



# PR23 draft determination:

## Supporting document - health and safety

15 June 2023



# Contents

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<b>About this document</b>	<b>3</b>
<b>Executive summary</b>	<b>6</b>
<b>1. Our approach to reviewing Network Rail's Strategic Business Plan</b>	<b>10</b>
<b>2. Our assessment of Network Rail's Strategic Business Plan</b>	<b>15</b>
<b>3. Regional assessment of Network Rail's Strategic Business Plan</b>	<b>32</b>
<b>4. Next Steps</b>	<b>41</b>

# About this document

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This technical assessment of health and safety is one of five supporting documents of our draft determination for the 2023 periodic review (PR23).

PR23 will determine what the infrastructure manager for the national rail network, Network Rail, is expected to deliver with respect to its operation, support, maintenance and renewal (OSMR) of the network during control period 7 (CP7), which will run from 1 April 2024 to 31 March 2029, and how the available funding should be best used to support this.

This strongly influences:

- the service that passengers and freight customers receive and, together with taxpayers, ultimately pay for; and
- the charges that Network Rail's passenger, freight and charter train operator customers pay to access its track and stations during CP7.

Our draft determination sets out:

- our review of Network Rail's strategic business plan (SBP); and
- decisions on its proposed outcome delivery and its planned expenditure to secure the condition and reliability of the network;
- changes to access charges and the incentives framework; and
- relevant policies on managing change and the financial framework.

In addition to **this document**, we have also published as part of our draft determination:

Document type	Details
<b>Executive summaries of our determination</b>	Our key proposals from our draft determination for: <ul style="list-style-type: none"><li>• England &amp; Wales</li><li>• Scotland</li></ul>

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<b>Overviews of our determinations</b>	What Network Rail will need to deliver and how funding will be allocated in: <ul style="list-style-type: none"><li>• England &amp; Wales</li><li>• Scotland</li></ul>
<b>Consolidated decisions</b>	A summary of our draft decisions across Great Britain
<b>Introduction</b>	An overview of PR23 and background to our draft determination
<b>Settlement documents</b>	Detailed draft decisions for each of: <ul style="list-style-type: none"><li>• Scotland</li><li>• Eastern region</li><li>• North West &amp; Central region</li><li>• Southern region</li><li>• Wales &amp; Western region</li><li>• System Operator</li></ul>
<b>Supporting documents</b>	Technical assessments of: <ul style="list-style-type: none"><li>• <b><u>Health and safety</u></b></li><li>• Outcomes</li><li>• Sustainable and efficient costs</li><li>• National Functions</li><li>• Other income</li></ul>
<b>Policy positions</b>	How we intend to regulate Network Rail during CP7 in relation to: <ul style="list-style-type: none"><li>• Financial framework</li><li>• Access charges</li><li>• Schedules 4 &amp; 8 incentives regimes</li><li>• Managing change</li></ul>

## Responding to the consultation on our draft determination

We are consulting on our draft determination and welcome comments from stakeholders on any of our documents which form the draft determination on or before 31 August 2023.

Responses should be submitted in electronic form to our inbox: [PR23@ORR.gov.uk](mailto:PR23@ORR.gov.uk). We request stakeholders provide their response using [this proforma](#).

We intend to publish all responses on our website alongside our final determination in October 2023. Annex A to our proforma document sets out how we will treat any information provided to us, including that which is marked confidential.

### Next steps

After taking account of stakeholder responses, we expect to issue our final determination on Network Rail's delivery and funding for CP7 by 31 October 2023.

We expect to issue our review notices by December 2023 and, subject to Network Rail's acceptance, issue notices of agreement and review implementation notices. These will give effect to the decisions made during PR23 in time for CP7 to commence from 1 April 2024 and for Network Rail to develop its plans for delivery.

# Executive summary

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This document sets out the findings of our review of Network Rail's strategic business plan (SBP) from a health and safety perspective. Safety is one of our four core objectives for PR23, alongside performance, asset sustainability and efficiency. A key consideration in our assessment is whether Network Rail's proposals for control period 7 (CP7) will allow it to continue to operate safely and in line with its legal requirements.

The UK and Scottish governments have set out in their respective High-Level Output Specifications (HLOS) that the safe operation of the rail network remains a priority in CP7. Network Rail's own strategic theme for safety focuses on 'getting everyone home safe, every day', with a safety objective that the rail network must be maintained in a safe condition for all its users, workers and the public. Network Rail commits in its SBP to reducing passenger and public safety risks, as well as safety risks to the workforce.

Our findings have been informed by our challenge and engagement with Network Rail since submission at the end of February 2023 of its SBP for England & Wales and its interim plan for Scotland. We recognise that Network Rail's plans for CP7 have been produced to challenging timescales (due to the HLOS/Statement of Funds Available (SoFA) being late compared to our timetable) and are still in development. We have taken account of the significant information Network Rail has provided to us subsequent to the submission of its SBP and note the progress it has made in refining its plans since then. There remain instances where we are still evaluating the information received and in discussion with Network Rail about the more recent submissions. Where this applies, we have made that clear in our draft determination. We also explain in this document where further work is needed in certain key areas. We will take account of this information and any relevant revisions to Network Rail's plans in our final determination.

We start from a position where Britain's railways remain among the safest in Europe as confirmed by our benchmarking of safety performance in our published Common Safety Indicators Report. Even so, there is a need to remain focused on health and safety, to continue to deliver a safe railway, manage risk and continually improve.

We have taken a joined-up approach across safety and economic regulation to assess Network Rail's CP7 plans, taking account of our experience from inspection and investigation work in control period 6 (CP6). For example, following the derailment of a passenger train at Carmont in Scotland in August 2020, we have followed up on the Network Rail action plans arising from the recommendations made in the reviews by Lord Robert Mair and Dame Julia Slingso and the Rail Accident Investigation Board (RAIB)

## Office of Rail and Road | Periodic review 2023: supporting document - health and safety

report recommendations. On track worker safety, we served two improvement notices to Network Rail on 8 July 2019, which led to the development of the Network Rail Track Worker Safety (TWS) Programme in CP6 and have seen Network Rail's substantial work achieving lasting improvements. This will have long-term positive consequences.

On maintenance modernisation, we sit as observers on the Network Rail 'Management of Change' panel, which oversees the company's maintenance modernisation programme and have started an inspection initiative to check implementation of the modernised maintenance arrangements.

We looked at key themes from CP6 which continue into CP7, noting both where good progress has been made by Network Rail and areas where further planning or assurance is required. The areas discussed in this document relate to asset condition and renewals, maintenance, earthworks and drainage, the Electrical Safety Delivery programme (ESD), track worker safety, certain aspects of occupational health, asbestos and fatigue.

### Health and safety outcomes

As with other areas of Network Rail's activity in CP7, there will be a focus on outcomes with respect to health and safety. This is an area which is discussed in more detail in the [PR23 draft determination: supporting document on outcomes](#).

The focus of our outcomes monitoring will be on three supporting measures: Fatalities and Weighted Injuries (FWI) for workforce passengers and public, which is a weighted measure of fatalities and non-fatal injuries; Train Accident Risk Reduction (TARR), which measures the achievement of key risk reduction activities planned in the year; and Personal Accountability for Safety (PAFS), which measures the number of breaches in 'life saving rules' and high potential events.

Forecasts for all three of these measures will be provided in the CP7 delivery plan. In line with what has been indicated in the early forecasts in the SBPs, we expect health and safety outcomes to be at least maintained throughout CP7 from CP6. These outcomes must be consistent with the delivery of a safe and legally compliant railway.

## Key findings

**Approach to asset renewals, including earthworks:** In comparison to CP6, Network Rail proposes to conduct fewer renewals in CP7. Network Rail proposes to manage the risks posed by the reduction in renewals by increasing its refurbishment and maintenance activities and using operational controls.

## Office of Rail and Road | Periodic review 2023: supporting document - health and safety

Our review has identified that the needs of some key assets have not been sufficiently prioritised in the initial plans. Some of this includes assets which are particularly vulnerable to the effects of climate change with important implications for the future safety and performance of the network. We expect Network Rail to demonstrate how it will manage the shift in risk profile which results from conducting fewer renewals and taking a more maintenance-based approach to management of the infrastructure. This should be informed by the adjustments to core renewals that we propose and which are set out in more detail in our [PR23 draft determination: supporting document on sustainable and efficient costs](#).

We expect Network Rail to pay particular attention to the renewals and maintenance needs of earthworks in each of its regions. Our assessment of Network Rail's proposals on earthworks identified concerns with a reduction in volumes of earthworks specific drainage, despite drainage expenditure increasing in all regions except NW&C. We also note Network Rail's proposal not to pursue dedicated drainage teams in most regions, which is not consistent with one of the recommendations made in the action plans developed following the Mair/Slingo inquiries on managing rail infrastructure in more frequent extreme weather.

**Market-led approach:** Network Rail states that its overall approach to asset management in CP7 is “no overall decline in safety for customers and staff within CP7”. Network Rail also intends to take a market-led approach which would involve prioritising expenditure on high value routes, with the potential for limited renewals and refurbishment work on lower value lines, leading to increased reliance on maintenance work and operational controls to manage and mitigate risk. Any application of the market-led approach must continue to ensure that risks are reduced ‘so far as is reasonably practicable’ (SFAIRP) on all lines irrespective of value.

**Maintenance:** With a lower level of renewals in CP7, there will be an overall increase in demand on Network Rail's maintenance function. We expect Network Rail to demonstrate that its maintenance plans will be sufficient to support the increased demand on its maintenance function.

A key enabler of Network Rail's approach to maintenance is the implementation of its maintenance modernisation programme. We are supportive of modernising maintenance but effective implementation and preparedness for the requirements of the assets in CP7 is key. We will continue to work with Network Rail and expect the company to demonstrate that it can deliver the required efficiencies with the resources available and sustain the required capability to maintain the assets.



## Office of Rail and Road | Periodic review 2023: supporting document - health and safety

Our findings in this draft determination are conditioned by the evolving nature of Network Rail's plans. We will review the updated plans following Network Rail's consideration of the scrutiny and challenge that we have set out in this draft determination.

# 1. Our approach to reviewing Network Rail's Strategic Business Plan

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- 1.1 Our assessment of health and safety has been undertaken alongside our review of Network Rail's SBP for asset management, cost and efficiency. In this chapter, we provide information on the legal framework and our approach to assessing Network Rail's plans for CP7.

## Background and context

### Legal framework

- 1.2 Network Rail has duties under the Health and Safety at Work etc. Act 1974 (and subsequent regulations) to ensure the safety of employees and others affected by its undertakings. These general duties are made specific to the railway environment by the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS), which set out what must be included in a duty holder's Safety Management System (SMS) and introduce Safety Authorisations and Certificates.
- 1.3 Most health and safety legal duties are required to be carried out 'so far as is reasonably practicable' (SFAIRP). This test requires a control measure to be implemented unless an employer can demonstrate that the cost and effort required to do so is grossly disproportionate to the risk being addressed. This test is sometimes referred to as 'as low as is reasonably practicable' (ALARP), meaning that all reasonably practicable steps have been taken to reduce the risks (therefore this can be considered to be ALARP). Affordability is not part of the test of reasonable practicability – it is whether the amount of time, trouble, cost, disruption, and physical effort to achieve a control is grossly disproportionate to the risk or not.
- 1.4 It is not ORR's role to dictate or prescribe what is reasonably practicable nor tell Network Rail how it should meet its legal obligations. Our role is to judge whether Network Rail has the capability to deliver a safe, legally compliant railway in CP7. In doing this, we have challenged Network Rail where it appears to be ruling out safety-related expenditure that we consider might be reasonably practicable.

## Legal status – Network Rail

1.5 Network Rail is a single legal entity, holding one ROGS Safety Authorisation for the whole network.

## High-Level Output Specifications

1.6 Within the devolved legal framework for periodic reviews, the Secretary of State retains responsibility for the safety of the network across Great Britain as a whole.

1.7 The UK Government set out in its High-Level Output Specification (HLOS) that maintaining safety is a continuing priority and safety must be considered by Network Rail as essential for customers of the railway, the public and for rail workers. The HLOS contains several health and safety priorities for Network Rail to deliver in its CP7 plans:

- the strong standard of safety achieved across the rail industry must continue, retaining improvements made by Network Rail in previous control periods, including on suicide and trespass prevention;
- continued focus on addressing the priority areas identified by Network Rail through its risk assessment processes, the ORR through its inspection and investigation activities, and the safety learning identified by the Rail Accident Investigation Branch;
- progress on improving user safety on level crossings that require renewal works (including addressing signage on user-worked level crossings);
- a strong and effective focus on supporting trackworker safety building on the considerable work done on this in CP6;
- conduct workforce modernisation to enable greater safety for those working on the railway, making best use of technology to also reduce risk.

## Scotland

1.8 Health and safety is not a devolved matter and these requirements apply equally to Scotland. In addition, the HLOS issued by Scottish Ministers requires Network Rail to:

- adopt an asset management strategy in CP7 focused on safety, reliability, resilience, sustainability, and value for money;
- in conjunction with the Rail Safety and Standards Board (RSSB), undertake a detailed and systematic risk assessment of the planned mitigating controls,

including operational responses, that relate to environmental-related failures of earthworks, drainage or structures and revise these, if required to address any areas of weakness identified by the risk assessment;

- maintain safety, including a programme of works to make provision for weather resilience; and
- develop a Scottish signalling strategy with plans for each line route to maintain safety, and operational performance.

## Review of Network Rail's Strategic Business Plan

### Our expectations of Network Rail's plans

1.9 In our SBP guidance to Network Rail, issued in July 2022, we set out our expectations regarding health and safety management. We stated that we expected, at a minimum, that Network Rail's SBP would:

- clearly articulate Network Rail's health and safety priorities at regional, System Operator (SO) and functional department levels, including how those priorities were agreed upon and how the business units could demonstrate that their strategic plans aligned with them. This should include the activities that Network Rail's regions and other business units will undertake to achieve Network Rail's priorities and how success will be measured;
- show how it will ensure compliance with all its relevant legal obligations under health and safety legislation over CP7; and
- where full legal compliance is difficult due to legacy infrastructure characteristics, describe the trajectory to improved compliance and explain how risk will be managed in the interim.

1.10 We noted that there may be instances where additional expenditure is proposed, including in response to the Network Rail action plans to implement the Lord Robert Mair and Dame Julia Slingo recommendations on managing rail infrastructure in extreme weather, which is becoming more frequent. Where this is the case, we said we expected to see a clear rationale for the additional expenditure (including how it will implement the recommendations of those reports) set out in the regions' strategic plans (or elsewhere, as necessary).

1.11 As part of its submission, we expected to see evidence of Network Rail's Technical Authority scrutiny, assurance, and challenge of the regions' plans. This

could include assurance reports from the Technical Authority and scrutiny of their alignment with asset policies.

## Our approach to the assessment

- 1.12 We have carried out a detailed review of Network Rail's plans. For England & Wales, the SBP includes two scenarios for expenditure. The first assumes that a £0.5 billion centrally managed fund, coupled with "contingent renewals" in the regions, is sufficient to manage risk that emerges during CP7. The second is a 'risk-adjusted' plan which involves descoping up to £1.5 billion of renewals across regions if risk materialises.
- 1.13 Our assessment and draft determination consider Network Rail's risk-adjusted plan. From a health and safety perspective, we have considered the extent to which Network Rail's plans, if implemented, are likely to enable Network Rail to continue to operate its network safely and in line with its legal requirements. As part of this, we have considered whether Network Rail's SBP demonstrates a suitable health and safety strategy.
- 1.14 We have paid particular attention to known areas of concern:
- the impacts and mitigation measures relating to any proposed deferrals of asset renewals and changes to the frequency of inspections and maintenance of the network;
  - weather and climate resilience, including the pace of delivery and extent to which Network Rail is addressing the risk of derailments during adverse or extreme weather events due to the management of earthworks and drainage, and mitigations for high rainfall events; vegetation management for low adhesion to aid prevention of fallen trees in high winds, flooding precautions and hot weather measures for track and overhead line equipment (OLE);
  - the impact of modernising maintenance on its ability to manage safety risk arising from the assets;
  - industry-wide changes to fatigue management (including their impact on rostering and resourcing) and local commitment to the continued implementation of health improvement initiatives;
  - continuation of priority programmes to improve risk control including the Electrical Safety Delivery (ESD) programme, level crossing strategy, embedding processes adopted by the Workforce Safety Task Force; continued adoption of Potentially High-Risk Train Accidents (PHRTA) risk

reduction workstreams, continued commitment to health improvement initiatives and delivery of the next stages of the asbestos management plan; and

- issues highlighted through our inspections, including effective management of metallic structures (bridges) that have not been remediated in CP6; tackling ash dieback and removal of polychlorinated biphenyls (PCBs) contaminated electrical equipment.

## 2. Our assessment of Network Rail's Strategic Business Plan

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2.1 Our assessment of Network Rail's SBP has looked across assets and renewals, maintenance, and other key themes from CP6 which continue into CP7. This chapter sets out the findings of our review.

### Asset management and renewals

2.2 Safety outcomes in CP7 will, in significant part, be shaped by core asset condition. Network Rail proposes to undertake fewer renewals of core assets during CP7. In England & Wales regions, Network Rail proposes to spend £14.8 billion on all renewals in the risk-adjusted plan, which is £0.6 billion (circa 3%) less than CP6. In Scotland total renewals spend is £2.1 billion, which is down £0.3 billion (circa 14%) on CP6.

2.3 Due to the overall reduction in renewals, all regions are projecting an increase in service affecting failures and have highlighted a likely increased use of operational speed restrictions to manage the infrastructure safely. These are likely to increase throughout the control period, as asset condition reduces and additional renewal sites are deferred due to cost constraints. The adequacy of these controls is dependent on maintenance plans, which we discuss in further detail below.

2.4 Not all reductions in renewals represent a safety risk. Our assessment has paid close attention to the need to improve the resilience of assets in adverse and extreme weather, associated operational controls, consequence management and the extent to which Network Rail is addressing the risk of serious incidents arising from earthworks and drainage failures. Our concerns are highlighted by the experience of derailments at Carmont on 12 August 2020 and Watford Tunnel on 16 September 2016, and additional significant asset failures at Hook (14 January 2023), Wallers Ash (27 August 2020), Edenbridge (22 December 2019) and Lochailort (25 June 2020). The Nuneham Viaduct failure on 3 April 2023 highlights the potential risks associated with the failure of structures assets on Network Rail's infrastructure.

2.5 Our assessment has been informed by assurance reports and ongoing reporting and monitoring during CP6 and is consistent with the assessment conducted by Network Rail's own Technical Authority which was included in the SBP.

2.6 The Technical Authority's assurance work tested whether:

- an effective approach had been taken by each region in developing the asset management content;
- regions had robust asset strategies for each asset class, confirming the overall management intentions for each asset (covering renewals and maintenance activity and risks to delivery);
- proposals were aligned with the Technical Authority's asset policy, guidance and minimum levels of activity; and
- the plans had appropriate forecasts for safety, asset performance and asset sustainability.

2.7 The Technical Authority's assurance found areas of concern in the planned level of renewals in the following areas:

- Track in Wales & Western;
- Earthworks in Eastern, Southern and Wales & Western
- Tunnels in Wales & Western; and
- Structures in Scotland, Southern and Wales & Western.

2.8 This indicates that the mitigations in place to control the increase in risk are not yet managed so far as is reasonably practicable. This has important safety implications, as well as performance and efficient asset stewardship implications.

2.9 In the light of poorer asset condition through reduced asset renewals, Network Rail's plans propose that safety will be maintained by means of additional maintenance and operational restrictions. This represents a lower standard of risk management compared to renewing or refurbishing and maintaining the asset.

2.10 Falling back on this lower level of risk management increases the possibility of issues with individual assets or sections of the infrastructure that may not be identified which could result in incidents. Network Rail has not yet demonstrated that the practicalities, including human factor considerations of implementing operational restrictions on a potentially larger scale, have been sufficiently considered. Effective operational controls require people doing the right thing at the right time every day. This increases the likelihood of failure through human error and applies pressure on the robustness of training, competence



management systems and staff fitness for duty, including for example, the management of fatigue. Furthermore, reliance on operational controls will require well-designed processes put in place to deliver them; a positive safety culture will also be vital.

- 2.11 Network Rail will need to deliver its plans for technical solutions to support its staff when making decisions. This will need research, development and implementation, for example, Network Rail will need to deliver its plans for Unattended Geometry Monitoring Systems (UGMS) and Digitised Lineside Inspection (DLI) amongst other solutions. We note that Network Rail has had mixed success on delivery and implementation of new technical solutions.
- 2.12 Even if operational restrictions are implemented perfectly, there could be resistance to their widespread or long-term implementation. This is already being seen in respect of extreme and adverse weather, where a desire to avoid blanket speed restrictions is leading to tools being developed to reduce the geographical extent of speed restrictions. This may also affect the sustainability of operational restrictions over the long term if the infrastructure is allowed to continue to degrade. In addition, operational restrictions transfer elements of risk control from Network Rail to train operators.
- 2.13 Network Rail has not demonstrated the scale of the shift in risk from the move from a more renewals focused management of the assets to an approach more reliant on maintenance and operational controls and will need to demonstrate more clearly its understanding of this risk shift and its implications. Leading up to the final determination we will work with Network Rail to improve both our understanding of this change in risk and how it will be managed.
- 2.14 In our [PR23 draft determination: supporting document on sustainable and efficient costs](#), we have identified that the needs of some core assets in each of Network Rail's regions have not been sufficiently prioritised and outline how a re-prioritisation of renewals activity and expenditure would address the main core asset vulnerabilities. If Network Rail addresses the asset management and renewals prioritisation as we propose, this should significantly contribute to addressing our main concerns identified from a safety perspective. We now seek evidence of the change in risk caused by the shift from renewals to maintenance and operations after the adjustments to core renewals that we propose.

## Market-led approach

- 2.15 Network Rail has sought to address the requirements of the HLOSs in the development of its SBPs by prioritising expenditure on high value lines. On lower value lines it is proposing to take a more reactive approach to maintenance, and it suggests risks will be mitigated using operational restrictions. It refers to this as a 'market-led' approach.
- 2.16 Our view is that, at least in part, the market-led approach is a form of route criticality that is an established approach to prioritising investment in rail. We recognise that, if deployed appropriately, it could achieve greater alignment between infrastructure management and customer/passenger outcomes. As such it could support more "whole industry" approaches to rail investment. However, Network Rail's market-led approach is still under development. Network Rail has advised that it could pursue this approach to a greater extent during CP7 but does not include specific proposals in its SBP. It advises that a further prioritisation during CP7 would require discussion with ORR and funders to implement.
- 2.17 We will maintain dialogue with funders and with Network Rail on how any further prioritisation should be treated and how it should be delivered. In assessing any further prioritisation, our focus will remain on our objectives of safety, performance, asset sustainability and efficiency. We will continue to ensure that Network Rail is suitably monitored and held to account for delivery of its CP7 plan and that changes are managed appropriately. We will use our 'Holding to account' and 'Managing Change' policies for this.
- 2.18 The market-led approach must ensure that the requirement to reduce risks 'so far as is reasonably practicable' (SFAIRP) is met on all lines irrespective of value.
- 2.19 We look for the next iteration of Network Rail's plans to be supported by appropriate guidance or policies on risk management, that ensure risks on low value lines are managed SFAIRP.

## Earthworks and drainage

- 2.20 We found that as part of Network Rail's overall approach to asset management there is a significant reduction in the planned levels of earthworks renewals nationally. Network Rail's proposed spend on earthworks would reduce in CP7 by £245 million (16%). Given the potential for earthworks failure to give rise to a catastrophic incident, alongside the changing climate and resultant increased risk of such failures, this requires attention.

- 2.21 We acknowledge that this has been recognised by Network Rail through its own Technical Authority assurance work, with further work being undertaken in this area. As indicated above, our [PR23 draft determination: supporting document on sustainable and efficient costs](#), proposes how renewals activity could be re-prioritised to address the main core asset vulnerabilities, including for earthworks renewals.
- 2.22 Network Rail has acknowledged the reduction in earthworks spend and argues that this is to some extent compensated for by increased expenditure on drainage. However, drainage renewal funding is not all targeted at drainage supporting earthworks. Part of it, and in some regions the majority, is allocated to track drainage. It is also apparent that although funding has increased for drainage, volumes of work to be delivered are reduced. This raises concerns about the amount of earthwork-related drainage work to be delivered. In addition, Network Rail has indicated an equivalence between ‘Specific Weather Resilience Opex’ and earthworks renewals. We are not convinced of this equivalence given that one of the recommendations of the Mair report was the establishment of dedicated drainage teams, is not being pursued in most regions.
- 2.23 The approach to drainage management in some regions is not consistent with the recommendations of the Mair report, particularly in terms of mixed off-track teams as opposed to dedicated drainage teams. Although regions argue that sufficient resource will be made available, the proposals for mixed teams do not fully implement the relevant Mair recommendation which was accepted by Network Rail. In the next iteration from Network Rail, we seek assurance that the maintenance resource required for drainage management is fully available under the modernised maintenance arrangements. We are reassured that all regions and the System Operator make clear commitments to implementing the priority recommendations of Lord Mair and Dame Slingo and we note the £20 million System Operator funding for this purpose. Opex funding is critical to delivery of these recommendations, which are largely focused on improving the effectiveness of operational activity rather than changes to renewals arrangements.
- 2.24 The ongoing support and funding for the activities of the ‘Weather Risk Task Force’ established to deliver the integrated plan to deliver the recommendations from the Mair and Slingo reports is welcomed. However, it will be important for Network Rail to keep this under review as the expected increase in its scope, for example to include recommendations from Network Rail’s hot weather resilience task force, and low adhesion issues arising from the investigation into the collision at Salisbury Tunnel Junction on 31 October 2021 are likely to increase the

resource needed to achieve its key deliverables. Specifically in this respect, we note that:

- Eastern has allocated funding as part of Climate Change Adaptation initiatives;
- North West & Central has allocated funding as part of weather resilience and seasonal preparedness, with an appropriate focus on drainage resource;
- in Scotland and Southern it is mentioned as part of weather resilience and climate change adaptation; and
- in Wales & Western, Mair report activity is linked to ‘additional expenditure across drainage, earthworks, and weather resilience’.

2.25 These commitments, including ongoing support for the work of the Weather Risk Task Force, provide some assurance that the priority Mair and Slingo recommendations (as well as those arising from the RAIB recommendations and Network Rail’s internal investigation) will continue to be pursued. It should be stressed that in our view, drainage resourcing is a particular priority, and it is essential that commitments to deliver in this area are met.

## Structures

2.26 As part of Network Rail’s overall approach to asset management, we found that some regions have proposed significant reductions in structures renewals.

**Table 2.1 Regional picture comparison of CP7 risk adjusted plan for structures renewals compared to CP6**

£m, 2023-24 price base	CP6 cost	CP7 cost	% change from CP6 to CP7
Eastern	603	565	-6.0%
Southern	429	397	-7.0%
W&W	446	280	-37.0%
NW&C	521	538	3.0%
Scotland *	404	372	-8.0%
England & Wales	1,998	1,780	-11.0%
<b>Great Britain Total</b>	<b>2,415</b>	<b>2,153</b>	<b>-11.0%</b>

\*we understand this will be revised in the forthcoming Scotland SBP

- 2.27 This is likely to increase the risk of individual asset failure. In particular:
- Southern states that the levels of activity will result in further deterioration of metallic underbridges, tunnels and overbridges;
  - Wales & Western has reduced spending in this area significantly, without explaining what the impact of this would be or how it will be managed;
  - in Scotland, Network Rail acknowledges that the planned workbank for metallic overbridges is likely to result in a 'decrease in average asset portfolio condition'.
- 2.28 The mitigation arrangements in respect of these risks are not sufficiently clear, and deferring the issue to the next control period risks it persisting. There are also risks to individuals in the workforce and the general public as the assets degrade, such as from falling debris.
- 2.29 Reducing renewals will likely have a knock-on effect on examination compliance, because additional examinations are often used as interim mitigation when renewals are deferred. This risks diverting limited examination resource away from proactive examination, which is already suffering very significant non-compliance with the Network Rail standard, an issue which we wrote to [Network Rail's Chief Executive about on 15 May 2023](#). Given the existing backlog of inspections, Network Rail will need to consider the capability of the inspection resource to manage any such increase to ensure that defects continue to be identified so that remediation or other risk controls/mitigations can be put in place.
- 2.30 Operational controls, which we believe to include options such as speed restrictions, road closures and line closures, are referred to as options to manage risks from structures. Increasing use of such controls moves risk control further down the hierarchy of risk control with significant reliance on individuals to make correct, well-informed decisions on what the control should be, implementing those controls and monitoring the effectiveness when in place. We also have concerns regarding the practicability of implementing these measures in busy urban areas where pressure to maintain performance and keep roads open is likely to be high.
- 2.31 We would welcome further demonstration from Network Rail on how these risks from structures are to be managed.

## Buildings (Operational Property)

- 2.32 Network Rail proposes to defer a number of buildings renewal projects in CP7 but has not adequately explained at regional level the safety impact of its deferral decisions.
- 2.33 Wales & Western, in particular, has a backlog in building examinations. We have seen little consideration of the impact of this backlog on the region's management of risk in the operational property portfolio.
- 2.34 Southern has again deferred Victoria Station roof. This work has now been deferred for a number of control periods. The proposal to control the risk during CP7 by means of catch netting indicates a move down the hierarchy of safety controls, from preventing failure to mitigating the consequences of failure. Network Rail should clearly demonstrate how the risks associated with Victoria station roof are being reduced, so far as is reasonably practicable.
- 2.35 Climate change and extreme weather events have the potential to negatively impact the buildings portfolio. Incidents such as roofs being blown off or facades being blown down in high winds have occurred during CP6. We have seen limited evidence of regions addressing this issue in their plans.
- 2.36 We note that Southern plans reactive maintenance only at lineside buildings housing high voltage Electrification & Plant (E&P) equipment. In the light of [the incident at Godinton in 2019](#), and ongoing reports of faults, we are looking for the region to articulate the adequacy of this approach to ensure safety at these assets.
- 2.37 We would welcome further demonstration from Network Rail on how these risks from buildings are to be managed.

## Track

- 2.38 In general, due to the good asset condition built up in recent control periods, along with the good asset knowledge, monitoring and inspection tools (e.g. Plain Line Pattern Recognition, Ultrasonic Test Unit, track geometry recording) and decision support tools, we accept that the proposed track funding for CP7 does not create an immediate risk to the operational railway. However, there are issues in some areas most notably Wales & Western as described below.
- 2.39 We would welcome further demonstration from Network Rail that the concerns raised by their own assurance activity have been addressed, in particular for the Wales & Western region.



## Office of Rail and Road | Periodic review 2023: supporting document - health and safety

- 2.40 The SBP describes a reduction in plain line, and switch and crossing renewals volumes. This reduction in renewal volumes is offset by an increase in refurbishment, other “life extension” work, increased maintenance work and use of operational controls.
- 2.41 There is likely to be an increase in the number of sites and volume of deferred work items. It can be anticipated that an increase in deferrals will require an increase in asset management and maintenance activities. This introduces more “boots on the ground” and more safety-critical decision making on the asset.
- 2.42 Competence, asset knowledge and data accuracy will be of critical importance in the safe management of assets. From our inspection work, we have some concerns regarding the slow take up of the track competency framework by the maintenance teams.
- 2.43 Linked to this, the infrastructure monitoring services and the planned move to use of more Unattended Geometry Monitoring Systems (UGMS) on service trains will become more critical. These monitoring services are important to support the use of risk-based maintenance and monitoring quality of work. The regions recognise the importance of the infrastructure monitoring services and the increasing importance of reliability to support good decision making.
- 2.44 Whilst in agreement with Network Rail Route Services’ aspirations for infrastructure monitoring, there is a lack of detail in the SBP. We would ask Network Rail to provide more detail on timelines and deliverables for this work.
- 2.45 We found all regions are projecting an increase in service affecting failures due to the overall reduction in renewals and have highlighted a likely increased use in operational speed restrictions, to manage the infrastructure safely. These are likely to increase throughout the control period as asset condition reduces and additional renewal sites are deferred due to cost constraints. The adequacy of these controls are dependent on delivery of appropriate maintenance plans. Planned improvements such as in infrastructure monitoring and continued rollout of improved decision support tools should help counter the risk.

### Off track vegetation and boundaries

- 2.46 We recognise as positive that from CP7 onwards Network Rail will manage off track assets as a standalone portfolio. We also recognise as positive that all regions recognise and make provision for the management of risk from ash dieback.

2.47 Whilst the proposed off-track funding is considered, from an asset management perspective, sufficient to maintain a sustainable railway through CP7 there are some issues we have identified:

- there is a lack of clarity regarding vegetation programmes and whether they will maintain the current agreed timeframes for delivering a compliant lineside vegetation profile; and
- all regions except Wales & Western are proposing to reduce the delivery of their fencing renewals in CP7, leading to a reduction in fencing volumes by 33% in comparison to CP6. In particular, we have specific concerns over two regions, Eastern and North West & Central, with respect to their trade-off decisions and prioritisation approach. These reductions and prioritisation approaches raise concerns regarding maintaining effective boundaries that manage the risks from animal incursions.

2.48 We ask Network Rail to demonstrate how they are managing these issues.

## **Electrical**

2.49 We note the plans for the Electrical Safety Delivery (ESD) programme and that it is recognised as a critical activity to reach compliance with legislation. ESD was a key programme from CP6 to enable Network Rail to achieve legal compliance efficiently, within an agreed timeline, and we support its progression.

2.50 In our supplementary advice to funders in the Autumn, we challenged Network Rail to complete delivery of the ESD programme more efficiently. Network Rail confirmed the reduction in funding for ESD from £515 million to £361 million. Legal compliance and safety will now be funded with £266 million with the Safer Faster Isolations (SFI) funded with £95 million.

2.51 We note the challenge of the reduced funding for the ESD programme will be met by prioritisation and potentially moving work into CP8. This was not anticipated when the blueprint to compliance was proposed in 2017-18 and assumes that funding will be available in CP8 to catch up and carry out work that was additionally planned for CP8.

2.52 From our inspection experience and assessment of the CP7 proposals, we find Network Rail has delayed Safer Faster Isolations (which have safety and efficiency benefits) to focus on key, non-compliant areas. The reduction in the Safer Faster Isolations budget, whilst predominately having an impact on productivity and efficiency, will also not eliminate/reduce the risk from “boots on ballast”, a safety



benefit of this work, reducing the need for multiple site visits for those manually putting on an isolation and increasing possession time for work to be carried out.

- 2.53 Following a number of low voltage (LV) electrical incidents (e.g. Margate station in 2022 and interface points between infrastructure managers) that identified issues around earthing and bonding, Network Rail planned to incorporate this into the ESD programme. We note in the CP7 plans this work is not addressed. We would welcome demonstration from Network Rail on how issues around earthing and bonding are to be addressed in CP7.
- 2.54 The sunset clause for removal of all PCBs expires during CP7. Other than brief references in North West & Central and Southern's plans, we have not seen any detail on Network Rail's plans for removal of PCBs or equipment containing them. Although the enforcing authority for this legislation is the Environment Agency, there are health issues with handling PCBs that fall within the ORR's remit. We are requesting Network Rail's plans for PCB removal during CP7.

## **Signalling**

- 2.55 We recognise and support European Train Control System (ETCS) as the key long term safety solution to the assets that have been predicted by Network Rail to start showing deterioration in 2030, as set out in its Long-Term Deployment Plan (LTDP) published in 2019. The key safety risks from end-of-life signalling systems are when systems start to fail and need to be operated in degraded modes to keep a service running, which requires significant human interventions which are significantly less reliable.
- 2.56 ETCS will improve safety as it will remove the network's over-speeding issues, with speed profiles continuously monitored unlike the Train Protection and Warning System (TPWS) currently in place and will also remove signal sighting issues and reduce maintenance activities. We are pleased to see the provision of funding for ETCS future control, command, and signalling (CCS) technology, including Optimised Train Track Operations (OTTO) in Network Rail's plans for CP7.
- 2.57 We note that OTTO is currently a concept under development and the planned CP7 funding is to further develop this into a viable product. We recognise the early safety benefits that OTTO could deliver, in particular speed supervision, improved possession management and removal of the need for staff to erect physical possession limit boards, removing people from trackside work.

- 2.58 Of key importance here is speed supervision that would provide reliable control of train speeds through speed restrictions, which will be of increasing importance as more operational controls are used to manage and mitigate risks from reduced renewals. We also note OTTO's potential contribution to addressing RAIB recommendations on managing emergency speed restrictions from the Laurencekirk and Portlethen report. As such we support the development of OTTO in CP7, but Network Rail would need to demonstrate a clear delivery plan.

## **Competence**

- 2.59 Through our inspection and investigation work, for example the wrong side signalling failure at Wingfield in October 2022, we have identified an emerging issue with regard to the competence of contractor signalling technicians (as highlighted in the RAIB investigation of wrong side signalling failure and derailment at Dalwhinnie in April 2021), and the compliance with signal maintenance procedures.
- 2.60 Whilst we note the work done in recent years to improve the competence and compliance of Network Rail in-house signalling technicians, we consider there is more that needs to be done with supply chain contractors to ensure they are meeting the requirements of the signal maintenance procedures.
- 2.61 We ask Network Rail to demonstrate how it will assure competence of the signalling technician supply chain and assurance with signalling maintenance procedures.

## **Level crossings**

- 2.62 Across the regions, the level of detail in level crossing plans varied with some, for example Wales & Western and North West & Central, providing better developed plans than others.
- 2.63 We note that Network Rail will replace existing signs at private crossings with updated signs over the control period. This will meet the legal expectation from DfT that once the new Private Crossings (Signs and Barriers) regulations are made, all signs will be updated by March 2029 and the specific England & Wales HLOS requirement on this. The SBPs for all regions, apart from Southern and the Scotland interim plan, covered this work. Southern and Scotland will also need to carry out this work and this will need to be included in their final plans.
- 2.64 We note the R&D expenditure for research into improving gate discipline at user worked crossings is planned by the Technical Authority. This research is an important output for ORR to approve the use of Miniature Stop Lights (MSL) on

public vehicular crossings through level crossing orders. If it is reduced or removed, the impact on this existing workstream will need to be considered.

2.65 We would welcome further details on Network Rail's plans for level crossings to understand how they will maintain and improve safety during CP7 in the reduced renewals environment.

## Maintenance

2.66 In CP7, Network Rail plans to spend circa £9.5 billion on maintenance activities across the four England & Wales regions which is a circa 1.3% increase compared to CP6; and a broadly similar increase in Scotland. The overall increase in England & Wales is due to an increase in the Eastern region (and significant expenditure with the National Functions) which more than offsets small declines in other England & Wales regions.

2.67 Detailed maintenance plans are yet to be received but indications from an interim note sent by Technical Authority state there is stronger alignment of maintenance planning to renewal profiles, which we intend to have increased through our adjustments. We are now looking for Network Rail's maintenance plans to show that it can cover the additional demand on the maintenance function from:

- the reduced renewal levels;
- Mair and Slingo action plan recommendations;
- Track worker Safety Taskforce - reduction in unassisted lookout working, which has impacted access and response times;
- the carry-over from CP6 where renewals have been deferred due to delivery being affected by for example industrial action;
- addressing the maintenance backlog arising from industrial action (although we note that Network Rail aim to have cleared this by end of CP6);
- increased freight traffic (which places greater demands than passenger traffic on certain core assets like track); and
- ash dieback.

2.68 These issues will stretch maintenance capability and rely on Network Rail's effective implementation of their maintenance modernisation programme, which is a critical enabler of increased maintenance effectiveness in CP7. This programme

is currently being implemented and will take a number of years for the new ways of working to become fully embedded.

- 2.69 Earlier maintenance change programmes have been introduced with mixed success. For example, Network Rail's Track Worker Safety programme was its second major programme to improve track worker safety and this was delivered after ORR served two Improvement Notices in July 2019. The previous programme in 2017 was known as the Planning and Delivery of Safe Work.
- 2.70 Further information on Network Rail's maintenance plans was received at the end of April which we are reviewing (further details are in our PR23 draft determination: supporting document on sustainable and efficient costs). We note that the Network Rail Technical Authority reports that the regions and routes across England & Wales and Scotland have undertaken significant work to update their maintenance plans for CP7. Also, Network Rail has commissioned external experts to work with the regions and their delivery units (DUs) to develop their plans. A key action that Network Rail has identified is for all regions to more clearly show the link between renewals and maintenance activity in CP7 as well as the efficiencies achieved through implementing modernising maintenance. We will use this, and any further information submitted, to provide an updated position in our final determination.

## **Worker safety and occupational health**

### **Track worker safety**

- 2.71 In 2019 we served improvement notices on Network Rail which required the company to better manage risks to ensure the safety of its employees and contractors working on or near the line. Network Rail implemented a Track Worker Safety Task Force to oversee a programme to reduce system safety incidents and address our improvement notices. Since then, Network Rail has delivered a 98% reduction in unassisted lockout working and there were no track fatalities on the mainline railway in 2021-22, while near misses fell by 70%.
- 2.72 We note Network Rail plans to sustain, and where possible improve, track worker safety gains made in CP6 through:
- Continuing investment on infrastructure monitoring, remote condition monitoring, including equipment and online tools so that checks on how assets are performing can be carried out without the need for the workforce to go out on track, and investing in the use of drone technology for assets that do not have remote condition monitoring.

- Building on the risk reduction delivered by the Track Worker Safety Taskforce, continuing the deployment of safety equipment, line blockage protection and further reduce ‘unassisted lookout working’ and ‘lookout operated warning system’ working with train Activated Warning Systems and Automatic Train Warning Systems remain key focus areas.

2.73 These plans are positive and support our expectation that gains made in CP6 are consolidated and their sustainability improved. We would expect to see more detailed delivery plans with milestones setting out timescales for the delivery of the above investments.

### **Occupational Health**

2.74 It is noted that there is a reduction in Technical Authority funding for medical activity, including matters relating to manual handling and respiratory ill-health prevention.

2.75 The submission is not entirely clear on the CP7 health and wellbeing strategy. It is not clearly articulated in the Technical Authority SBP despite reliance being placed on the ‘corporate plan’ in the regional SBPs. This matter was raised as part of our challenge sessions with Network Rail and we note that a strategy is yet to be fully developed. Network Rail reports that it intends to develop “Frameworks for Musculoskeletal Disorders (MSDs), Hand Arm Vibrations (HAVs), noise, and fume” by the end of CP6. We will be looking at the sufficiency of these plans with Network Rail ahead of its CP7 Delivery Plan.

2.76 The SBP frequently refers to wellbeing matters but does not differentiate between wellbeing matters and occupational health issues, which are legal requisites. There are common themes around fitness to work, mental health etc. but a lack of visibility on health in risk assessment including dust and fume, hand arm vibration and asbestos.

2.77 Network Rail states that the Occupational Health plans have been approved by the Senior Team and that further detail will appear in the regions and functions. Network Rail observes that CP7 plans do not capture all expenditure and that capital spend on health is relatively modest. However, in order to assess the suitability of the plans to meet legal compliance for occupational health there is currently insufficient information provided in the SBPs. In order to demonstrate the adequacy of plans for occupational health, we will be seeking line of sight between Network Rail’s strategic priorities on health for CP7; ORR’s assessment of occupational health compliance; and clear commitments from regions and functions to deliver on these priorities in their CP7 delivery plans.

## Office of Rail and Road | Periodic review 2023: supporting document - health and safety

- 2.78 Similarly, it is unclear how asbestos management will be assured during CP7. CP6 has seen the conclusion of the asbestos project with responsibility for its ongoing management being transferred to the regions. It is noted that the SBPs outline a reduction in renewals for CP7 and the consequent increase in intrusive maintenance. It is unclear how the effects of this change will be managed and mitigated to ensure a continued reduction in exposure to asbestos.
- 2.79 Further detail on the proposed commitments to reduction in Diesel Engine Exhaust Emissions (DEEE) exposure in the regional SBPs is needed. It is currently unclear how the stated commitment will translate into reduced exposures to public, contractors and employees and how this end will be achieved.
- 2.80 The Scotland SBP does not cover asbestos management and provides only scant information on other occupational health matters.
- 2.81 North West & Central produced a high-level submission with the focus on wellbeing. North West & Central does however commit to focus on removal of PCBs. The region has not, however, shown any funding for asbestos removal in CP7.
- 2.82 Eastern refers to compliance on occupational health matters but provides little substance to demonstrate how that will be achieved.
- 2.83 Southern did not demonstrate adequate consideration of asbestos management and made no mention of welding fumes. However, the region committed to a reduction in harmful pollutants by 25%, but with limited detail of how this will be achieved.
- 2.84 Wales and Western committed to continue with programmes started in CP6 in order to improve health outcomes. This includes aiming to eliminate exposure to asbestos, silica, UV and physical exposures to vibrations and strains. The region further commits to drive improvements through health monitoring and risk assessment. The region further notes that the effect of moving to zero emission plant and vehicles will support positive health outcomes. There is little detail to support these high-level aims, however it is positive that the objectives are identified and included in the plan.

### Fatigue

- 2.85 We welcome Network Rail's recognition that their fatigue controls require improvement and the efforts of the Technical Authority, via the Fatigue Improvement Programme (FIP), to close the risk gap on fatigue. We understand a



blueprint has been created for the FIP into CP7 and have received assurances that funding for both FIP and the regions will be available.

- 2.86 However, we found variability across the regions with regard to the detail of their fatigue proposals, and mixed efforts to ensure adequate provision for the potential resourcing needed to meet the planned tightening of the Network Rail fatigue standard in 2024 and the implementation of the new roster tool. Network Rail currently faces significant challenge in complying with its existing overly tolerant fatigue standard with 30 Temporary Variations in place as well as reporting regular exceedances against its requirements.
- 2.87 Without sufficient provision to build on current progress and drive change, it is uncertain whether Network Rail will be able to achieve its objective of an integrated fatigue risk management system to effectively control the risks from fatigue for both its own staff and its contractors. Network Rail's plans lack clarity on the resources and systems required in CP7 to meet the anticipated tightening of fatigue risk controls and move away from the current reliance on the overly tolerant "Hidden" limits on hours of work developed in the 1980's following the [public inquiry into the 1988 Clapham Junction railway crash](#).

### **Competence and training**

- 2.88 Network Rail's efforts to establish competence management systems to facilitate the training and embedding of competence throughout the organisation are welcomed. Network Rail will need to monitor its planned use of e-learning and virtual platforms and assess the outcomes to assure itself that the learning achieved is sufficient for staff to develop and demonstrate the necessary competencies.
- 2.89 Given proposals to outsource work to the supply chain in some regions, for example in Scotland, such oversight of the effectiveness of training and the resultant competence of supply chain staff will be especially important.

## 3. Regional assessment of Network Rail's Strategic Business Plan

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3.1 Over review of Network Rail's SBP has identified three areas requiring further attention:

- **Approach to asset renewals, including earthworks:** Network Rail proposes to manage the risks posed by the reduction in renewals to safety, performance and asset sustainability by increasing its refurbishment and maintenance activities and using operational controls.

We expect Network Rail to pay particular attention to the renewals and maintenance needs of earthworks in each of its regions. Our assessment of Network Rail's proposals on earthworks identified concerns with a reduction in volumes of earthworks specific drainage and Network Rail's proposal not to use dedicated drainage teams, which is not consistent with one of the recommendations made by Lord Mair on managing rail infrastructure in more frequent extreme weather following the derailment of a passenger train at Carmont in 2020.

- **Market-led approach:** Network Rail states that its overall approach to asset management in CP7 is "no overall decline in safety for customers and staff within CP7". Network Rail also intends to take a market-led approach which would involve prioritising expenditure on high revenue generating routes, with the potential for limited renewals and refurbishment work on lower category/lower value lines, leading to increased reliance on maintenance work and operational controls to manage and mitigate risk. Any application of the the market-led approach must continue to ensure that risks are reduced so far as is reasonably practicable (SFAIRP) on all lines irrespective of value. Improvements on higher value lines cannot be used to justify other lines not reducing risks SFAIRP.
- **Maintenance:** With a lower level of renewals in CP7, there will be an overall increase in demand on Network Rail's maintenance function. We expect Network Rail to demonstrate that maintenance plans will be sufficient to support the increased demand on its maintenance function. The success of Network Rail's proposed approach is heavily reliant on implementing its 'Modernising Maintenance' programme. We are supportive of modernising maintenance but effective implementation and preparedness for the



requirements of the assets in CP7 is key. We will continue to work with Network Rail and expect the company to demonstrate that it can deliver the required efficiencies with the resources available and sustain the required capability to maintain the assets.

3.2 In the sections below, we set out our other findings for Scotland and each England & Wales region in addition to the above three key areas.

## Scotland

3.3 From our review of Network Rail Scotland's plan, we found that:

- the plan has a clear focus of activity and funding on climate change resilience and in particular the Mair/Slingo actions. We are encouraged that the Scotland plan significantly increases resources for the range of activities needed to address the effects of climate change, with existing approaches that include engineering improvements, remote monitoring, civils, drainage and off-track maintenance, control room capability and operational restrictions in adverse weather continuing;
- the plan identifies the need to reduce level crossing risks and commits to continue to deliver 'important changes' but provides limited detail on the scope of those changes. Better evidence is required to demonstrate that the plan is sufficient to address changes in crossing safety risk as local conditions and usage changes, in addition to managing risk from asset condition and age;
- on the adequacy of maintenance resources, Network Rail has provided clearer information in additional submissions following the submission of the Scotland interim plan, giving us some confidence that the plans contain sufficient maintenance resource. We note more work is being done on this. To demonstrate this, Network Rail has provided further information in the form of assurance work by both the Technical Authority and the consultancy tusp (external assurers) on the adequacy of regional maintenance resources for delivery units. This includes evidence that resource determination has included the increased maintenance demand arising from the reduction in renewals and ageing of the asset, climate change resilience work (Mair/Slingo), safety task force outcomes, effect of increasing freight, ash dieback and CP6 maintenance back logs. This gives us some confidence that Network Rail's plan contains sufficient maintenance resource and we note more work is being done on this. Network Rail has clarified that the

context in which the term market led is used does not mean using risk control increases on certain routes to justify a reduction in risk control in others;

- implementation of modernising maintenance remains work in progress and more work is required to demonstrate adequacy of planned resources under the new regime, including whether anticipated benefits of changed ways of working are realistic in both effect and timing of implementation. The tusp assessment identified that there is currently uncertainty about whether expected benefits will be realised in CP7;
- on track worker safety, there was no evidence of funded activity beyond continuing roll out of ZKL equipment (which is a remotely operated Track Circuit Operating Device), to ensure that improvements including embedding routine use of additional protection for line blockages, planning and training are delivered through CP7;
- the plan makes limited reference to occupational health and does not yet demonstrate how the activity will be sufficient to achieve compliance. We have raised questions with the region in relation to Diesel Engine Exhaust Emissions (DEEE)/air quality, regional clinic implementation and contingencies, and funding for control of occupational exposure to welding fumes and DEEE;
- the plan contains limited information on arrangements to achieve compliance with requirements on fatigue. We have found through discussion with Network Rail Scotland that the fatigue challenge is recognised and accepted but further information is needed setting out how the plan addresses it and delivers legislative compliance; and
- the plan identifies the need to reduce level crossing risks and commits to continue to deliver 'important changes' but provides limited detail on the scope of those changes. Better evidence is required to demonstrate that the plan is sufficient to address changes in crossing safety risk as local conditions and usage changes, in addition to managing risk from asset condition and age.

## North West & Central

3.4 From our review of the North West and Central plan:

- We welcome the increase in spend on level crossings and the dedicated fund of £25 million. The asset management strategy for level crossings looks

sensible with continued funding for safety improvements budgeted, and a focus on risk as well as asset condition and age. We note the targeted risk reduction at passive crossings and consideration of the impact of level crossings on signaller workloads as part of re-signalling schemes and the plans for further Miniature Stop Lights (MSL) rollout. Consideration will need to be given to how achievable MSL plans are, as the region has struggled to install MSLs in a timely manner and at reasonable cost during CP6.

- On occupational health and safety, we welcome the commitments to controlling fatigue, managing wellbeing, and continuing the improvements in track worker safety, we note the committed funding. Similarly on occupational health, the focus on removal of PCBs and asbestos, and reduction in silica exposure, is positive along with the commitment to align with freight safety strategy for improving walkways and lighting in freight depots. We would welcome more details on delivering these commitments including on fatigue where currently the region has temporary variations against the company fatigue standard and reports exceedances against the standard.
- In North West & Central the market-led approach involves assigning a Value of Service (VoS) to lines across the region with lines in lower VoS groups (3 and 4) receiving less investment in the form of renewals and refurbishment work, potentially resulting in more degradation on lines in lower VoS groups. The region acknowledges that this will result in increased risk from assets which will be mitigated through operational restrictions, for example:
  - (ii) managing decline in track condition on low value lines in particular Value of Service (VOS) group 4 lines, through the use of operational controls. Clarity is required on how the minimum acceptable safe level will be determined and how the impact on Delivery Unit's workloads will be accommodated if asset condition requires more maintenance work instead of renewals or heavy refurbishment;
  - (iii) drainage asset surveys and Mair/Slingo commitments mean there will be a rise in drainage management and inspection resources. However, drainage renewals will be prioritised according to VoS in the North West route, and it is unclear how they will be prioritised in Central & West Coast South. Given the North West is the most exposed route, the region needs to explain how this approach will manage the risks from earthworks and tunnel portals failing through lack of renewal;

- (iv) reduced structures renewals work on low-criticality routes reducing structures resilience will lead to more reliance on assessing and inspecting structures and staff making safety-critical decisions. This will be a particular concern during adverse weather events;
- (v) the proposal to prioritise fencing renewals on higher VoS lines with only reactive work on lower VoS lines does not appear compatible with the requirement to use fencing to prevent trespass and animal incursions so far as is reasonably practicable; and
- (vi) managing vegetation through the regional VoS groups suggests work on lower VoS lines to create a compliant vegetation profile will be reduced or deferred increasing risks on those lines, in particular during adverse weather events.

## Eastern

3.5 From our review of the Eastern plan, we found:

- Good consideration of the management of vegetation, with funding allocated for ash dieback work, noting that it is 25% lower than the Technical Authority's indicated requirement.
- A positive aim to reduce trespass and animal incursion risks through upgrading fencing at hotspots but the overall reduction in fencing volumes and an apparent acceptance that animal incursion safety risks will increase if significant savings are to be made is a potential concern.
- The reduction in renewals increases reliance on maintenance and operational measures to manage risk, as an example, the SBP identifies unresolved issues with Eastern's track strategy including (i) increased likelihood of broken rails; (ii) a risk to rerailing plans; and (iii) changes to track access and staffing models significantly affecting the track discipline. Linked to this, the region places significant reliance on the use of Risk Based Maintenance (RBM) and technological solutions for inspecting and monitoring track, and other assets with limited detail on implementation; Similarly reduced renewals impact on the management of risks from bridges, in particular swing bridges, metallic bridges and increases in freight tonnages. We would wish to see more detail on managing risk from reduced renewals.

- (ii) For fatigue, insufficient detail in the plan to identify how the region might accommodate potential changes to roster patterns and other fatigue controls other than the region will use recruitment and the rostering tool to manage fatigue. We would wish to see more detail on fatigue management.
- (iii) For occupational health, that while Eastern's plan outlines the region's priorities on worker health and wellbeing, there was insufficient detail on planned improvements to risk controls or allocation of funding to deliver the SBP commitments on work related ill-health. Particular areas where we would wish to see more detail are plans for managing asbestos in buildings, the delivery of improved engineering controls for welding fumes and diesel engine exhaust emissions in poorly ventilated tunnels, depots and stations.

## Southern

3.6 From our review of the Network Rail Southern region plan we found:

- The positive objectives for level crossings, noting they include replacements of Automatic Half Barriers (AHB) that are life-expired, renewal of 16 automatic road crossings to higher protection, 33 passive crossings upgraded with active warnings and the closure of 15 public crossings. With the reduced renewal spend and deferment of renewals to CP8 we would like to understand how risks from deferred renewals will be managed.
- Southern differs from other regions as it is not proposing renewal of electrical equipment to the same extent as other regions and we note that a number of assets are life expired. The plan states that the failure of these assets will be low likelihood but high impact. However, if the assets are life expired, the likelihood of failure is much higher than the low category that is stated. These asset groups were installed within a few years of each other and using basic asset management indicate that the frequency of failure when assets approach end of life increases significantly. The region acknowledges there has been a trend of increasing Direct Current (DC) breaker failures following a high volume of deferrals in control periods 4 to 6. The region recognises the need to undertake a further review of the inspection regime to allow them to mitigate the risks (safety and performance) from the asset base and the fact that they are pushing distribution assets beyond their design lives into areas that they have very few comparators or indications of likely performance. We would wish to see more detail on this.

- The region has deferred for a further control period the renewal of Victoria station roof, having already deferred this for a number of control periods. The proposal to control the risk by means of catch netting indicates a move down the hierarchy of safety controls, from preventing failure to mitigating the consequences of failure. The region should demonstrate how the risks associated with Victoria station roof are being reduced so far as is reasonably practicable.
- We found that Southern plans reactive maintenance only at lineside buildings hosting high voltage Electrification & Plant (E&P) equipment. In light of the incident at Godinton in 2019, and ongoing reports of faults, we are looking for the region to articulate the adequacy of this approach. We remain to be convinced that enhanced examinations, including remote conditioning monitoring, and reactive repairs would be sufficient to manage the risks over time.
- We understand that due to the rephasing of major re-signalling schemes, the opportunity to address fatigue by reducing signallers' working weeks to a 60-hour maximum is, at least partly, lost. This is a concern given the now heavy reliance on signaller managed line blocks to provide safe track access and a worrying recent upward trend in irregularities. Linked to this, we would like to understand what provision has been made to accommodate potential changes to roster patterns and other fatigue controls arising from the introduction of the new roster tool and update to Network Rail's Fatigue Standard in 2024.
- For occupational health, that whilst Southern's plan outlines its priorities on worker health and wellbeing, there is insufficient detail on planned improvements to risk controls or allocation of funding to deliver the SBP commitments on work-related ill-health. Areas where we would like to see more details are plans for managing asbestos in buildings, the delivery of improved engineering controls or welding fumes and diesel engine exhaust emissions (DEEE) in poorly ventilated tunnels, depots and stations.

## Wales & Western

3.7 From our review of the Network Rail Wales and Western region plan we found:

- A positive commitment to continue to consolidate and embed the track worker safety improvements.



## Office of Rail and Road | Periodic review 2023: supporting document - health and safety

- A positive intention to improve its boundary fencing. To facilitate this, it is proposing to increase renewals on these assets which should contribute to reducing the risk of animal incursions across the region.
- The region has established a Regional Safety Improvement fund which it will use to cover a range of health and safety initiatives, although the scope is not detailed.
- A positive commitment to continue the Overlay Miniature Stop Light (OMSL) fitment programme to passive crossings. Noting, the OMSL programme in Wales only appears to identify an additional two crossings above what has been carried over from CP6 due to poor delivery levels. Given the number of passive crossings in Wales and the shortfall in CP6 delivery, we expected that this number would be higher.
- Track assets are a particular area of concern, as identified by the assurance carried out by Network Rail's Technical Authority and we expect the region to demonstrate how it is resolving the issues identified by the Technical Authority's assurance.
- The reduction in renewals for structures is of concern given the nature and age of bridge assets and that several recent structures have failed (Castle Cary, Yarnton, Nuneham). The area of structures was also found by Network Rail's own Technical Authority's assurance work as another area of concern in the SBP. The region refers to the use of operational controls to manage risk but we have concerns about the effectiveness of such controls in relation to the risk of a bridge/structure collapse and also the risk of falling debris from such structures. We expect the region to demonstrate how it is resolving the issues identified by the Technical Authority's assurance.
- In common with other regions, on occupational health, that while Wales & Western's plan outlines the region's priorities on worker health and wellbeing, there is limited detail on planned improvements to risk controls or how it will deliver the SBP commitments and work-related ill-health. Particular areas where we would wish to see more detail are plans for managing asbestos in buildings, the delivery of improved engineering controls for welding fumes and diesel engine exhaust emissions in poorly ventilated tunnels, depots, and stations.
- The region has identified fatigue management as a headwind but provides no detail on what provision has been made to accommodate potential changes

to roster patterns and other fatigue controls arising from the introduction of the new roster tool and update to Network Rail's Fatigue Standard in 2024.



## 4. Next Steps

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### What is needed ahead of the Final Determination

4.1 Below we set out key actions for Network Rail on health and safety. We expect these actions to be completed before 31 August, unless otherwise stated.

#### Asset related:

- (1) Evidence required to demonstrate Network Rail's understanding and subsequent management of the change in risk, after the adjustments to core renewals that we propose.
- (2) Evidence required to explain how Network Rail will manage the risks associated with an increase in operational controls.
- (3) Further evidence required to provide assurance that applying the proposed 'Market-Led' approach will ensure risks are reduced so far as is reasonably practicable on all lines irrespective of value.

#### Earthworks and drainage

- (4) Additional evidence required to demonstrate effective management of risks from the reduced levels of earthworks renewals, and evidence of delivery of the Mair report action plans with respect to drainage management and provision of maintenance resource.
- (5) Evidence of management of risks associated with the reduced levels of structures renewals including the impact on examination compliance given current backlog of inspections.
- (6) Demonstration that the concerns raised about track in Wales & Western by Network Rail's own assurance work are addressed.
- (7) Timelines and deliverables required for the Route Services plans for improving and meeting regional demands for track infrastructure monitoring.

#### Maintenance related:

- (8) Additional details on maintenance function capability to embed modernising maintenance and deliver any additional work required.

### **Worker health and safety-related:**

- (9) Additional evidence of implementation of the occupational health strategy including the regions and functions plans to deliver these priorities in CP7.

## **What is needed ahead of the Delivery Plan**

- (1) Details of the scope and development plan for OTTO.
- (2) Commitments to deliver the Mair and Slingo action plans.
- (3) Commitments to deliver the Electrical Safety Delivery programme.
- (4) A programme to deliver the occupational health strategy.
- (5) A programme to deliver the anticipated tightening of fatigue risk controls.

## **Areas that we will take forwards through inspection and liaison work with Network Rail**

### **Electrical**

- (1) Understand the scope of work regarding earthing and bonding on HV and LV systems.
- (2) Network Rail's plans for PCB removal during CP7 given the sunset clause for removal of all PCBs expires during CP7.
- (3) Southern region plans for reactive only maintenance at lineside buildings hosting high voltage electrification and plant equipment.

### **Signalling**

- (4) Assurance of the competence of the signalling technician supply chain and assurance with signalling maintenance procedures.

### **Off track - vegetation**

- (5) Clarity regarding vegetation programmes and whether Network Rail's regions will maintain the current agreed timelines for delivering a compliant lineside vegetation profile.

### **Buildings (Operational Property)**

- (6) Safety impact of the deferral for a further CP of Victoria station roof in Southern region.

- (7) Impact of Wales and Western backlog in building examinations on managing risks from operational property.

### **Track Worker Safety**

- (8) Delivery plans and milestones for the positive ongoing investment in remote monitoring equipment and continuing deployment of safety equipment to consolidate the gains made in CP6 and improve their longer-term sustainability.



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