with its May 2018 supplementary letter** to enable stakeholders to influence the SO's priorities and, where necessary, to challenge its performance. There **should be a means for the Advisory Board chair and ORR to have direct and regular**

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[23] A group of external stakeholder representatives, who provide scrutiny of the SO's performance – this body is explained in more detail on page 12 of the SO's 'About us' document

[24] Including the Advisory Board and the two Standing Advisory Groups, which we explain in more detail in the following section of this document

dialogue to enable ORR to use the new governance framework in the way we monitor the SO over CP6.In addition, the SO:

- **is accountable for developing an industry plan (by 30 November 2018 for ORR review, and finalised by 31 March 2019) to deliver the passenger and freight journey time requirements set out in the Scottish Minister's HLOS**[25]**,** working with other parts of Network Rail (including the Scotland route and the FNPO route) and with industry and government stakeholders;

- **is accountable for overseeing the delivery of the actions set out in the industry plan to improve journey times in Scotland** according to the timescales stated in the plan (subject to any amendments we might make following our review)**, and for reporting on progress** (including through the use of scorecards across SO and the Scotland and FNPO Routes). Other parts of Network Rail will also be responsible for delivering elements of the plan, and the SO will lead Network Rail's delivery of its actions;

- **must implement the actions it has identified to address the recommendations from the Nichols' review**[26] **of the SO's capital expenditure controls and processes** to ensure that it can deliver its proposed £61m of investment in its systems; and

- demonstrate that it has **taken account of lessons learnt from the May 2018 timetable change**, including recommendations from our inquiry into why the system as a whole failed to produce and implement an effective timetable. With the SO, we will consider how best it can report on its work to improve the timetabling process during CP6.

Table 2.4: 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.

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[25] 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.

[26] To provide assurances that the SO is well equipped to deliver its capital expenditure programme in CP6, we jointly commissioned (with Network Rail) an independent reporter study, undertaken by Nichols, to consider whether the SO's processes and controls for capital expenditure are suitably robust

Theme	Summary
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 produce Network Rail's plan for journey time improvements in Scotland – we have reflected this in our requirements for the SO. We have also required that, in CP6, the SO will oversee the delivery of the actions set out in the journey time improvement plan.
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. However, many of the measures on the tier 2 (directorate) scorecards, and on the tier 3 (route-level) scorecards, still need to be defined.
Interests and 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

2.73 Our draft determination did not focus 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 looked at these as part of our assessment of Network Rail's wider governance structures.

2.74 We noted in particular that Group Digital Railway and Telecoms focus on 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). We welcome this approach.

2.75 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).

Our final determination on our policy requirements

2.76 A summary of our final determinations in relation to policy, following our assessment of Network Rail's proposals, are set out in table 2.5 below.

Table 2.5 – summary of our final decisions on our policy requirements

Decision	Accountable
Route scorecards delivering our requirements Network Rail and its routes should continue to ensure that scorecards: - are balanced; - enable route comparison; and - reflect the HLOSs. Scorecards in the delivery plan and in CP6 should reflect the policy set out in this document, including addressing points highlighted in our draft determination.	Network Rail
Network Rail's commitments We have placed weight on, and expect Network Rail to deliver, its commitments for: - scorecard structure; - transparency; and - reporting arrangements, including production of a route comparison scorecard. Where Network Rail makes alternative proposals as the monitoring and reporting arrangements take shape ahead of, and through, CP6, we will give consideration to any changes, and these should be subject to appropriate consultation with stakeholders.	Network Rail

Decision	Accountable
Representation on scorecards Where we consider an operator should be (but is not) represented on a route scorecard (e.g. CrossCountry due to the nature of its operation as a national passenger operator) we are likely to reflect this in how we monitor and report on that route.	All routes

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 and final decisions 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, and our final decisions as part of PR18. In particular, it considers three related decisions:

■ **the appropriate CP6 baseline trajectories for Network Rail's contribution to passenger delay, as measured in CRM-P**. This sets out our current expectations for Network Rail's delivery for its funding, provides a CP6 baseline trajectory for understanding the company's performance and is a key input to the schedule 8 regime.

■ **whether there is sufficient agreement on customer performance measures**, which would allow these to be reflected in the final determination and so also provide a CP6 baseline trajectory against which to monitor and report the delivery of the relevant routes.

■ **the appropriate level for the regulatory minimum floor**, which provides a level below which ORR would be likely to start an investigation into performance.

3.4 We set out below what we, and governments (in their HLOSs), asked Network Rail to do. This includes what performance trajectories Network Rail routes proposed in the SBPs and the subsequent adjustments proposed in response to our draft determination. We also assessed Network Rail's final proposals for a regulatory minimum floor and reached our final determination on this point.

3.5 The remainder of this chapter is structured in the following sections:

■ context for our decisions – this addresses performance in CP5 and the approach to CP6;

■ passenger train performance trajectories – outlining the proposals and commitments Network Rail made, our draft determination analysis and decisions, material changes since our draft determination including how we

assessed the changed route trajectories and took account of operator feedback and our final decisions on the CRM-P CP6 baseline trajectories;

■ regulatory minimum floor for CRM-P – including considering the original proposal from Network Rail, summarising our draft determination decisions and setting out our final decision; and

■ reactionary delay and cancellations – explaining our expectations about Network Rail's management and reporting of TOC-on-TOC and TOC-on-self reactionary delay and levels of cancellations.

The process for reaching our final determination

3.6 In our draft determination, we set out our analysis of Network Rail's SBP proposals and our decisions in these areas (see our [draft determination scorecard supplementary document](#)).

3.7 Unless it is particularly relevant to our final decisions, we have not repeated the summary of this analysis below.

Our decisions in the draft determination

3.8 We required that Network Rail routes undertake further work on their contribution to overall passenger performance (as measured by CRM-P) in advance of our final determination, including by reflecting the other adjustments that were being made to plans (e.g. to levels of sustainability).

3.9 Specifically in relation to CRM-P we required that:

■ three routes – Anglia, Wessex and South East – should reconsider their proposed CRM-P trajectories, as their proposals were not prepared on a consistent basis to the other routes. This would better support better comparison between the routes and outcomes for passengers; and

■ all routes should review the risks and opportunities put forward by operators in their responses to the NTF and ensure that these were adequately reflected in the trajectories or set out why it had rejected them.

3.10 Regarding the regulatory minimum floor for CRM-P, we also required that Network Rail should recalculate the floor using the approach we put forward in our draft determination. This reflected a floor set 20% below the average route performance over CP4 and CP5, rather than Network Rail's proposal of setting this at 30% below the moving annual average (MAA) at period 10 in 2017-18.

3.11 We also decided that:

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

- we would continue to monitor CaSL and cancellations data for all routes and will raise any concerns about the level of cancellations with Network Rail; and

- we would explore with the industry different ways we could support performance innovation in CP6, including through a Performance Innovation Fund.

Our process for reviewing Network Rail's adjustments

3.12 In July 2018, Network Rail responded to this request with a revised set of initial performance trajectories. It subsequently revised these following central assurance and provided a further update in early August. We carried out a set of review meetings with routes in August, and continued to engage with the industry, including through the National Task Force (NTF).

3.13 Subsequently, Network Rail provided revised CRM-P trajectories and proposals in its response to the draft determination on 31 August 2018. Additionally operators have responded to the determination, setting out their final views on Network Rail's proposed performance trajectories. Network Rail provided us with a further 'final' set of proposed performance trajectories on 14 September 2018 addressing some errors.

3.14 While in our draft determination we encouraged Network Rail to make the targeted adjustments we required, and to continue to engage with operators, it has also revised its proposed performance trajectories to reflect the recent significant decline in performance. This has impacted both our assessment of the proposed trajectories and operator agreement.

3.15 The remainder of this chapter sets out in more detail the analysis and final decisions that we have made in relation to passenger train performance in CP6, and any further recommendations we have for Network Rail routes and central assurance teams.

CP5 context

3.16 As part of the previous periodic review, in respect of England & Wales 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%[27]; and

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[27] At least 92.5% moving annual average.

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

3.17 We have set out below performance from the start of CP5 in April 2014 until the end of period 5 2018-19 (which ended on 18 August 2018). 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. This is demonstrated in Figure 3.1 below. Since publishing our draft determination, performance has worsened further in periods 1 to 5 of financial year 2018-19.

3.18 CP5 has been difficult for Network Rail in terms of train performance. In England & Wales, in the first year of CP5, Network Rail was responsible for 7.1 million delay minutes to franchised operators; this rose to 8.1 million delay minutes in the fourth year[28]. LNE&EM was the only route to reduce its delay minutes to franchised operators during that time (by 6%), with Wessex and South East having the biggest increase (of 42% and 20% respectively), with the remainder increasing by about 14%[29].

3.19 In CP5, TOCs and Network Rail have also agreed local targets for PPM and CaSL, and performance strategies[30] 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)[31].

3.20 In 2017-18, train performance was particularly poor. Every passenger operator missed both their PPM and CaSL jointly-agreed performance strategy targets in this year.

3.21 Historically when train performance has worsened it has typically been due to factors such as poor asset reliability, train unit reliability or severe weather. However, assets are failing less often as demonstrated in figure 3.2[32] below. The amount of delay that is occurring per incident has been steadily increasing during CP4 and CP5 (figure 3.3).

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[28] At Great Britain level, these figures were 7.6 million delay minutes and 8.8 million delay minutes respectively.

[29] These percentages were incorrectly stated in our draft determination.

[30] 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 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.

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

[32] Figure 3.2 shows service affecting failures excluding telecoms – this is because Network Rail's internal target excludes telecoms failures.

Figure 3.1 – England & Wales PPM and CaSL performance through CP4 to period 5 2018-19
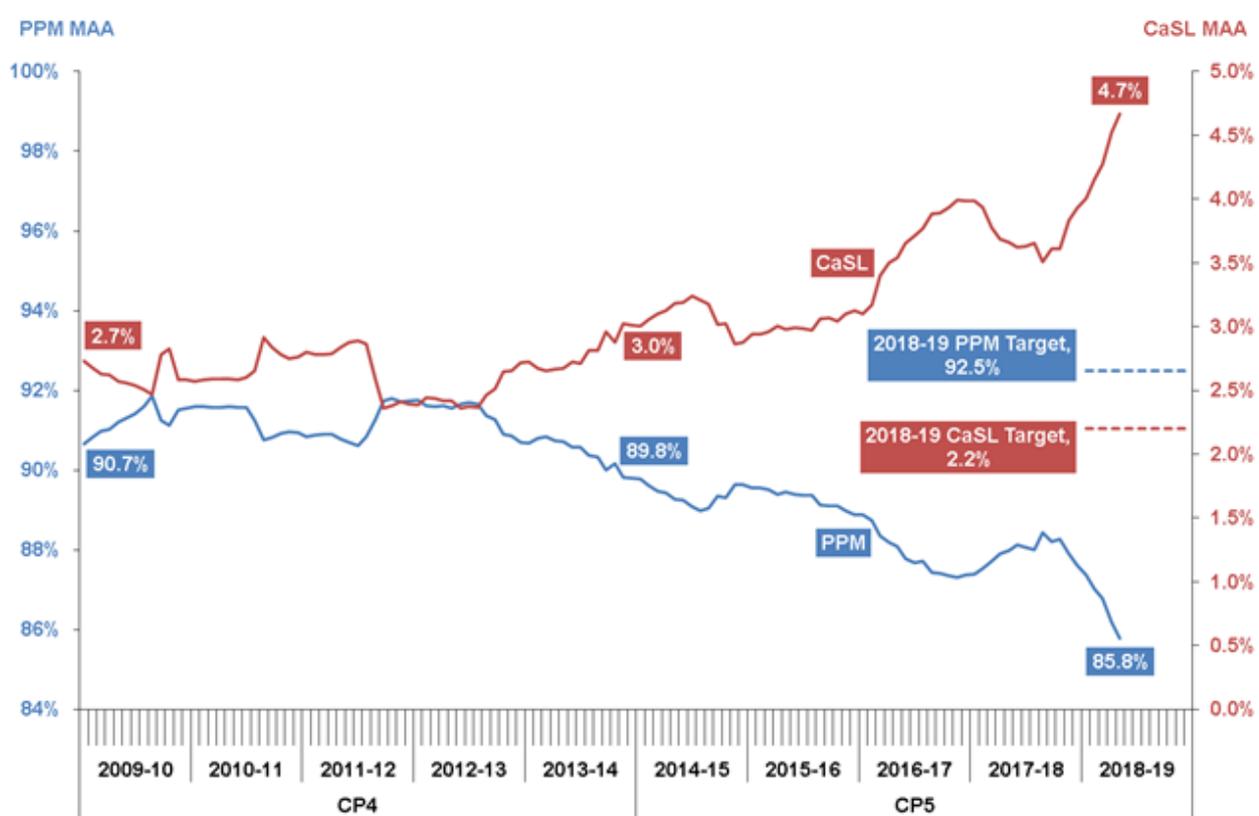
Source: ORR

Figure 3.2 – Service affecting failures moving annual total (excluding telecoms) from 2011-12 to P5 2018-19
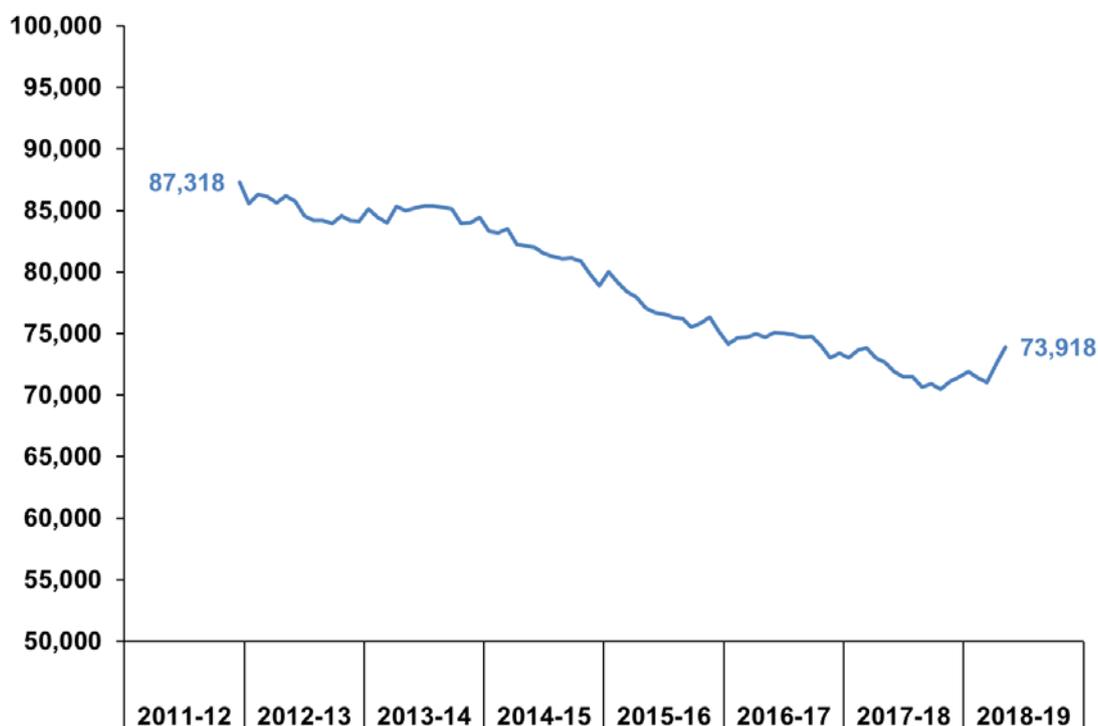
Figure 3.3: DPI, Network Rail, Great Britain, 2007-08 to 2018-19
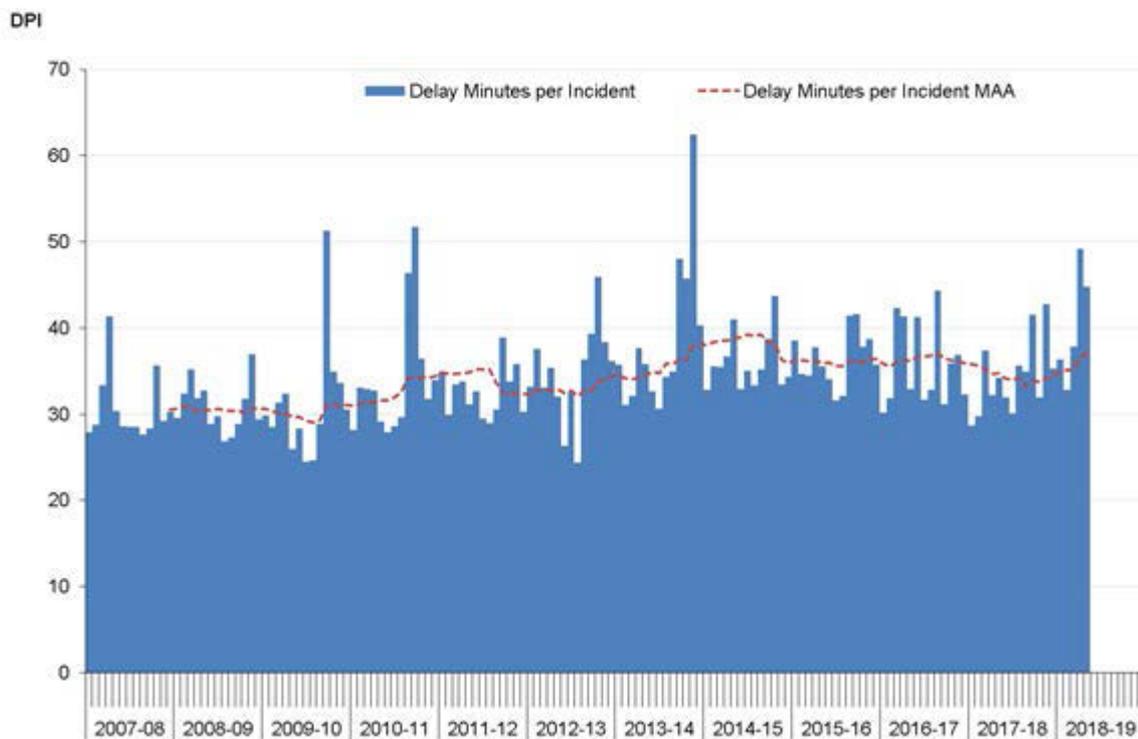
3.22 More recently in CP5 new underlying factors have begun to have a more significant impact on performance some of which may affect the increasing delay per incident. These include:

■ train crew resource levels (as highlighted on GTR by the January 2018 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; and

■ the 'hard-to-quantify' effects of 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 largely recovered).

3.23 In addition to this, Network Rail's delivery to South Western Railway (SWR) has been a concern. We set out in our draft determination the work we have done and the subsequent recommendations that we made to the Wessex route to ensure that it has robust plans in place to sustain the performance improvement into CP6. Our review of Network Rail's performance delivery to SWR services was published in July

2018. An [independent review of SWR's and Network Rail performance](#) carried out by Sir Michael Holden was published in August 2018. We continue to engage closely with the route to better understand how it is addressing and implementing the recommendations from the different reviews.

3.24 Performance to date in 2018-19 has been impacted in particular by:

■ the implementation of the May 2018 timetable change;

■ severe weather events; and

■ industrial relations issues.

3.25 Since Network Rail's February SBP, and at the time of our draft determination, severe problems were caused by the May 2018 timetable change. We carried out an [investigation](#) into Network Rail's role in this and conducted a wider [inquiry](#) at the Secretary of State's (SoS's) request into why the system as a whole failed to produce and implement an effective timetable. Our inquiry findings were published in September 2018 and we will publish our recommendations in December. Full analysis of the impact this had on service performance is set out in [Annex E](#) to the inquiry. Timetabling issues have continued to have an effect on performance. We have set out more detail in our [SO settlement document](#).

CP6 context

3.26 The approach to performance in CP6 reflects a number of factors including route devolution, the challenge of delivering train performance alongside other outputs in a fixed funding environment. It also reflects the fact that performance, particularly for passenger services, is affected by a large number of factors and consequently very hard to forecast accurately (particularly over longer periods of time).

3.27 Our analysis and decisions in relation to performance for CP6 reflect our policy on scorecards (set out in chapter 1 and in our [PR18 final determination – overview of approach and decisions](#)) and focused on Network Rail's proposals and the level of agreement with operators as follows:

■ the trajectories it has proposed for a consistent route measure of passenger performance (CRM-P)[33];

■ the regulatory minimum floor for this measure.

3.28 We advised Network Rail that in its February 2018 RSP updates we expected it to set out final proposed performance trajectories for each geographic route for CP6 using

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[33] The next section explains more about how this new measure was developed and what it includes and excludes.

the CRM-P measure. We also asked it to provide narrative giving us assurance that the measure and proposed trajectories had been calculated using a consistent methodology across the routes.

3.29 The CRM-P trajectories were developed by Network Rail's National Performance Team (NPT), using a standard conversion tool and based on the outputs of the performance modelling carried out by each route[34]. All routes calculated a proposed performance trajectory for each of their lead TOCs (in PPM) based on assumptions around the performance impact of contributing factors such passenger growth, renewal investment and timetable changes amongst others. Network Rail's NPT then assured the trajectories that the routes proposed, and converted this into CRM-P using the conversion tool. This tool was developed by NPT. The Independent Reporter, Arup[35], has reviewed it and concluded it is fit for purpose.

3.30 In response we have taken the following steps to assess the proposed CRM-P trajectories:

■ we reviewed the operator trajectories, which were the inputs to the model which created CRM-P;

■ assessed each of the route's models; and

■ we met the routes to understand the level of stretch and achievability.

A consistent route measure for passenger train performance

3.31 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. Reflecting this, we also required a consistent measure of performance to enable comparisons across routes, to support our focus on routes and the SO in CP6. This section sets out how we developed this measure and what it includes.

3.32 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.

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[34] In particular, the change in delay associated with PPM attributed to Network Rail.

[35] The Arup report will be published shortly after our Final Determination here.

3.33 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.

3.34 In CP5 we used whole-industry metrics, PPM and CaSL, to assess how well Network Rail was delivering its performance requirements. As set out above, 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 scheduled arrival time at approximately 80% of recorded station stops (in contrast PPM measures whether a train arrives at destination within 5 or 10 minutes). Transport Focus were strongly in favour of using this measure, as they consider it reflects their research into what fare-paying passengers want.

3.35 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"[36]. 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.

3.36 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 (and which would sit alongside the new customer-agreed scorecards). We considered that this was best assessed through the delay minutes attributed to the route[37]. We worked with Network Rail to develop a new measure for assessing each route's impact on 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 recognise that routes are all different in size and intensity of service.

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

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

3.37 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. In our draft determination we set out our decisions in relation to how the CRM-P would be calculated, including that it would:

- include only Network Rail delay;

- consist of only Network Rail delay where it is caused (rather than suffered);

- exclude TOC-on-TOC and TOC-on-self reactionary delay;

- exclude cancellations whether caused by Network Rail or an operator; and

- should be normalised per 100 train kilometres to enable route comparison.

3.38 We are not making any change to this calculation.

3.39 We were also clear that Network Rail should continue to provide us with other performance data (e.g. PPM, on time, cancellations), which we will manage through our data protocol. We also address concerns regarding reactionary delay and cancellations later in this document.

Operator performance measures in CP6

3.40 As set out in our draft determination, in preparation for CP6, the industry (through the NTF) also developed a suite of new performance and reliability measures, with a view to ultimately replacing PPM[38]. This workstream did not identify a single new measure that different operators felt appropriately reflected their different interests. Network Rail and its TOC customers could select from this suite the most appropriate measures to reflect each operator's business. This approach supported the principle of devolution, enabling routes to become more focused on their customers' specific requirements.

3.41 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 performance strategies that Network Rail agrees with all its operators.

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

Passenger train performance trajectories

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

■ the performance trajectories using the consistent route measure (CRM-P); and

■ operators' views of the performance plans and operator level trajectories in the SBP, which were inputs to creating the CRM-P CP6 baseline trajectories.

3.43 For planning purposes, each route based its initial performance analysis on operator level PPM, and then the Network Rail national performance team translated this into different measures including the CRM-P. The CRM-P reflects the route contribution to train operator performance. Network Rail maintained this approach in the targeted adjustments it made over summer 2018 and further changes in August and September.

3.44 Network Rail's performance trajectories must meet the HLOS requirement of setting stretching yet realistic targets and providing a good basis for comparison in CP6. The CRM-P trajectory should have a consistent level of stretch, taking account of local circumstances, such as geography and TOC/ FOC customers. On average, the trajectory will be stretching enough so that a route will miss its trajectory as often as it achieves it – a probability range in the region of 50% (P50).

3.45 Our focus is on the level of CRM-P that Network Rail has proposed, and whether a reasonable trajectory has been proposed by each route. We have also looked at the operator trajectories as these are inputs to the CRM-P. The purpose of Network Rail agreeing operator level trajectories is to ensure that it is more closely aligned with and focused on its customers.

3.46 Our analysis has involved applying professional judgement to the evidence available to reach a view on whether we should accept or revise each route's CRM-P target, taking into account the wider circumstances of the periodic review.

3.47 Building on the foundation laid by our analysis of Network Rail's RSPs, our assessment was focused on understanding whether the proposed CRM-P trajectories were stretching and realistic. To assess this, we considered:

■ the reasons for any revisions to each route's proposed trajectories;

■ whether or not Network Rail and operators had agreed trajectories; and

■ where trajectories were not agreed, the reasons and evidence provided for this, as this might suggest that the PPM inputs to the CRM-P should be adjusted and therefore the CRM-P recalculated.

3.48 For each route, we reviewed a number of areas, including the route model, the assumptions taken in developing the proposed trajectory, past performance on the route, the route's confidence in its proposed trajectory, whether or not the operator input measures were agreed and any evidence provided by train operators. We also reviewed the centrally held model for translating the operator trajectories into a CRM-P.

Network Rail's train performance commitments

3.49 Network Rail's February SBP included an intention[39] to reduce the number of trains that are delayed by 15%[40] despite a significant increase in the number of trains run in CP6. We were unclear whether or how these commitments flow through to, and are reflected in, its RSPs. Our draft determination analysis was based on the performance numbers contained within each RSP. Network Rail has confirmed that this figure reflected the cumulative effect of the route plans on national performance. Network Rail's proposed trajectories changed in its response to our draft determination. It has subsequently advised that the equivalent figure, based on their revised trajectories, would be an 18% reduction in the number of trains delayed. This is because although most routes expect to start the control period with lower levels of performance than previously expected, they expect a greater level of improvement during CP6.

3.50 In addition to the trajectory for the CRM-P, Network Rail's routes set out in their SBP scorecards for each operator for which they are the lead route, a number of metrics for the level of performance they will deliver with operators. These measures are not consistent across the routes but reflect the individual priorities of each operator. They will be incorporated into the performance strategies[41] for each operator.

3.51 The information available to us suggests that operators agreed the measures with Network Rail, but only five operators have agreed 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. However, operators have also raised various other

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[39] This was set out in its stated in its Strategic Business Plan (SBP) executive summary

[40] Network Rail has confirmed that this percentage represents the reduction in the level of PPM failures (i.e. trains which fail to arrive within five or ten minutes of scheduled arrival time).

[41] 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 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.

concerns, as set out in our [consultation on the draft determination – summary of comments and our response](#).

3.52 We have then reviewed and assessed the proposals in the RSPs and subsequent adjustments 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.

Our draft determination analysis and decisions

3.53 Our draft determination set out the analysis we carried out that supported our decisions in June 2018. Our decisions were that:

■ **South East:** this route took a robust approach to producing its performance trajectories, using simulation modelling, but based this on an 80% confidence of achieving the trajectory. This is a much greater level of confidence than other routes have proposed. We 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 was not fully explained. This allowance was extrapolated through the control period. We said that unless the route could demonstrate what these unknown risks were, it should recalculate its performance trajectories to exclude this 'unknown' decline;

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

■ all routes should assess the risks and opportunities outlined by operators through the NTF in April 2018 and update the CRM-P trajectories accordingly.

3.54 ORR and Network Rail also commissioned the Independent Reporter (Arup, supported by Winder Phillips) to assist with this process, following its 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 CRM-P performance trajectories 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 This has also helped our understanding of operator level PPM trajectories.

3.57 As we set out in our draft determination, 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). Unless required to do so by our draft determination, routes and the central Network Rail team did not make any changes to the models used in the RSPs. However, they did make some changes to the inputs to those models, reflecting both our challenge regarding the operator submissions to NTF in April 2018, and current performance levels.

3.58 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 that 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 2017-18[42]. 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 forecast 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 were 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 operator-caused delays and will therefore affect the customer

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[42] 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[43]. 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 the ability of the routes to achieve their performance trajectories, as many assumptions are based on a reduction of reactionary delay.

3.59 Our analysis of the adjustments to the RSP trajectories was then considered on a case by case basis.

Material changes since our draft determination

3.60 Network Rail continued to work on its performance (and sustainability) trajectories until 31 August 2018, and then provided an update to us on 14 September with errors rectified. Additionally, operators have responded with their views on the operator and route level trajectories proposed by Network Rail.

3.61 Since our final determination, we have:

■ received updated proposals from each route on 13 July 2018;

■ attended discussions of Network Rail's revised proposals and train operator views on this at NTF on 1 August 2018;

■ received a centrally-assured final version on 2 August 2018;

■ held further route analytical meetings with each route during August; and

■ received responses to our draft determination from Network Rail, operators and other stakeholders on 31 August.

3.62 This work has again been supported by Arup as the Independent Reporter.

3.63 Our annex to this document provides a detailed summary of the route-by-route position.

3.64 There have been a number of issues in the process for developing performance trajectories for CP6, including:

■ **external factors:** a recent significant decline in performance resulting from the impact of severe weather, industrial relations issues and the impact of the May

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[43] Based on 2014-15 period 1 MAA to 2017-18 period 13 MAA.

timetable change on both performance and planning for future timetable changes. These factors have made it challenging to assess the proposed trajectories and have resulted in Network Rail revising its trajectories significantly between February and September;

■ **the methodology**: routes took a varied approach to modelling performance, with some less robust than others; and

■ **a varied approach to engagement and information sharing with operators:** although some operators were unable to agree trajectories, some were positive about the methodology Network Rail had employed to create its trajectory, while others raised concerns about the process.

Network Rail's final proposals

3.65 Network Rail has provided us with:

■ updated trajectories per route – table 3.1 below shows the final set of CRM-P trajectories submitted by Network Rail, and table 3.2 demonstrates the change in CRM-P trajectory between the February SBP and the September submission on which our final decisions were based. In table 3.2 red denotes that the CRM-P trajectory is higher (i.e. worse) in Network Rail's final submission, and green denotes that the CRM-P trajectory is lower (i.e. better) in the final submission;

■ updated confidence levels – our draft determination included analytical confidence levels for performance trajectories. Different routes took a different approach to developing their trajectories, ranging from Monte Carlo analysis (South East route) to professional judgement (LNW and others) and providing an assessment of their level of confidence. Network Rail has confirmed to us that its final proposals (September 2018), based on the modelling, reflect a P50 level of confidence (i.e. a route is as likely to achieve its CRM-P as it is to miss it).

Table 3.1 – Network Rail's final proposals CRM-P trajectories

Route	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Anglia	1.44	1.44	1.44	1.44	1.43	1.43
LNE&EM	1.60	1.43	1.33	1.26	1.23	1.22
LNW	1.81	1.70	1.62	1.58	1.56	1.53
South East	3.10	3.03	2.98	2.88	2.84	2.81
Wales	1.60	1.59	1.58	1.55	1.53	1.52
Wessex	2.78	2.77	2.72	2.73	2.59	2.54
Western	2.09	2.03	1.96	1.85	1.74	1.70

Table 3.2 – change in CRM-P between February SBP and 14 September submission

Route	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Anglia	0.00	-0.02	-0.03	-0.02	-0.03	-0.03
LNE&EM	0.28	0.09	0.00	-0.04	-0.05	-0.05
LNW	0.22	0.08	0.01	-0.04	-0.06	-0.06
South East	0.18	0.00	-0.06	-0.12	-0.06	0.02
Wales	0.05	0.05	0.04	0.01	0.00	0.00
Wessex	0.42	0.42	0.42	0.37	0.32	0.32
Western	0.24	0.23	0.19	0.10	0.03	0.01

Operators' views

3.66 Our approach to train performance on scorecards encouraged Network Rail routes and the TOCs for which they are 'lead route'[44] to seek to agree CP6 trajectories for the measures agreed between each route and its operator customers.

3.67 At the time of our draft determination, most TOCs and Network Rail had 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. This was demonstrated in:

■ 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).

3.68 Our draft determination set out our assessment of what had been agreed and what issues had been raised in April 2018. A particular issue cited by operators was that the levels of performance committed to by the routes did not support those specified in the individual operator's franchise agreement. Our assessment of the performance trajectories in each of the RSPs was summarised in our draft determination route scorecard train performance summaries annex.

3.69 Our draft determination required that Network Rail review in detail the risks and opportunities put forward by operators and discussed at the April 2018 NTF meeting. We required that routes ensure that these were adequately reflected in the trajectories or set out why they had rejected them. We also considered that this process would provide Network Rail and operators with a further opportunity to agree trajectories.

3.70 The NTF meeting on 1 August 2018 and a RDG working group on 6 August 2018 both demonstrated that in most cases Network Rail and operators remained unable

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[44] Each TOC has only one 'lead route'

to reach agreement. We were clear that Network Rail and operators should put forward their final positions in their responses to the draft determination by 31 August 2018.

3.71 We were clear that for their part, train operators needed 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 was not sufficient for operators to point to their franchise targets if there are good reasons why these cannot be delivered. In addition to engagement at NTF, operators had the opportunity to provide evidence through their formal draft determination response where they had material, substantive concerns with the performance trajectories proposed.

3.72 In April 2018, via NTF, operators identified a number of risks and opportunities that they felt had not been reflected in Network Rail's plans. 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.

3.73 In our draft determination, we concluded that Network Rail should review all opportunities and risks identified by operators through the NTF process and provide targeted adjustments to us in July 2013. We said that where it concluded that these can be realised it should amend its customer trajectories and make any subsequent adjustments to the routes' CRM-P trajectories. If it concluded that they do not provide a basis for any performance adjustments, it should provide evidence as to why it thinks this.

3.74 Network Rail and operators have continued to negotiate CP6 trajectories, although as noted this has been impacted by recent further declines in performance and Network Rail's revision to operator level trajectories (which have in turn changed the CRM-P). The change in PPM values is shown in table 3.3 below.

3.75 Our route scorecard performance summaries annex sets out the PPM trajectories which were used as inputs to the CRM-P calculation.

3.76 Since receiving the draft determination consultation responses, we have conducted further analysis of the respective positions of both Network Rail and operators. Where new material issues have been highlighted, reflecting the short time for reviewing these, we have prioritised those which have occurred since April 2018, rather than those which predate this but have only just been raised to us.

Table 3.3 – change in PPM trajectories between February and September

TOC	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Arriva Rail London	-0.7 pp	0.0 pp	0.2 pp	0.3 pp	0.3 pp	0.3 pp
Arriva Trains Wales	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp
c2c	0.6 pp	0.7 pp	0.7 pp	0.5 pp	0.6 pp	0.6 pp
Chiltern	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp
CrossCountry	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp
East Midlands Trains	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp
Govia Thameslink Railway	-1.0 pp	0.3 pp	0.2 pp	0.6 pp	0.2 pp	-0.4 pp
Grand Central	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp
Great Western Railway	-3.9 pp	-3.7 pp	-3.0 pp	-1.7 pp	-0.2 pp	0.7 pp
Greater Anglia	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp
Heathrow Express	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp
Hull Trains	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp
LNER	-8.3 pp	-3.0 pp	-0.7 pp	0.3 pp	-0.3 pp	-0.1 pp
Merseyrail	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp
MTR Crossrail	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp
Northern	-10.0 pp	-5.7 pp	-3.9 pp	-2.4 pp	-0.4 pp	0.0 pp
South Western Railway	-2.8 pp	-2.7 pp	-3.0 pp	-1.6 pp	-0.9 pp	0.0 pp
Southeastern	-1.0 pp	0.2 pp	1.2 pp	1.3 pp	0.9 pp	0.6 pp
TransPennine Express	-9.3 pp	-6.2 pp	-4.2 pp	-3.9 pp	-3.4 pp	-2.8 pp
Virgin Trains West Coast	0.5 pp	0.5 pp	0.5 pp	0.5 pp	0.5 pp	0.5 pp
West Midlands Trains	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp	0.0 pp

3.77 While the intention was for this to reflect ongoing engagement with operators, Network Rail has also changed trajectories to reflect ongoing issues. We were disappointed that there was some lack of awareness at operator level of revised trajectories after these had been submitted to us. The cause of this is not clear to us (i.e. is the issue between organisations or between levels within the respective organisations?). This remains a theme of Network Rail and operator agreement and one which needs more governance and explanation on behalf of both parties.

3.78 Five operators were able to agree trajectories with Network Rail. These were c2c, Arriva Rail London (ARL), Great Western Railway (GWR), Merseyrail and Caledonian Sleeper. We have included the trajectories for these operators as baselines in the route settlement documents. This will enable us to track progress against this baseline, unless annual revisions to targets are agreed.

3.79 Two operators provided quantified proposals with evidence for how their trajectory should be amended. These were Grand Central and LNER. We reviewed these in detail and determined that some changes should be made to the inputs to the CRM-

P model for these operators, to reflect some (but not all) of the points that they raised. In particular:

- **Grand Central** - noted that it had not been offered the same level of performance improvement as Hull Trains, a similar operator. It identified a range of factors where greater performance improvement could be offered, including better overhead line equipment, delay per incident reduction and reduced externals (e.g. trespass and fatalities). We accepted some of the proposals presented by Grand Central.

- **LNER** highlighted three areas where it felt that there was potential for further improvement in the trajectory. Two of these related to operator-driven factors (improved fleet and levels of TOC-on-TOC delay), which we accepted, considering that the operator was best placed to understand and quantify these issues.

3.80 This has had a small effect on the CRM-P for LNE&EM route (and also some consequential changes for Scotland and Anglia routes), but we consider it is important to reflect this change.

3.81 The original and revised PPM inputs to the CRM-P model are set out below.

Table 3.4 – NR proposed CP6 trajectories for Grand Central and LNER

Operator	2019-20	2020-21	2021-22	2022-23	2023-24
Grand Central	83.5%	85.0%	85.0%	85.0%	85.0%
LNER	79.5%	82.5%	84.7%	85.1%	85.5%

Table 3.5 – revised CP6 trajectories for Grand Central and LNER

Operator	2019-20	2020-21	2021-22	2022-23	2023-24
Grand Central	83.8%	85.7%	86.0%	86.4%	86.7%
LNER	81.2%	84.6%	86.0%	86.4%	87.7%

3.82 A number of other operators provided responses which outlined concerns with the level of the proposed trajectories or process. We have reflected these in our wider policy decisions but insufficient evidence was provided to justify a change in the CP6 baseline trajectory.

3.83 We noted that some operators/owning groups on the LNE&EM route raised concerns about the level of engagement, the level of information shared and the route's approach to modelling. Arup's review has also identified concerns with the modelling approach taken by LNE&EM. This was not one of the routes that we identified in our draft determination. However, the limited information provided by the route, since our draft determination, regarding its modelling has raised our concerns for this route. We will be placing closer regulatory scrutiny on LNE&EM route, focusing on the need to improve its analytical capabilities and stakeholder engagement.

3.84 As set out in chapter 1, we expect Network Rail to operate a high quality engagement process with its operator customers to set stretching but realistic annual targets on scorecards through CP6. Where appropriate these should be aligned with performance objectives set by funders, and reflect how circumstances have changed. Where agreement cannot be reached with operators, Network Rail must continue to ensure that each route has a stretching but realistic target in each year of CP6. Both Network Rail and train operators need to make improvements to the governance around this process.

Reaching our decision on CP6 baseline trajectories

3.85 In past periodic reviews our determination has reflected a top-down performance target from HLOSs. In PR18, a more route-focused approach has enabled a more detailed, bottom-up development of performance trajectories and our assessment has mirrored this. However, there are considerable uncertainties in the industry at present, which have impacted the approach taken by all parties to this new, more detailed approach. This includes currently poor levels of performance and change in the industry, with some large enhancements coming into operation now and during CP6.

3.86 Following Network Rail's February SBP, and at the time of our draft determination, severe problems were caused by the May 2018 timetable change. We carried out an investigation into Network Rail's role in this and have conducted a wider inquiry at the SoS's request into why the system as a whole failed to produce and implement an effective timetable. The outcome of the investigation and subsequent inquiry are set out in more detail here. We expect to make our recommendations in December, following consultation with the industry and taking into account the terms of reference for the rail review.

3.87 This (and other issues impacting recent performance such as severe weather events) has introduced uncertainty about what it is reasonable to expect of Network Rail in terms of its contribution to passenger delays. One particular issue is whether and how quickly we might expect the delays attributed to Network Rail to fall over time. One perspective is that there are a number of one-off events in recent periods – such as exceptionally cold and then hot weather, and the disruption caused by the May 2018 timetable change – and that these will rapidly reverse out. An alternative perspective is that there is a long-term decline in performance, with these events unlikely to reverse out fully in coming years. We have reflected on the available evidence when reaching our decisions.

3.88 Ultimately, we considered that Network Rail has carried out the bottom up assessment of trajectories, reflecting its broader stakeholder engagement, and has reflected the requirements of our draft determination. We note that while Network Rail has recently revised down its performance trajectories to reflect these

recent issues, the trajectories imply a reasonable degree of recovery during the control period.

Our final determination on the CRM-P and operator trajectories

3.89 We have determined that we will accept the CRM-P performance trajectories for all routes except LNE&EM. The changes to LNE&EM route reflect our assessment of the operator evidence about the operator level inputs to the CRM-P model[45].

3.90 Following our assessment, Network Rail has re-run its CRM-P model as per our requirements. We have therefore determined that the CRM-P CP6 baseline trajectories are as follows:

Table 3.6 – our final decision on CRM-P CP6 baseline trajectories in England & Wales

Route	Our determination	2019-20	2020-21	2021-22	2022-23	2023-24
Anglia	Accepted[46]	1.44	1.44	1.43	1.43	1.43
LNE&EM	Amended	1.42	1.32	1.25	1.22	1.20
LNW	Accepted	1.70	1.62	1.58	1.56	1.53
South East	Accepted	3.03	2.98	2.88	2.84	2.81
Wales	Accepted	1.59	1.58	1.55	1.53	1.52
Wessex	Accepted	2.77	2.72	2.73	2.59	2.54
Western	Accepted	2.03	1.96	1.85	1.74	1.70

3.91 We expect each route to continue to seek to agree performance trajectories with operators in its Delivery Plan and on an annual basis after this point.

3.92 The final CP6 baseline trajectories for each route are also set out in our route settlement documents. These settlement documents also include any performance trajectories which have been agreed between Network Rail and operators. We expect to place weight on these agreed trajectories during CP6. Where there is no agreement, our primary focus will be on the CRM-P trajectory for each route.

3.93 In addition to the above we have decided that for LNE&EM route:

■   we will undertake closer regulatory scrutiny;

■   the route should work to improve its analytical capabilities and modelling approach; and

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[45] The changes we made to the PPM input to CRM-P for Grand Central and LNER also lead to a small change in the CRM-P for 1 year of CP6 for Anglia and Scotland.

[46] We accepted Anglia and Scotland's CRM-P trajectories but these were impacted by the point above.

- it should also work to improve its stakeholder engagement and governance processes in relation to agreement of scorecards.

3.94 In CP6 all routes must operate a high quality engagement process with their operator customers to set stretching yet realistic annual targets (which may vary up or down from the CP6 baseline trajectories that we have set), aligned where appropriate with performance objectives set by funders and reflecting how circumstances have changed.

3.95 We want Network Rail to review and improve its ability to forecast and model future train performance at both route and national level:

- we consider this is necessary to improve the annual forecasting process, and changes to reflect the expected level of change during CP6 (e.g. Thameslink and Crossrail);

- while the link between performance measures will need to remain, we consider Network Rail should develop an approach under which CRM-P forecasts can be developed on a bottom-up basis, taking into account factors within Network Rail's control (e.g. expected levels of asset failures);

- Network Rail needs to review what information it has available to support this forecasting and modelling where there is congestion on the network or where there are a number of complex, interacting changes. In its response to our draft determination, Network Rail suggested that this was impacted by the available data being based on attributing data to the primary cause of incidents rather than a detailed analysis of the drivers of total train delay[47].

Table 3.7 – PPM trajectories agreed between Network Rail routes and operators on which we will place weight in our monitoring and reporting

TOC	2019-20	2020-21	2021-22	2022-23	2023-24
Arriva Rail London	94.7%	94.9%	95.0%	95.0%	95.0%
c2c	96.2%	96.2%	96.2%	96.2%	96.2%
Caledonian Sleeper	92.5%	92.5%	92.5%	92.5%	92.5%
Great Western Railway	84.5%	85.5%	87.1%	88.8%	89.9%
Merseyrail	94.4%	94.4%	94.9%	95.4%	95.6%

Regulatory minimum floor for CRM-P

3.96 As set out in our final determination overview document, we have set a 'regulatory minimum floor' for the CRM-P. More detail about the role of regulatory minimum floors can be found in chapter 1 of this document.

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[47] This point was raised on page 15 of Network Rail's response to the draft determination.

3.97 The regulatory minimum floor is the point below which ORR is highly likely to investigate formally whether or not Network Rail has breached its network 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).

3.98 Network Rail made an initial proposal in its SBP, which we then adjusted in our draft determination (to take account of past performance over a longer period of time). Network Rail highlighted further concerns about our proposed/revised floor in its draft determination response. We have set out below our analysis and our final decision on the methodology and level of the floor.

Network Rail's SBP proposed floor

3.99 We required Network Rail to propose a regulatory minimum floor for train performance in its February SBP. Reflecting guidance from the centre of Network Rail, a consistent method for determining the regulatory minimum floor was used. 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 draft determination analysis and decision

3.100 We considered Network Rail's approach but felt that if past performance were to be used, this should be over a longer period of time. Our analysis looked at levels of underperformance in previous control periods and where we considered it appropriate to investigate Network Rail's performance.

3.101 We did 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 had done everything reasonably practicable to meet its performance trajectories.

3.102 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 concluded in our draft determination that the margin for the CRM-P regulatory floor should be 20%.

3.103 Based on the above analysis our draft determination proposed that Network Rail should use an alternative methodology for calculating the regulatory minimum floor. We said 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.

Our final determination on the passenger performance floor

3.104 Following further discussion with Network Rail and in light of responses to the draft determination set out in our separate summary of responses document, we have refined our approach.

3.105 There are two steps to calculating the regulatory minimum floor.

■ Step 1: calculate the margin using the 'base' (i.e. average of CRM-P over a defined time period) and the 'level' (i.e. what proportion of the base the margin should be – e.g. 20% or 30%):

Base ✖ Level = Margin

■ Step 2: for each year in the trajectory, the margin is then used to calculate the floor:

Annual target ➕ Margin = Floor

3.106 During PR18 we have considered three options:

Table 3.8 – options for CRM-P regulatory minimum floor

Option	Base	Level
Option 1 - Network Rail's proposal	P10 MAA for 2017-18	30%
Option 2 – our draft determination proposal	Average CP4 & CP5 performance	20%
Option 3 – our final determination proposal	Average CP6 trajectory performance	20%

3.107 We considered that option 3 has the benefit of giving routes an even challenge, which was not the case under options 1 and 2. This is demonstrated in table 3.5 below.

3.108 It also has the benefit of being forward looking and is linked to Network Rail's proposals.

Table 3.9 – variability of route challenge under each option[48]

Route	Average CP6 baseline trajectory	Margin as a % of Average CP6 trajectory		
		Option 1	Option 2	Option 3
Anglia	1.43	32%	21%	20%
LNE&EM	1.28	28%	22%	20%
LNW	1.60	30%	20%	20%
Scotland	0.94	34%	23%	20%
South East	2.91	33%	18%	20%
Wales	1.55	29%	17%	20%
Wessex	2.67	28%	13%	20%
Western	1.86	32%	19%	20%

3.109 Based on the above, our decision is that the regulatory minimum floor for CRM-P should be calculated using option 3. The floor is 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 reflects a level of 20% of the average CP6 trajectories.

3.110 Table 3.10 sets out the calculation steps and table 3.11 shows the final CRM-P regulatory minimum floors for CP6. These regulatory minimum floors will not change during CP6 unless we decide to take account of a different floor following enforcement action.

Table 3.10 – margin per route[49]

Route	Base: Average CP6 trajectory	Level	Margin
Anglia	1.43	20%	0.29
LNE&EM	1.28	20%	0.26
LNW	1.60	20%	0.32
Scotland	0.94	20%	0.19
South East	2.91	20%	0.58
Wales	1.55	20%	0.31
Wessex	2.67	20%	0.53
Western	1.86	20%	0.37

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[48] For completeness, Scotland route has been included in tables 3.7 and 3.8 to demonstrate the effect of our decisions across all routes.

[49] See footnote above.

Table 3.11 – our final decision on England & Wales CRM-P regulatory minimum floors in CP6

Route	2019-20	2020-21	2021-22	2022-23	2023-24
Anglia	1.73	1.73	1.72	1.72	1.72
LNE&EM	1.68	1.58	1.51	1.48	1.46
LNW	2.02	1.94	1.90	1.88	1.85
South East	3.61	3.56	3.46	3.42	3.39
Wales	1.90	1.89	1.86	1.84	1.83
Wessex	3.30	3.25	3.26	3.12	3.07
Western	2.40	2.33	2.22	2.11	2.07

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

3.111 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 focus. Network Rail currently reports reactionary delay to NTF (which reviews this delay) and other industry fora.

Network Rail's SBP proposal

3.112 Network Rail acknowledged its responsibilities for managing reactionary delay as controller of the network under the Railway Operational Code. It provided an explanation of how it will ensure continued focus on reactionary delay under the route and system operator framework. It committed to managing all types of reactionary delay "with the same level of attention". It stated that "in CP6 Network Rail intends to increase the visibility of reactionary delay within our organisation" and it set out how it intended to do this:

■ its central performance team will produce a periodic report for routes and the SO which will include data on reactionary delay;

■ this report will form a core part of its periodic route performance management meetings which will enable reactionary delay to be monitored and reviewed within the route and SO governance framework;

■ the data will be included in reporting packs for its executive committee;

■ reactionary delay will continue to be reported to, and reviewed by NTF and other industry fora; and

■ it wants to increase the meaningfulness of the data in the reports it produces to allow more detailed analysis of reactionary delay and the individual drivers that contribute to it.

3.113 In 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. Its planned improvements included creation of incident management teams to improve the way it responds to incidents, improving the use of Intelligent Infrastructure capability and promoting a strong culture of 'every second counts'. It stated 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[50].

Our draft determination analysis and decision

3.114 We were clear in our draft determination that Network Rail remains responsible for managing delay from all incidents regardless of cause and culpability. We recognised the risk 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. We welcomed Network Rail's commitment that it will remain focussed on its responsibilities for whole industry performance. Its proposal to manage this under the auspices of the railway operational code is an appropriate approach to delivering its responsibilities. We wanted 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.

3.115 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, our draft determination required 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).

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

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

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

3.118 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.

Material changes since our draft determination

3.119 Network Rail's response to the draft determination set out its commitment to monitor and report on reactionary delay. It said it would:

- publicly report this data in its annual return;

- continue to engage with ORR to agree a reporting protocol for CP6; and

- share cancellations data with ORR.

3.120 Our summary of responses document sets out the various concerns raised by operators in relation to this, and the link to cancellations.

Our final determination on reactionary delay

3.121 We are concerned that Network Rail's proposal to report this issue in the annual return does not provide sufficient focus on the area, and we have set out some further requirements.

3.122 Our determination is that we accept Network Rail's proposals for how it will manage reactionary delay, which were to:

- produce a periodic report for routes and the SO which will be reviewed at its periodic route performance management meetings;

- include reactionary delay data in reporting packs for its executive committee; and

- continue to report reactionary data to NTF and other industry fora.

3.123 In addition to this however, we expect it to:

- publish figures at national, route and operator level on a periodic basis;

- discuss these on at least a quarterly basis at NTF and at each route Rail Board, and the SO's Board; and

- produce a dedicated annual report on its website.

3.124 Were we to become concerned about Network Rail's management of reactionary delay, we would expect to undertake closer scrutiny and potentially conduct a formal investigation into whether or not Network Rail was in breach of its licence.

3.125 We consider that these requirements should also apply for cancellations. This is set out in more detail below.

Cancellations

3.126 The England & Wales HLOS did not mandate a target for Cancellations and Significant Lateness (CaSL) as it did in the previous control period. It also did not specify any cancellations target.

3.127 The CRM-Ps proposed in the RSPs include an adjustment for 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. It remains important for the industry to keep the level of cancellations to a minimum. There is a risk that the industry focuses on punctuality, which can be improved by cancelling late running trains during perturbation.

Network Rail's SBP proposal

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

Our draft determination analysis and decisions

3.129 Our draft determination analysis showed that, with the exception of CrossCountry, Network Rail routes were proposing to reduce the level of cancellations through CP6, but to a level less than that required by the operator's franchise commitments. We investigated the CrossCountry increase with Network Rail, who confirmed that the increase in CrossCountry cancellations was an error and that it would work to correct this.

3.130 It remains important for the industry to focus on reducing the level of cancellations (either full or part) that it causes, and our draft determination decision was that we would:

- continue to receive data from routes for CaSL and cancellations for all its lead operators regardless of whether there are scorecard targets for them; and

- monitor this data and raise with Network Rail any trend in the cancellation data that is inconsistent with its targets for CRM-P and operator targets for PPM.

Our final determination on cancellations

3.131 As set out in our summary of responses document, some respondents raised concerns about the link between appropriate management of reactionary delay and

cancellations. Similarly, recent performance problems have impacted on the level of cancellations. As with reactionary delay, we would like Network Rail to proactively review and manage this area.

3.132 Our determination is that Network Rail should report information about levels of cancellations in the same structure and frequency as set out above in relation to reactionary delay.

Finding new ways of encouraging performance

3.133 Our overview of approach and decisions document sets out our final decisions on establishing a Performance Innovation Fund.

Our final determination on England & Wales passenger train performance

3.134 A summary of our final determinations for passenger train performance in England & Wales in CP6 is set out in table 3.12 below. Our decisions on performance have been reflected in the Schedule 8 benchmarks. Further information about this is set out in our overview of charges and incentives.

3.135 We will also review the independent reporter recommendations with Network Rail and agree next steps.

Table 3.12 – summary of our final determinations on England & Wales passenger performance

Decision	Accountable
High quality engagement process During CP6 Network Rail must operate a high quality engagement process with its operators to set stretching yet realistic annual targets (which may vary up or down from our final determination CP6 baseline trajectories) aligned where appropriate with performance objectives set by funders, and reflecting how circumstances have changed. Where targets are agreed between a route and an operator, we will place weight on this in our monitoring and reporting. Where agreement cannot be reached with operators, Network Rail must continue to ensure that each route has a stretching but realistic target in each year of CP6.	All routes

Decision	Accountable
CRM-P CP6 baseline trajectories We have set CRM-P CP6 baseline trajectories which reflect our expectations regarding Network Rail's routes' contribution to passenger performance in the light of the funding available to Network Rail. We will use these baselines in our monitoring and reporting during CP6.	Each geographic route
Regulatory minimum floor for CRM-P We are highly likely to investigate formally whether or not a route is in breach of the Network Rail network licence if performance levels are below the regulatory minimum floor for the CRM-P specified.	Each geographic route
Reactionary delay and cancellations We have placed reliance on Network Rail's commitments in relation to reactionary delay and expect these commitments to also apply to cancellations. In addition, we expect it to : - publish figures at national, route and operator level on a periodic basis; - discuss these on at least a quarterly basis at NTF and at each route Rail Board, and the SO's Board; and - produce a dedicated annual report on its website.	Network Rail

Decision	Accountable
Analytical capabilities Network Rail must work with us to improve its analytical capabilities, in particular regarding improvements to performance modelling capabilities and assurance across Network Rail. We also expect Network Rail to implement the recommendations from the independent reporter.	Network Rail
FNPO and LNE&EM routes must work with us to improve their modelling and analytical capabilities. We also expect the routes to implement the recommendations from the independent reporter.	FNPO & LNE&EM
FNPO and LNE&EM must work with us to improve their governance and stakeholder engagement capabilities focusing on sharing information, modelling assumptions and agreement of targets with operators. We also expect Network Rail to implement the recommendations from the independent reporter.	FNPO & LNE&EM

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 arrivals (RTA[51]) 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 accurately.

CP5 performance context

4.6 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).

4.7 In CP5 passenger train performance in Scotland has been in the range of 88.2% to 92.0%. Performance has dropped in the first five periods of 2018-19. It has been consistently below the target of 92.0% PPM MAA, having reached this level on only one occasion (2014-15 period 4). The target rose to 92.5% in year 5 (2018-19).

4.8 Performance has worsened further in periods 1 to 5 of financial year 2018-19. This has been impacted in particular by:

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[51] 'Right time arrivals' measures the percentage of Caledonian Sleeper trains which arrive at their final destination within one minute of the advertised time having called at all booked stations. When a specially advertised revised timetable is in operation, at times of engineering work for example, they are measured against the revised times.

- increases in failures attributed to Network Rail's management of the network (up 56%); and

- severe weather (up 357%)[52,53].

4.9 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[54]. It missed its targets primarily as a result of the impact of the planning errors that occurred in the May and December 2014 timetable changes.

Figure 4.1: ScotRail PPM performance 2009-10 to period 5[55] 2018-19
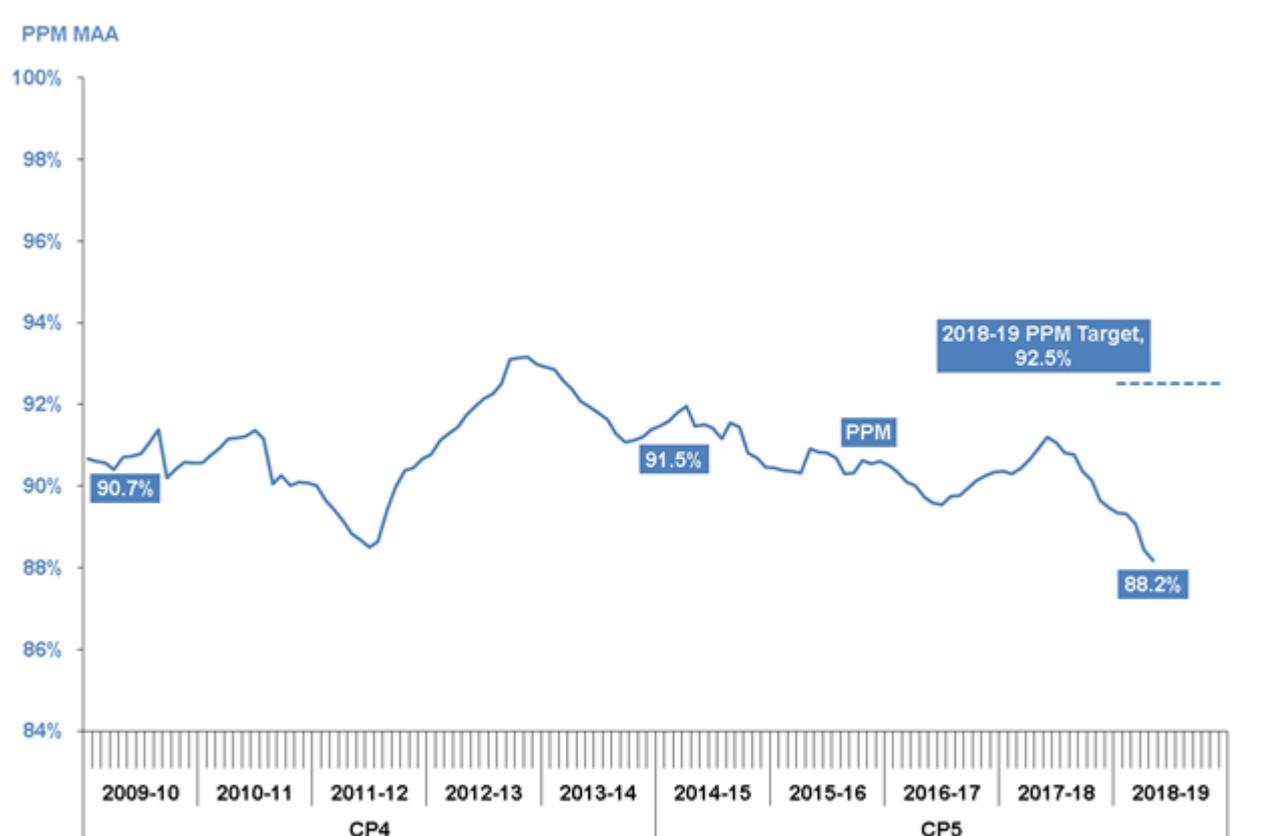
Source: ORR

4.10 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)[56].

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[52] When compared with Q1 in 2017-18.

[53] See our Q1 statistical release here.

[54] For further information, see here.

[55] Period 5 ended on 18 August 2018.

[56] See the published performance plan here

4.11 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.

4.12 In March 2018 an independent review of performance in Scotland was concluded by Nick Donovan (former TPE Director). We consider that this review was a thorough analysis of the performance challenges in Scotland. It made a number of recommendations for the Alliance to implement. We have being monitoring implementation of these recommendations and have some concerns around the speed of implementation/management of the tracking of the Network Rail recommendations and the wider performance improvement plan. We have recently commissioned independent reporters (Nichols) to review how Network Rail is managing the recommendations, this will conclude in December 2018.

CP6 performance context

4.13 For CP6, the Scottish HLOS included a requirement that the outputs of the network 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 meet their RTA 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 Caledonian Sleeper services to achieve a right time arrival performance of 80% throughout CP6.

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

Scotland passenger train performance trajectories

4.15 We have set out below what Network Rail has proposed, our analysis and our conclusions.

Network Rail's SBP performance proposals

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

- ScotRail PPM MAA;

- Caledonian Sleeper RTA MAA; and

- CRM-P.

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

4.18 The Scotland route rated achievability of the 92.5% ScotRail PPM targets as very challenging, particularly in the first two years of CP6. The FNPO has been more confident about delivering the Caledonian Sleeper target (FNPO is the lead route for this operator).

4.19 Furthermore, during our analytical review of the performance plan in Network Rail Scotland's route strategic plan (RSP) 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*.

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

■ 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);

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

■ adopting 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.

4.21 Scotland route 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. For CP6, Scotland route has informed us that it is proposing a dedicated £8m per annum fund be included for this.

4.22 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 Nick Donovan). It accepted and committed to implement all the recommendations in this review[57].

4.23 Network Rail also included a proposed CRM-P trajectory in its plan. This was produced using the same calculation tool as for England & Wales routes, and it has recalculated this in line with its projections on PPM[58].

Our draft determination analysis and decisions

4.24 We assessed Network Rail's plans for Scotland through analysis of its RSP and meetings with key staff. We also used the independent reporter (Arup supported by Winder Phillips)[59] to provide an independent assessment of the performance proposals in the plan.

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

4.26 The route shared the output from the Donovan review referred to above and has reviewed the findings with us. While Network Rail has accepted all the recommendations of this review, it concluded that implementation of most of the recommendations will not have an immediate impact on performance in the majority of cases. It considered that delivery of the recommendations will improve the probability of achieving the HLOS requirements in subsequent years of CP6. We reviewed the report and concluded that the recommendations are pragmatic and appropriate and we 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. The Donovan report addresses both Network Rail and operator issues.

4.27 Based on the data available to us, and in light of the HLOS requirements, we have concluded that 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

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

[58] Operator PPM trajectories are inputs to the CRM-P calculation.

[59] The Arup report will be published shortly after our Final Determination here.

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.

4.28 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.

4.29 Caledonian Sleeper RTA (MAA) ended 2017-18 at 75.1% and fluctuated between 75.1% and 80.5% during the course of that year, with the outturn 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.

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

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

4.32 The CRM-P trajectory 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.

4.33 The CRM-P trajectory for the Scotland route should have a consistent level of stretch to the trajectories in England & Wales routes. Reflecting this, the CRM-P trajectory will be stretching enough so that a route will miss it as often as it achieves it – a probability range in the region of 50% (P50). Network Rail has confirmed that all routes are in this range.

Independent reporter findings

4.34 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 its proposed trajectory is robust.

4.35 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.

4.36 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.

Material changes since our draft determination

4.37 In its response to the draft determination, the Scotland route confirmed its latest view on its performance trajectory and associated CRM-P. The Scotland route says that given performance trends since the publication of its SBP and the impact of the removal of 'skip stopping' as a performance management tool, it now considers it is unlikely to achieve PPM of 92.5% until year 3 of CP6. For years 1 and 2 it is forecasting PPM of 90.5% and 91.5%.

Table 4.1: Network Rail Scotland's revised performance trajectories

Measure	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
ScotRail PPM MAA	89.3%	90.5%	91.5%	92.5%	92.5%	92.5%
CRM-P	1.18	1.06	0.96	0.89	0.89	0.89

4.38 As set out above, the Donovan recommendations have been in place since 31 March 2018. We have recently commissioned independent reporter (Nichols) to review how Network Rail is managing the recommendations. This will conclude in December 2018.

Our final determination on Scotland passenger performance

4.39 Our full set of conclusions in relation to the Scotland HLOS were included in our draft determination supporting annex to the Scotland summary. This addresses other requirements from the Scotland HLOS including journey time.

4.40 While we recognise that there are some potentially significant risks, we have decided that the ScotRail PPM target for the first year of CP6 should continue to be set at the HLOS target of 92.5% and 80% RTA for Caledonian Sleeper services. The obligation on Network Rail is to achieve the target to the greatest extent reasonably practicable having regard to all relevant circumstances.

Table 4.2 – our final decision on operator performance targets for Scotland

Measure	2019-20	2020-21	2021-22	2022-23	2023-24
ScotRail PPM	92.5%	92.5%	92.5%	92.5%	92.5%
Caledonian Sleeper RTA	80%	80%	80%	80%	80%

4.41 As well as measuring performance through PPM and RTA measures, we will use the CRM-P measure to compare how much delay Network Rail causes to train services across all GB routes. We agree with Network Rail's position that the CRM-P should align with the P50 trajectory the Scotland route has stated it expects to deliver. The CRM-P will also be used to set Schedule 8 benchmarks, which determine when payments for poor performance are triggered between Network Rail and operators. As set out in chapter 3, we made small changes to the LNE&EM CRM-P to reflect our decisions for that route. This had a small impact on the final year CRM-P for the Scotland route.

4.42 Reflecting that there are specific HLOS targets for passenger performance in Scotland (whereas there are none in the England & Wales HLOS), the role of the CRM-P CP6 baseline trajectory will be different in Scotland. While we will hold the route to account against its PPM and RTA targets, in the event of performance being below expectations, we will use CRM-P to provide further insight on the route's contribution to overall performance (reflecting that CRM-P records Network Rail-caused delay only).

4.43 Should Network Rail not achieve the HLOS target in any year of the control period, we expect to take into consideration the steps it has taken including delivery of the recommendations in the Donovan plan (by Network Rail and ScotRail).

4.44 We also require that the route continues to build on its level of analytical capabilities.

Table 4.3 – our final decision on CRM-P CP6 baseline trajectory for Scotland

Measure	2019-20	2020-21	2021-22	2022-23	2023-24
CRM-P CP6 baseline trajectory	1.06	0.96	0.89	0.89	0.88

Regulatory minimum floor

Network Rail's SBP proposal

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

Our draft determination analysis and decisions

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. We concluded that:

■   in Scotland we would hold Network Rail to account for delivery of the PPM performance trajectory in the HLOS; and

- we proposed 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 Scotland, in practice we expect that the PPM trajectory would worsen before the regulatory minimum floor was breached. The CRM-P will be used to provide further insight into Network Rail Scotland's contribution to delivery of the overall ScotRail PPM target.

4.47 We also set the level of the regulatory minimum floor at a margin equivalent to 20% of the average CRM-P trajectory for CP6 (the same methodology proposed for England & Wales) below the CRM-P trajectory.

Our final determination on the floor in Scotland

4.48 As set out in our summary of conclusions and route settlement – Scotland, the role of the CRM-P will be different in Scotland. Our determination is that, for consistency across our monitoring and reporting framework, we have set a regulatory minimum floor in Scotland. This uses a consistent methodology as that used for England & Wales.

4.49 The floor is set at a consistent margin below Network Rail's trajectory for CP6 (i.e. the floor reflects the trajectory). The size of this margin reflects a level of 20% of the average CP6 trajectories. Table 4.4 below shows the final regulatory minimum floors for CP6.

Table 4.4 – our final decision on CRM-P regulatory minimum floor for Scotland

Measure	2019-20	2020-21	2021-22	2022-23	2023-24
CRM-P	1.25	1.15	1.08	1.08	1.07

Finding new ways of encouraging performance

4.50 Our overview of approach and decisions document sets out our final decisions on a Performance Innovation Fund.

Our final determination on Scotland passenger train performance

4.51 A summary of our final determinations for passenger train performance in Scotland in CP6 is set out in table 4.4 below. Our decisions on performance have been reflected in the Schedule 8 benchmarks. Further information about this is set out in our overview of charges and incentives.

4.52 We will also review the independent reporter recommendations with Network Rail and agree next steps.

Table 4.5 – summary of our final determinations on Scotland passenger performance

Decision	Accountable
HLOS targets for ScotRail and Caledonian Sleeper The Scotland route must deliver the HLOS passenger performance targets: - ScotRail PPM – 92.5% for each year of CP6 - Caledonian Sleeper RTA – 80% for each year of CP6	Scotland route
High quality engagement process Notwithstanding the role of the alliance in Scotland, during CP6 Network Rail must operate a high quality engagement process with its operators to set stretching yet realistic annual targets (which may vary up or down from our final determination CP6 baseline trajectories) aligned where appropriate with performance objectives set by funders, and reflecting how circumstances have changed. Where targets are agreed between the Scotland route and an operator, we will place weight on this in our monitoring and reporting.	Scotland route
CRM-P CP6 baseline trajectories We have set CRM-P CP6 baseline trajectories which reflect our expectations regarding Network Rail's routes' contribution to passenger performance in light of the funding available to Network Rail. We will use these baselines in our monitoring and reporting during CP6, although the role of this baseline will be different in Scotland. We will use CRM-P to provide further insight on the route's contribution to overall network performance.	Scotland route

Decision	Accountable
Regulatory minimum floor for CRM-P In Scotland, we will primarily be holding Network Rail to account for delivery of the PPM target of 92.5%. For consistency across our monitoring and reporting framework, we have set a regulatory minimum floor for CRM-P in Scotland in the route settlement document. If performance drops below the regulatory minimum floor for Scotland, we will be highly likely to investigate formally whether or not Network Rail has breached its network licence.	Scotland route
Reactionary delay and cancellations We have placed reliance on Network Rail's commitments in relation to reactionary delay and expect these commitments to also apply to cancellations. In addition, we expect it to : - publish figures at national, route and operator level on a periodic basis; - discuss these on at least a quarterly basis at NTF and at each route Rail Board, and the SO's Board; and - produce a dedicated annual report on its website.	Network Rail
Analytical capabilities Network Rail must work with us to improve its analytical capabilities, in particular regarding improvements to performance modelling capabilities and assurance across Network Rail. We also expect Network Rail to implement the recommendations from the independent reporter. The Scotland route must work to improve its modelling and analytical capabilities. We expect Scotland route to implement the recommendations from the independent reporter work reviewing the Donovan recommendations. We have also set out requirements for the FNPO route in chapter 3.	Network Rail Scotland route

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, the analysis we did and what our conclusions are. This includes our further analysis and any changes since our draft determination.

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

5.3 The Freight and National Passenger Operator (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.

5.4 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.

5.5 We have also set a regulatory minimum floor for freight delivery metric (FDM) (and freight delivery metric – route level (FDM-R[60]) discussed later in this chapter).

## CP5 context

5.6 In CP5, we set a target for the freight delivery metric (FDM) at Great Britain level. 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.

5.7 The MAA for FDM has remained above the regulatory target of 92.5% throughout CP5. The MAA was 93.4% at the end of 2017-18. The FNPO route forecasts that it will exit CP5 at 94.0%. We have acknowledged Network Rail's outperformance in this area in the Network Rail Monitors.

5.8 As part of Network Rail's move to route devolution, the FNPO route was created in CP5. Network Rail also introduced a new measure - 'FDM-R' which is a measure of all Network Rail caused delay minutes contributing to FDM failures on an individual route. A proportional method was developed in November 2017 which distributes

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[60] FDM-R is sometimes referred to as R-FDM.

delays and cancellations more accurately in line with the contribution of each route. An individual route's 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.

Figure 5.1 – Great Britain FDM in CP5
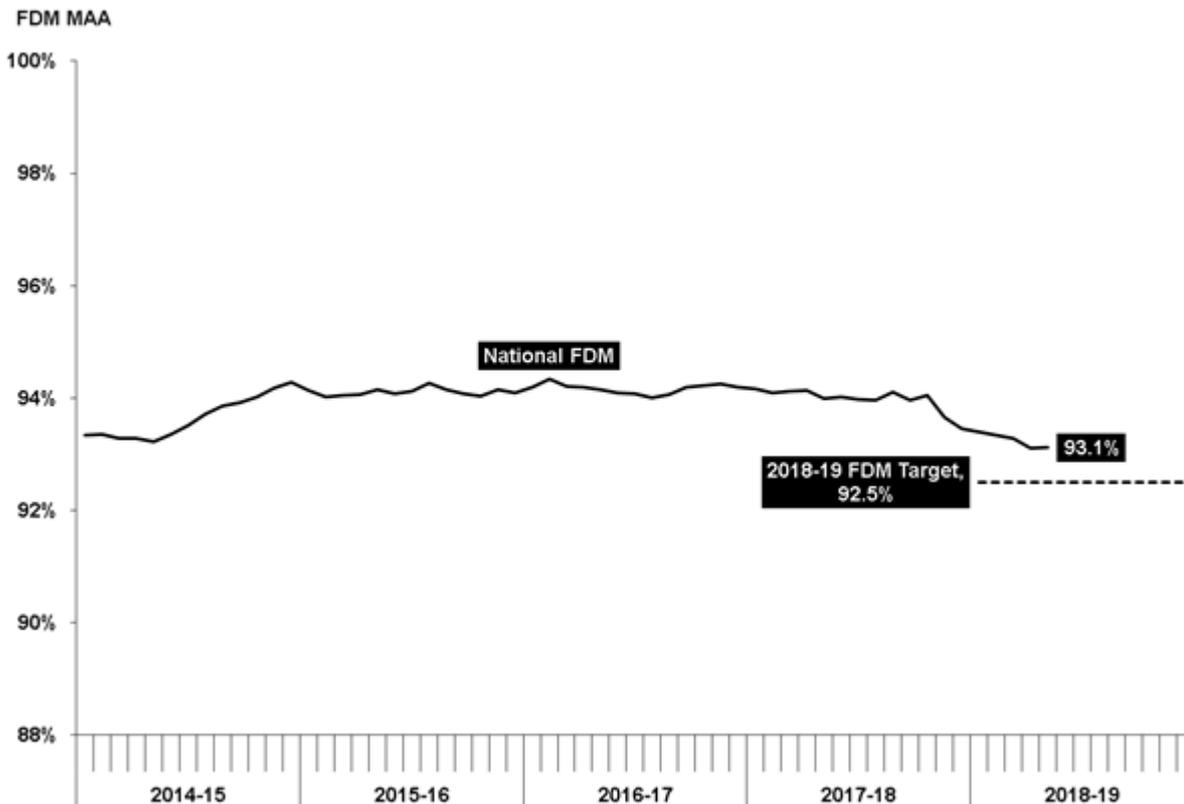
CP6 context

5.9 Network Rail proposes to continue to use FDM in addition to 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.

5.10 The FNPO route is a 'national route' which is the lead route for Network Rail's freight operators (together with national passenger operators, charter and aspirant open-access operators). As part of our overall framework consultation, we were clear that Network Rail geographic routes should continue to focus on freight performance, as well as the FNPO. 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

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

Network Rail's SBP proposals for national performance

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

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

Our draft determination analysis and conclusions

5.14 Our assessment of the FNPO RSP involved:

■ 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 workshops hosted by the route for freight and national operators, to understand and assess their views of Network Rail's proposals as set out in the RSPs.

5.15 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 trajectory represents which we assessed in detail in our draft determination. These included the decline in (historically high performing) freight traffic and the likely growth of traffic on busier parts of the rail network.

5.16 In our draft determination, we concluded that Network Rail's proposal for the FDM trajectory of 94.0% was reasonable because it was consistent with the forecast for the CP5 exit point, and our review indicated that this forecast had 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%.

5.17 In addition, there was broad 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.

Our final determination on national freight performance

5.18 There were no material changes since our draft determination, except as regards the impact of recent performance on the freight industry. Network Rail has not however proposed to change the FDM trajectory submitted in its SBP.

5.19 On this basis our determination is that the FDM CP6 baseline trajectory will be 94% for each year of the control period.

Network Rail's SBP proposals for route level performance

5.20 All geographic RSPs included a trajectory for FDM-R, as was our requirement. Network Rail advised us that if all FDM-R trajectories are delivered, this should be sufficient to deliver the national FDM trajectory[61].

5.21 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%.

5.22 We noted that the level of performance proposed by each route was 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.

Our draft determination analysis and decisions

5.23 We noted that all but one of the FDM-R trajectories for CP6 were higher than the 2017-18 period13 MAA. South East route is an outlier with a lower trajectory than other routes, but this is due to the volume of passenger services on that route and relatively small volume of freight services. In the light of our analysis of the factors affecting national FDM, and as Network Rail had confirmed that the route level FDM-R would deliver national FDM, we felt that the FDM-R trajectories included in the RSPs looked reasonable. However, we said that in the event that this proved incorrect, we would require Network Rail to adjust these so that they do deliver the national FDM.

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[61] FDM-R trajectories for CP6 were developed using the balance of freight traffic across the routes to estimate the contribution of each route to achieve the national FDM. As the balance of freight traffic across the routes may change over time, it is possible that the FDM-R trajectories for CP6 will not equate exactly to the overall FDM trajectory.

5.24 We were also 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.

5.25 We accepted the FDM and FDM-R trajectories put forward in the SBP, but we also noted some minor reservations about the FNPO's analytical capabilities and modelling and said we would take this forward with the route.

Material changes since our draft determination

5.26 As set out in our draft determination, we have continued to assess the FNPO's analytical capabilities and modelling used to create the trajectories it put forward. Network Rail has not proposed any changes to the FDM-R trajectories in its response to the draft determination.

5.27 As we noted in our draft determination, Network Rail had refined the FDM-R measure so that it better reflected freight customers' needs. The FDM-R trajectories were set using the original methodology, whereas FDM-R is now being reported against the revised methodology. This would mean that throughout CP6 there would be an inconsistency between the CP6 baseline trajectories set and the actual values reported.

Table 5.1 – England & Wales FDM-R trajectories under original and revised methodologies

Route	Original methodology CP6 trajectory	Revised methodology CP6 trajectory
Anglia	92.9%	93.1%
LNE&EM	95.3%	95.1%
LNW	93.9%	94.2%
South East[62]	91.0%	88.4%
Wales	94.4%	94.8%
Wessex	93.6%	94.6%
Western	94.0%	93.7%

Source: FNPO

5.28 The FNPO has already recalculated the FDM-R trajectories using the new methodology (see table 5.1 above), but has not agreed these with the routes. We are

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[62] FNPO made a manual adjustment to South East Route's trajectory to reflect the Lewisham derailment

not clear why this has not been done, as the methodology change occurred in November 2017. This may suggest a weakness in the governance arrangements between the FNPO and geographic routes. We discuss this issue further in our summary of responses document.

Our final determination on FDM-R

5.29 We considered that the inconsistency point (which also meant that the trajectory for Wessex appeared less stretching) suggests that CP6 baseline trajectories should reflect the revised methodology and not the original one. We note that, unlike CRM-P, FDM-R does not inform the level of Schedule 8 for the freight market (this is instead driven from the national number).

5.30 Our determination is that the CP6 baseline trajectories will be as set out in table 5.2 below, on the basis that this is the same level of challenge as Network Rail's original proposals, but reflected in the updated measure methodology.

5.31 We would only accept changes to these CP6 baseline trajectories, ahead of finalisation of the CP6 Delivery Plan in March 2019, from those in the final determination where:

■ the route sets out to us strong evidence that an alternative trajectory is more appropriate; and/or

■ FNPO confirms that the values below are not sufficient to deliver the national FDM of 94% in which case it must make a proposal for a set of FDM-R values agreed with routes which deliver this.

Table 5.2 – our final decision on England & Wales FDM-R CP6 baseline trajectories

Route	FDM-R CP6 baseline trajectory (for each year of CP6)
Anglia	93.1%
LNE&EM	95.1%
LNW	94.2%
South East	88.4%
Wales	94.8%
Wessex	94.6%
Western	93.7%

5.32 We must set the regulatory minimum floor in this determination, and have calculated this against the revised methodology. In the event that a revised CP6 baseline trajectory is determined in advance of the CP6 Delivery Plan in March 2019, we will review the level of the respective regulatory minimum floor for the affected route.

5.33 Due to our concerns about the FNPO's analytical capabilities as highlighted by the FDM-R issue and the CrossCountry passenger trajectory issues, we have also determined that:

- we will undertake closer regulatory scrutiny;

- FNPO should continue to improve its analytical capabilities (for its freight and passenger customers); and

- FNPO should work to improve its stakeholder engagement – both with its customers and with the geographic routes.

Regulatory minimum floors

5.34 We required routes to propose a regulatory minimum floor for operational performance in their RSPs, including the FNPO. This represents the level of performance below which we would be highly likely to investigate formally whether or not Network Rail has breached its network licence. We may consider intervening above this point if concerned about serious or systemic issues.

Network Rail's proposals

5.35 Network Rail 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%.

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

5.37 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 the route should contribute in order to achieve the national FDM trajectory of 94%.

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

5.39 Network Rail had proposed 92.5% as the national regulatory minimum floor. This value had 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 did not seem appropriate.

Our draft determination analysis and decisions

5.40 We noted that the 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 considered that this is appropriate to use as a regulatory minimum floor, particularly in light of the overall balance of performance pressures noted earlier.

5.41 We considered that the methodology proposed for the FDM-R regulatory minimum floors in each route is suitable. 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, we decided that Network Rail's proposal of 30% represented a more reasonable threshold for freight services.

5.42 We noted 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.

5.43 We concluded that 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 per the methodology proposed by Network Rail.

5.44 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.

Our final decisions on the freight regulatory minimum floors

5.45 Our determination is that 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 per the methodology set out by Network Rail (i.e. reflecting 30% of FDM-R failures).

5.46 We asked FNPO to recalculate the floors based on the revised FDM-R methodology. The floors for FDM-R are therefore as follows:

Table 5.3: our final decisions on England & Wales FDM-R regulatory minimum floors

Route	FDM-R regulatory minimum floor
Anglia	91.3%
LNE&EM	93.9%
LNW	92.7%
South East	85.4%
Wales	93.5%
Wessex	93.1%
Western	92.1%

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

Finding new ways of encouraging performance

5.48 Our overview of approach and decisions document sets out our final decisions on a Performance Innovation Fund.

Our final determination on England & Wales freight train performance

5.49 A summary of our final decisions for freight train performance in England & Wales in CP6 are set out in table 5.5 below. Our decisions on performance have been reflected in the Schedule 8 benchmarks – further information about this is set out in our overview of charges and incentives.

5.50 We will also review the independent reporter recommendations with Network Rail and agree next steps.

Table 5.5 – summary of our final determinations on England & Wales freight performance

Decision	Accountable
High quality engagement process During CP6 Network Rail must operate a high quality engagement process with its operators to set stretching yet realistic annual targets (which may vary up or down from our final determination CP6 baseline trajectories) aligned where appropriate with performance objectives set by funders, and reflecting how circumstances have changed. Where targets are agreed between a route and an operator, we will place weight on this in our monitoring and reporting. Where agreement cannot be reached with operators, Network Rail must continue to ensure that each route has a stretching but realistic target in each year of CP6.	FNPO route
CP6 baseline trajectory - Great Britain FDM We have set a national (Great Britain) FDM CP6 baseline trajectory of 94% in each year of CP6. This reflects our expectations regarding Network Rail's overall contribution to freight performance in light of the funding available to Network Rail. We will use this baseline in our monitoring and reporting during CP6.	Network Rail
CP6 baseline trajectories - FDM-R We have set FDM-R CP6 baseline trajectories which reflect our expectations regarding Network Rail's routes' contributions to freight performance in the light of the funding available to Network Rail. We will use these baselines in our monitoring and reporting during CP6[63]. Network Rail should ensure that the FDM-R targets in each year are sufficient to deliver its targets for Great Britain FDM.	Each geographic route

[63] The FDM-R CP6 baseline trajectories have been set using the revised methodology for FDM-R and under a limited set of circumstances we may revise the baseline trajectory in advance of the CP6 Delivery Plan in March 2019; see paragraph 5.31.

Decision	Accountable
Regulatory minimum floor for Great Britain FDM We are highly likely to investigate formally whether or not a route is in breach of the Network Rail network licence if performance levels are below the regulatory minimum floor for FDM (92.5%)	FNPO route
Regulatory minimum floor for FDM-R We are highly likely to investigate formally whether or not a route is in breach of the Network Rail network licence if performance levels are below the regulatory minimum floor for FDM-R set out in the route settlement documents[64].	Each geographic route
Reactionary delay and cancellations We have placed reliance on Network Rail's commitments in relation to reactionary delay and expect these commitments to also apply to cancellations. In addition, we expect it to : - publish figures at national, route and operator level on a periodic basis; - discuss these on at least a quarterly basis at NTF and at each route Rail Board, and the SO's Board; and - produce a dedicated annual report on its website.	Network Rail

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[64] In the event that the FDM-R CP6 baseline trajectory is changed as per our decision in paragraph 5.31, a new regulatory minimum floor should be calculated relative to the new trajectory.

| Decision	Accountable
Analytical, governance & stakeholder engagement capabilities FNPO must work with us to improve its modelling and analytical capabilities. We expect FNPO to implement the recommendations from the independent reporter work. FNPO must work with us to improve its governance and stakeholder engagement capabilities focusing on sharing information, modelling assumptions and agreement of targets with operators. We also expect Network Rail to implement the recommendations from the independent reporter.	FNPO

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 the Scottish government (in its HLOS) asked Network Rail Scotland to do, what Network Rail proposed, our analysis and our conclusions.

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

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

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

6.5 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 route's 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.

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

CP5 context

6.7 Scotland route FDM-R Moving Annual Average ended 2018-19 Period 5 at 92.4%, which was down 2.9 percentage points compared with a year earlier. Much of the fall in Scotland FDM-R occurred towards the end of 2017-18 when performance was impacted by adverse weather (See figure 6.1 below).

Figure 6.1; 2017-18 and 2018-19 FDM-R Scotland performance[65]
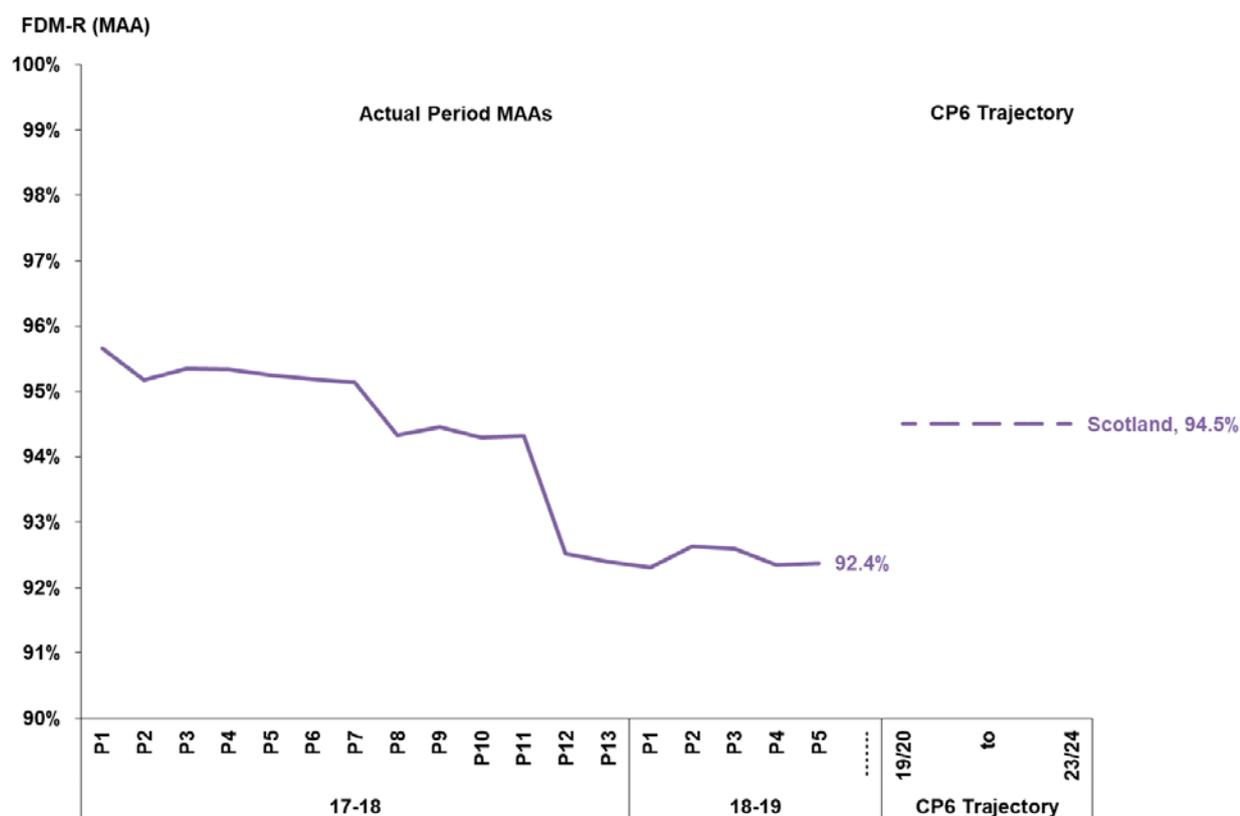
6.8 Figure 5.1 in chapter 5 shows Great Britain FDM performance.

Freight performance trajectories

Network Rail's SBP proposal

6.9 Network Rail's Scotland and 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.

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

Our draft determination analysis and decisions

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

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

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

6.14 In line with the points made in the previous chapter, we also accepted 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.

Material changes since our draft determination

6.15 We discuss in more detail in chapter 5 the issue of the change in methodology for calculating FDM-R, in which the CP6 trajectories proposed by Network Rail were set using the original methodology and not the revised one. This has had limited impact on the Scotland route as the target has been set in line with the HLOS requirement.

6.16 However, we want the reporting and CP6 baseline trajectories to be set in a consistent way, so that freight performance can be accurately reported in CP6.

Our final determination

6.17 Our determination is that the FDM-R CP6 baseline trajectory for the Scotland route should be no less than the Scotland HLOS requirement.

Regulatory minimum floors

6.18 We have taken a consistent approach to setting a regulatory minimum floor for freight in both Scotland and England & Wales. The GB level regulatory minimum floor for FDM is 92.5%. The regulatory minimum floor for FDM-R in Scotland is 92.5%.

Finding new ways of encouraging performance

6.19 Our overview of approach and decisions document sets out our final decisions on a Performance Innovation Fund.

Our final determination on Scotland freight train performance

6.20 A summary of our final decisions for passenger train performance in Scotland in CP6 is set out in table 6.1 below. Our decisions on performance have been reflected in the

Schedule 8 benchmarks – further information about this is set out in our [overview of charges and incentives](#).

6.21 We will also review the independent reporter recommendations with Network Rail and agree next steps.

Table 6.1 – summary of our final determinations on Scotland freight performance

Decision	Accountable
High quality engagement process During CP6 Network Rail must operate a high quality engagement process with its operators to set stretching yet realistic annual targets (which may vary up or down from our final determination CP6 baseline trajectories) aligned where appropriate with performance objectives set by funders, and reflecting how circumstances have changed. Where targets are agreed between a route and an operator, we will place weight on this in our monitoring and reporting.	FNPO route
Scotland FDM-R target The Scotland route must deliver a FDM-R trajectory which is no less than that set out in the Scotland HLOS.	Scotland route
CP6 baseline trajectory - Great Britain FDM We have set a national (Great Britain) FDM CP6 baseline trajectory of 94% in each year of CP6. This reflects our expectations regarding Network Rail's overall contribution to freight performance in light of the funding available to Network Rail. We will use this baseline in our monitoring and reporting during CP6.	Network Rail

Decision	Accountable
Regulatory minimum floor for Scotland FDM-R In Scotland, we will primarily be holding Network Rail to account for delivery of the FDM-R target. For consistency across our monitoring and reporting framework, we have set a regulatory minimum floor for CRM-P in Scotland in the route settlement document. If performance drops below the regulatory minimum floor for Scotland (92.5%), we will be highly likely to investigate formally whether or not Network Rail has breached its network licence.	Scotland route
Regulatory minimum floor for Great Britain FDM We are highly likely to investigate formally whether or not a route is in breach of the Network Rail network licence if performance levels are below the regulatory minimum floor for FDM (92.5%).	FNPO route
Reactionary delay and cancellations We have placed reliance on Network Rail's commitments in relation to reactionary delay and expect these commitments to also apply to cancellations. In addition, we expect it to : - publish figures at national, route and operator level on a periodic basis; - discuss these on at least a quarterly basis at NTF and at each route Rail Board, and the SO's Board; and - produce a dedicated annual report on its website.	Network Rail
Analytical, governance & stakeholder engagement capabilities We have set out in chapter 5 requirements for the FNPO to improve its analytical capabilities.	FNPO

7. Network capability

Introduction

7.1 Maintaining the "quality and capability of the network" is a requirement of Network Rail's licence[66].

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 is described in Network Rail's Sectional Appendices, Geographic and Infrastructure System (GEOGIS) Database[67] and National Gauging Database.

7.3 We set out in our July 2017 [route requirements and scorecards consultation](#) that we wanted to continue to make network capability a requirement in CP6. In our draft determination we concluded that 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. We said that we would continue to work with Network Rail (including with the Independent Reporter as appropriate) to set the baseline for 1 April 2019 at route level. As part of this, we would consider whether the base requirement should be as we set out for CP5 (in terms of track mileage and layout, line speed, gauge, route availability, electrification type) or whether this should be amended.

CP5 context

7.4 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.

7.5 As set out in Part G of the Network Code[68], Network Rail can change the capability of the network through consultation with its stakeholders (the formal industry process known as "network change").

7.6 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.

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[66] 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.

[67] This system has now been superseded by the Integrated Network Model (INM).

[68] 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.

7.7   Network Rail has publicly acknowledged this in its 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 long-standing discrepancies between actual and published capability of the network that we are seeking to resolve with our stakeholders."

7.8   To address these concerns Network Rail undertook an internal audit of the LNE&EM route. This audit concluded that Network Rail's controls around the Network Change process were "unacceptable" and provided a series of recommendations to address this.

7.9   Network Rail is undertaking an improvement programme to meet these recommendations and we continue to engage with Network Rail on progress in this area.

Network Rail's SBP proposals

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

7.11   For Scotland, Network Rail did include proposals for developing the 'Scottish Gauge Requirement' which was a requirement of the Scotland HLOS. We have set out more detail on this in the supporting annex to our Scotland summary.

Our draft determination analysis and decisions

7.12   Network capability is a requirement of the Network Licence and the processes around changing it are set out clearly in the Network Code. Network Rail should deliver against these requirements. We continue to have concerns about how well Network Rail is delivering in this area.

7.13   At the time of our draft determination we commissioned an Independent Reporter to review the current situation on network capability in England & Wales and Scotland, including whether Network Rail was on track to deliver the end of CP5 regulated output target. This work would inform our monitoring position and assessment of network capability in England & Wales and Scotland in CP6. We stated that we expected Network Rail to implement any recommendations that the reporters make, in CP6.

7.14   In Scotland, Scottish Ministers have required, 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.

7.15 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 that 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.

7.16 We concluded that as part of our overall approach for CP6, we expected 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.

7.17 Through the Independent Reporter work, we said we would continue to work with Network Rail to set the baseline for 1 April 2019 at route level.

7.18 As part of this work we would consider whether the base requirement should be as we set out for CP5 (in terms of track mileage and layout, line speed, gauge, route availability, electrification type) or whether this should be amended.

Material changes since our draft determination

7.19 Over the summer of 2018, Arup (as the Independent Reporter) has reviewed;

- whether the baseline capability is being maintained as per the CP5 regulated output;

- where capability has changed, that Network Rail has followed the correct processes; and

- recommendations for monitoring network capability in CP6.

7.20 The findings from this work indicate that there was no formal baseline agreed at the start of CP5 on which to measure Network Rail's compliance in this area; some concern over the accuracy of the reporting of network capability; and over the 'line of sight' of agreed Network Changes being carried out as described in the agreed documentation.

7.21 Arup has outlined some recommendations for monitoring and assessing Network Capability in CP6 and we are engaging with Network Rail on the development and implementation of these recommendations.

Our final determination on network capability

7.22 A summary of our final decisions on network capability is set out below.

Table 7.1 summary of our decisions on network capability

| Decision	Accountable
Baseline capability Network Rail must protect and maintain the baseline capability of the network and all changes must go through the recognised industry processes throughout CP6.	All geographic routes
Independent Reporter recommendations We continue to engage with Network Rail to develop and implement the Independent Reporter recommendations for monitoring and assessing network capability in CP6.	Network Rail

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 This chapter sets out the work we have undertaken in this area, and the commitments made by Network Rail.

CP5 context

8.5 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.

8.6 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.

8.7 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 defined improved measures[69]. The CP5 final determination also referenced the development of a working timetable measure that had the potential to replace PDI.

8.8 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.

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[69] 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 period 5 2018-19[70]
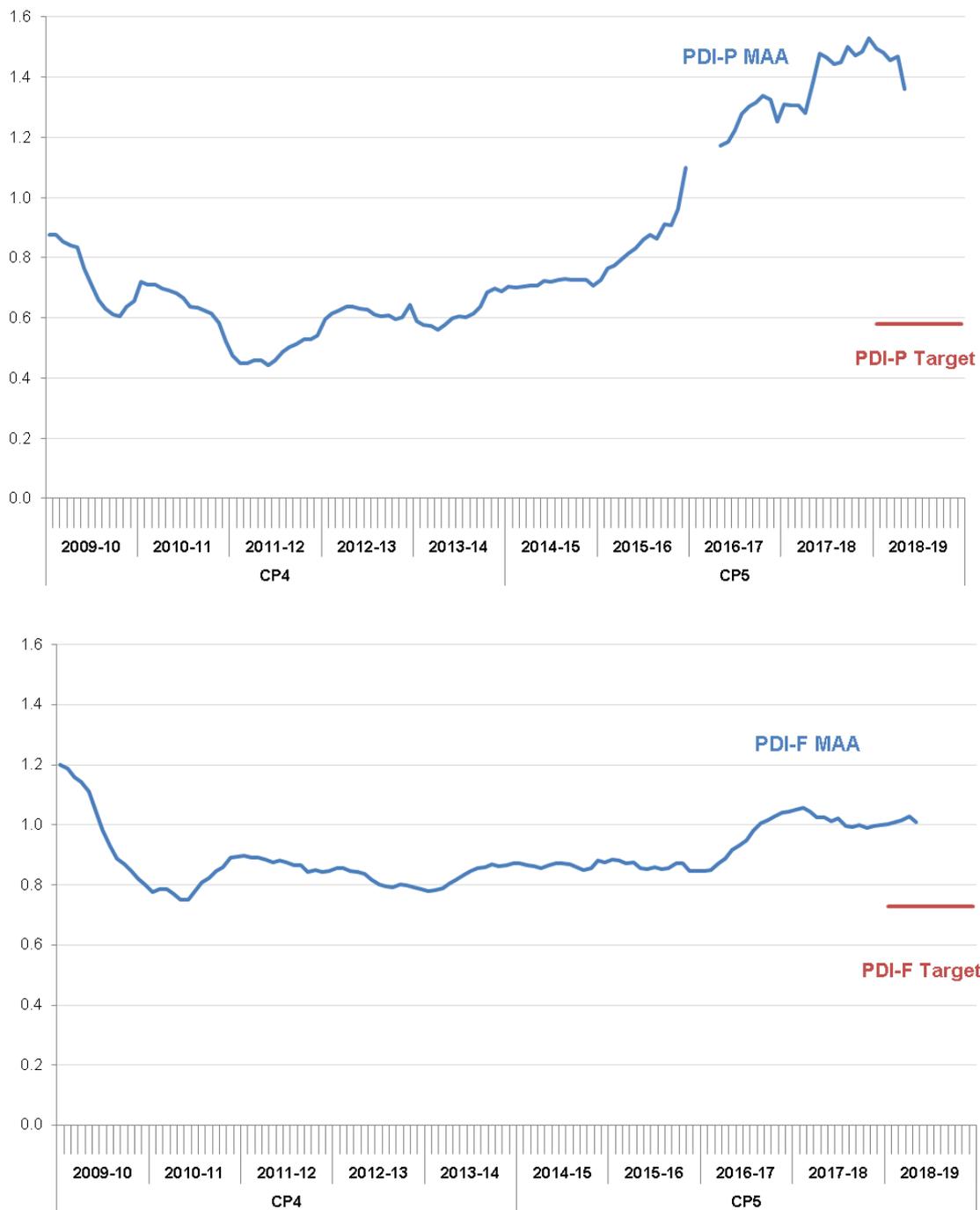
8.9   In our draft determination we outlined a number of points made by Network Rail regarding the reporting of PDI which affected the accuracy and value of the measure. These included an error in the calculation and the introduction of additional train services and franchise changes. Network Rail's view was that this had led to PDI being misleading as it no longer reflected the activity on the network.

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[70] There is a break of the data shown on the PDI-P graph. This was due to a problem with Network Rail's system following redrawing of certain franchises, which meant that the figures could not be produced for a period of time. Period 5 ended on 18 August 2018.

8.10 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 to continue 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.

8.11 In late 2017, we also undertook an Industry-wide engagement exercise to gather further evidence of Network Rail's behaviour in respect of fulfilling its obligations in respect of network availability, obtaining views from passenger and freight operators. The main themes from this focused on:

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

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

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

8.12 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[71]. These are the number of access disputes raised and Schedule 4 'Notification Discount Factors'.

8.13 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.

Consultant's findings

8.14 SNC-Lavalin's review[72] 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;

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

[72] See the summary slides and full report.

- 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.

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

Network Rail's CP6 proposals

8.16 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).

8.17 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 (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 draft determination analysis and conclusions

8.18 We noted that network availability remained an important area for our monitoring in CP6 in terms of the impact on end users. We highlighted that this had been reinforced by our consultation on route requirements and scorecards in July 2017.

8.19 We were clear that 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. We also concluded that it is important that Network Rail plans these possessions within an appropriate time frame to enable customers and end users to plan ahead. We considered that Schedule 4 largely provides these incentives.

8.20 We were of the view that there is no need to set an additional specific target in this area for CP6. However, we said we would monitor Network Rail's delivery of network availability in CP6 and expect Network Rail to continue to provide data to us and its customers.

8.21 We also considered 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[73].

8.22 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 noted that we were discussing the potential development and implementation of a new EJT measure with Network Rail as part of a suite of measures for assessing Network Rail's delivery of network availability in CP6.

Material changes since our draft determination
Our further analysis

8.23 In its draft determination response, Network Rail proposed additional measures for network availability. These are:

- access disputes;

- late notice changes survey; and

- developing measurement of schedule 4 against route targets

8.24 We welcome and accept Network Rail's proposals above. Network Rail should continue to seek the optimal and efficient balance between carrying out appropriate maintenance, renewal and enhancement of the railway and managing the impact on end users. We will continue to engage with Network Rail and monitor its reporting in this area.

Our final determination on network availability

8.25 A summary of our final determination on network availability is set out below.

Table 8.1 – summary of our decisions on network availability

Decision	Accountable
Network Rail must continue to provide appropriate reporting to us and its customers regarding availability of the network. We will continue to work with Network Rail to establish an appropriate suite of measures to monitor and assess the availability of the network in CP6.	Network Rail

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[73] 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 trajectories for CP6[74], and 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 PR18 final determination Supplementary document – Review of Network Rail's proposed costs.

9.2 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). 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. 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.

9.3 We set out in our draft determination that we were concerned that Network Rail's plans for CP6 forecast a decline in levels of sustainability for the control period and in the longer term as calculated using the CSI methodology. Network Rail's February SBP did not adequately address this trend. We regarded c£1bn as the minimum acceptable increase in renewals with particular priorities including earthworks, drainage, track and metallic structures, which would improve safety, the resilience of the railway and, when completed, have a positive impact on the performance levels delivered to passenger and freight end users. We asked Network Rail to review this in a targeted update of its plans over the summer of 2018.

9.4 This chapter sets out how:

- Network Rail responded to our challenge;

- our decisions in relation to the level of sustainability Network Rail should deliver in CP6;

- how it should report against this; and

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[74] We recognise that the CP6 baseline trajectory for CSI is an end-CP6 figure; we have used the term 'baseline trajectory' for consistency across our decisions.

- the regulatory minimum floor.

9.5   We have also required Network Rail to develop a new measure of network sustainability.

Measuring network sustainability

9.6   We have required a consistent route level 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 included this on its route scorecards in its SBP. This measure was developed by Network Rail before the start of CP5 to monitor changing patterns of asset life and some aspects of asset performance and risk. It 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.

9.7   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.

9.8   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 whether 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.

9.9   Network Rail defines network sustainability as follows:

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

9.10   In a similar vein, we define it as:

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

9.11   In our route requirements and scorecards consultation in July 2017, we set out our requirement for a consistent measure of network sustainability on geographic route scorecards. We decided to 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, this 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

9.12 The CSI measure is calculated using the same basic methodology used since the inception of the measure in CP5. Network Rail has models which consider the long term volume, expenditure and output forecasts for each asset type. These apply the levels of activity within each route plan and provide a forecast trend of changes over future periods. Results are produced separately for each asset. Network Rail aggregates each asset result into an overall 'composite' sustainability index at route and network levels.

9.13 For CP6, 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.

9.14 The CSI measure consists of a representative sample of assets. This means it also excludes some further assets[75]. In total, excluded assets make up about 18% of the renewal budget.

9.15 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 specialist central resources rather than being produced by the route. However they are based on the renewals plans which are owned by each route.

9.16 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 for CP6. Each route will report annually on its scorecard against its end of CP6 trajectory.

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

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[75] Some examples of the excluded assets 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.

9.18 Unless there is an increase in work volume then the modelled CSI score will decrease over CP6 and beyond. This additional work 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 work volume for the same expenditure.

9.19 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
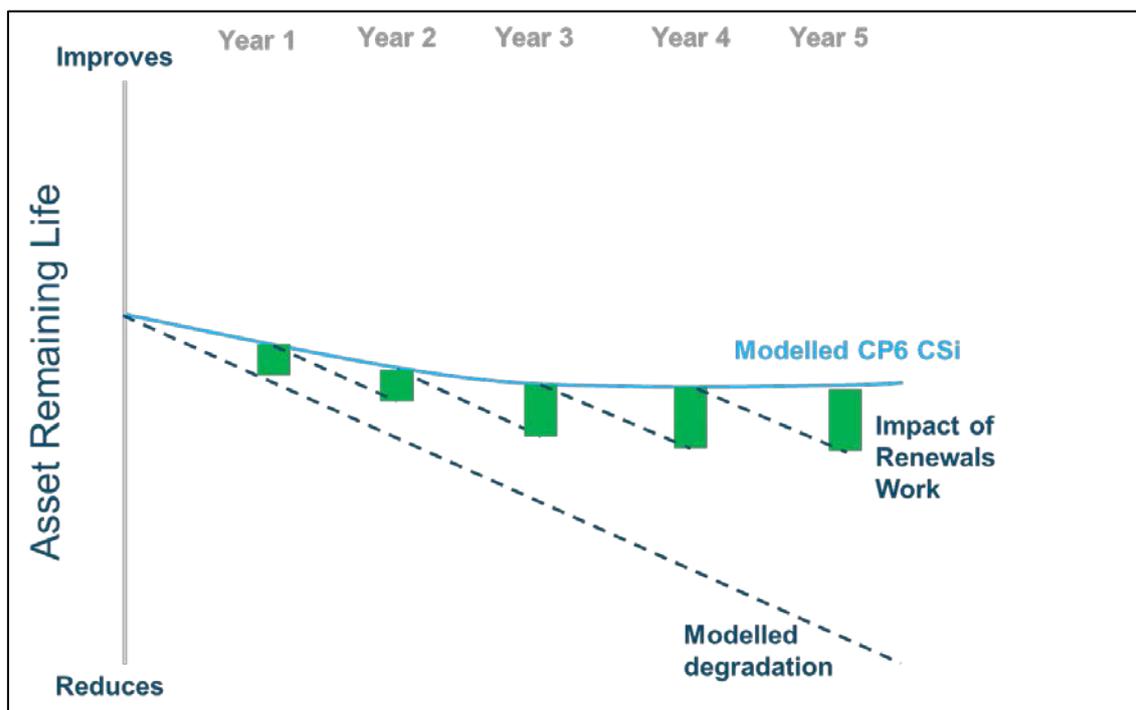
Source: Network Rail

9.20 More generally, other factors affect the underlying asset sustainability such as reactive works and enhancements. Technological advances as a result of research and development may allow some further extensions to asset life. However, these normally have long-term development requirements and we do not have evidence that gives us a basis to anticipate such advances in CP6, and which Network Rail has not already allowed for in its plans. We do however expect to see these benefits from CP7 onwards.

9.21 We are mindful of the limitations of any composite modelled forecast. 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.

Assessing Network Rail's performance on network sustainability

9.22 Because of the importance of network sustainability, we wanted a consistent route measure for sustainability and welcome Network Rail's decision to include this on its route scorecards. This will help maintain 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.

9.23 As we set out above, CSI is a single, composite measure and is based on input data (e.g. on renewals undertaken and regular asset condition assessments undertaken) that change slowly over time. This is why an end of control period baseline trajectory has been set rather than a year-on-year trajectory. A positive change in CSI indicates the asset value has increased. A negative change in CSI indicated the asset value has decreased.

Our draft determination decisions

9.24 We wanted to focus our attention on understanding Network Rail's progress in achieving the *outcome* of a sustainable network. We noted that CSI in itself could not 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 types 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 practicable to deliver a sustainable network. We noted that we would use other, more input-based, indicators in CP6.

Our final determination on assessing levels of sustainability

9.25 We have agreed with Network Rail that levels of sustainability will be monitored and assessed in CP6 as follows:

■ we will use Network Rail's own management data, including indicators such as Network Rail's planned and delivered renewals volumes, 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 will produce an annual engineers report for each route and for each asset type on that route, which will provide an assessment of its progress

towards meeting the CSI CP6 baseline trajectory. (This will be in addition to the periodic and quarterly reporting that we require as part of our ongoing monitoring regime.);

■ Network Rail will update sustainability forecasts as part of its business planning process and will explain the basis of any change to us;

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

■ Network Rail will produce ad hoc reporting to address any specific concerns; and

■ Network Rail will provide reporting within its Annual Return.

9.26 This will help us assess whether Network Rail is delivering the CP6 baseline trajectory, or whether it is likely to breach the regulatory minimum floor for this measure at the end of CP6.

9.27 If we are concerned about Network Rail's progress at any point during the control period, we may commission the independent reporter to review this.

Changes to the CP6 baseline trajectory

9.28 It is important to reflect new information in 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 CP6 baseline trajectories to be revised where new opportunities have been revealed and acted on.

Our draft determination decisions on changes to CP6 baseline trajectories

9.29 We proposed that routes' CP6 baseline trajectories would 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 are accounted for.

9.30 Proposed changes to the CP6 baseline trajectory would be formally recorded with justification and the rationale for changes to the CP6 baseline trajectory would be

provided for our review and comment. We would only adopt a change to a CP6 baseline trajectory if we were satisfied with the information provided.

Our final determination on changes to CP6 baseline trajectories

9.31 We agree with Network Rail that additional CSI benefits would be expected to accrue from enhancements and reactive works (if funded from contingency/insurance). Network Rail has demonstrated that (due to the limitations of the CSI modelling and uncertainties around scope, timing, impact on existing renewals, location etc. of any potential reactive works or enhancements) it is not possible to generate a reliable estimate of CSI at route level for these activities in advance of CP6.

9.32 We will deal with proposals to change the CP6 baseline trajectories under our managing change process. As set out in chapter 1, where a change is out of a route's control then we will consider a change to the CP6 baseline trajectories.

9.33 However, we would not expect to revise the CSI CP6 baseline trajectories to reflect a failure to deliver expected work volumes.

Improving the measurement of network sustainability

9.34 Our draft determination included proposals to improve the way network sustainability was measured.

Our draft determination decisions on a new measure

9.35 We noted that CSI is the best available measure of network sustainability, and is a useful part of the overall evidence available on asset sustainability.

9.36 We recognised that the CSI measure proposed for CP6 had some limitations, in that it does not encompass all 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 considered that Network Rail did not favour those assets or attributes included within the CSI model at the expense of those not excluded.

9.37 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 use 'effective life added' to monitor progress year-on-year, rather than the combination of asset age and condition measures currently used.

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

9.39 We decided to retain the current CSI measure for CP6 as the best available measure of network sustainability. Network Rail included this in its RSP 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 Network Rail's 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 its original plan.

9.40 We said that Network Rail must provide a plan by the end of September 2018 for development of the composition and scoring of an alternative measure for our approval. It should then develop the plan within the timescales identified within that plan.

Our final determination on a new measure

9.41 Network Rail agreed to work with us on the development of an alternative, improved measure of network sustainability, and presented its plan to do this to us in September 2018. The key milestones in this plan are as follows:

Table 9.1 – milestones for development of new sustainability measure

Date	Activity
19 October 2018	Network Rail to provide summary overview report on proposed new measure to ORR for review
October/November 2018	Network Rail and ORR discussions on new measure
18 December 2018	Network Rail to formally submit proposal to ORR for review
End December 2018	ORR to complete formal evaluation of proposal
1 February 2019	Network Rail routes business planning submission (RF11)
8 March 2019	Network Rail and ORR to agree values equivalent to final determination CSI CP6 baseline trajectories in new measure - Deadline allows for final numbers to be discussed with routes in advance of Network Rail's delivery plan publication
31 March 2019	Route CSI forecasts published alongside new index forecast in delivery plan

Date	Activity
April 2019 – March 2020	Trial period for new measure, alongside CSI
31 May 2020	Review of new indicator

9.42 Should agreement not be reached in accordance with the above programme then the existing methodology will continue as is until such time as it is agreed.

9.43 Our intention is that the new measure would be in place for the start of year two of Control Period 6 following a successful trial period. If Network Rail is unable to develop an appropriate measure within an acceptable timeframe, we may ask the Independent Reporter to develop a measure on its behalf.

9.44 We will take a view at the time whether this will be supplementary to CSI or whether we work with Network Rail to replace it in our monitoring and reporting.

Network sustainability trajectories in CP6

9.45 This section sets out what Network Rail proposed in its SBP, our draft determination analysis and decisions. It addresses Network Rail's revised plans, provided to us on 13 July 2018, our analysis of these over the summer and Network Rail's final proposals on 31 August 2018. We have separated out England & Wales from Scotland.

England & Wales
Network Rail's SBP CSI proposals

9.46 Each route developed plans for maintenance and renewal of the assets on its 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.

9.47 All routes stated that sustainability would decline during CP6 from the end of CP5 scores in their route scorecards (see table 9.2 below). The national percentage change between the end of CP6 and the baseline (at the end of CP4) was initially projected in the SBP at -2.1%.

9.48 Network Rail indicated that this was because within the funding available it had prioritised safety and performance over asset sustainability. Table 9.2 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).

Table 9.2 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%

9.49 We checked Network Rail's calculation of CSI as submitted to us in its SBP and found no errors in the supplied data.

Anglia Route CSI

9.50 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 its 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.

9.51 The residual value of Anglia Operational Property in the CSI baseline model was £222m. Removal from the total Anglia residual value (around £10.2bn) results 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 9.3 CSI calculation Anglia – Feb 2018

SBP calculation as at Feb 2018		Revised (May 2018)	
End CP5	End CP6	End CP5	End CP6
-1.2%	-4.0	-1.5%	-1.8%

9.52 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

9.53 Figure 9.2 shows Network Rail's forecast changes to sustainability by route at the point of its SBP. This demonstrated that there is a reduction in the CSI value between end-CP5 and end-CP6 across all routes. The longer-term forecasts are subject to funding from CP7 onwards.

Figure 9.2: CSI long term projections from baseline at end of CP4 (as at May 2018)
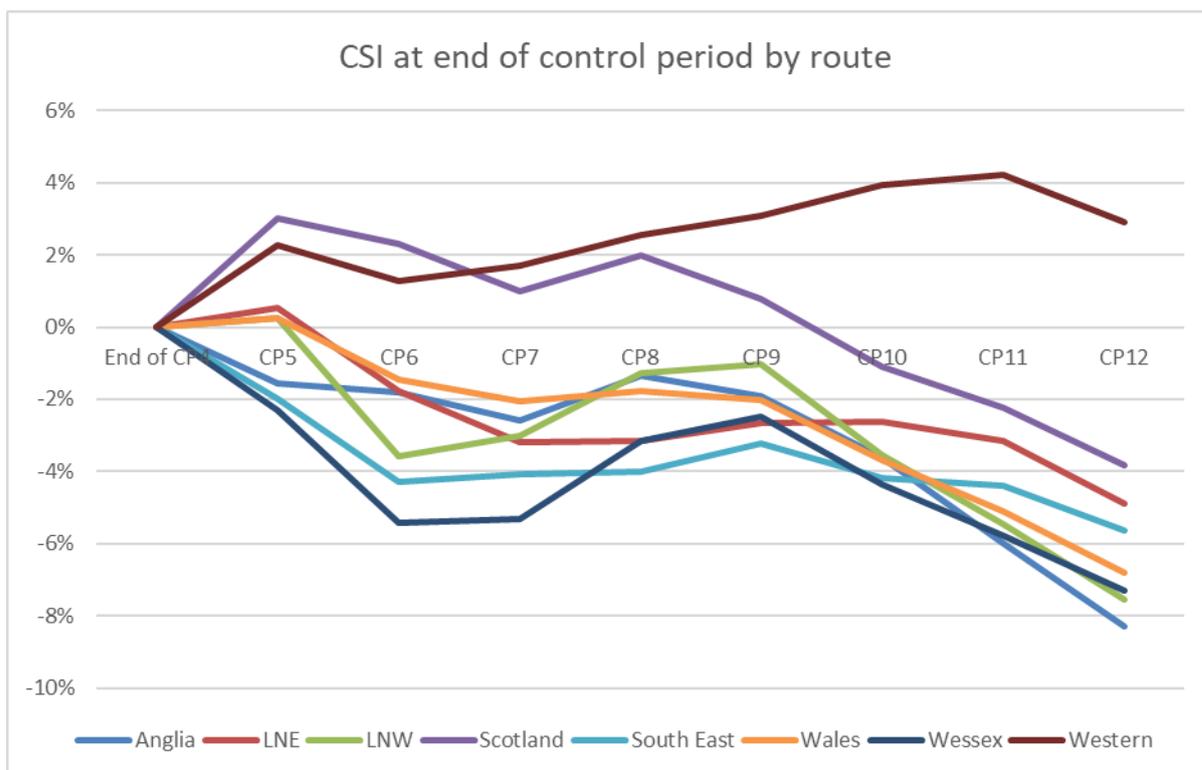
Our draft determination analysis and decisions

9.54 We analysed Network Rail's route plans in detail, and the detail of this analysis was set out in our draft determination [review of Network Rail's proposed costs supplementary document](#). As part of our analysis of the evidence, we undertook:

■ 24 route challenge meetings;

■ 13technical 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

■ 41 asset-specific deep-dives.

9.55 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.

9.56 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 outturn 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.

9.57 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 were also mindful of the longer term forecasts, which show further deteriorations in asset sustainability.

9.58 Each route had provided in its RSP a set of investment options for additional schemes which would be carried out in addition to its baseline plan assumptions, should it receive additional funding. Some of these schemes may improve the sustainability position.

9.59 Regarding the error of including franchised stations in the Anglia Route CSI calculation, we agreed 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 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 checked the recalculated figures and were satisfied that this had been assessed correctly and that the impact on the network-wide number looks to be correct.

9.60 In our draft determination we noted that we were 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 justified this decline on the grounds that they had prioritised safety and performance over sustainability.

9.61 We asked Network Rail to review this in a targeted update of its plans over the summer of 2018 with a view to improving sustainability. The challenge in our draft determination was that there should be around an extra £1bn of funding available to spend on a range of assets, with particular priorities including earthworks, drainage, track and structures.

9.62 We were clear with Network Rail that it should look at all assets and not just those which impacted on the CSI score.

Material changes since our draft determination

9.63 Network Rail agreed that there should be additional investment in asset sustainability. Since our draft determination, Network Rail has provided us with:

- a letter in July 2018 setting out its initial response to the draft determination requirement to provide an initial response on incremental investment of £1 billion in asset sustainability and on train performance;

- better qualification of the shortcomings in the CSI modelling methodology since the SBP submission, which Network Rail then used to inform its response to the draft determination. It proposed an alternative proposal for the additional investment to total £608m (£538m England & Wales). This included:

  - the Asset Sustainability Summary – an overview document produced by Network Rail;

  - asset sustainability responses from each route in England & Wales with supporting excel spreadsheets setting out which schemes it would wish to pursue and their respective priority within that route; and

  - estimated impact on CSI. Some schemes did not contribute to an improvement in CSI (as they were not included in this measure) but still improved the sustainability of the network.

9.64 Network Rail's August 2018 proposal was informed by a review of its long-term modelling of future renewals expenditure. This value was proposed on the basis that separately funded enhancements worth £250m and c. £188m of reactive interventions on earthworks that are likely to accrue in CP6, will equate to an additional £438m of renewals in CP6. This will produce a broadly similar outcome at the end of CP6 with an improved longer-term outlook. See Figure 9.3.

Figure 9.3 – Long-term forecasts for asset sustainability, as measured by CSI
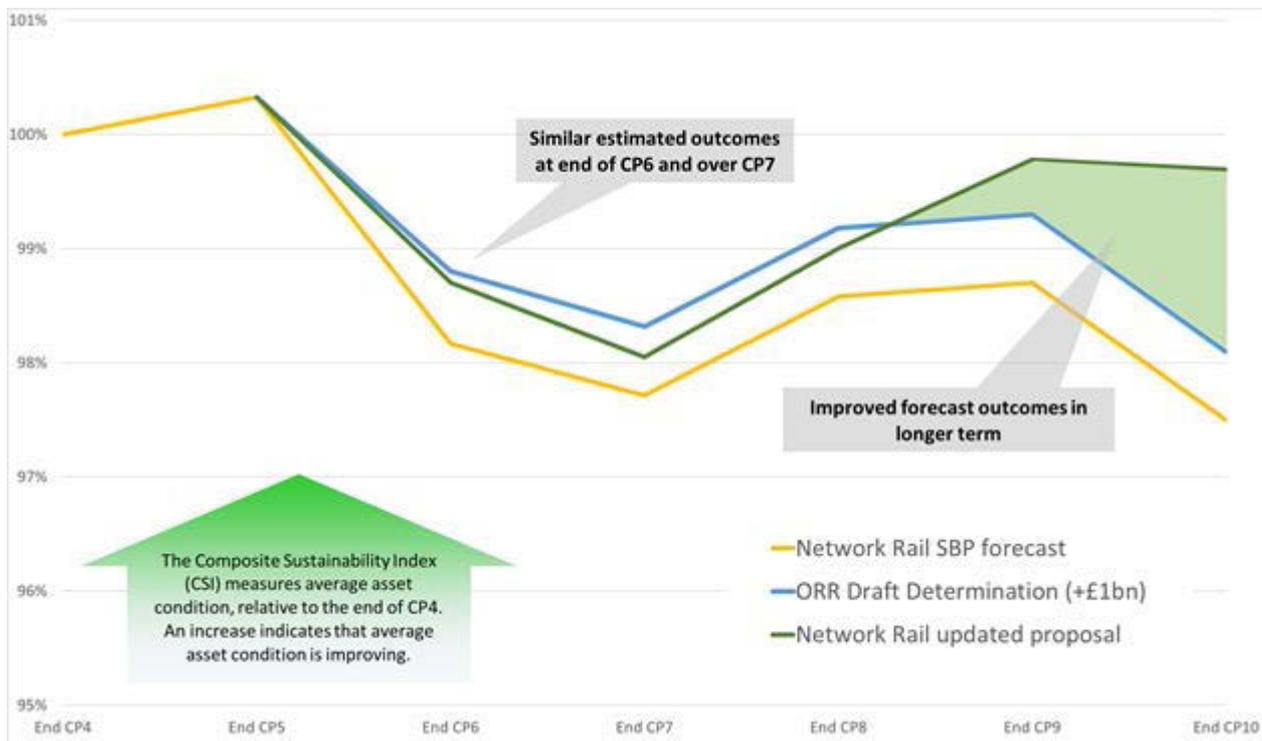
9.65 Network Rail's response emphasised the importance of recognising that its long-term models have some systemic weaknesses that result in conservative forecasts as they are based on the application of today's policies and technologies.

9.66 Network Rail's proposed revised values resulted in the following change in CSI:

Table 9.4 – Network Rail's revised CSI proposals based on £1bn expenditure vs its final proposal of £608m

Route	SBP end CP5	SBP end CP6	Proposal based on £1bn end CP6	Proposal based on £608m end CP6
Anglia	-1.5%	-1.8%	-1.4%	-1.8%
LNE&EM	+0.5%	-2.0%	-1.3%	-1.6%
LNW	+0.2%	-3.6%	-3.2%	-3.5%
South East	-2.0%	-4.3%	-3.2%	-3.9%
Wales	+0.3%	-1.5%	-0.6%	-0.9%
Wessex	-2.3%	-5.4%	-4.6%	-4.8%
Western	+2.3%	+1.3%	+2.0%	+1.6%
National	+0.3%	-1.9%	-1.3%	-1.6%

Our further analysis

9.67 Each of the routes' submissions were reviewed, with follow up questions and meetings as appropriate. Our further analysis is set out in more detail in our review of Network Rail's proposed costs.

9.68 We agree with Network Rail that its models may overstate the long-term cost of future renewals and understate the CSI. However, as it was unable to quantify the overstatement, we are unable take this into account in modifying the CSI trajectories for the final determination.

Our final determination on CSI CP6 baseline trajectories

9.69 We have determined that the CP6 baseline trajectories that we will hold Network Rail to account for are the following CSI values set out in Table 9.5 below.

9.70 We welcome Network Rail's decision to include CSI on its scorecards. As and when any new measure replaces CSI, we would expect to see this added to the scorecards.

9.71 CSI will be 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.

Table 9.5 – our final decisions on CSI CP6 baseline trajectories (exit CP6 values) for England & Wales

Route	CSI CP6 baseline trajectories
Anglia	-1.8%
LNE&EM	-1.6%
LNW	-3.5%
South East	-3.9%
Wales	-0.9%
Wessex	-4.8%
Western	+1.6%
National	-1.6%

Regulatory Minimum Floor

9.72 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

9.73 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 having a significant detrimental impact on its expected level of sustainability.

9.74 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 planned activity across the control period. It proposed that routes would 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.

9.75 In addition to the regulatory minimum floor, Network Rail proposed that its internal assurance and review would 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 type). If so, a route specific improvement plan will be required for Executive approval and monitoring.

Our draft determination analysis and conclusions

9.76 We recognised why Network Rail proposed the methodology it did. 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.

9.77 We therefore preferred 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.

9.78 In response to our request Network Rail revised its regulatory minimum 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 9.4: Floor calculation example- National
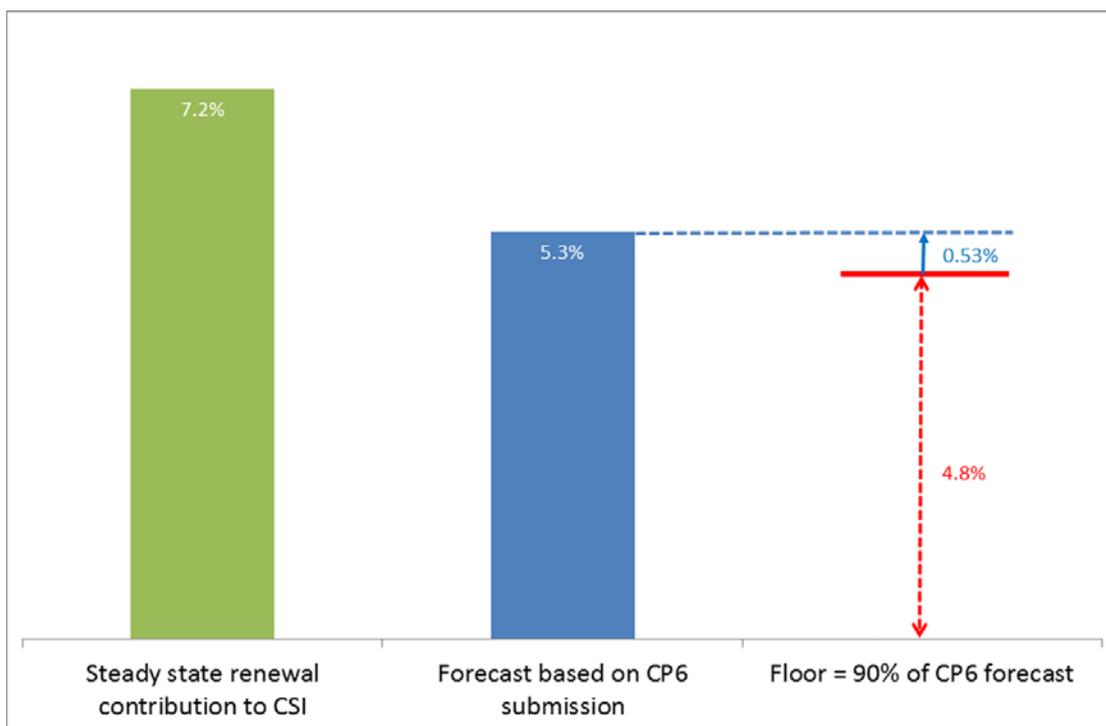
Source Network Rail

Our final decisions on CSI regulatory minimum floor for England & Wales

9.79 Based on the forecast change in sustainability against the final determination, we have accepted Network Rail's proposal of additional renewals (£608m). We have revised the regulatory minimum floors based on the revised CSI values and these are set out in Table 9.6 below.

9.80 At the end of year three of CP6 we will require Network Rail to commission an independent review of each route to ascertain the likelihood of them achieving their forecast CSI score. The objective 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 not be breached.

Table 9.6: our final decisions on CP6 CSI regulatory minimum floors for England & Wales routes

Route	End CP6 baseline trajectories	Regulatory Minimum Floors End CP6
Anglia	-1.8%	-2.6%
LNE&EM	-1.6%	-2.0%
LNW	-3.5%	-3.7%
South East	-3.9%	-4.8%
Wales	-0.9%	-1.2%
Wessex	-4.8%	-5.3%
Western	+1.6%	0.8%

Scotland

9.81 The general approach to calculating CSI trajectories and the regulatory minimum floor in Scotland was as in England & Wales. This section addresses specific issues which relate to Scotland.

9.82 In Scotland, in common with all other routes, there is a projected reduction in the CSI score. However, the position on asset sustainability in Scotland is better than for other routes, with the level of sustainability above the baseline at the end of CP4.

9.83 In our draft determination we noted that the Scotland forecast was that network sustainability would 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). We considered that this in itself was 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 types as part of our assessment of network sustainability.

9.84 The indicative regulatory minimum floor for asset sustainability in Scotland was set at 1.8% at the end of CP6.

9.85 In light of the better position on asset sustainability, and in contrast to England & Wales, there was not the same need to re-prioritise expenditure to address asset sustainability in Scotland.

9.86 In its response to the draft determination, Network Rail set out that it would require additional funding for two issues[76] that had materialised since the drafting of its SBP. These are addressed, alongside the other HLOS requirements, in our summary of

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[76] These related to replacement of bridges, and changes to funding assumptions about Carstairs.

[conclusions and route settlement – Scotland](). These additional items however have no material impact on sustainability as measured by CSI.

Our final decisions on CSI in Scotland

9.87 The CSI CP6 baseline trajectory and the regulatory minimum floor for asset sustainability in Scotland are unchanged from our draft determination.

Table 9.7 – our final decision on Scotland CSI CP6 baseline trajectory and regulatory minimum floor

Route	End CSI CP6 baseline trajectory	Regulatory minimum floor – end CP6
Scotland	2.3%	1.8%

9.88 At the end of year three of CP6 we will require Network Rail to commission an independent review of this route to ascertain the likelihood of it achieving its forecast CSI score. The objective will be to provide assurance and if necessary clear guidance for the route to follow to ensure that the regulatory minimum floor for asset sustainability at the end of CP6 will be met.

Our final determination on network sustainability

9.89 A summary of our decisions on network sustainability for England & Wales and Scotland is set out below:

Table 9.9 – summary of our decisions on network sustainability

Decision	Accountable
Measuring network sustainability We will monitor levels of sustainability using CSI and more input-based indicators in CP6, 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; ■ 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 CSI CP6 baseline trajectory;	Network Rail

Decision	Accountable
■ periodic and quarterly liaison meetings with Network Rail's asset engineers to monitor work plan compliance; ■ ad hoc reporting as necessary; and ■ reporting within Network Rail's Annual Return.	
A new measure for network sustainability Network Rail will develop an alternative measure for network sustainability in line with the plan it has submitted to us as set out in Table 9.1. We will decide in CP6 how to use this new measure in our monitoring and reporting against Network Rail's sustainability CP6 baseline trajectory. We will also decide appropriate revisions to the regulatory minimum floor if the new measure is introduced.	Network Rail
Change control An annual change control process will review the CSI scores and adjust them in light of increased certainty and additionally funded interventions e.g. enhancements	Network Rail
CSI CP6 baseline trajectory We have set CSI CP6 baseline trajectories which reflect our expectations regarding Network Rail routes' contributions to sustainability of the network in light of the funding available to Network Rail. We will use these baselines in our monitoring and reporting during CP6.	Geographic routes
Regulatory minimum floor for CSI We are highly likely to investigate formally whether or not a route is in breach of the Network Rail network licence if sustainability levels are projected to be below the regulatory minimum floor for CSI specified in the route settlement documents.	Geographic routes

Decision	Accountable
If we implement a new measure we will review the level of the floor as part of that process.	