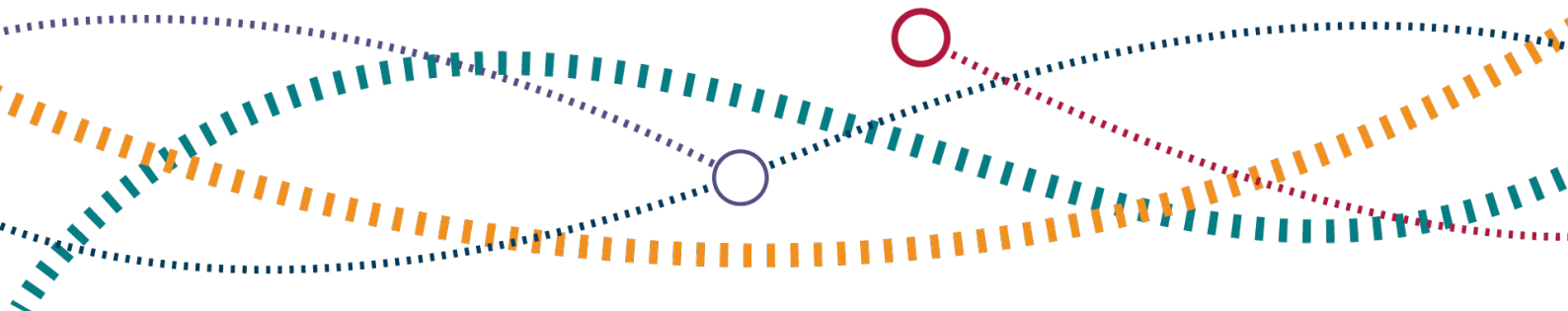




PR23 final determination:

Supporting document – health and safety

31 October 2023



About this document

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

PR23 determines 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:

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

Our final determination sets out:

- c. our decisions on Network Rail's outcome delivery and its planned expenditure to secure the condition and reliability of the network;
- d. changes to access charges and the incentives framework; and
- e. relevant policies on the financial framework, managing change and holding to account.

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

Document type	Details
Summary of conclusions and overviews	<p>Our decisions on what Network Rail will need to deliver and how funding should be allocated:</p> <ul style="list-style-type: none">• Summary of conclusions and overview for England & Wales• Summary of conclusions and settlement for Scotland

Document type	Details
Consolidated decisions	A summary of our final decisions across Great Britain
Introduction	An overview of PR23 and background to our final determination
Settlement documents	<p>Detailed final decisions for the System Operator and each of Network Rail’s regions in England & Wales:</p> <ul style="list-style-type: none">• Eastern region• North West & Central region• Southern region• Wales & Western region <p>See our summary of conclusions and settlement document for detailed information for Scotland.</p>
Supporting documents	<p>Technical assessments of:</p> <ul style="list-style-type: none">• <u>Health and safety</u>• Outcomes• Sustainable and efficient costs• National Functions• Other income
Policy positions	<p>How we intend to regulate Network Rail during CP7 in relation to:</p> <ul style="list-style-type: none">• Financial framework• Access charges• Schedules 4 and 8 incentives regimes• Managing change• Holding to account <p>With the exceptions of managing change and holding to account, our policy position documents include our assessment of stakeholder views on our proposals. Stakeholder views for managing change and holding to account are published in a separate document.</p>

Document type	Details
Impact assessments	A consolidated set of assessments of the impact of our final policies on access charges and contractual incentives on affected parties

Next steps

We will now implement our final determination. Implementation is the process through which we amend operators' track and station access contracts to give effect to new access charges and incentives (such as Schedule 8 benchmarks and payment rates) determined through the periodic review. We expect to issue our review notices in December 2023 and, subject to Network Rail's acceptance, issue notices of agreement and review implementation notices in time for CP7 to commence from of 1 April 2024.

We expect Network Rail to publish a delivery plan for CP7 that is consistent with our final determination. We have published [a notice](#) alongside our final determination which sets out expectations for the scope and timing of the delivery plan.

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Executive summary

Our conclusions

We have assessed that Network Rail’s planned activities¹ in CP7 have the potential to sustain existing standards of safety and health management, but that Network Rail must overcome challenges and uncertainties to achieve this level of risk control and legal compliance. We will require further demonstrations of ability to deliver by the start of the control period. We will maintain focused monitoring of the delivery of CP7 plans and of safety and health management performance throughout the control period.

Safety is one of our four key objectives for the 2023 periodic review (PR23), alongside performance, asset sustainability and efficiency. Our assessment gauges whether Network Rail’s proposals for CP7 will allow it to continue to operate safely and in line with its legal duties towards the health and safety of its staff, passengers, and members of the public.

We have concluded that Network Rail’s business plan for CP7 is capable of maintaining current levels of safety risk control. Some aspects of its plans could deliver improvements in the management of safety and health risks.

Network Rail’s plans aim to deliver the outputs specified by its funders within the financial resources available for the control period. **Achieving these, whilst at least preserving existing safety and health performance, will depend on effective implementation of its proposals in the face of significant challenges and uncertainty.**

Our draft determination

The funds available from funders for CP7 mean that Network Rail has not been able to plan to renew all the assets it would have wished to, in line with its suite of asset policies. The volumes of core renewals in its business plans have increased since we suggested in our draft determination that we thought more should be done in some critical asset groups. However, there will still be a modest reduction in asset condition over the control period.

¹ Our draft determination referred to our assessment of Network Rail’s strategic business plan (SBP). When we refer to SBP in this document it means that initial submission received earlier this year. In response to our draft determination Network Rail submitted revised plans (from each region and national function) at the end of August 2023. Our latest assessment is of this series of plans. When we refer to ‘plan’, ‘business plan’, ‘plans’, ‘activities’ or ‘proposals’ for CP7 we mean the plans submitted in response to our draft determination. When we mention the ‘delivery plan’, it refers to the finalised plan – still to be completed – which will reflect our final determination and be ready by the start of CP7 in April 2024.

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This has implications for how Network Rail ensures that it sustains effective controls of safety and health risks. It must make decisions about how to prioritise investment in a constrained environment to optimise safety outcomes.

It has to understand what its plans mean for the profile of risks on its infrastructure: what is the effect of carrying out fewer renewals and more maintenance and refurbishment. Network Rail must ensure that it identifies appropriate mitigations for the shifting risk profile arising from this changed balance of activities. It must demonstrate that it has the capability to deliver these mitigations effectively.

Our draft determination identified these issues and asked Network Rail to address them. In its response to our draft determination, it has described the steps it has taken to review its proposals in the light of our observations and to amend and clarify them as required.

Summary of consultation responses

Approximately three-quarters of respondents to our draft determination consultation made observations relating to health and safety management by Network Rail. Most supported the approach we took in our draft determination and sought further information and assurance regarding the overarching issues we had identified relating to the control of risks on the infrastructure. There were multiple comments regarding these main areas:

- b. The possible consequences for safety risk of carrying out fewer renewals in critical asset areas.
- c. The suitability of the ‘market-led’ approach to investment decisions and its compatibility with making optimally safe decisions, so far as is reasonably practicable.
- d. The challenges of relying on maintenance to cover any gaps in risk control arising from fewer renewals.
- e. The ability of Network Rail to deliver increased maintenance activity.
- f. The adequacy of any additional mitigations identified to control risk.
- g. The undesirability of reliance on operational responses to deteriorating asset condition.

This section summarises the issues that were cited by multiple respondents to our draft determination consultation. Additional detailed, specific responses and our replies can be found in Annex A to this document.

Network Rail’s response to our draft determination

Network Rail has developed a bow tie model² to analyse all the factors relevant to enabling the safe delivery of the business plan, to understand the effects of its plans on risks and precursors on its infrastructure, and to identify preventive and mitigating measures targeting those risks. The safety risk bow tie has created a framework within which Network Rail’s regions and national functions can review their business plans for adequacy of risk controls. It has provided a structured question set that prompts its staff to consider whether their plans are prioritising the appropriate activities or whether there are improvements that can be made within the limitations of available funding. We are satisfied that this approach addresses the concerns we expressed in our draft determination and has the potential to identify the best means to safely manage risks so far as is reasonably practicable.

The safety risk bow tie framework is intended to be an iterative process. It will be used to continue to refine proposals as the Network Rail delivery plan for CP7 is drawn up and then throughout the control period as the delivery plan adapts and evolves. In its response to our draft determination, we saw evidence of each region reviewing its plans in the light of our observations and working through the structured bow tie question set. The Technical Authority used the safety risk bow tie framework to inform its assurance of the plans from regions and to populate a national assessment for the asset groups most affected by the reduction in renewals for CP7: earthworks, track, and structures.

The safety risk bow tie framework approach to business and delivery planning is not yet fully mature. The outcomes we have seen so far are not the finished article and reflect the varying levels of maturity of different parts of Network Rail. We have, though, already seen evidence of change and improvement to plans as a result of using the framework.

The increases that regions have identified in core renewals in critical areas have resulted in Network Rail’s Technical Authority being satisfied with the results of its own internal assurance of the plans.

During our engagement with staff since the draft determination we have seen evidence of staff taking a cross-asset approach to planning, so that balanced decisions can be made that take account of the railway as a system rather than isolated planning in asset ‘silos’. We have also seen evidence of engineers and maintainers working together to agree plans, ensuring there is alignment between renewals and maintenance activities and making it more likely that plans are deliverable because they have been agreed jointly.

² A bow tie model is a visual aid to understanding a risk event, where the causes, consequences and mitigations are analysed and represented in a bow tie shaped diagram.

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Network Rail's Technical Authority has explained to us its 'market-led' planning approach. We previously had concerns that this might lead to safety trade-offs where risk controls were allowed to deteriorate on lesser routes so long as overall aggregated risk measures were positive. This is not the case. This was echoed by individual regional submissions, in which descriptions of planning included clear prioritisation of safety considerations. The safety-risk bow tie framework will be embedded in any future development of market-led planning to ensure that this commitment is not diluted, and that Network Rail continues to control risks so far as is reasonably practicable.

The approach Network Rail has described to us represents a notable step forward in assuring us that it has adequately considered health and safety risks when drawing up its plans. We are more confident than at the time of the draft determination that Network Rail can demonstrate that risks will be managed so far as is reasonably practicable in CP7. However, there remain some significant possible obstacles to realising the potential of the revised approach to business and delivery planning.

Remaining challenges

There are some uncertainties that could affect the plans and, in turn, require Network Rail to reassess the adequacy of its risk controls. One of these is the effect of inflation on costs. We have already seen the impact of inflation on the business plan in the time since our draft determination. It could continue to erode the purchasing power of funds available, prompting further reductions in planned activities and resulting in consequences for safety and health management.

Network Rail's response to our draft determination has reflected our concern about the need to maximise core renewals of critical assets by increasing proposed spend in areas such as track, earthworks and structures. These increases have been expressed as sums of money in the plans, but we are yet to fully understand how these additional renewals will be funded. When making its funding decisions for core assets, Network Rail should not source the necessary funding from previously identified core renewals or maintenance plans already identified for CP7. We recognise that the detailed workbank of interventions will need to adapt within these plans while securing the safety and performance of the network as a whole. See our [PR23 final determination: supporting document on sustainable and efficient costs](#) for fuller consideration of these matters.

We have similar concerns in relation to some priority programmes for safety management, where we have challenged Network Rail to deliver the stated outcomes more efficiently and attaining better value for money. These include Route Services' infrastructure monitoring programme and electrical safety delivery programme. Both are fundamental to

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Network Rail managing its network safely and complying with its legal obligations. It will not be acceptable simply to cut important safety outcomes.

We will work closely with Network Rail between now and the start of the control period to ensure there is more certainty in its plans both for renewals and critical safety programmes. We require the delivery plan to address the points raised and provide firm, credible plans for achieving the activities proposed. We want clear milestones for delivery and descriptions of project outputs. We will ensure that development of firmer plans incorporates lessons learned from previous projects that experienced delays, exceeded budgets, or did not deliver intended outputs effectively.

The submissions from each region of Network Rail have taken different approaches in their responses to our observations in the draft determination. Each has different strengths. As we engage with the regions in the creation of their delivery plan, we will share and promote the best examples we have seen of how to plan work effectively and safely.

Priority areas to develop for the CP7 delivery plan

We note that the timescales for deployment of digital signalling systems continue to extend – leaving the network dependent on Train Protection and Warning System (TPWS)³, introduced over twenty years ago and envisaged as a short-term stop-gap measure pending the introduction of European Train Control Systems (ETCS). The residual frailties of TPWS (especially in relation to modern rolling stock characteristics) have been shown in recent over-speeding events. For these reasons we are keen to see Network Rail deliver additional, complementary speed management systems. Its plans in this area have been changeable. The project described in Network Rail's Strategic Business Plan (SBP) as 'OTTO' has already been superseded; new plans are in their infancy. We will seek clarification as the delivery plan is drawn up, requiring more certainty in what is proposed.

We have described the overall approach of Network Rail's safety risk bow tie framework as satisfactory. There remains work to do in some important areas. As Network Rail progresses those between now and the start of the control period, we will be scrutinising the results to ensure they are suitable and sufficient. One area is the probing and testing of the mitigations that Network Rail has identified to address the changing nature of its risks when it cannot renew as many of its assets as it would like. These have been mentioned in plans but, in some cases, we need Network Rail to provide further evidence to assure us that they will be effective. One example of this is where 'additional inspection' has been

³ Train Protection and Warning System – introduced onto mainline infrastructure to comply with the requirements of the 1999 Railway Safety Regulations to have a train protection system in place to mitigate over-speeding and signals passed at danger.

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cited as a mitigation. It is not a mitigation if it consists of nothing more than measuring an asset's deterioration. There must be clear guidance to staff about when and how to intervene before an asset poses an unacceptable safety risk.

The balance of activities in Network Rail's CP7 plans mean that it is relying more than ever on its staff to do the right thing at the right time, consistently and repeatedly. This is inherently more vulnerable than eliminating a hazard by engineering it out – but Network Rail has assessed that overall safety management is optimised by adopting this approach where it cannot undertake full asset renewal. Network Rail states that checking that it is aiming for the most effective control reasonably practicable is part of the structure of market-led planning, informed by the safety-risk bow tie framework. We will continue to monitor planning outcomes to ensure this remains so.

We will be looking for evidence that Network Rail can demonstrate that staff have appropriate competence to carry out effective inspection and maintenance mitigations and to exercise appropriate judgement when required. At least one region has, rightly, identified that it will need to enhance the competence of maintenance and engineering staff. We will be seeking evidence that all regions have taken account of this. Network Rail must demonstrate that it is providing a suitable strategy for development of competence.

In order to maintain safety when fewer renewals are being carried out, many of the assets will require additional inspection, refurbishment, and maintenance. Where this is the case, then we expect Network Rail to demonstrate fully in its delivery plan that it has all the necessary resources. Further, we will look for evidence that the required access to the track can be secured safely and that Network Rail has assessed that there are no adverse knock-on effects on staff fatigue or signaller workload.

We support the aims of the 'Modernising Maintenance' programme and asked in our draft determination for Network Rail to explain its status within CP7 plans. All of the regions submitted plans that assured us that Modernising Maintenance would be fully enabled by the start of CP7, but there may be a staged approach to realising the full range of potential improvements it could deliver. We note this commitment and reflect that it remains an important dependency; delivery of increased maintenance activities within CP7 funding relies on many of the changes introduced by Modernising Maintenance.

It was reassuring that all of the regions' responses to our draft determination outlined their continuing commitment to important programmes to manage and improve occupational health, fatigue, level crossing safety and track worker safety. There were varying levels of detail in the plans. We will press for consistently credible evidence of adequacy and deliverability by the start of the control period.

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One consequence of fewer renewals and the impact on asset condition is that there may be occasions when Network Rail has to control safety risk by imposing operational responses such as speed restrictions, or weight restrictions at structures. This was an area where we received many expressions of concern from parties who responded to our draft determination consultation.

Network Rail continues its work to estimate the likelihood and extent of possible operational controls. It has indicated to us that its decision-making framework has minimised the likelihood of increased operational restrictions. Proposals for CP7 include increased volumes of minor works, partial renewals, and targeted maintenance, in place of full renewals. It is contended that for most asset classes these increases will neutralise the impact of reductions in full renewals. If operational restrictions are to be relied on as a mitigation, the aim is for them to be imposed where it will be least disruptive and impacts can be proactively managed, for example heavy axle weight restrictions on structures within lines of route not normally utilised by heavy freight traffic.

More work needs to be done to test this assertion. If there is to be increased reliance on operational restrictions, those that are asset condition-related are more likely to manifest toward the end of the control period. There remains, though, the potential at any time for temporary operational restrictions in relation to adverse and extreme weather events.

Since the Slingo⁴ report, Network Rail has made good progress in targeting and refining its capability to forecast a range of adverse weather conditions and make decisions about appropriate resulting operational responses. It has succeeded in evolving a framework of proportionate measures that balance risk control and disruption – but extreme weather events are becoming more frequent and severe, so that the overall impact on service delivery and train performance can be significant.

Next steps for ORR

As described in the preceding paragraphs, our assessment has identified areas where more work needs to be done by Network Rail to increase confidence that its plans can be delivered on time, to budget, and achieving the desired outcomes. We will be working with Network Rail to ensure that we have agreed milestones and outputs for priority safety programmes by the start of the control period.

⁴ Following the fatal derailment at Carmont in August 2020, Network Rail commissioned two task forces to examine issues relating to the causes of the derailment. Dame Julia Slingo led the weather task force and made recommendations to improve the quality, timeliness and accuracy of weather forecasts used by the industry and to enhance its capability to make targeted risk-based decisions about how to interpret and act on weather-related information.

We are setting up mechanisms to make certain that safety and health management considerations are central to our scrutiny of Network Rail’s plans throughout CP7.

Additional observations

We have stated that we are satisfied that Network Rail’s plans are capable of letting it deliver its work safely, in line with its legal obligations. We should mention, though, that many of the activities Network Rail will undertake to refurbish and extend the life of assets will only be effective in the short to medium term. There will be increasing demand for full renewals in control period 8 (CP8, which will run from 1 April 2029 to 31 March 2034) and beyond. See our [PR23 final determination: supporting document on sustainable and efficient costs](#).

We note the constructive engagement we have received since our draft determination. Both at a regional and national level we have had open, productive exchanges with Network Rail staff as they have addressed the issues we raised and reviewed their plans in light of our observations.

Finally, we believe it is positive that, despite the significant challenges we have just outlined, Network Rail’s response to our draft determination still states its desire to improve safety and health management wherever possible. It is committed to deliver a safe plan in CP7 to support its vision to get ‘everyone home safe, everyday’, and repeats its ambition to achieve improved targets for Train Accident Risk Reduction and Workforce Fatalities and Weighted Injuries.

1. Our assessment of Network Rail's Strategic Business Plan

Background and context

Legal framework

- 1.1 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.
- 1.2 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. 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.
- 1.3 We observed during the last periodic review, PR18, that parts of Network Rail's organisation lacked maturity in understanding risk and making decisions about what might be SFAIRP risk controls. During control period 6 (CP6, running from 1 April 2019 to 31 March 2024) Network Rail has made efforts to improve its investment decision-making framework in order to promote SFAIRP – creating a tool to identify possibly grossly disproportionate level crossing design elements, for example.
- 1.4 CP7 presents Network Rail with challenging circumstances. It cannot achieve 'steady state' volumes of asset renewals within the funds available. It is faced with difficulty in predicting factors such as the effect of inflation on costs and the location, frequency, and severity of extreme weather. Network Rail will be required to be responsive and flexible throughout CP7, adjusting its business plan as required. It is therefore important for it to continue to refine and mature its safety risk bow tie framework and guidance for investment prioritisation. We expect to

see a further strengthening of processes to ensure that optimising reasonably practicable risk control is a factor in deciding between investment options.

- 1.5 Our scrutiny of Network Rail's business plans has involved detailed assessment of individual regions and national functions; it should be remembered, though, that so far as health and safety obligations are concerned, 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:
- (a) 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;
 - (b) continued focus on addressing the priority areas identified by Network Rail through its risk assessment processes, ORR through its inspection and investigation activities, and the safety learning identified by the Rail Accident Investigation Branch (RAIB);
 - (c) progress on improving user safety on level crossings that require renewal works (including addressing signage on user-worked level crossings);
 - (d) a strong and effective focus on supporting trackworker safety building on the considerable work done on this in CP6; and
 - (e) 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:

- (a) adopt an asset management strategy in CP7 focused on safety, reliability, resilience, sustainability, and value for money;
- (b) 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;
- (c) maintain safety, including a programme of works to make provision for weather resilience; and
- (d) develop a Scottish signalling strategy with plans for each line route to maintain safety, and operational performance.

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:

- (a) 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;
- (b) show how it will ensure compliance with all its relevant legal obligations under health and safety legislation over CP7; and
- (c) 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 In our advice we acknowledged that there may be proposals for necessary additional expenditure to respond to the recommendations for managing railway infrastructure in extreme weather made by the Dame Julia Slingo and Lord Robert Mair task forces. We asked for a clear rationale for any such proposed expenditure.

Our assessment of Network Rail's plans

- 1.11 Our assessment of the resulting SBP from Network Rail led us to require actions from the organisation to give us the necessary information to reach our final determination. We had concerns about the planned levels of asset renewals in some critical areas. We needed to understand what the proposed balance of renewals versus maintenance and refurbishment activities meant for risk control. We wanted to know more about the 'market-led' approach to investment and what it means for maintaining safety. We required evidence that Network Rail had taken these factors into account sufficiently when drawing up its plans.
- 1.12 We sought assurance that Network Rail had drawn up guidance for its staff to optimise safety outcomes when prioritising investment and deciding between options. We wanted evidence of continued commitment to some critical safety and health programmes (including workforce safety, occupational health, asbestos management, fatigue management, and infrastructure monitoring).
- 1.13 Our approach to assessing the plans was described in detail in our draft determination. Our main concerns about the proposed levels of core renewals and balance of maintenance activities were incorporated into actions required in relation to asset sustainability and are described in our [PR23 final determination: supporting document on sustainable and efficient costs](#).
- 1.14 We recognise the challenges of achieving funders' ambitions in their high level output statements within the limitations of funds available for the control period. We have sought throughout our assessment to work with Network Rail to secure the best outcomes in these circumstances. We note that many of the concerns we raised in our draft determination were echoed by Network Rail's own assurance activities. This is a welcome sign of growing management maturity.

2. Our decisions and actions required for the delivery plan

Our Assessment

2.1 In our draft determination we set out areas where we required clarifications, and/or revisions to the strategic business plan before we could make our final determination. These were:

Asset-related

- a. 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.
- b. Evidence required to explain how Network Rail will manage the risks associated with an increase in operational controls.
- c. 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-related

- d. 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.
- e. Evidence of management of risks associated with the reduced levels of structures renewals including the impact on examination compliance given current backlog of inspections.
- f. Demonstration that the concerns raised about track in Wales & Western by Network Rail's own assurance work are addressed.
- g. Timelines and deliverables required for the Route Services plans for improving and meeting regional demands for track infrastructure monitoring.

Maintenance-related

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

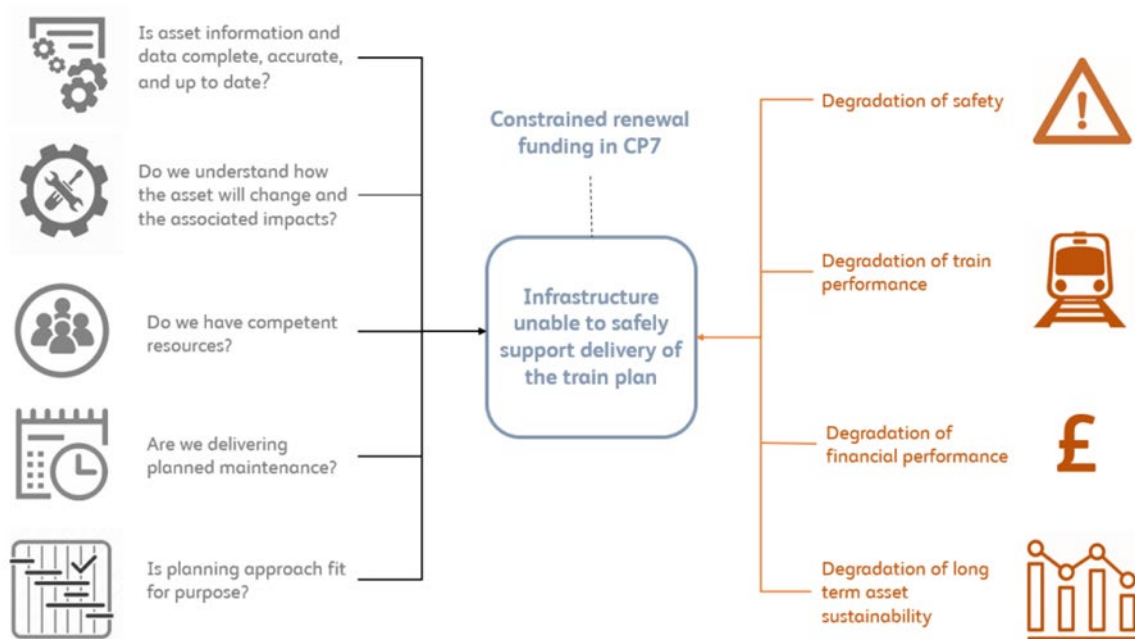
Worker health and safety-related

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

Changes since draft determination

- 2.2 Following our draft determination, we held meetings with various parts of Network Rail to discuss our findings and requirements for the next stage of business planning.
- 2.3 Network Rail submitted materials to us by the end of August describing how it had taken account of our challenges to its SBP and what changes had resulted.
- 2.4 Network Rail has accepted our suggested increases in volumes of core renewals (including the specific case of track on Wales & Western). See our [PR23 final determination: supporting document on sustainable and efficient costs](#) for a fuller consideration of this area.
- 2.5 This increase in planned core renewal activity is welcome. It raises our confidence that the infrastructure can be safely managed during CP7 – and this is corroborated by Network Rail’s own assurance activity. Its Technical Authority is satisfied that the revised plans leave no unacceptable gaps in risk control.
- 2.6 The increased renewals still result in a modest reduction in asset condition over the control period (projected to fall by 2.5%), so many of the challenges highlighted in our draft determination remain.
- 2.7 The major change Network Rail has made since the draft determination is to introduce a safety risk bow tie, and to use the bow tie as the basis for a framework within which it can review and revise its CP7 plans to promote the best decisions for safety and health management. An overview is shown in Figure 2.1 below.

Figure 2.1 Safety Risk Bow Tie Framework



2.8 The safety risk bow tie framework is Network Rail's way of demonstrating that it has addressed the main overarching challenges we posed in our draft determination. It gives Network Rail a means to:

- (a) Assess any change to the risks it manages, due to carrying out fewer renewals.
- (b) Identify if it is planning enough activity, particularly in the most critical asset areas, to control risks adequately.
- (c) Identify any additional mitigations required to cover gaps in risk control.
- (d) Demonstrate that it has the necessary resources (track access, competent people, asset data etc.) to deliver the work. Highlight any dependencies (on Route Services to provide asset data, on successful implementation of Modernising Maintenance etc.).
- (e) Test alignment of work plans for renewals and maintenance.
- (f) Explore any consequences for creating risks elsewhere – such as increased staff fatigue, unacceptable signaller workload, transferring risk to train drivers by implementing operational mitigations.
- (g) Review and revise plans in light of all previous steps.

- 2.9 The safety risk bow tie framework addresses our draft determination challenges to Network Rail to demonstrate that it understood the effect of its plans for fewer renewals on the risks it manages on its infrastructure. It provides a structured means of checking that it is taking the best decisions to manage safety and health so far as is reasonably practicable, especially in the critical areas of earthworks and structures. It generates evidence that market-led planning has not compromised safety management. It requires Network Rail staff to show that they have identified mitigations and are resourced to deliver them effectively. We analyse the effectiveness of this approach in the next section.
- 2.10 We received submissions from Network Rail that provided overviews for England & Wales and for Scotland. Additionally, we received submissions from each region and national function. Finally, we received an assurance report from the Technical Authority of Network Rail.
- 2.11 Submissions described the use of the safety risk bow tie framework to review risks and inform work and delivery planning. Each submission also outlined the Network Rail response to the other issues raised in our draft determination.
- 2.12 We received descriptions of commitments and plans in the following areas:
- (a) Use of market-led planning.
 - (b) Safety risk bow-tie framework.
 - (c) Planned increases in renewals.
 - (d) Embedment of Modernising Maintenance.
 - (e) Delivery of Mair and Slingo report improvements (for earthworks, drainage, and weather management).
 - (f) Next stages of track worker safety improvements.
 - (g) Plans for level crossing improvements, including provision of any new signage required by legislation.
 - (h) Plans to improve fatigue management.
 - (i) Occupational health.
 - (j) Research and development projects relating to train speed supervision.
 - (k) Electrical Safety Delivery programme.

(l) Infrastructure Monitoring.

- 2.13 We were concerned that the market-led approach described in Network Rail’s SBP might allow safety management ‘trade-offs’, where risk controls on lesser value routes were allowed to deteriorate, but those on higher value routes were maintained or improved. This would not comply with the legal requirement to manage risks so far as is reasonably practicable.
- 2.14 In the period after our draft determination, Network Rail gave us demonstrations of the use of the market-led approach to planning. This provided evidence that considering the value of particular assets to the whole industry is just one factor in the suite of tools available to decide on investment options. It is not the sole determining factor.
- 2.15 Each regional submission made it clear that safety is a priority within the overall decision-making framework. In some cases, safety prioritisation is carried out before market-led considerations are employed.
- 2.16 In its consultation response, Network Rail reiterated that market-led planning is carried out “within existing processes, standards and industry frameworks, such as assessment of safety risk”. Further, the new safety risk bow tie framework for decision making ensures that safety is at the heart of choices that Network Rail makes when funds are limited, and decisions must be made between competing priorities.
- 2.17 Network Rail has committed to consult with stakeholders, including ORR, in any future development of the market-led approach in order to protect the prioritisation of safety and health management.
- 2.18 Further, Network Rail has recognised that there is work to do to ensure its staff appreciate what ‘so far as is reasonably practicable’ means in relation to decision making and is planning to produce guidance.
- 2.19 **Conclusion:** we now have a much better understanding of how market-led planning operates. We are satisfied that Network Rail is not pursuing an aggregated risk management approach that allows deteriorating safety levels at some locations. We will continue to monitor this.

Understanding changed risks

- 2.20 Even after the planned increases in critical core renewals, overall asset condition will deteriorate slightly overall during CP7. One of the main purposes of the safety

risk bow tie framework is to assess what are the remaining and new risks on the infrastructure in the circumstances of fewer asset renewals being delivered.

2.21 Network Rail described the safety risk bow tie framework process to us as follows:

“It will also support our regions in further embedding market-led planning and informing asset management decision making during CP7, demonstrating that the risks on all regions have been reduced so far as is reasonably practicable (SFAIRP). The development of the bow tie risk assessment framework complements our existing and well-established BAU safety risk management approach. This includes our Enterprise Risk approach where causes, consequences, controls and actions are closely monitored, along with our assurance / governance approach across the business which applies the three lines of defence model (discussed in our SBP) and will continue to apply in CP7. This includes the hierarchy of risk controls we use when making asset management related decisions, for example undertaking a partial renewal / refurbishment and component replacement instead of a full renewal to mitigate the risk.”

2.22 The safety risk bow tie framework has already informed Network Rail’s assurance of changes to plans. It has increased renewals in critical asset areas, highlighting that risks would not have been optimally controlled had it not done so. Each region has described to us how it has reviewed its assessment of risks and identified additional mitigations.

2.23 The national picture has been completed for priority assets: earthworks, track, and structures. The Technical Authority will continue to populate the framework for other asset groups.

2.24 The safety risk bow tie framework is in its early stages of use. It is an iterative process. We expect to see it used to firm up the CP7 delivery plan – and then its continued use throughout the control period to review the adequacy of safety management decisions as plans evolve and adapt to developments.

2.25 **Conclusion:** the safety risk bow tie framework has enabled Network Rail to demonstrate that it has assessed the changing nature of risks on its network due to the balance of activities it is planning for CP7. It has highlighted gaps in risk control and identified additional mitigations to address them. The resulting plans are firmer and more credible in some asset areas than others and we expect to see more complete details in the delivery plan.

Increasing core renewals

- 2.26 Our [PR23 final determination: supporting document on sustainable and efficient costs](#) describes in detail our assessment of Network Rail’s plans to increase core renewals since our draft determination.
- 2.27 We note that there have been the increases we wished to see in specific asset groups and regions that concerned us at the time of our draft determination. This includes an increase in track renewals in Wales & Western region, as highlighted in our draft determination.
- 2.28 We note that Network Rail’s own assurance (informed by the safety risk bow tie framework) is now satisfied that no region or asset group is planning to deliver less than the safe minimum renewal activity.
- 2.29 There is still work to be done in order for the CP7 delivery plan to be certain that all necessary renewals are funded. This final determination is protecting the agreed additional core renewals.
- 2.30 Although we are satisfied that the planned level of renewal activity will enable Network Rail to manage its assets safely over the control period, this is not sustainable in the medium to long term. In subsequent control periods there will have to be increased renewal activity if asset condition is not to be allowed to deteriorate to potentially unsafe conditions.
- 2.31 **Conclusion:** the planned increases in renewals have improved the capability of Network Rail to safely manage the infrastructure in CP7. Asset condition will still decline overall, but Network Rail has assessed the consequences of this, prioritised the most safety critical renewals and identified additional mitigations to control the risks arising from the planned mix of activities.

Alignment of renewals and maintenance

- 2.32 Network Rail’s safety risk bow tie framework has been explicitly designed to review how well the plans for various types of interventions on the assets have been resourced and can demonstrate alignment with one another so that risks are addressed by a balance of complementary activities. Network Rail, in its most recent submission to us, describes how this has generated better aligned activity plans:

“The nature of the bow tie risk assessment means that it can be used to evaluate the risks associated with lower levels of renewals activity in CP7 by asset type and is scalable at different levels (line of route to national). More broadly, it also

supports us in evaluating specific areas of concerns. For example, over the past few weeks, we have used the safety bow tie risk assessment to demonstrate the alignment between our maintenance and renewals plans in CP7. We have developed 25 questions which enable us to assess the level of alignment between our maintenance and renewals plans (including that the funding provisions for maintenance activities in CP7 are scaled appropriately) and identify any gaps which we will seek to address as part of the development of the CP7 delivery plan and into CP7. Our TA assurance report provides a summary of regional responses to each of the 25 questions. We will also be able to use the safety bow tie risk assessment to assess the alignment between our asset management and operational plans and will seek to do as part of the development of our delivery plan.”

- 2.33 During our engagement with Network Rail regions since our draft determination we have witnessed some good examples of joint planning involving maintenance and engineering functions at route and regional level. We will continue to follow the development and embedding of the safety risk bow tie approach to work planning at different levels of Network Rail’s business.
- 2.34 **Conclusion:** The safety risk bow tie framework enables Network Rail to plan its work activities in a complementary way, ensuring alignment of different planned interventions. We have seen evidence of improved alignment of plans since our draft determination and will maintain scrutiny of the continuing maturing of these themes in the CP7 delivery plan.

Ability to deliver increased maintenance activities.

- 2.35 The Technical Authority of Network Rail has drawn up a structured framework from its safety risk bow tie to prompt regions to question and identify what resources are needed to deliver the maintenance plans. It also highlights dependencies, such as the constraints of available access to the track and associated infrastructure.
- 2.36 During our engagement with regions following our draft determination, we saw some examples of good practice where planning reviews were conducted across asset types and involved the maintenance function. This promoted consideration of the railway as a whole system and helped ensure that maintenance plans are deliverable. We commend this approach to planning to all Network Rail regions.
- 2.37 If maintenance activity is to be delivered as planned, one of the main dependencies is the embedment of the Modernising Maintenance programme by the start of the control period. Without the changes to working practices that it

delivers it will be hard for Network Rail to achieve its plans. Each region submitted assurances that plans were in place and successful implementation anticipated. All of the potential improvements stemming from Modernising Maintenance will be enabled by the start of CP7. Each region will stage the full implementation of these at a pace it has judged appropriate to its local circumstances.

- 2.38 Another dependency is on the skills and judgements of staff and their ability to do the right thing consistently and repeatedly at the right time. Some of the regional plans noted an increased reliance on the competence of their staff and a questioning of the adequacy of some of the competency management arrangements currently in place. Several regions stated that they planned to take measures to enhance the competence of their engineering and maintenance staff.
- 2.39 In our discussions with the regions, it became clear that there was not a consistent approach to the matter of staff competence arrangements. Some CP7 proposals from regions will go beyond any national frameworks and complement them. Some expressed frustration that what they are judged on is superficial compliance – having the right number of staff with the required named competencies up to date, rather than any measurement of the effectiveness of competence management.
- 2.40 We know from recent examples such as signaller competence and signal maintenance testing competence that there are questions about the effectiveness of training, supervision, and competence assessment. These need to be addressed if the CP7 plans are to be achieved. We believe there is a gap in Network Rail's arrangements. While there is a multiplicity of specific competence standards and processes, there is not a recognisable guiding mind, setting strategic requirements at a national level. We will work to secure better arrangements in CP7.
- 2.41 **Conclusion:** Network Rail has addressed our draft determination concern about demonstrating how it intends to deliver increased maintenance volumes. It has introduced an effective framework to ensure plans align with renewals volumes and to understand how interventions will control risks. There remains a dependency on implementing Modernising Maintenance. There is significant reliance on the skills, judgement, and competency of members of staff. We will seek evidence in the delivery plan that any necessary improvements to competency management have been identified and will be addressed. We will also promote the collaborative, systems approach to planning that we have witnessed in some regions.

Earthworks, drainage, and extreme weather responses

- 2.42 In our draft determination we pointed out that we had not seen consistently strong evidence across the business plans of Network Rail's commitment to continue to deliver the improvements recommended by the task forces set up following the fatal derailment at Carmont in August 2020 (and subsequent recommendations in RAIB's investigation report).
- 2.43 In relation to these topics, it is important to note that there is a limit to the contribution that asset renewal can make to improving safety risk management. Of course, it is important to renew or refurbish life-expired assets before they pose an unacceptable risk. In the case of earthworks, though, there is only a weak link between asset condition and vulnerability to failure. Even assets in good condition can fail if subjected to high enough volumes of water over a short period of time. This is why we have long been encouraging Network Rail to have a strategy for remote monitoring of geotechnical assets to detect failure and alert staff to take appropriate action.
- 2.44 The service life of drainage assets is only as good as the inspection and maintenance regime associated with them; a new drain can become clogged and ineffectual quickly if not properly maintained.
- 2.45 For these reasons, we sought evidence of an effective inspection and examination regime for earthworks and earthworks drainage in each region. We looked for Network Rail to demonstrate that it had planned sufficient resources, including suitably qualified staff, to assess asset condition and plan and deliver any remediations required. Each region described its plans to address backlogs in earthworks examinations in a sustainable manner. This area is already the subject of focused ORR scrutiny. Plans also included continued commitment to deploy remote monitoring at assets, prioritised by risk assessment.
- 2.46 All regions of Network Rail stated their commitment to continue to deliver Mair and Slingso taskforce-related activities. Regions differed in some particulars, with some, for example, electing not to adopt exactly the model suggested for dedicated drainage resource by Lord Mair's report. This exercised some of our consultees. All Network Rail regions have significantly increased the size of resource available for water management. Unless we have evidence that they are not achieving the desired outcome of improved drainage management then we have no reason to insist on a single way of delivering. We will be closely scrutinising progress in this area.

2.47 In its response to our draft determination, Network Rail stated:

“The Mair recommendation set out that consideration should be given to having dedicated drainage maintenance teams across all routes, rather than drainage being only one of the activities for which off-track section managers are responsible. We have fully considered the Mair recommendation and interpreted this to mean that we should have more people undertaking drainage maintenance as a dedicated activity. We have also tested our interpretation of the action with Lord Mair who agreed that this is about increasing drainage resource and treating drainage assets as a parent asset. Therefore, every region has increased its drainage maintenance and inspection resource, through a mix of permanent staff and labour only sub-contractors and will have delivered this step up by the end of CP6. In some regions, this has also resulted in the creation of dedicated drainage teams. The difference in approach across regions reflects that we are a devolved business, with each region able to make the right decision for their region – reflecting the local geography and operating context. However, as set above, in all regions, we have increased our drainage resource with drainage assets now being treated as a parent asset.”

2.48 We see regular updates on progress against the full range of weather-related improvements Network Rail is committed to. We can confirm continued increased headcount for drainage resources. We can also confirm recent progress in enhancing competence, skills and knowledge in weather responses and drainage management, and provision in regional plans to mature and develop this throughout CP7.

2.49 **Conclusion:** Network Rail has demonstrated continued commitment to improving its management of earthworks and drainage in extreme weather events and to embed the improvements it has introduced in its forecasting intelligence and capability to target responses to adverse weather. We have a range of forums where we track progress and can take action if necessary to speed up or improve Network Rail’s delivery.

Possible increase in use of operational restrictions

2.50 In our draft determination we asked Network Rail to consider how it would manage the risks associated with an increase in operational controls. This was an area of considerable concern among respondents to our consultation. Consultees pointed out that increased reliance on operational restrictions to mitigate risks from asset condition could have considerable impact on train performance. It could also lead to transferred and increased risks to others in the sector such as train and freight operators and their staff.

- 2.51 Network Rail has responded by describing how it has tried to minimise the use of operational restrictions as mitigations. Its planning framework promotes consideration of a range of interventions, including renewal, partial replacement, asset refurbishment or maintenance servicing. A balanced approach to planning these works aims to avoid the need for such mitigations by retaining asset performance within acceptable tolerances. Whilst operational restrictions are an effective means of mitigating risks from degraded assets, Network Rail acknowledges the impact they can have. It states that it does not wish to require other parties beyond Network Rail to take part in the mitigation.
- 2.52 Whilst there is a risk that an operational restriction will be necessary on assets at any point throughout their life, the probability of such an instance grows the closer the asset gets to the end of its life. As a consequence of constraints in renewals relative to steady state levels, there is a possibility that reliance on operational restrictions will grow towards the end of the control period and more likely in later control periods if asset sustainability is not restored. We address the issue of long-term asset sustainability in our [PR23 final determination: supporting document on sustainable and efficient costs](#).
- 2.53 Network Rail reported to us that its Technical Authority assurance had found that regions' proposals for CP7 include increased volumes of minor works, partial renewals, life extension works, component replacement and targeted maintenance, in lieu of full renewals. We have seen some high-level returns supporting the claims of increased activities. Regions assert that for most asset classes these increases will neutralise the impact of reductions in full renewals and thus regions are in general not expecting to see an increased dependency on operational restrictions. Where such restrictions must be introduced, the intention is for these to be where impacts can be proactively managed and are likely to be of minor impact, for example heavy axle weight restrictions on structures within lines of route not normally utilised by heavy freight traffic.
- 2.54 More work needs to be done in drawing up the CP7 delivery plan to provide evidence of this approach to reducing dependency on operational mitigations for the consequences of ageing assets.
- 2.55 We also note that there is a tension between the ambition to improve train performance and punctuality, and the need on occasion to manage risks from degraded assets by restricting their operational use. Whilst we applaud Network Rail's framework to minimise disruption from operational mitigations, we shall be scrutinising decisions to ensure that this does not result in failure to prioritise

safety risk control. This includes the suite of responses to a range of extreme weather conditions.

- 2.56 In some instances, measures necessary to manage assets safely may affect achievement of the desired improvements in train punctuality. Further, increased operational restrictions would potentially have the effect of reducing income, reflecting the disruption to passenger train and freight operators. This would, in turn, put more pressure on funds available to intervene to manage asset condition and safety risk. This increases the incentive on Network Rail to minimise the occasions when operational restrictions are relied on,
- 2.57 **Conclusion:** Network Rail has provided a description of how it has tried to promote a blend of activities short of full renewal in order to avoid the most significant consequences of asset degradation over CP7. This should minimise reliance on the use of operational restrictions as a mitigation for asset risks. More work needs to be done to firm up plans by the start of CP7 – and we remind Network Rail of the need to take a balanced approach, such that its staff are not reluctant to introduce such mitigations when needed.

Priority regional health and safety improvement plans

- 2.58 We asked Network Rail for more evidence of its continued commitment to improve arrangements in a number of key areas of health and safety management. We received much clearer statements of intent from each region to do this. The areas include:
- (a) Workforce safety (building on the notable achievements of the workforce safety task group in CP6).
 - (b) Level crossing safety enhancements, particularly at passive crossings (and including adoption of revised signage).
 - (c) Management of risks from staff fatigue.
 - (d) Managing and improving occupational health.
- 2.59 In relation to workforce safety each region stated its commitment to build on the notable achievements of CP6 in eliminating unassisted lookout protection as a means of working on or about the line. All regions will benefit from continued national initiatives (outlined in a plan provided to us) to further enhance the Rail Hub system for planning work, to improve the role of Controller of Site Safety (COSS) and to raise the effectiveness and safety of how possessions are managed.

2.60 Some regional plans were more detailed and ambitious than others – recognising the opportunities to eliminate the need for staff to go lineside at all by greater deployment of drones, digital inspection systems and unattended monitoring. Some regions had firm commitments to explore and adopt a range of technologies such as geofencing and automatic warning and protecting systems to aid staff when they have to go on or about the line.

Level Crossing Safety

2.61 Each region outlined its commitment to deliver any new and altered signage required at level crossings as a result of recent legislation review.

2.62 Regions also committed to reasonably practicable improvements at passive crossings. Passive crossings are a priority for Network Rail due to their contribution to overall risks at level crossings. Some regions had firm plans, with numbers of crossings and type of improvement clearly identified. Other plans were not finalised in such detail. This is partly attributable to delays in rolling out the planned additional technology to warn passive crossing users of approaching trains. Badged ‘Meerkat’, this solution is not available as originally anticipated. This means regions have had to opt for existing, more expensive technology such as miniature stop lights.

2.63 We expect more clarity about planned improvements in the CP7 delivery plan. We will continue to press Network Rail to complete implementation of alternative, value for money solutions to control level crossing risks.

2.64 We note the allocation of £6 million in the RD&I (Research Development & Innovation) plan to address level crossing safety risks.

Occupational Health

2.65 In relation to Occupational Health, we were provided with a CP7 Strategic Occupational Health Plan by the Technical Authority. Its provisions were reflected in regional submissions.

2.66 The primary focus of CP7 spend is on the insourcing of occupational health provision – allowing Network Rail closer control of the full range of health-related activities for its staff, allowing earlier detection and effective management of many health and wellbeing conditions. The strategic aims are to measurably improve the health and wellbeing of staff and reduce sickness absence – leading to reduced costs to the business. We support this initiative and will monitor its roll-out in CP7 to identify any benefits that can be shared with the wider industry.

2.67 Part of the strategic plan for occupational health in CP7 is an improved Health Risk Management Framework, including targets for reduced exposures to silica dust, weld fume, reduced hand arm vibration levels and continued control of asbestos. We saw commitments in regional and functional submissions to deliver these, but some were more detailed than others.

Asbestos management

2.68 In relation to asbestos management, we sought evidence of how Network Rail would build on the achievements of CP5 and CP6 to better meet legal requirements in this area. The Technical Authority described how its Asbestos Risk Management System (ARMS), is now well populated and a useful tool to manage the risk associated with asbestos. It will be a key component in assuring that its approach to managing asbestos in CP7 is safe and appropriate. Network Rail also set out its key priorities for asbestos management in CP7:

- (a) Assuring its understanding of asbestos locations across the network.
- (b) Encouraging staff and contractors to utilise the data contained in ARMS before undertaking work.
- (c) Assuring that staff work correctly and safely when at or near locations containing asbestos.
- (d) Removing asbestos when it is sensible to do so (i.e., when the asset is at or near end of life) noting that not disturbing asbestos and leaving it alone is the best control to prevent exposure to asbestos.

2.69 Each of the regional responses provide more details on their approach to asbestos management in CP7. The Technical Authority has reviewed these approaches and is satisfied that they are aligned to the national priorities at this stage. We will continue to monitor progress through CP7.

Fatigue

2.70 In relation to fatigue, we met Network Rail's fatigue improvement project to discuss its approach. Additionally, we received submissions from Network Rail regions and national functions describing their plans in CP7.

2.71 Management of fatigue has been an area of frustratingly slow progress in CP6, and we asked Network Rail to demonstrate how it would secure improvements in CP7. A new fatigue standard in CP6 enabled some limited improvements to fatigue management (such as changing rostering principles so employees work no

more than 60 hours a week where possible). There are currently more than thirty temporary variations to the requirements of this standard.

- 2.72 Network Rail asserts that its slow progress in this area has been to give the regions and national functions time to adapt rosters in a way that meets both the business needs and the need to effectively manage fatigue. The extended implementation timeframe is to allow a prolonged and repeated educational and culture change programme to gain traction – so that change will be effective and sustained. There is evidence that this is beginning to work; all regions reported a reducing trend in authorised exceedances of working time limits.
- 2.73 The CP7 plans will build on this improving trend. Network Rail is committed to continuing to improve its approach to managing fatigue in CP7 and plans to invest circa £750,000 to further develop its control framework. A key part of this will be to support discussions around alertness and creating a work environment that enables its employees to feel more alert at work. There will be a new rostering tool called MyRoster that will allow rostered staff to update their hours worked in real time, supporting Network Rail in implementing a new shift pattern that improves staff alertness. This OFFICIAL 57 rostering tool will also provide information that will enable assessment of the level of employee alertness and development of improvement actions where needed.

Conclusion on priority regional health & safety improvement plans:

- 2.74 Network Rail's Technical Authority and regions have addressed the questions we raised in our draft determination around continued commitment to improving management of priority health and safety areas. We have received evidence of provision in CP7 plans to progress the areas mentioned. There were varying levels of detail and credible deliverability in the plans. We will work with Network Rail to ensure a more consistent approach in the CP7 delivery plan.

Train protection and speed management

- 2.75 In its SBP, Network Rail described its plans to invest in developing and deploying a system to ensure safe train speeds in a number of areas (into and out of possessions; within possessions; for emergency speed restrictions etc.). The system was called OTTO (Optimising Train Track Operations). In our draft determination we asked for more detailed plans for its development.
- 2.76 Since the draft determination there has been change in this area. We understand that OTTO, as described in the SBP, has been superseded. There is still an

ambition to achieve a similar function – essentially to address the gaps in what is currently provided by TPWS (Train Protection and Warning System).

2.77 In its most recent submission to us Network Rail stated:

“Work undertaken by the industry Train Protection Strategy Group highlighted that advances in technological development means that there was the possibility of a new train protection solution that would be reasonably practicable and reduce risk more quickly than the implementation of ETCS. It recognised that this means that the current train protection solutions may no longer reduce risk so far as is reasonably practicable (SFAIRP) and that the industry should consider the potential benefits of new technology. The OTTO programme in CP6 was developed to explore these opportunities and build a business case for developing new solutions. This programme was ultimately considered as too complex, with high-risk development activities associated with adapting existing technologies and therefore the OTTO programme is not being taken forward in the form developed in CP6. Network Rail does recognise however that there may be potential solutions available that are reasonably practicable, and reduce risk SFAIRP, and that facilitate the transition to ETCS over time. Given that the OTTO programme was considered as too complex and high risk no funding has been allocated to it in CP7. Elements of the programme are however being taken forwards, particularly the Speed Restriction Management system, with funding allocated to this of £21m in System Authority supported by RD&I funding. Should a further solution be identified in CP6/7 which has a clear business case and demonstrates safety benefits, then funding for this will be considered through our existing business mechanisms for investment, which consider safety and economic factors in a joined-up manner. RD&I includes. Further investment (£56.5m) in future control, command and signalling (CCS) technology, AXIOM (Target 190+ ETCS deployable elements, FRMCS) to mitigate risks associated with obsolescence from CP8 onwards.”

2.78 **Conclusion:** The present proposals are vague. This is disappointing in such an important area of risk control. It will be a top priority for us to have firmer, funded proposals for train protection and speed management improvements in the CP7 delivery plan. We will press for clear criteria for when and how to progress research and development. We will seek a plan with milestones to deliver outcomes focused on addressing gaps in current provision, obsolescence challenges, and securing value for money technology that complements or replaces existing train control systems.

Electrical Safety Delivery Plan

- 2.79 Network Rail is partway through a three-control period programme, agreed with ORR at its inception, to improve the safety of its electrical assets and to bring better compliance with the requirements of the Electricity at Work Regulations 1989. The programme is known as Electrical Safety Delivery (ESD). It began in 2015. In the SBP we noted that there seemed to have been a shift in the priority order of implementation for ESD and we asked for more clarification by the time of the delivery plan. As we engaged with Network Rail following our draft determination, we escalated our concerns and asked for a description in its August 2023 submission to us.
- 2.80 Route Services is responsible for ESD programme. Its plans have been rearranged to defer some important measures to achieve ‘safer faster isolations’ (SFI). These are plans for the AC overhead line infrastructure to have the capability to remotely secure and earth isolations of the traction supply in order to prevent accidental re-energisation. The solutions would remove the need for staff to go to site to carry out these procedures physically.
- 2.81 The delays are related to associated problems with the programme to deliver TPCMS (Traction Power Centralised Management System). This is a new remote operating system for the electrical network, with increased functionality that will facilitate remote securing and earthing of isolations. TPCMS is one of a number of systems often referred to as ‘SCADA’ (Supervisory Control and Data Acquisition).
- 2.82 The ESD was also delayed by responding to formal enforcement from ORR during CP6 around the effectiveness of Network Rail ‘life saving rules’ for electrical safety. The lifesaving rules are an important interim control of risks until the improvements of ESD have been realised. We were not satisfied with the level of compliance and intervened to secure changes. Our enforcement also required improved physical demarcation of the limits of electrical isolations, as this is the area most commonly leading to misunderstanding and unsafe conditions.
- 2.83 The AC lines solution developed for SFI (using a mobile phone platform) relies on the functionality of TPCMS. CP7 ESD priorities are to complete provision of negative short-circuiting devices on the DC network and for AC assets to pursue a project labelled ‘Single Approach to Isolations’. SFI will only be pursued where there is a proven business case. It is anticipated that much will be deferred into CP8.
- 2.84 We agree with the continuation of DC solutions, which are proven.

- 2.85 We understand the reluctance to commit to firmer plans for SFI when there is presently uncertainty about the roll-out of TPCMS. We are yet to be convinced that ‘Single Approach to Isolations’ (SAI) will achieve the desired project outputs. It is heavily reliant on process and culture change. These are important, and we note that many elements of SAI flow from analysis arising from our CP6 enforcement. However, we are not persuaded that the programme has defined the scope of SAI well enough to demonstrate how it will deliver improved control of electrical safety risks.
- 2.86 We have not seen sufficient evidence to demonstrate that ESD as currently planned, with its emphasis on SAI, offers good value for money. We have not seen evidence that the scope and outputs are well enough defined, that there are clear milestones to achieve delivery, nor that the project can maintain control of the scope of the programme appropriately. We would prefer to see priority given to engineering solutions to the acknowledged gaps in risk control and legal compliance.
- 2.87 The CP7 proposals refer to some alternative platforms for remote securing of isolations, as trialled in Scotland and Wales & Western regions (so called ‘captive key’ securing via Railcom). We want to see continued pursuit of established physical solutions, whether that is TPCMS-based technology or other SCADA systems. Our engagement with regions has provided evidence of considerable appetite for practical delivery of remote securing and earthing.
- 2.88 We have yet to be convinced that the ‘Single Approach to Isolations’ represents value for money. We would like to better understand the rationale for emphasis on procedural and cultural change programmes, and why it is envisaged that they will require the planned amounts of funding. We believe there are more efficient ways to achieve better outcomes and will be exploring these as a matter of priority between now and the start of CP7.
- 2.89 **Conclusion:** Network Rail’s submission stated that its CP7 ESD programme represents the best use of constrained funding and is based on best business cases. We do not fully share that view. We will be engaging further with Network Rail to agree better defined project outputs that will demonstrably improve control of electrical safety risks and achieve better legal compliance. We want evidence to justify deferring introduction of engineering controls and prioritising process-based ones. We will press for firmer plans for delivery that will maintain control of the scope of the ESD programme with clear milestones to achieve outputs efficiently.

Infrastructure Monitoring

- 2.90 In our draft determination we noted that Network Rail’s fleet of trains to monitor various aspects of the infrastructure was acknowledged to be near the end of its life. We asked for evidence of Network Rail’s plans to replace it.
- 2.91 This is a vital area of CP7 planning. Regions are clear that they require an improved service in relation to provision of asset data. The safety risk bow tie framework shows that high quality asset information is fundamental to making safe decisions when fewer renewals are being delivered.
- 2.92 In its response to our draft determination Network Rail Route Services described its approach to CP7 planning. It has worked closely with the regions to understand their requirements. It states that the existing fleet cannot deliver the existing service or additional requirements in CP7 as it is at the end of its life and failing more frequently. The CP7 plan therefore comprises three main activities:
- (a) Short term fixes to keep the service running.
 - (b) Life-extending the current fleet to enable a transition.
 - (c) Procuring services to deliver better reliability and support improved outcomes in the longer term.
- 2.93 Network Rail is not proposing to replace the existing fleet but rather to buy the outputs from the market, to be delivered by whatever means the chosen supplier identifies as most suitable.
- 2.94 We believe this approach has the potential to succeed. We note that, in response to ORR challenges on costs, Route Services has accepted a reduction in funds for CP7 but states that this will be achieved by reducing project outputs and not delivering all the improvements originally planned. We dispute that this is the way to proceed. We explain our reasoning in the [PR23 final determination: supporting document on sustainable and efficient costs](#).
- 2.95 **Conclusion:** Network Rail has addressed the issue raised in our draft determination by explaining in more detail how it will deliver the necessary infrastructure monitoring services in CP7. We believe there will still be challenges in keeping the existing fleet going until the new services begin to be delivered in the second half of the control period. We believe that the project outputs can be delivered more efficiently and do not accept that reduced funding should lead to de-scoping and compromised outcomes.

Priority safety improvement projects: additional observation

2.96 In our draft determination we referred to previous examples of project delivery by Network Rail that had not been successfully completed. ORR has undertaken an assurance review of why technology has not been adopted well – resulting in delays, overspends and failure to realise the intended benefits of schemes. We made recommendations to Network Rail to promote better implementation of such schemes. As the delivery plan is developed, we will be seeking firm evidence that these lessons are being applied to planning of the programmes for infrastructure monitoring, electrical safety and speed management systems.

Our Decisions

- 2.97 As described in the conclusions in the previous section, we have decided that Network Rail has addressed the areas of most significant concern that we raised in our draft determination.
- 2.98 It has made changes to its plans to reflect the results of its responses to the matters we raised. In relation to our priority issues, it has increased proposed core renewals in CP7 and made changes to its planning framework to ensure it understands and addresses the changing nature of safety and health risks on its infrastructure.
- 2.99 We have decided to use this final determination to protect some important elements of the CP7 plans: the additional volumes of renewals and the project outputs of ESD and Infrastructure Monitoring.
- 2.100 We have assessed that the revised CP7 plans have the potential to deliver sustained, and in places, improved, health and safety management in the control period, in line with Network Rail's legal obligations to control risks to its staff, other industry staff, passengers and members of the public.
- 2.101 There is varying firmness, maturity, and credibility among the constituent plans. We are seeking greater consistency of approach for the delivery plan. We will engage with Network Rail regions to bring this about and to share and promote the best examples we have assessed. We note that successful delivery of the plans is contingent on a range of factors such as embedding Modernising Maintenance and ensuring the competence of staff to carry out all the tasks on which risk control relies. We will be seeking evidence that Network Rail can demonstrate the sufficiency of these arrangements.

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- 2.102 As well as engaging with Network Rail regions in the development of the delivery plan, we will be focussing on securing improvements in the programmes to achieve better electrical safety and infrastructure monitoring. We believe both can deliver better defined outputs more efficiently. Additionally, we will be seeking better understanding of the intended outputs of work to develop speed supervision systems.
- 2.103 There will be a continuing need throughout CP7 for us to monitor delivery of the plan and to judge the suitability of any adjustments made to it. We will be looking for Network Rail to embed processes to ensure that safety and health are suitably prioritised in decision-making processes to ensure that risks are controlled SFAIRP.

Health and safety outcomes

- 2.104 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 final determination: supporting document on outcomes](#).
- 2.105 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.
- 2.106 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.

Annex A: Consultation responses referring to health and safety matters

Summary

Table A.1 Table of issues and responses

Issue raised	ORR response
<p>Fewer renewals than required for 'steady state' asset sustainability; asset condition deteriorates over CP7, with consequences for safety risk control.</p>	<p>Since the draft determination, Network Rail has revised its CP7 plans to deliver additional core renewals in critical asset areas such as structures and earthworks. This has led to the Technical Authority's assurance concluding that there are no gaps in the levels of activity required to achieve minimum levels of safety risk control.</p> <p>Overall, it is calculated that asset condition will still deteriorate slightly over the control period – but Network Rail has introduced a safety risk bow tie framework to ensure that it prioritises safety in its work planning processes and strives to minimise the impact of carrying out fewer renewals.</p> <p>The safety risk bow tie framework assessment sets out the core principles to assess the shift in risk profile resulting from undertaking fewer renewals in CP7, as well as the key operational mitigations that Network Rail may need to implement.</p> <p>The safety risk bow tie framework has led to a structured question set which has been used by each Network Rail Region to review and revise its plans to identify how risks have changed and decide if planned activities will maintain risk control and what further mitigations might be required.</p> <p>So far, the Technical Authority has populated the safety risk bow tie framework assessment at a national level for the assets most affected by the reduction in renewals activity in CP7 – track, structures and earthworks.</p> <p>The safety risk bow tie framework has only just begun. It is an iterative process. The framework will be completed at both a network and regional level, and aims to set out in a clear, logical manner the threats and</p>

mitigations that influence what Network Rail considers to be the central risk – whether infrastructure is able to safely support the delivery of the train plan.

The nature of the safety risk bow tie framework assessment means that it can be used to evaluate the risks associated with lower levels of renewals activity in CP7 by asset type and is scalable at different levels from line of route to national network.

We will continue to monitor the development of the delivery plan to ensure it reflects the principles of the safety risk bow tie framework.

Our final determination protects the additional core renewals that have been identified, even where funding is currently uncertain.

Market-led decision making – lesser used/revenue-generating lines allowed to deteriorate? Not compatible with duty to manage risks so far as is reasonably practicable (SFAIRP)?

We stated our concerns in our draft determination – and these were echoed by many consultation respondents. We needed to understand how market-led decision making would ensure that safety was still maintained, so far as is reasonably practicable, on ‘lesser’ lines. We made it clear that there could not be trade-offs that allowed safety risk deterioration on some parts of the network.

Since our draft determination we have learned more about the market-led approach. Market-led and whole industry planning approaches enable Network Rail to make better value for money decisions in a constrained funding environment by prioritising investment according to what markets value most and accessing whole-industry levers to deliver this in the most effective and efficient way. It is not, however, the sole determinant. Nor is it a prescriptive process; it is one of several factors informing decisions between investment options.

Submissions from Network Rail regions described how safety is prioritised within (or in some cases, before) market-led decision making.

We have seen evidence of market-led considerations informing choices to minimise, as far as possible, reliance on operational restrictions to control risks from deteriorating asset condition.

The safety risk bow tie framework has provided a structured means of ensuring that market-led planning does not compromise taking safe decisions.

In the future, Network Rail is seeking to explore more ambitious market-led and whole-industry opportunities to make the best value for money decisions. This may require changes to standards and processes. Network Rail has pledged to work closely with stakeholders, including ORR, to develop decision support tools that

continue to protect priorities such as safety, while enabling it to realise the opportunities from changing demand and industry structures.

Further, Network Rail acknowledged to us that there is varying maturity of understanding of ‘so far as is reasonably practicable’ among its staff. Building on the good work done in developing a tool in CP6 to understand what is grossly disproportionate in relation to level crossing improvements, it is proposing to introduce wider guidance for its staff on taking safe decisions.

Fewer core renewals leading to more reliance on maintenance. Is this a suitable means of controlling the changed risks arising from fewer renewals?

Network Rail plans to deliver more core renewals than were in its initial SBP submission. The volumes are still below ‘steady state’ so there will still be increased reliance on maintenance.

The safety risk bow tie framework ensures that Network Rail regions assess the impact of fewer renewals on the profile of risks it is managing. The structured question set then demands that regions demonstrate that their planned activities will address any gaps in risk control – or additional mitigations are identified.

An initial high-level return from regions shows that there has not been an automatic default to maintenance and inspection to mitigate deferred renewals, but a mix of activities including refurbishment, partial renewal, component replacement and minor repairs. It is believed that this balance of activity will ensure risks are controlled so far as is reasonably practicable.

Decisions have been informed by market-led planning considerations: seeking to minimise disruption and possible risk transfer to industry partners.

We await firmer plans and more credible detail as Network Rail finalises its CP7 delivery plan but are satisfied with the planning principles outlined to us. We will continue to check the effectiveness of implementation.

Can Network Rail demonstrate its ability to deliver increased maintenance activities?

The safety risk bow tie framework has prompted Network Rail regions to review their plans – including to demonstrate alignment between maintenance and renewals plans in CP7. Network Rail has developed 25 questions which enable it to assess the level of alignment between maintenance and renewals plans (including that the funding provisions for maintenance activities in CP7 are scaled appropriately) and identify any gaps which it will seek to address as part of the development of the CP7 delivery plan and into the control period.

The Technical Authority of Network Rail has judged that there is now good alignment between renewals and maintenance plans. We have seen no evidence to contradict this view. The plans are firmer for the first two

years of the control period and less well developed for the remaining three. That will be addressed as the delivery plan is drawn up.

We will continue to engage with Network Rail as it evolves its delivery plan to ensure that maintenance is properly considered and resourced. We have seen promising evidence of regions planning jointly between engineering and maintenance functions, securing agreement about planned activities.

We will be seeking greater consistency in approach, including demonstration of appropriate staff competencies to deliver planned work and evidence that there is sufficient access to carry out planned activities safely, with no detriment to fatigue management or signaller workload.

We also note that Network Rail's ability to deliver planned maintenance activity is in part dependent on enabling 'Modernising Maintenance' reforms to ways of working in CP6. We continue to monitor implementation of this programme.

Adequacy of additional mitigations identified.

Consultation respondents observed that it is hard to demonstrate that alternative activities can deliver an equivalent level of risk control to renewing assets.

The safety risk bow tie framework that Network Rail has developed since our draft determination explicitly requires its staff to consider any gaps in risk control created by its planned renewal activity – and to identify additional mitigations where required.

As described in previous replies to issues raised in consultation, Network Rail is planning a greater mix of refurbishment and partial renewals, which (in the short to medium term) will maintain levels of catastrophic risk control.

It is still the case, though, that we have seen examples of planning reviews where the only additional mitigation identified for a deferred asset renewal is 'additional inspection'.

We have stressed to Network Rail that inspection alone is not a mitigation; it requires to be informed by clear guidance to staff about how and when they must intervene before any asset deteriorates to the point where it presents an unacceptable safety risk.

We further note that many of the proposed activities to mitigate safety risks rely on human beings doing the right thing at the right time, consistently and repeatedly. This is more likely to be successful if staff have appropriate skills, supervision, and instruction. We will be seeking evidence to demonstrate that staff are suitably competent and have access to the right resources.

Fewer renewals lead to deteriorating asset condition during CP7. This makes it more likely that Network Rail might have to rely on increasing levels of operational restrictions, such as speed restrictions, to control the risks arising. Consultation respondents were concerned at the impact these might have on train performance, and also that there was the potential to transfer risks to other parties (relying on train operating companies (TOCs) and freight operating companies' (FOCs) drivers to comply with restrictions; possible risk of driver distraction from increased numbers of temporary and emergency speed restrictions – potentially raising likelihood of signal passed at danger (SPAD), station overruns, taking wrong-routing etc.)

One of the first stated aims of the safety risk bow tie framework that Network Rail has drawn up since our draft determination is to “focus on how to evaluate the asset risk (from fewer renewals) and the potential secondary consequences of the increased use of operational control of risk, and any risk transfer that may take place from Network Rail to train operators.”

Network Rail's first assurance of the outcomes of its regions' use of the safety risk bow tie framework has shown that its plans aim to minimise the use of operational restrictions to mitigate changed risks.

In its submission to us, responding to our draft determination, Network Rail recognises the drawbacks of widespread operational mitigations. It states: “Operational Restrictions are at times used to mitigate the impacts on train services that would otherwise arise from a degraded or defective asset. Whilst Operational Restrictions are an effective means of mitigating risks, they require other parties beyond Network Rail to take part in the mitigation, rather than Network Rail itself providing the safeguard; concerns exist that Network Rail's dependency on such mitigations will increase across CP7.”

As described earlier, Network Rail has tried to avoid this by planning, so far as it can, to deliver partial renewal, refurbishment, and minor works in lieu of full renewals. This is to make it less likely that assets will deteriorate to the point that restrictions have to be introduced in order to allow their continued safe use.

Further, Network Rail has committed to trying to confine operational restrictions to locations where they will have the least impact, for instance heavy axle weight restrictions on structures within lines of route not normally utilised by heavy freight traffic.

It has engaged with operational staff when deciding on this approach, seeking their expertise in understanding the impact of various options.

We have seen high level returns from Network Rail regions to the Technical Authority illustrating these principles. We will need to scrutinise plans in more detail to assure ourselves that they accurately reflect this approach.

We recognise that it will always be challenging to avoid every instance of asset degradation leading to some operational restrictions.

Further, the pattern of increasingly frequent and severe extreme weather events means that there will always be the need for restrictions to manage the consequences for the infrastructure of a range of weather conditions.

We understand that Network Rail has taken steps to try to minimise its use of operational restrictions as a safety mitigation. We will continue to engage with its work to refine this approach.

Combined response to common issues

Many responses to our consultation referred to the same main issues as raised in our draft determination. They expressed concerns about the SBP planning fewer renewals of assets and more maintenance activities, and what this meant for control of risks on the network. Many were particularly concerned by the reduced earthworks renewals planned and what it meant for managing train accident risk in extreme weather. Respondents wondered whether Network Rail's proposed approach might transfer risks to other industry partners and affect train performance by relying on operational restrictions. They questioned whether Network Rail could demonstrate that it had the capability to deliver a changed balance of interventions effectively. There was concern that 'market-led' planning might not optimise safety and health management.

Since the draft determination, Network Rail has revised its plans to increase asset renewals. Its own assurance now demonstrate that the plans will deliver safe minimum renewal activity.

Network Rail has devised a safety risk bow tie to enable it to better understand the threats and mitigations relating to its CP7 plans. The safety risk bow tie has informed the development of a planning framework. This is a structured approach to reviewing and revising plans, in order to explicitly:

- a) Assess any changes to the risk profile of the infrastructure.
- b) Highlight any gaps in risk control.
- c) Identify any changes required to planned interventions on assets in order to improve safety and health risk controls.
- d) Identify any additional mitigations necessary to address changing risks.
- e) Confirm the necessary resources/capability to deliver the planned activities.
- f) Ensure alignment between the various elements of the planned work (maintenance, refurbishment, renewal.)

Network Rail has provided evidence of its 'market-led' approach, demonstrating that safety management remains a priority within it. It sits alongside other mechanisms to inform business planning. It is not a vehicle for allowing trade-offs which would permit safety management to deteriorate on lesser value lines.

Network Rail provided material to assure us that it is taking steps to minimise reliance on operational restrictions as a means of controlling safety risk. It understands that such reliance has the potential to transfer risks to TOC and FOC staff and is keen not to rely on operational mitigations wherever it can be avoided. Network Rail states that its planned mix of activities in CP7 has sufficient volumes of component replacement, refurbishment, and other life-extending works that it hopes to avoid asset deterioration to the point where restrictions have to be introduced.

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Among the detailed submissions from Network Rail regions, all committed to implementing RAIB Carmont recommendations and Weather Risk Task Force plans (the Mair and Slingo measures to address earthworks and drainage management and better weather forecasting and responses).

We believe Network Rail has recognised the challenge of managing health and safety risks in CP7 demonstrated an improved approach to planning its activities in order to eliminate and mitigate those risks. To assist that, our final determination protects certain outputs that we believe are critical to achieving safe delivery of the train plan.

Detail of consultation responses received

Who responded to the draft determination?	What did they say?	ORR response
South Eastern Railway	<p>a) “We do not fully support the move to only reactive maintenance at lineside buildings; there was a particular incident during CP6 where steam built up in one building leading to an accident – such incidents would not be prevented through reactive maintenance; NR should ensure that lessons learnt from previous accidents/incidents is lost through wholesale movement to reactive maintenance. Overall, there have been specific health and safety incidents during Control Period 6, we would like to ensure that any learning from these incidents and processes put in place to address specific risks should not be lost in CP7 and change to reactive maintenance.”</p>	<p>The specific risks revealed by the Godinton incident (build-up of steam in a lineside location leading to an electrical incident) were the subject of formal enforcement by ORR to secure improvements.</p> <p>In its submission following our draft determination, Network Rail Southern region provided clarification about its ‘reactive’ approach, explaining that it is based on active monitoring of buildings. It stated:</p> <p><i>“The tragic incident at Godinton highlighted weather-related risks at High Voltage (HV) lineside buildings. There were three identified areas for improvement:</i></p> <ol style="list-style-type: none"> <i>1. Monitoring of buildings with metallic and flat roofs</i> <i>2. Ensuring that these buildings are clearly identified with unique reference numbers</i> <i>3. Improving processes and PPE for entering lineside HV buildings</i> <p><i>Unique reference numbers have been implemented for all lineside HV buildings and embedded in our fault response management systems. We have now installed remote humidity monitors in over 500 HV lineside buildings with</i></p>

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b) Concern that renewal of Victoria station roof is being deferred for another control period. Possible risks to its staff and customers.

c) Disappointment at lack of ambition in health and safety targets for CP7.

metallic roofs (out of 950 similar) based on the worst condition/highest risk. We have an established and regularly updated list of lineside HV buildings which have water ingress and/or standing water (referred to as the wet list), and flash resistant PPE is mandatory at all HV sites.

Our CP7 plans include over £15m investment in lineside buildings renewals including c. £8m of lineside building roof renewals (c.120) – these are mostly flat metallic roofs. We are developing designs for full building renewal or refurbishment of the c. 900 HV metallic building in the region. Investment will be prioritised to provide more permanent solutions for this critical portfolio as these receive design approval.

More widely in respect of weather-related risks to lineside buildings we have, over the last 11 years, implemented comprehensive monitoring systems in over 850 key buildings. These remote monitoring systems provide real-time information and alarms on:

o Ambient temperature o Internal temperature

o Electrical supply state of health

o Cooling systems health monitoring

o Humidity o Water ingress

o Water condition monitoring (e.g., if welfare facilities are on site to check if conditions could give rise to legionella)

o Wind speed (being progressively added in)

All of which provide real-time information on extreme weather events. Our plan commits c.£2.5m towards further additional remote monitoring and controls in relation to the lineside building portfolio.”

We believe this offers assurance that Network Rail’s approach is more robust than might have appeared from its initial SBP.

We raised Victoria Roof in our draft determination. Since then we have undertaken further investigation (including site visits). We accept that sufficient remediation has taken place to control immediate risks – and that further targeted mitigation will continue in CP7. We have insisted on a structural survey to confirm that this is a suitable approach.

In relation to occupational health, Network Rail have targeted critical, priority programmes (such as fatigue management, asbestos management, workforce safety) in our draft determination and sought evidence of continued commitment to deliver in CP7. These programmes are not maintaining the status quo but aimed at securing improvements.

Network Rail’s response to our draft determination restated its desire to improve safety and health management wherever possible. It is committed to deliver a safe plan in CP7 to support its vision to get ‘everyone home safe, everyday’, and repeats its ambition to achieve improved targets for Train Accident Risk Reduction and Workforce Fatalities and Weighted Injuries.

<p>DB Cargo</p>	<p>Concerns about: Market-led planning Sub-optimal earthworks renewals Potential impact of operational controls</p>	<p>See combined response at start of annex – addresses these points.</p> <p>On the particular issue of earthworks renewals, it should be noted that more than half of the additional renewals proposed since the SBP are for earthworks. As a result, Network Rail’s Technical Authority is satisfied that there is no shortfall in minimum delivery to ensure safe management of Geotech assets.</p>
<p>Greater Anglia</p>	<p>Within its overall comments expressed concerns about fewer renewals, more</p>	<p>See combined response at start of annex – addresses these points.</p>

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reliance on maintenance, use of operational controls and possible tension with performance ambitions.

London North Eastern Railway (LNER)

LNER wrote of “concerns on the impact of reduced spending on renewals and the proposals for asset life extension will compromise safety and performance” and “LNER has some concerns over the lower level of renewals planned for CP7 and the life extension of existing assets. LNER would support increased renewals and the installation of more modern infrastructure which would bring the benefit of improved technology and standards, supporting improved safety for all rail workers. We remain concern about the impact of Climate Change and whether this has been fully factored into business planning.”

See combined response at start of annex – addresses these points.

On the specifics of factoring climate change into planning: we describe in the section on our assessment of Network Rail’s plans how each region has committed to implement recommendations from the Mair and Slingo task forces and RAIB’s investigation into the derailment at Carmont. We also note that in this area (earthworks and drainage management), asset renewals are only a part of risk control; it is important to have adequate maintenance to ensure the serviceability of drainage systems and monitoring of earthworks for signs of failure, and accurate, targeted operational responses to forecast extreme weather conditions.

Transport for London (TfL)

TfL writes: “We note the issues inherent in reprioritising renewals expenditure. It is critically important that the impact on risk profiles by asset type is understood and mitigated to ensure that risks remain as low as reasonably practicable.”

See combined response at start of annex – addresses these points.

<p>GB Railfreight</p>	<p>In its overall remarks GB Railfreight states: “How can ORR propose to agree an 11% reduction on spend for track, earthworks, and drainage (for example) given how many landslides there have been across the network? GBRf cannot see this being made to work and needs far more detail on how it would work and be safe for all.”</p> <p>“GBRf needs to understand the principles of how Network Rail and ORR expects these targets to be attained against a declared reduction of renewals & core renewals and, for example, the expectation of temporary speed restrictions across the network.”</p>	<p>See combined response at start of annex – addresses these points.</p> <p>See also – the section of this document outlining our detailed assessment of Network Rail’s response outlines the significant increase in planned earthworks renewals – but describes the importance of monitoring and maintenance activities in managing the risks from landslides. Further, we describe Network Rail’s work to minimise reliance on operational mitigations such as speed restrictions.</p>
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<p>Aslef</p>	<p>The Trade Union raises its concerns in its overall response: “...we are further concerned that this underfunding could lead to safety concerns on the railways in CP7, especially when you factor in the impact of climate change and extreme weather events.”</p> <p>In its specific observations on health and safety Aslef expands on that theme. It states that fewer renewals are concerning, especially Carmont-related earthworks (bearing in mind age/construction). It says it needs more</p>
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<p>See combined response at start of annex – addresses these points.</p> <p>In its submission to us following our draft determination, Network Rail Scotland stated: “Our submission includes £16 million of Opex expenditure to enable to us to continue to improve our internal capability in CP7, in particular through dedicated earthworks and drainage teams and operational weather expertise, which were key recommendations from the Weather Risk Task Force.” It supplied a plan specifying how a range of CP7 improvements to weather resilience and climate change adaptation are spread across both opex and capex spend (earthworks and drainage spend are all up on CP6 levels).</p>
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evidence of progress of Mair/Slingo recommendations. It raises the issue of the weakness of operational controls. It has particular concerns about the challenge of climate change in Scotland.

Outside of the periodic review process we have been monitoring Network Rail’s response to issues highlighted by the derailment at Carmont in 2020.

We would be happy to meet Aslef representatives to discuss some of these topics in more detail, including our assessment of the plans for CP7 in Scotland

<p>Arriva UK Trains</p>	<p>In its overall response, Arriva writes: “we are concerned that part of Scotland’s mitigation for fewer renewals in an increase in operational constraints such as Speed Restrictions given the increase in on time performance targets.”</p> <p>In feedback on the health and safety section of our draft determination: “We support the approach and next steps as set out by the ORR in its assessment of Health and Safety”</p>	<p>See combined response at start of annex – addresses these points in general.</p> <p>In the particular case of Network Rail Scotland, we note that it has increased the planned spend on renewals since the SBP was first published. Like the rest of Network Rail, it has outlined how it proposes to minimise reliance on operational restrictions as a mitigation for risk.</p> <p>We note Arriva’s support for our approach.</p>
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CrossCountry

“...as well as the concerns voiced around a reduction in renewal volume and a subsequent uplift required in reactive & preventative maintenance on aging assets – we have experienced already a deterioration in vegetation management particularly across Western & Central routes and have recently written to the RMDs in light of this. We welcome ORRs

See combined response at start of annex – addresses these points in general.

On the specific point of vegetation management, every Network Rail region submitted a response to our draft determination – including commitments to improve management of vegetation. Each has a plan to reach compliance with the Network Rail standard for vegetation management. Some of the plans require more work to firm them up by the start of CP7.

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recommendation that NR increases its renewals work bank from that proposed originally. The observation that ‘value-based management’ is not compatible with an obligation to protect as far as is reasonably practicable is also one that XC recognises and supports – how would such a categorisation be undertaken?”

In the general response section Crosscountry highlights its concerns at level of risk funding after number of notable incidents.

The section of this document describing our assessment of Network Rail’s response to our draft determination shares more detail about ‘market-led’ business planning and is the importance of compatible with the duty to manage risks so far as is reasonably practicable.

We share CrossCountry’s concerns about risk funding provision. We have made every effort during our determination to identify ways to secure adequate risk funds.

MTR UK

- a) “We support ORR’s proposal to reallocate £600m of funding towards core renewals, compared to Network Rail’s original plan. South Western Railway’s customers have in recent times been adversely impacted by earthworks failures, so we are pleased to see that within the £600m is £80m towards earthworks on the Southern Region.”
- b) “support the ORR’s selection of a supporting measure of delivery of lineside vegetation plans. As ORR are aware RAIB are considering what role management of lineside vegetation played in the railhead contamination which was present at the time of the

See combined response at start of annex – addresses these points in general.

On the specific point relating to earthworks in Southern region: the revised plan has an even more significant increase in Geotech renewals. Southern wrote in its submission to us:

“We have increased core asset renewals in Earthworks by 34% from our Strategic Business Plan,

investing a further £122m over CP7. As our understanding of asset condition develops from

further inspections and identification of developing risks, we will prioritise the appropriate

intervention be it renewal, refurbishment, maintenance, or mitigation through remote condition monitoring.”

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	<p>collision near at Salisbury in October 2021.”</p> <p>c) This point is specific to asset sustainability but has implications for safety risk management: “We are concerned that despite Network Rail being allowed 5% more funding, in real terms, in CP7 than in CP6, CSI is projected to deteriorate by 3% nationally over the course of CP7. We wonder how more funding for Network Rail can result in the outcome of a lower level of asset condition; and are alarmed by the statement that it will take until CP11 (i.e., 25 years) to get CSI back to steady state.”</p> <p>d) “We see pragmatism in the policy of prioritising renewals on routes which generate high revenues but would urge that this not be done at the expense of routes which carry high volumes of trains (as distinct from high revenues).”</p>	<p>Regarding vegetation management, each region has committed to recovery plans to bring them into compliance with the relevant Network Rail standard. Further, we note that recommendations from Salisbury are being overseen by the Weather Risk Task Force (along with Carmont-related improvements) and regions have undertaken to implement necessary measures.</p> <p>Asset sustainability is covered in our PR23 final determination: supporting document on sustainable and efficient costs. The degree of asset deterioration has been reduced by Network Rail’s revised plans, but we note and share concerns about the implications for long-term funding to recover asset condition.</p>
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Freightliner

a) “We support the ORR’s view that the increasing impact of climate change requires a greater focus on structures at risk and drives the need for flexibility to reallocate funding to reprioritise renewal activity accordingly. Network Rail highlights how funding challenges could impact on the split between maintenance and renewal and how they may have to

See combined response at start of annex – addresses these points in general.

On the issue of operational restrictions, Network Rail has described in its submission to us how it intends to minimise reliance on these. It specifically mentions trying to avoid affecting route availability for freight.

make use of more operational measures to mitigate the lower than necessary renewals expenditure. While we do recognise that there will be a need to introduce temporary speed restrictions across structures on occasion, Freightliner would be strongly opposed should any operational measures reduce capability for freight to offset a reduction in maintenance or renewal activity. That includes any loss in Route Availability, where freight operators are required to reduce tonnages over lines of route. Maintaining Route Availability, including HAW capability where there are dispensations in place, is essential for the economics of rail freight and implementing any reductions in capability must not be seen as a mitigation measure.”

b) In the health and safety section Freightliner states that it approves of workforce safety technology improvements that might remove the need for so many intrusive line blocks and possessions.

c) In the health and safety section Freightliner says that incremental workforce safety improvements are preferable to ‘gold plating’.

In relation to structures, specifically: the revised CP7 plans include increased spend on structures renewals in the four regions that caused most concern at the time of the SBP. This is sufficient to satisfy Network Rail’s own Technical Authority assurance that suitable volumes are now in the plan.

Regarding workforce safety – we agree that this should be implemented efficiently. A number of important interventions are required (and described in Network Rail’s plans). It does not appear the proposals are “gold plated”, but we will closely monitor implementation of the workforce initiatives.

In relation to Freightliner’s hope that investment in technology to improve trackworker safety will avoid some intrusive line blocks and possessions, there is a hierarchy of risk controls within health and safety legislation that places elimination or prevention of risk at the top. Thus, Network Rail should always seek to plan work without trains running; only if this is not reasonably practicable should the plan adopt lesser means such as automated warning of trains. Our track worker safety enforcement (that led to Network Rail’s workforce safety task force) required Network Rail to *optimise* its planning so as to exploit every existing access opportunity; it did not require additional disruptive access windows to be created. Our CP7 settlement seeks to promote both safety and train performance. We want to see ways to keep workforce and moving trains separate without causing disruption to the train plan.

The Freight Safety Improvement Plan is an important initiative as part of Network Rail’s wider plans to support freight (noting our call for more specificity in the freight plans in the [PR23 final determination: settlement document for the System Operator](#)). We note the point about reduced funding, however, other important areas of expenditure will also support the safety of freight running e.g., our call for additional expenditure on core assets

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d) Like new Freight Safety Improvement Plan criteria – fairer more targeted but regret reduction in fund.

First Trains	<p>a) “Despite the apparent satisfaction of the ORR that the constrained funding does not need to result in undue concerns for the safety of assets or performance during CP7, we have not seen the supporting detail, including risk assessment and analysis, which underpin NR’s asset management and maintenance plans and we are therefore very concerned about the potential catastrophic impact to safety and operational performance associated with deteriorating asset condition in CP7. We are concerned that substantial risks remain, despite the increased risk provisions in the Draft Determination.”</p> <p>b) In health and safety section: “This is the most concerning aspect of the draft determination. The statement that NR has not yet demonstrated the shift in risk is extremely worrying. For those who experienced the change in maintenance regime for traction and rolling stock on BR in the late 1980’s under the CEM scheme, this feels like a repeat. That scheme led to a marked deterioration in older assets, leading in at least one case</p>	<p>See combined response at start of annex – addresses these points in general.</p> <p>Network Rail has revisited its plans, resulting in increased renewal activity and has drawn up a safety risk bow tie to aid assessment of risks and identification of mitigations. It has created a framework to minimise reliance on operational restrictions. It has outlined how market-led planning is only one tool among many and cannot ‘trump’ safety considerations.</p> <p>Recognising the need for further development of aspects of the CP7 plans we are committed to engaging with Network Rail as it draws up its CP7 delivery plan to ensure it satisfies our final determination. We have a wide range of forums throughout the control period to monitor implementation of the delivery plan and to hold Network Rail to account for its safe delivery.</p>
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	<p>to a fatality, and a huge and expensive increase in workload for Level 4 maintenance depots. In any new scheme like this, the need for pro-active examination and timely execution of repairs arising is crucial and the lack of detail as to how this is going to be achieved with the current settlement is concerning. The market led approach and how SFAIRP is going to be applied in a non-discriminatory manner is also awaited with interest, as is how the ORR is intending to pro-actively monitor and enforce in this area.”</p>	
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c2c

a) “Given the limited funds throughout the control period and potentially beyond, c2c agrees with ORR’s recommendation for Network Rail regions to focus investments on tackling asset wear and strengthening network robustness and resilience. We would highlight that the potential use of TSR’s, in light of a detreating network and minimal funding would have a huge impact on performance and our ambitions of providing passengers with a punctual service while growing passenger numbers.”

b) c2c also states that the market-led approach should not allow Network Rail

See combined response at start of annex – addresses these points in general. This includes better alignment of maintenance and renewals plans, minimising reliance on operational restrictions, and a balanced approach to market-led planning.

We have received plans for key health and safety initiatives – outlined in the assessment section of this document.

In relation to modernising maintenance have received assurances from Network Rail in relation to skills retention. While we support modernising maintenance, our own assessment has also made clear that we see staff competence as a critical dependency if Network Rail is to deliver its plans in CP7.

to take its eye off the ball on lesser routes. Network Rail needs clear management plans for maintenance and new balance of activities; it needs clear plans for key safety and health initiatives; concern that Modernising Maintenance will allow skills drain.

Transport Scotland

Transport Scotland asks for materials including “For Network Rail Scotland to provide evidence of how it will manage the change in risk profile which results from conducting fewer renewals, accounting for any increase in core renewals that it plans to take...” and “ORR recommendations on Network Rail Scotland’s proposed health and safety programmes.” Transport Scotland wants our final determination to be clear on progress and also outline plans for monitoring in CP7.

b) The ORR must provide additional assurance to the Scottish Ministers through its latest assessment to inform the Final Determination. Rather than just a “more maintenance-based approach”, the ORR should also consider the role asset condition monitoring equipment and asset life prolongation processes should have. The ORR should refer to the relationship between Network Rail

See combined response at start of annex – addresses these points in general. Our section describing our assessment of Network Rail’s response to our draft determination provides more detail on what was received from Network Rail and our analysis of it. This highlights that Network Rail has revised the balance of activities proposed and is increasing renewals in critical asset groups. It understands risks better than at the time of the SBP and now has firmer, better aligned plans.

Network Rail Scotland has engaged constructively with us throughout the time since our draft determination was published. We have seen a significant maturing of its plans and are more confident than at the time of the initial SBP that it can deliver safe management of the infrastructure. Network Rail Scotland has taken a cross-asset approach to reviewing its CP7 plans, treating the railway as a system. It has involved the maintenance function in decision making, so that plans are aligned and deliverable. Modernising Maintenance remains a dependency if the work is to be achieved as planned. We have separately been exploring the implementation of that programme. We will conclude that work shortly and it will inform the degree of confidence we have in Network Rail’s assurances that it will be enabled by start of CP7.

	<p>Scotland’s proposed maintenance plans and “modernising maintenance” programme. We would expect the ORR to provide a further assessment in the Final Determination.”</p>	
<p>East Midlands Railway (EMR)</p>	<p>a) EMR states its worries about fewer renewals. It is concerned that this will just shift risk to maintenance. It highlights the implications of operational restrictions. EMR has a specific concern Eastern region plan for only £30 million of earthworks renewals.</p> <p>b) concerned that maintenance might struggle to deliver increased activity, especially in light of CP6 performance/under delivery.</p> <p>c) Wants better planning system for TSRs – should only be for emergencies not allowed to linger for years. Potential overload/distraction for drivers. Challenge of consistently effective implementation of ESRs/TSRs.</p> <p>d) Wants evidence of lessons learned from Carmont etc. Increased use of remote monitoring – how will info be used? Is there a strategy? What monitoring will ORR do in CP7? Doesn’t want to shift risks to rest of industry.</p>	<p>See combined response at start of annex – addresses these points in general.</p> <p>On the specific point about earthworks renewals on Eastern: Network Rail Eastern region stated:</p> <p><i>“Assurance was undertaken throughout the planning process by the Eastern Engineering and Asset Management team and by the TA. As part of this assurance process, the TA recommended that an additional £30m be allocated to earthworks. This was incorporated into our latest plan, covering works across embankments, soil cutting and rock cutting activity. “</i></p> <p>Additionally, Eastern has committed to a range of drainage and earthworks management improvements coming out of lessons learned from Carmont.</p> <p>The prevalence and persistence of TSRs and ESRs are relevant from both an operational safety and a performance perspective. As well as our general activities in holding Network Rail to account, we are requiring a specific “Tier 3” measure to keep track of relevant trends.</p>

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<p>Northern</p>	<p>a) Northern generally supports the areas of challenge the ORR has raised, particularly around Market Led approach and modernisation of maintenance programme.</p> <p>b) It also mentioned its concerns about 11% reduction in renewals spend, shift to more maintenance, reliance on operational controls.</p> <p>c) Northern voiced concerns about North West & Ccentral VOS (Value of service) approach, and potentially disproportionate effect on Northern routes.</p> <p>d) Maintenance – Network Rail appears to be claiming it can do more for less. Is that credible?</p>	<p>See combined response at start of annex – addresses these points in general. We would emphasise the increase in renewals now proposed and the deeper understanding of the balance of activities, alignment of maintenance and renewal plans and scrutiny of available resources to deliver. We note that part of the ‘more for less’ claim regarding maintenance is dependent on successful delivery of Modernising Maintenance which we discuss earlier in this document.</p> <p>In relation to North West & Central and its VOS approach: we raised some specific concerns about aspects of this, leading to several meetings on the topic. We are now more confident that it will not allow trade-offs in asset condition and safety risk control, where lesser routes deteriorate. We have more work to do as the CP7 delivery plan is drawn up to test the approach.</p>
<p>ScotRail</p>	<p>Supportive of the ORR’s position that more work is required by Network Rail Scotland to firm up its plans prior to the Final determination.</p>	<p>Noted</p>
<p>MTR Elizabeth Line</p>	<p>MTR Elizabeth Line is not convinced Network Rail has sufficient knowledge of its assets to make informed prioritisation. It is not confident in weather resilience. It has concerns about impact of likely increasing assets failures – particularly for high intensity highly loaded trains</p>	<p>See combined response at start of annex – addresses these points in general. The section of this document describing our assessment of Network Rail’s submission gives more detail on weather resilience plans, minimising operational restrictions and the framework for decision making about asset interventions.</p>

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	such as Elizabeth Line; operational mitigations impact on performance.	On the specific point about asset information: as part of its response to our draft determination, Network Rail has submitted a plan to improve its asset data. Our final determination has required Network Rail to ensure that it delivers the project outputs for its Route Services' Infrastructure Monitoring programme.
Disabled Persons Transport Advisory Committee (DPTAC)	DPTAC quotes tactile paving as an example of the importance of factoring the needs of disabled people into planning and design.	We agree with the importance of factoring in the needs of disabled people into Network Rail's planning and design. In relation to tactile paving, and as discussed in our PR23 final determination: supporting document on outcomes, Network Rail plans are for this to be into place by April 2025. We will monitor and hold Network Rail to account for delivery of the tactile paving programme across Great Britain through the Access for All programme board, ensuring timely completion of tactile installation at platforms within scope, to the relevant standards. We expect installation of tactile paving in Scotland to be included within the scope and timeline of the broader programme
Rail Partners	Supportive of ORR efforts to probe how prioritisation decisions are made and ORR's requirement to consider additional renewals. But Rail Partners express concerns about: market-led planning; operational responses shortcomings, including risk transfer not just performance impact; need for better resilience and adoption of Mair/Slingo recommendations.	See combined response at start of annex – addresses these points in general. Further, the section of this document describing our assessment of Network Rail's submission gives more detail on weather resilience plans, minimising operational restrictions and the framework for decision making about asset interventions.
Railway Industry Association (RIA)	Echoes our request in the draft determination for greater demonstration that Network Rail understands the changing risk profile of fewer renewals; it	See combined response at start of annex – addresses these points in general. Further, the section of this document describing our assessment of Network Rail's submission gives more detail on weather resilience plans,

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points out that it is even harder to maintain risk control in the face of worsening challenge of climate change; it seeks greater transparency about decisions and how to manage safely in future; it raises concerns about market-led planning; it emphasises the importance of high quality asset data to inform decisions.

minimising operational restrictions and the framework for decision making about asset interventions, including market-led approach.

On the specific point about asset information: as part of its response to our draft determination, Network Rail has submitted a plan to improve its asset data. Our final determination has required Network Rail to ensure that it delivers the project outputs for its Route Services' Infrastructure Monitoring programme.

The National Union of Rail, Maritime and Transport Workers (RMT)

The RMT trade union provided a detailed response to our draft determination.

Overall, RMT believes that the SBP poses increased risks to health and safety. "Network Rail's Strategic Business Plan for CP7 has proposed to significantly reduce asset and core renewals over the course of the next five-year period which RMT believes will not only threaten services and safety on our railways but also thousands of skilled railway jobs across Network Rail and the wider supply chain."

In relation to renewals and maintenance, the union picks up on some of the particulars of renewals reductions in the SBP, focusing on earthworks and drainage and Mair/Slingo commitments.

See combined response at start of annex – addresses these points in general.

Additionally:

The revised plans contain increased renewals, such that Network Rail's Technical Authority assurance is satisfied there are no gaps in risk control. Further information in our PR23 final determination: supporting document on sustainable and efficient costs.

Earthworks renewals have increased in the latest plans. However, we would stress that effective management of risk at earthworks is less dependent on renewals than other asset groups. There is weak correlation between earthwork condition and failure during adverse weather. This is not an area of risk that Network Rail can renew its way to preventing asset failure. Safe management of these assets requires:

Better drainage management. This consists in ensuring the functionality of drains by an effective regime of inspection and maintenance. This is key to serviceable life of assets. There is increased expenditure in these areas over CP7.

	<p>Maintenance: RMT does not believe it is credible that maintenance can pick up the slack from fewer renewals by depending on modernising maintenance.</p> <p>Market-led – concerns about accelerated asset decline on less-revenue-generating routes.</p> <p>Concerns about fewer renewals, especially of earthworks post Carmont.</p> <p>f. Operational controls: “Degrading the service through measures like speed</p>	<p>To achieve effective inspection and maintenance, Network Rail must have more staff with enhanced competence – hence the importance of the Mair task force recommendations.</p> <p>It is difficult to prevent earthwork failure during extreme rainfall; that is why it is so important to have monitoring of assets in place to trigger alarms.</p> <p>Network Rail must have a framework to forecast adverse weather conditions and respond to forecasts with appropriate, targeted measures.</p> <p>All of these mitigations are part of the Weather Risk Task Force programme.</p> <p>All regions have submitted plans to continue to implement recommendations from the Weather Risk Task Force.</p> <p>Renewals have increased, so there is less ‘slack’. The safety risk bow tie framework has required Network Rail to scrutinise the alignment of the maintenance plans with renewals proposals, and their deliverability. This includes resources and access. We note the dependency on implementation of Modernising Maintenance.</p> <p>d. See our assessment section for more detail on the assurances received about market-led planning: that it is not a mechanism to allow trade-offs in asset condition and risk control between higher and lesser ‘value’ lines. Safety is prioritised.</p> <p>See answer to a) and b).</p>
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	<p>restrictions carries serious risks for staff and passengers, increasing the burdens on drivers and the dangers of SPAD incidents, threats to maintenance teams and the risk of derailments.”.</p> <p>g. Also refers to the hierarchy of controls enshrined in health and safety law and makes the link to asset renewals being higher up the hierarchy than inspection or maintenance.</p> <p>h. In relation to occupational health and fatigue, RMT would like to know more and see firmer commitments from Network Rail.</p>	<p>f. See overall response at start of this annex, and our more detailed assessment section of this document. Network Rail recognises that it is undesirable to transfer risks to other parties to manage and has described a framework where it minimises reliance on operational restrictions to mitigate safety risk.</p> <p>g. We recognise the importance of the hierarchy of risk controls and the role that asset renewals play. This was in large part behind the push in our draft determination to increase core renewals. However, see response to b) for our explanation of why asset renewal is not always automatically the most effective risk control available to Network Rail</p> <p>h. We have received fuller information from Network Rail, both centrally and at a regional level, describing plans in relation to occupational health.</p>
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The Ramblers

The Ramblers make a carefully argued plea for ORR to influence Network Rail to consider options other than closure when trying to improve level crossing safety.

We recognise the Ramblers’ pursuit of the interests of their members in trying to preserve rights of way. However, it is not ORR’s role to influence a duty holder to go beyond the requirements of the legislation we enforce. In relation to this matter:

ORR enforces the Health and Safety at Work etc. Act 1974, and the regulations that flow from it. These are all framed to require Network Rail (in this case) to control, so far as is reasonably practicable, the risks arising from its undertaking.

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Network Rail is responsible for the arrangements in place at each crossing from design and installation to maintenance and day to day operation. It must ensure compliance with all the specific legislation relating to level crossings.

It must regularly review the adequacy of its control of the risks it has assessed at each location and identify any improvements that are reasonably practicable.

Health and safety legislation requires that elimination of the risk is always the first option considered. So, Network Rail must always assess if it can close a crossing and only dismiss that option if it is not a reasonably practicable one.

It is not for ORR to persuade Network Rail to depart from a clearly structured approach enshrined in law.

ORR recognises that there are wider considerations about risk and amenity in the community affected by crossing closure proposals. But health and safety legislation requires only that Network Rail consider the risks arising from its undertaking.

Consideration of those wider factors such as risks from alternative routes available to crossing users, and the convenience to local people, belong properly to local authorities and planning inspectors. They are the ones who can weigh the balance of competing factors and decide what is optimal overall. It is not part of ORR's role.

Transport Focus

Transport Focus writes: “We acknowledge that funding constraints facing the railway have driven a move to a more market led approach whereby renewals and maintenance are prioritised on some parts of the network over others. However, we agree with ORR that this creates additional risks. We support the

See combined response at start of annex – addresses these points in general. Further, the section of this document describing our assessment of Network Rail's submission gives more detail on the market-led approach to planning, and how safety is prioritised within it. There is no intention to let assets on lesser value routes deteriorate so that safety is compromised.

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	<p>additional requirement placed on Network Rail in the draft determination on how it manages these risks. We also believe that any such market-led approach must be carefully monitored, especially in its early stages.”</p>	<p>We agree that we should monitor the implementation of this framework closely and will do so.</p>
<p>Transport for Greater Manchester (TfGM)</p>	<p>After reviewing the response to Central and North’s safety plan, TfGM agrees with the concerns ORR have raised around safety in the region. TfGM are satisfied that the ORR has taken the appropriate measures to mitigate safety risks and would also encourage Network Rail to complete its operational delivery risk assessment to further enable ORR to understand and assess the risks of reduced renewal levels and declining infrastructure condition through CP7.</p>	<p>See combined response at start of annex – addresses these points in general. Further, the section of this document describing our assessment of Network Rail’s submission gives more detail on how Network Rail has developed its safety risk bow tie and that it now understands the risk profile on its infrastructure better than it did at the time of the SBP. We are satisfied that it has identified a balance of activities that should maintain risk control.</p>
<p>Transport for the North</p>	<p>Nothing specific about health and safety, but general remarks about the challenges of asset management that echo many other consultation responses.</p>	<p>See combined response at start of annex – addresses these points in general.</p>



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