John Larkinson
Chief Executive

Jenny Gilruth MSP
Minister for Transport
The Scottish Government
St. Andrew's House
Regent Road
Edinburgh, EH1 3DG
By email

17 June 2022

Dear Minister

ORR's advice on the development of your HLOS and SoFA

I am writing to offer advice ahead of your decisions later this year about Network Rail Scotland's future funding and outputs. I trust that this letter and accompanying technical report are helpful, and I look forward to our meeting on 23 June.

The periodic review process

The Periodic Review process (PR23) determines the funding Network Rail will receive for its infrastructure operations, and what it will deliver over the five years from April 2024, known as Control Period 7 (CP7). We expect to receive the Scottish Ministers' High-Level Output Specification (HLOS) and Statement of Funds Available (SoFA) by 30 November 2022.

We have also provided advice to the UK Rail Minister relating to England & Wales, along with advice on safety matters (which are reserved). Once you and the UK Government have finalised your respective HLOSs and SoFAs, Network Rail will produce its Strategic Business Plan (SBP). This will show how it plans to deliver the outputs Ministers want for the funding available. We will scrutinise that plan to check it is both consistent with the HLOSs and SoFAs and is deliverable.

Network Rail Scotland's CP7 submission

Network Rail uses an iterative process to develop its business plan. In July 2021 Transport Scotland asked Network Rail Scotland to provide it with an indication of the funding required to maintain the capacity and capabilities of its network throughout CP7. It responded in October 2021, suggesting that an increase in spend of around 9.8% was needed to deliver a [Redacted] outcome. We wrote to Transport Scotland in October to provide our views on that plan and to commit to working with Network Rail Scotland ahead of our advice to Ministers.

Transport Scotland then asked Network Rail Scotland to focus its next CP7 submission on a funding envelope as close as possible to the current control period

Head Office: 25 Cabot Square, London E14 4QZ T: 020 7282 2000 www.orr.gov.uk

(CP6). The resulting plan (referred to here as its initial submission) was submitted on 31 March 2022. Network Rail Scotland intends this to show a [Redacted] level of spend and expects it to:

- maintain current levels of safety;
- maintain current levels of train performance; and
- manage a decline in asset sustainability and consequently asset performance.

Network Rail is still at an early point in its planning cycle for CP7. The initial submission was prepared on a top-down basis rather than built up by a detailed assessment of individual asset requirements (e.g. renewals workbanks). Network Rail Scotland used indicative unit rates, which is to be expected at this stage of the planning process. We have initiated work to better understand the criteria applied by planners across Network Rail when selecting unit rates for CP7 costings.

The table below summarises the headline figures from the initial submission. Significant variances are explained in more detail in our accompanying technical report.

£ million (2023-24 prices)	CP6 forecast (post efficient)	CP7 plan (post efficient)	Variance
Regionally incurred operations, support, maintenance and renewals (OSMR)			
Operations	324	305	-6.0%
Support	114	84	-26.5%
Maintenance	964	1,012	5.0%
Renewals	2,120	2,187	3.1%
Financial risk	5	-	-100.0%
Total regionally incurred OSMR	**3,527**	**3,587**	**1.7%**
Other costs			
Centrally incurred OSMR	669	740	10.7%
Total OSMR	**4,196**	**4,327**	**3.1%**
Rates and industry costs*	216	256	18.6%
European Train Control Systems (ETCS)	-	117	-
Total	**4,412**	**4,699**	**6.5%**

** These numbers include business rates, contributions to funding British Transport Police, the Rail Safety and Standards Board and ORR, but do not include traction electricity costs.*

Our advice

This letter summarises the key strategic messages of our advice. Further detail is available in our technical report. The challenging fiscal environment and on-going inflationary pressures mean that Ministers have difficult choices to make. Decisions

on rail infrastructure have consequences well beyond any given control period and in making decisions about funding it will be important to weigh-up short-term cost reductions with longer-term implications. To help with these decisions **we will provide supplementary advice on a number of other areas in the coming months** as set out at the end of this letter.

Network Rail Scotland has taken into account the Scottish Government's six strategic priorities for rail. However, in light of the clear steer from Transport Scotland to provide a submission as close as possible to CP6 levels of funding, it has given more prominence to the net cost priority. This means **the** [redacted] **submission is unlikely to deliver all of the Scottish Government's priorities**

Your officials have shared an early draft of your HLOS requirements with us which contains around 40 detailed requirements that underpin these priorities. We have asked Network Rail Scotland to set out how its initial submission will deliver against these draft HLOS requirements, and we will provide our views on this to you in August. We will continue to work closely with Transport Scotland and Network Rail Scotland to support the prioritisation of the Scottish Ministers' requirements.

Network Rail Scotland's delivery in CP6

Network Rail Scotland's initial submission assumes it will broadly deliver its CP6 outputs (based on the October 2021 update of its CP6 delivery plan). However, we have concerns about whether this is realistic considering the below issues.

- **Potential deferral of renewals works to set aside funding for unexpected costs (risks):** Network Rail Scotland has now allocated almost all its risk funding for CP6 (including to deal with Coronavirus (COVID-19) pandemic related issues). Although it has identified additional potential savings in operational expenditure, it has said that it may have to defer £53 million of renewals (in addition to £30 million already deferred in the previous financial year) and will decide whether this is appropriate in summer 2022. Deferring this work would impact asset sustainability and may mean additional renewals work (and cost) in CP7 that has not been reflected in the initial submission. [Redacted]
- **Delivery of efficiencies in CP6**: Network Rail Scotland is not delivering its efficiencies as well as other parts of Network Rail. If it fails to achieve these targets then it may not deliver on its CP6 commitments, which would make delivering CP7 efficiency assumptions even more challenging.

Your officials are aware of these issues (through periodic reporting packs they receive and meetings they attend with ORR and Network Rail Scotland). We will continue to work together to identify mitigations but anticipate an impact for CP7 in terms of both performance and funding requirements. However, **it is important that**

the uncertainty around delivery of CP6 outputs and the CP6 funding position are considered when developing the HLOS and SoFA.

Network Rail Scotland's proposed CP7 outputs

Recognising the challenge the initial submission was designed to address (i.e. delivering a robust, reliable railway with a similar funding envelope to CP6), we have focused our review on the areas Network Rail Scotland is prioritising and the overall volume of work planned. Although our advice focuses on Network Rail Scotland's operations, support, maintenance and renewals (OSMR) plans, these are impacted by (and will in turn impact) the enhancements pipeline. It is important that all parties work together to align these plans.

Performance implications

Network Rail Scotland has not yet modelled what the plan means for train performance in CP7. **This makes it difficult to determine with any certainty the implications of the proposals on operators, passengers and freight customers**.

To help you to make informed decisions in your HLOS and SoFA, we have asked Network Rail Scotland to quantify the impact on train performance and to consider what different train performance options might mean for funding. This will allow us to provide you with supplementary advice on this issue in August.

Proposed renewals spend

The Technical Authority (which provides technical expertise and leadership on asset management) gave Network Rail Scotland advice on the level of renewals spend needed [Redacted]. Overall, Network Rail Scotland's submission for renewals is 4.5% (approximately £100 million) below that level.

Network Rail Scotland's submission has not sufficiently explained the implications of this level of renewals funding. However, **if the overall volumes of renewals are reduced too far, it would further exacerbate the deterioration in asset condition to a level that may be difficult to recover from**. The potential consequences are:

- A decline in service quality leading to reduced performance (the scale of this in CP7 is not yet quantified).
- The need for more operational safety control measures, which carry a higher risk of human error than engineered risk controls.
- An increase in overall costs in the longer term (e.g. increased maintenance in CP7 and the use of more refurbishments).
- Recovering asset condition is likely to require significant future investment and provide worse value for money than limiting the decline in the first place.

Spend on earthworks and drainage

Network Rail Scotland is proposing to increase spend on earthworks and drainage assets in CP7. Reflecting the challenges of managing the increasing impact of climate change, we agree that additional spend in this area (compared with CP6) is necessary. This should help ensure it delivers on its safety obligations. However, we note that Network Rail Scotland had insufficient time before making this submission to consider the recommendations from the March 2022 Rail Accident Investigation Branch report issued in relation to its findings following the Carmont derailment and to decide which recommendations it will implement. This may mean additional cost in CP7.

This increased spend is largely offset by lower spend in other asset areas, most notably in track where spend is £144 million (18%) lower than CP6 due to reduced volumes of work.

Digital signalling

Network Rail Scotland's initial submission (based on a steer from Transport Scotland) assumes there will be no deployment of digital signalling in Scotland in CP7. In our view this may lead to long-term inefficiencies by preventing joined up decision making across track and train (for example on the Glasgow suburban lines where concerns over obsolescence of signalling equipment may need to be addressed alongside decisions about replacement rolling stock). **In making funding decisions, it is important that Ministers weigh up short-term cost reductions with long-term consequences and value for money.**

However, Network Rail is currently developing a specification as part of its research and development (R&D) programme for Optimised Train Track Operation (OTTO). The OTTO approach is a development of the Train Protection Warning System (TPWS). We understand that this offers some of the functionality of digital signalling and consideration should be given as to whether Network Rail Scotland could be suitable for this trial.

Even if the use of full digital signalling technology is delayed in Scotland, the enabling work (such as fitment of on track machinery) is happening now and, as Scotland will benefit from this in the long term, Network Rail Scotland needs to bear its share of these costs.

We will provide supplementary advice on Network Rail Scotland's digital signalling plans and central costs (including those related to digital signalling) in September.

Central costs

Network Rail Scotland's initial submission includes a proportionate allocation of the cost of works undertaken by other parts of Network Rail. This includes location-specific costs (such as business rates, which are forecast to be around 19% higher

than in CP6), the provision of support services (such as HR) and a share of the costs of organisation-wide programmes.

During CP6, Network Rail has devolved some services from its central functions to Scotland and its other regions. However, there are benefits in having certain services provided centrally to each of the regions, reflecting wider economies of scale and scope. Also, company-wide R&D activities can help lower Network Rail's cost base over time and the benefits of a change will not just affect one area of the network. Sharing these costs recognises that Network Rail is one company with two funders who both benefit from centrally managed expenditure.

In our view the central costs included in the plan have not been adequately justified and further work is needed by Network Rail to ensure a robust forecast (including challenge by the Network Rail Scotland team). We will work closely with Network Rail on this issue and provide supplementary advice to you in September.

Challenges in determining CP7 funding

Inflation

There are some uncertainties which make setting the appropriate level of funding for CP7 more difficult. The most significant of these is inflation. Predicting the future impact of inflation is challenging, especially in the current economic climate. Due to increased uncertainty around inflation forecasts, it is particularly important that assumptions about future inflation are clear in both Network Rail Scotland's plans and the Scottish SoFA. Network Rail Scotland used Bank of England inflation forecasts in its plan and included some sensitivities which clearly showed the impact of changing inflation. It has estimated that an increase in inflation of 1% above forecast would increase costs by around £40 million per annum.

Assuming the SoFA is stated in cash terms (as in CP6), then **any variation from forecast inflation creates a risk that Network Rail Scotland may not have enough funding to deliver its outputs (if inflation is higher than expected) or may have too much funding (if it is lower than expected).** We will continue to engage with Transport Scotland and Network Rail Scotland on this issue ahead of the finalisation of the SoFA.

Efficiencies

Network Rail Scotland assumes it can deliver [redacted] reform to its maintenance activities in CP6 which will make CP7 more efficient. However, there is a risk this reform may take longer to deliver or that it may not be delivered in its entirety. This would mean higher costs in CP7, which would impact outputs.

Network Rail Scotland has assumed general efficiency savings of £435 million for CP7. If delivered, this would make it 13.8% more efficient by the end of CP7. The approach taken to identify efficiencies is reasonable at this stage of the process,

although the assumptions used are ambitious and there are significant risks to delivery.

Treatment of risk

Network Rail Scotland has said its forecast is nominally based on a P50 confidence level (i.e. there is a 50% chance that costs will not exceed the forecasts in the submission and a 50% chance they will). The submission does not include additional or separate expenditure to help manage financial risk.

In PR18, Network Rail Scotland had a risk fund of £329 million to manage cost increases and any unexpected additional activities. This put the plan at a P80 confidence basis (i.e. there was an 80% probability that Network Rail Scotland would deliver the plan with the funds available). We shared Transport Scotland's initial concerns around the lack of transparency over the use of this funding, and we have worked with Network Rail Scotland to address this matter. There is more for us to discuss on transparency and on the governance of risk funding. However, in CP6 risk funding has been critical in supporting the continued operation of the railway during the pandemic (as well as to help manage cost increases) without having to unnecessarily re-plan or defer work and without any additional funding being requested from Transport Scotland.

Given these issues, and the fact that the plan was developed more than two years before the start of CP7, it is not possible to be certain about the scope or cost of works. If separate funding is not made available, Network Rail Scotland would need to set aside funds to deal with risks that materialise during CP7. It would have to do this by replanning its work and/or reducing the volume of work (most notably renewals) delivered. As volumes are already reduced in key areas (such as track) this would be challenging, could lead to further deterioration of asset condition and would reduce transparency about what Network Rail Scotland is delivering over CP7.

It is important that Ministers consider the funding required to appropriately manage these risks and increase the likelihood of delivery of outputs.

Next steps

My team and I remain committed to continued engagement with you and your officials ahead of your HLOS and SoFA decisions and are arranging a meeting to discuss our technical report in detail.

We will provide supplementary advice on the following issues:

- The impact of the plan on train performance and what different train performance options might mean for funding (26 August);
- How the initial submission might deliver against your draft HLOS requirements (26 August);
- The interaction between network usage and network costs (26 August);

- Network Rail Scotland's digital signalling plans (23 September);
- Network Rail Scotland's central costs (23 September); and
- Implications on maintenance of lower renewals spend (23 September).

Reflecting the need for transparency about how periodic review decisions are made, as well as our role in contributing to these, we intend to publish this letter once your HLOS and SoFA are published.

Yours sincerely

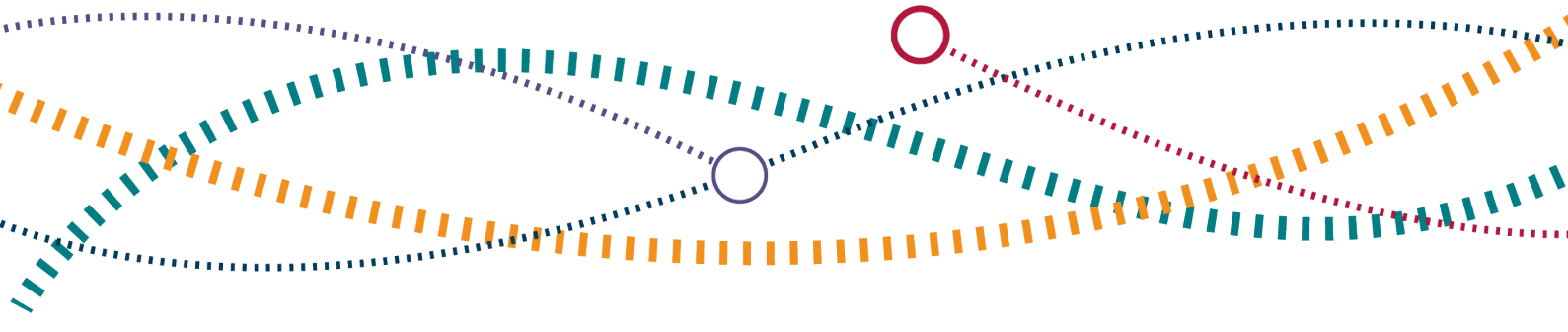
John Larkinson
Chief Executive

cc Bill Reeve (Transport Scotland) and Alex Hynes (Network Rail)

Periodic Review 2023: ORR's advice to the Scottish Ministers on the development of their HLOS and SoFA

Technical Report

17 June 2022



Contents

Context

This report is being submitted to the Scottish Ministers and Transport Scotland in support of our letter to the Scottish Minister for Transport regarding our advice on the development of the Scottish Ministers' High-Level Output Statement (HLOS) and Statement of Funds Available (SoFA). It sets out our advice to the Scottish Ministers on Network Rail's outputs and funding for Control Period 7 (CP7), which will run for five years from 1 April 2024. This is intended to inform our on-going engagement (including with Network Rail and across government) over the summer and in advance of formal publication of the Scottish Ministers' HLOS and SoFA by 30 November 2022.

Further information on the PR23 process can be found in our launch letter and associated timeline.

Reflecting the expected scope of PR23, this report focuses on Network Rail's operations, support, maintenance and renewals (OSMR) activities. It does not cover Network Rail's enhancement projects (i.e. projects that deliver new infrastructure capabilities) as we understand from discussions with Transport Scotland that decisions for these projects are likely to continue to be made separately by Transport Scotland using the existing pipeline approach. Our advice covers Network Rail's proposed activities in Scotland. Reflecting that railway safety is a reserved matter for the UK Government, we have separately advised the Secretary of State on these issues. However, for completeness, we will also set out our views on these issues herein.

Further information on the wider process, including our role in assessing Network Rail's plans, is set out in our March 2022 guidance on how Network Rail's CP7 funding and outputs are determined.

1. Introduction

Our approach to preparing this advice

1.1 In developing our advice, we have brought together our expertise and experience in safety, engineering, regulatory finance and economics. We have used our understanding of the network's assets and Network Rail's financial position, as well as its Control Period 6 (CP6) performance so far, built-up through our holding-to-account work over CP6 and previous periodic reviews.

1.2 We have engaged extensively with Transport Scotland on issues relating to our review and CP7. Our advice is mindful of the strategic priorities your officials have shared with us which are set out below, and how Network Rail Scotland has tried to balance these with the request from Transport Scotland to focus on a funding envelope as close as possible to that of CP6.

(a) Safe, robust and reliable services.

(b) Optimum capacity and capability.

(c) Meeting the net cost challenge and delivering value for money.

(d) Effective integration.

(e) Inclusive and sustainable economic growth.

(f) Achieving net zero and climate change resilience.

1.3 Much of our advice has focused on our review of Network Rail Scotland's initial submission, as well as supporting material provided by Network Rail relating to forecast volumes/spend and certain aspects of the plan. As part of this, we have had extensive engagement across Network Rail. This includes, for example:

(a) engagement with Network Rail Scotland and the national functions;

(b) asset-specific sessions with the Technical Authority (which provides technical expertise and leadership on asset management to the regions);

(c) deep-dive sessions on a range of topics, to help address specific questions we had and/or to explore areas of concern; and

(d) stand-alone submissions/notes produced for our purposes, as well as responses to our written questions.

1.4 We have also made use of our own analysis, including our own Targeted Assurance Reviews (TARs), which we undertake to gain a more in-depth understanding of an issue, and our benchmarking analysis of Network Rail's renewals unit costs and maintenance expenditure forecasts (we will share further information with you in the coming weeks on our work in this area). In addition, we have drawn on the following ORR-led independent consultancy reviews into certain topics; a full list of independent consultancy work can be found here: Independent reporters | Office of Rail and Road (orr.gov.uk).

(a) Understanding Network Rail's digital signalling programme – Turner and Townsend – March 2022 (supporting document 1).

(b) Advice on factors affecting Rail Freight Growth – Arup – May 2022 (supporting document 2).

(c) Review of Network Rail's property forecasts – Savills – June 2022 (supporting document 3).

(d) Management of Depot Plant Assets – Frazer-Nash Consultancy – May 2022 (supporting document 4).

1.5 These reviews are being made available to Transport Scotland and Network Rail as part of our overall submission.

Next steps

1.6 We note the positive engagement we have had with Transport Scotland to date on CP7 funding and outputs. We expect this engagement to increase over the summer as the Scottish Government's decisions on the HLOS and SoFA begin to crystallise, including on the choices (and the merits of the relevant options) to be made.

1.7 There are areas of Network Rail Scotland's plan where more detail is needed and where improvement would help inform the November 2022 HLOS and SoFA, we propose to provide supplementary advice on these areas over the coming months. Annex B contains a table setting out the scope and timing of that advice.

2. Network Rail Scotland's initial CP7 submission

2.1 Network Rail Scotland provided Transport Scotland with an 'Initial CP7 submission' on 31 March 2022. The submission contains a forecast of operations, maintenance, support and renewals spend and outputs for CP7. Unless otherwise stated, all figures are presented in 2023-24 prices using the November 2021 Bank of England forecast for CPI inflation.

Network Rail's business planning process

2.2 At key stages throughout PR23, Network Rail will develop a plan that sets out its views on proposed outputs and funding for CP7.

2.3 In July 2021, Transport Scotland asked Network Rail Scotland to provide it with an indication of the funding required to maintain the capacity and capabilities of its network throughout CP7. It also asked us to review and assure that information. Network Rail Scotland responded in October 2021 suggesting that an increase in spend of around 9.8% compared to CP6 was needed to deliver a 'steady state' outcome. We wrote to Transport Scotland in October 2021 to provide our views on that submission and to commit to working with Network Rail Scotland ahead of our advice to Ministers.

2.4 Earlier this year, Transport Scotland asked Network Rail Scotland to base the next iteration of its forecast on what might be deliverable with a funding envelope as close as possible to CP6. The resulting submission (referred to here as its initial CP7 submission) was submitted on 31 March 2022. Network Rail Scotland describes it as a [redacted] and expects it to:

- maintain current levels of safety, with any risks mitigated using operational restrictions or taking assets out of use;
- maintain current level of train performance, noting increased asset failures and operational restrictions could have an impact on performance; and
- manage a decline in asset sustainability and consequently asset performance.

2.5 This submission is intended to support the development of the Scottish Ministers' HLOS and SoFA (and forms the basis of our review for the purposes of this advice). A high-level summary of the proposed spend forecasts for key activities is

set out in Table 2.1 below. For context we've included a comparison with CP6 expenditure. The CP6 figures are based on actual expenditure to November 2021 and a detailed forecast of future spend produced in that same month, whereas the CP7 forecasts are high-level. This means that we need to be cautious with comparisons as, for example, the treatment of risk is not comparable. Some numbers may not sum due to rounding.

2.6 We explain area of spend in more detail later in the report, including the reasons behind the variances from CP6 levels of spend. Some of the larger variances are due to differences in the CP7 classification of costs between the various line items (e.g. support and maintenance) and in the classifications between CP6 and CP7 costs. We will work to clarify these with Network Rail in the summer.

2.7 We explain each area of spend in more detail later in the report and give the reasons for the variances between CP6 and CP7 levels of spend. For example, some of the larger percentage variances are due to differences in the treatment of the costs of the modernising management and maintenance programmes. We will work to clarify these with Network Rail in the summer.

2.8 Network Rail Scotland's initial submission represents a significant step-forward in the development of a robust CP7 plan and, compared with this point in the PR18 process, it (and us) has a better view about the likely funding requirements and the associated impact on proposed activities and outputs.

2.9 However, the forecast has been prepared on a top-down basis rather than built up by a detailed assessment of individual asset requirements (e.g. renewals workbanks). While this reflects where we would expect Network Rail to be at this point in the PR23 process, it does create certain limitations that we think are important for the Scottish Ministers to take account of when deciding on outputs and funding levels for CP7. We discuss these further throughout the report.

Table 2.1 Headline numbers from Network Rail Scotland's initial submission

£ million	CP6 forecast** (post efficient)	CP7 plan* (post efficient)	Variance
Regionally-incurred operations, support, maintenance and renewals (OSMR)			
Operations	324	305	-6.0%
Support	114	84	-26.5%
Maintenance	964	1,012	5.0%
Renewals	2,120	2,187	3.1%
Financial risk	5	-	-100.0%
Total regionally-incurred OSMR	**3,527**	**3,587**	**1.7%**
Centrally-incurred operations, support, maintenance and renewals (OSMR)			
Operations	-	3	-
Support	398	325	-18.3%
Maintenance	27	71	166.2%
Renewals	244	342	39.9%
Total centrally-incurred OSMR	**669**	**740**	**10.7%**
Total OSMR	**4,196**	**4,327**	**3.1%**
Rates and industry costs***	216	256	18.6%
European Train Control Systems (ETCS)	-	117	-
Total	**4,412**	**4,699**	**6.5%**

** The CP7 initial submission is based on a P50 confidence level. This represents the confidence that NR has in delivering its forecasts within that level of funding.*

*** The CP6 number is based on actuals from 1 April 2019 to 13 November 2021, and its forecast of spend for the rest of the control period, updated for the latest Bank of England inflation forecast from November 2021.*

****The above numbers include business rates and Network Rail's contributions to funding British Transport Police, the Rail Safety and Standards Board and ORR, but do not include traction electricity costs or income.*

Assumptions underpinning the initial submission

2.10 It is important to understand the assumptions Network Rail Scotland has made in producing its plan. The following table summarises these assumptions.

Table 2.2 Assumptions underpinning Network Rail Scotland's initial submission

	CP7 initial submission	Discussed
CP6 exit position	Assumes CP6 outputs broadly delivered (as per forecast in November 2021).	2.11-2.14
Traffic assumptions (Passenger)	Passenger traffic at 83% of 2019-20 levels by end of CP6 (currently 78%), and then remaining flat.	N/A
Traffic assumptions (Freight)	7.5% cumulative increase for freight over CP7.	N/A
Supply chain	Assumed to have capacity to deliver Network Rail Scotland's proposed renewal and maintenance plans during CP7, and in later control periods.	4.13 & 4.24
Inflation and input prices	General inflation calculated using the Consumer Price Index (CPI) based on Bank of England forecasts at November 2021. Additional input price inflation of 0.5% for operational spend and 1.9% on average for renewals.	7.2-7.13
Risk	The initial submission has been prepared on a 'P50' basis, with no separate risk funding pot.	7.14-7.25
Efficiency	Estimated efficiency profile in Scotland of 15% renewals savings (excluding Project Reach, see below) and 10% operational spend savings by year 5.	7.26-7.39
Headwinds (defined in Chapter 7)	Operational spend at 0.6% per annum. Renewals at 0.4% per annum.	7.40-7.43
Income	Assumes CP6 charge rates (2023-24 prices for access charges (traffic assumptions noted above). Property income assumes passenger footfall at 85% of 2019-20 levels, then 1.7% growth per annum.	N/A 7.46-7:50
Workforce costs	Assumes front line staff remuneration increases will be calculated at CPI instead of the Retail Price Index (RPI) (currently under negotiation).	N/A
Project Reach	Project Reach (an initiative to work with a commercial partner to renew Network Rail's telecommunications infrastructure) assumed to be successfully implemented and to deliver [redacted] of efficiency savings during CP7.	7.29

CP6 implications for CP7

2.11 Network Rail Scotland's initial submission assumes it will broadly deliver its CP6 outputs (based on the November 2021 update of the CP6 delivery plan). However, we have concerns about whether this is realistic considering the below issues.

- **Potential deferral of renewals work to increase remaining CP6 risk funds (money set aside to fund unexpected events, e.g. cost increases)**: Network Rail Scotland has allocated almost all its risk funding for CP6 to known costs (including on Coronavirus (COVID-19) pandemic related issues). Although it has identified additional potential savings in operational expenditure, it has also said that it may have to defer £53 million of renewals (in addition to £30 million already deferred in the previous financial year) and it will decide whether this is appropriate in summer 2022. If it does defer this work, it will impact asset sustainability and may mean additional renewals work (and cost) in CP7 that has not been reflected in the initial submission. We have written to your officials separately today on the impact of CP6 decisions on asset sustainability.

- **Funding for implementation of recommendations made following the derailment at Carmont**: Shortly after the tragic derailment of a passenger train at Carmont on 12 August 2020, Lord Robert Mair and Dame Julia Slingo carried out reviews of infrastructure resilience. [Redacted]

- **Delivery of efficiencies in CP6**: Network Rail Scotland is not delivering its efficiencies as well as other parts of the company. If it fails to achieve these targets, then the opening CP7 position will be different, which would also make delivering CP7 efficiency assumptions even more challenging.

2.12 The Scottish Ministers' HLOS for CP6 included a requirement that by the end of CP6, all Scottish routes would accommodate the gauge of all locomotives and passenger rolling stock. Funding for this requirement was not included in our PR18 Final Determination as the scope and costs were not known.

2.13 Whilst Transport Scotland and Network Rail Scotland have been unable to agree a specification to date, there has recently been renewed collaboration. Transport Scotland and Network Rail now have an agreed client remit document that outlines the key deliverables, actions and milestones. Given that there are only two years of CP6 remaining, it is accepted that the HLOS requirement will not be delivered in

full in this control period. Transport Scotland has agreed that the delivery of the HLOS gauging requirement should be aligned to the Rolling Program of Decarbonisation to release additional opportunities for efficiencies. Your officials are aware of these issues (through periodic reporting packs they receive and meetings they attend with us and Network Rail Scotland). We will continue to work with Network Rail Scotland and Transport Scotland on this issue.

2.14 It is important that the uncertainty about the delivery of CP6 outputs and the funding position is considered in the HLOS and SoFA.

3. CP7 outcomes

3.1 We discuss below our views on how Network Rail Scotland's OSMR activities are likely to contribute to the outcomes that passengers, freight users and funders experience. We do this, in turn, for each of the four objectives of PR23 that we outlined in our June 2021 launch letter (namely, safety, performance, asset sustainability and efficiency), as well as other outcomes that are likely to be important to the Scottish Ministers.

Safety

3.2 As safety is a reserved matter, we have provided advice separately to the Secretary of State. For completeness, this advice is repeated here.

3.3 Under its core [redacted] submission, and as per the England & Wales submission, Network Rail Scotland is proposing that safety would be maintained and that safety risks would be mitigated by speed and weight restrictions and by taking assets out of use earlier. However, we have concerns that the Scotland submission may reduce renewals too far. Whereas the 'reduced cost' options for England & Wales keeps renewals broadly in line with Technical Authority advice, the Scotland submission is based on renewals 4.5% (around £100 million) below the level recommended by the Technical Authority. As such, we have some concerns around how Network Rail would identify and manage the effects of unsafe network conditions. We have found, for example, no evidence of Network Rail Scotland considering increased operational risks associated with making more use of speed restrictions and operational disruption. Network Rail Scotland's submission has not sufficiently explained the implications of this level of renewals funding.

3.4 There is also limited discussion in the submission about occupational safety and health, both of which are core to Network Rail's safety vision of protecting its staff from harm. We would like to understand better Network Rail Scotland's proposals in this area.

Performance

3.5 Network Rail Scotland says that it will maintain train performance in line with long-run average levels of performance. However, it acknowledges there is a risk to performance in CP7, due to an increased risk of asset failures and resultant operational restrictions. We note Network Rail's plans are at an early stage of

development and lack more detailed analysis of the implications for train performance. However, in order for the Scottish Ministers to make informed decisions on its HLOS and SoFA, Network Rail Scotland needs to complete further analysis to inform Scottish Government decisions on the expected levels of train performance in CP7.

3.6 For example, it has not provided indicative performance forecasts, or the risk to train performance in CP7 due to asset failures. There are also significant external factors that could impact on performance in CP7, such as post pandemic train service recovery and severe weather events, creating uncertainty around future train performance.

3.7 Network Rail Scotland acknowledges its objective, to maintain CP6 exit levels of train performance, may be subject to change following publication of the HLOS. In order to enable Scottish Government to make informed decisions on its requirements, we have asked Network Rail Scotland to complete further analysis on the implications of train performance options (see annex B for details).

3.8 Our process for holding Network Rail to account in CP7 will need to be both robust and able to react to change in order to deal with the uncertainty over train performance forecasts.

Asset sustainability

3.9 Assets on the railway will degrade over time due to age, environmental factors and wear and tear. A deterioration in asset condition will have implications for train and freight service performance. To understand the long-term sustainability of assets, Network Rail uses the Composite Sustainability Index (CSI) which measures the long-term condition of Network Rail's assets by monitoring changing patterns of asset life, and some aspects of performance and risk. It is a relative measure baselined against the asset condition as at the start of CP5.

3.10 The CSI calculation applies weightings to different assets and different types of work, meaning that some asset renewals have a bigger impact on CSI than others. For example, an increase in spend on structures would not have as significant an impact on CSI as an equivalent increase in spend on track. Therefore, it is important that Network Rail Scotland considers CSI alongside other asset management metrics such as the profile of remaining asset life. This will help it to target its planned spend in the areas that need it most. For example, this approach may allow it to reduce spend in the short-term (i.e. for one control period) in one

area that has historically benefited from significant funding to focus on another, more critical area.

3.11 Recognising the limitations of relying on any single measure to hold Network Rail to account, CSI will continue to be one element within a broad range of performance indicators we use to hold Network Rail to account.

3.12 Network Rail Scotland has recently indicated that its latest forecast for the CSI at the end of Control Period 6 (CP6) is at risk of breaching the regulatory floor we set in our PR18 Final Determination (it is forecasting its CSI will most likely be 2.2%, against a target of 2.9% and a regulatory floor of 2.4%).

3.13 A reduction in asset sustainability indicates a deterioration of network assets through ageing and wear, which could impact train and freight service performance. Oscillation of the CSI (making significant gains followed by significant losses) is also unlikely to be efficient and significant additional spend is likely to be needed in Control Period 8 (CP8) and beyond if the CSI is to be brought back up to recent levels. We have already escalated our concerns on this issue at a senior level with Network Rail Scotland.

3.14 In our letter of 17 June 2022, we have outlined the drivers of this decline, the steps Network Rail Scotland is taking in its immediate response, and an option that may be available to minimise any further decline of the CSI in CP6.

3.15 Network Rail Scotland's initial submission does not incorporate the full impact of the potential deferred renewals (discussed in 2.11 above), and the opening position in CP7 is expected to be worse than forecast in the initial submission.

3.16 The initial submission is based on a lower level of asset renewals spend in CP7 than was recommended by the Technical Authority. Network Rail Scotland's initial submission is approximately £100 million (4.5%) lower than the Technical Authority estimates would be appropriate [redacted].

3.17 Based on the level of renewals included in the plan, CSI would be expected to continue to worsen in CP7 by around 0.9% as shown in [redacted]. This also shows how CSI would continue to be impacted by funding levels at 'steady state' and [redacted] for future control periods.

Figure 3.1 Network Rail Scotland's historic and forecast CSI

[redacted]

3.18 Network Rail Scotland's initial submission would bring CSI at the end of CP7 close to the levels seen at the end of CP4. At a steady state level of funding, CSI wouldn't drop this low until CP12. Furthermore, this oscillation of CSI (making significant gains followed by significant losses) is unlikely to be efficient. Significant additional spend is likely to be needed in CP8 and beyond if the CSI is to be brought back up to recent levels.

3.19 We do not have sufficient detailed information on Network Rail Scotland's planned renewals work for CP7 to fully assess the impact of the declining CSI. However, a reduction in asset sustainability in the long term would likely be reflected in a deterioration of network assets' condition and hence asset performance. This will have implications for train and freight service performance and future funding. As part of its Strategic Business Plan (SBP), due in February 2023, we will require Network Rail Scotland to clearly identify mitigations in CP7 and recovery plans for asset sustainability for CP8 onwards.

Scottish Government strategic priority: Safe, robust and reliable service

Safe, reliable services need a robust network. Focusing on keeping spend levels close to CP6 levels is likely to reduce asset sustainability. Reducing asset sustainability is likely to have a negative impact on service levels and could impact safety if not managed properly.

Environmental sustainability and climate change resilience

3.20 Reflecting the Scottish Ministers' priorities and wider environmental challenges, we would expect Network Rail Scotland to spend more on these issues in CP7 compared with CP6, considering priority areas such as earthworks and drainage management and its extreme weather response.

Earthworks

3.21 Network Rail's asset portfolio includes earthworks, comprising embankments and cuttings which allow railway lines to pass at an acceptable level and gradient. These assets require regular inspection and, because the vast majority are over 150 years old and were not designed or constructed using modern standards, they are particularly vulnerable to the impacts of adverse weather due to a changing climate (e.g. adverse rainfall).

3.22 Network Rail Scotland has included £216 million for earthworks in CP7, a 37% (£58 million) increase from CP6. However, this is a reduction from [redacted] forecast submitted in September 2021 (which included £276 million of earthworks spend). Network Rail Scotland has indicated that in addressing the cost challenge it has largely chosen to prioritise expenditure in this area. We have requested that Network Rail Scotland provide further information to aid understanding of how the removal of items from the September 2021 [redacted] submission will have an impact on safety, performance and asset sustainability, and specifically the proposed mitigations.

3.23 Network Rail Scotland has said this increase compared to CP6 is to support the improvements identified through the Lord Mair and Dame Slingo task forces. We are supportive of this strategy; as set out in more detail in our recent May 2021 TAR on earthworks and drainage weather resilience, funding weather resilience activities at a CP6 level is unlikely to be sufficient to cover priority areas for future control periods. Network Rail Scotland needs to provide, in its CP7 plans, a detailed breakdown of improvements related to weather resilience. Network Rail

Scotland has not yet provided sufficient detail or sufficient assurance to address all of these recommendations.

3.24 Additionally, in March 2022 RAIB issued recommendations in relation to its findings following the Carmont derailment. Network Rail has had insufficient time to consider these alongside existing recommendations to decide which recommendations it will implement.

3.25 Furthermore, Network Rail Scotland's initial submission appears to be based on current known climatic conditions, further projections for the future impacts of climate change (up to 2029) are yet to be fully considered, suggesting more asset failures than anticipated could be expected. Overall, we consider this approach has limitations and requires further explanation as part of the SBP.

Drainage

3.26 Effective management of water is essential to the safe and economic management of railway infrastructure. Drainage has an important role in reducing the damage which can be caused by water, such as the long-term weakening of the track support system and earthworks. Drainage assets also help to prevent flooding and water ingress which can impact vulnerable assets (e.g. electrical infrastructure). Neglect of the drainage system can have significant cost and safety implications for the associated assets, with impacts such as poor track geometry and the potential failures of earthworks, which can lead to line closures, train delays and safety issues.

3.27 Network Rail Scotland has included £141 million of spend in its initial submission for drainage renewals, a 104% (£72 million) increase from CP6. The increased drainage cost is partly due to an on-going comprehensive resurvey of asset inventory [redacted]. The majority of these assets are unlikely to be underperforming or issues would have manifested. However, there may be some assets not previously recorded in the inventory which may be under performing without any current indications of problems. The impact of these failing cannot be quantified at this moment.

3.28 There is recognition in the plan of synergy with track works. Network Rail Scotland is working towards an integrated approach by aligning asset plans in track and drainage via regional water management groups in CP7. We support this approach and encourage Network Rail Scotland to identify other synergies across the whole system.

3.29 The initial submission shows a slight reduction below the [redacted] forecast submitted in September for drainage of around £5 million (3%); this is not considered to have a material impact on asset safety or performance. However, Network Rail Scotland's assessment of safety, performance and asset sustainability risk appears to be subjective. It highlights that the impact of deferring lower priority sites to later control periods could be mitigated by increased maintenance and refurbishment, but the mitigation measure lacks quantifiable detail. We would expect this to be further defined in Network Rail Scotland's SBP, particularly because the asset inventory is not yet complete. It should be noted that regardless of the proposed mitigation, asset sustainability is expected to decline.

3.30 In summary, we are supportive of increased spend on drainage as this will help to address historic issues and issues such as climate resilience. As with other assets, Network Rail Scotland plans to produce deliverability assessments as part of SBP development. Due to the proposed step change in funding drainage assets, deliverability of increased drainage expenditure is an important consideration.

Environmental sustainability

3.31 Network Rail Scotland's initial submission outlines four key priorities to deliver a sustainable railway in CP7: a low-emission railway; a reliable railway service that is resilient to climate change; improved biodiversity of plants and wildlife; and minimal waste and sustainable use of materials.

3.32 The initial submission includes a significant increase in renewals funding compared to CP6 for earthworks (increased by £58 million to £216 million) and drainage (increased by £72 million to £141 million). It also identifies separately, additional central funding under 'other renewals' for 'environment and sustainable development' (£67 million) and 'weather resilience and climate change' (£268 million). This £268 million includes increases in spend on assets which are linked to weather resilience. There is a lack of consistency in collating this cost as it includes all the forecast CP7 drainage spend (£141 million) but only the increase in spend above CP6 levels for earthworks (£58 million). We recognise the logic of this allocation, but the basis upon which Network Rail Scotland is classifying this additional spend has not been clearly documented; this has the potential to lead to double-counting. Until classification this is clarified, there is the potential for the same renewal activity to be miscounted in more than one category and for planned renewals activity to be misdirected.

3.33 We have also noted other aspects of Network Rail Scotland's approach to environmental sustainability planning that make it difficult at this stage for us to assure its proposals in this area:

(a) We have found little evidence in the submission of Network Rail Scotland working with other parties, such as local authorities, the Scottish Environmental Protection Agency and other infrastructure organisations, or quantification of the potential benefits (including financial) of this work. This approach has worked well in CP6 and should be encouraged in future control periods but are not referenced in the initial submission.

(b) Network Rail Scotland's submissions on certain key assets impacted by climate change (e.g. drainage and earthworks) have yet to be fully aligned with the maintenance strategies that will be required going forward.

(c) There is insufficient evidence that Network Rail Scotland is 'CP7 ready' to deliver the planned spend in environmental sustainability. For example, delivery of much of the proposed CP7 works for earthworks and drainage depends on successful achievement of actions in CP6 to address the Lord Mair and Dame Slingo task force recommendations.

(d) With respect to other environmental outcomes (e.g. carbon impact and biodiversity), the initial submission provides limited detail about the types of actions that Network Rail Scotland will undertake to achieve its stated objectives. For example, it is not clear whether Network Rail Scotland has fully considered the cost of reducing its embodied carbon emissions, its whole life carbon emissions (including through the supply chain) and its direct emissions. More clarity would be required to fully show how the CP7 costs align to Network Rail Scotland's decarbonisation strategy and its targets for carbon reductions.

3.34 We will work closely with Network Rail on resolving the above as it develops its SBP to understand how it is attributing funding to environmental sustainability to ensure there is no double-counting and to understand the types of activities it will seek to undertake using the funding streams, as well as its planned outcomes.

Scottish Government strategic priority: Achieving net zero and climate change adaptation

The railway faces a number of challenges in adapting to climate change and Network Rail Scotland's initial submission gives appropriate focus to this issue. Increased spend on earthworks and drainage is appropriate to ensure assets remain fit for the future. However, Network Rail Scotland will need to continue to refine its CP7 plans and ensure there is no double-counting with other areas of spend.

Efficiency

3.35 Network Rail Scotland's initial submission includes £435 million of efficiencies in Scotland in CP7. If delivered these would make it 13.8% more efficient by the end of CP7 compared with the end of CP6. Operational expenditure would be 10.0% more efficient and renewals expenditure would be 16.4% more efficient. This is broadly consistent with the assumptions underpinning Network Rail Scotland's October 2021 submission.

3.36 The approach taken to identify efficiencies is reasonable at this stage of the process, although the assumptions used are ambitious and there are significant risks to Network Rail Scotland delivering them. This is discussed in further detail in Chapter 7.

4. CP7 core asset renewals

4.1 Network Rail Scotland's initial submission includes £2,528 million (CP6 +6.9%) of renewals spend, split between £2,187 million (CP6 +3.1%) of regionally-managed renewals and £342 million (CP6 +39.9%) of centrally-managed renewals.

4.2 Although our advice focuses on Network Rail Scotland's OSMR plans these are impacted by (and will in turn impact) the enhancements pipeline. It is important that all parties work together to align these plans to provide an appropriate balance between different priorities.

4.3 This chapter sets out our views on Network Rail Scotland's proposals for core asset renewals. This includes predominantly renewals delivered by the region, but also includes a small amount of centrally-managed telecoms renewals. Annex A sets out in more detail our views on Network Rail Scotland's renewals proposals for each asset area. Our views on Network Rail's proposals for 'other renewals' (e.g. replacement of a timetabling IT system), which would be delivered by the System Operator (SO) and other national functions, are discussed in Chapter 5.

Assessment of renewals forecasts

4.4 As discussed in Chapter 2, Network Rail Scotland's initial submission represents early and high-level thinking about potential CP7 funding and outputs and has not been informed by full bottom-up planning based on individual asset needs. This is to be expected given that we are almost two years away from the start of CP7. Nevertheless, we have identified certain areas for improvement in Network Rail Scotland's approach to developing its forecasts.

4.5 Network Rail Scotland's initial submission is intended to show a [redacted] position, with forecast renewals limited to those that can be funded broadly within a similar funding level as CP6, while maintaining levels of safety and train performance. As part of the planning process Technical Authority provided Network Rail Scotland with high-level advice (e.g. minor increase / reduction) on how volumes could be varied relative to CP6 [redacted]. This advice has not been strictly adhered to by Network Rail Scotland who have in total reduced renewals volumes beyond Technical Authority guidelines.

4.6 The Network Rail PR23 planning guidance was that national unit rates should be used unless a justification was provided as to the applicability of local unit rates. However, any rates used must, at this stage of the planning process, be

considered as indicative. We have initiated independent reporter work to better understand the criteria applied by planners across Network Rail when selecting unit rates for CP7 costings.

4.7 Renewals funding within the initial submission is below the level required to maintain the current asset condition [redacted]. Network Rail conducted internal assurance (led by the Technical Authority) of the initial submission. This activity utilised assured models (independently reviewed as part of an ORR Targeted Assurance Review) which take account of the remaining life of assets across Network Rail Scotland's portfolio combined with aggregated national unit rates to calculate an expected spend for CP7 in each scenario. The output from the assurance shows that forecast renewals spend is 4.5% (approximately £100 million) less than the advisable level to meet a [redacted] scenario (and 8% less than the [redacted] position). Given Network Rail Scotland's submission forecasts a spend significantly below that proposed by the Technical Authority underpinned by expert reviews and historic data, this has triggered concerns that forecast CP7 activities may have been reduced too far.

4.8 Whilst we recognise the financial situation the initial submission was developed to address**, Network Rail Scotland has not adequately demonstrated that the proposed spend on renewals provides the network with the level of spend it requires.** Further work is required by Network Rail Scotland to assure us and Transport Scotland that the forecast CP7 expenditure does not create an unrecoverable long-term funding challenge for the Scottish Ministers to rectify.

4.9 Network Rail Scotland is proposing to spend £100 million (4.5%) less on its asset portfolio than is recommended by Network Rail's Technical Authority. This is likely to lead to an increasingly aged asset portfolio, increasing the probability of potential asset failure, ultimately increasing the risk of customer impact and higher maintenance costs. Relatively low expenditure levels in CP7 could also lead to peaks of activity in later control periods, which could be difficult to fund and resource, e.g. the renewal of signalling assets as discussed further below.

4.10 Although Network Rail Scotland's initial submission for CP7 is focussed on reducing costs, this has significant implications for CP8 and beyond.

4.11 Delivering renewals below a [redacted] level in CP7 would potentially lead to an increase in reactive maintenance requirements (resulting from increased failures linked to ageing assets) and train performance impacts. Network Rail Scotland estimates the impact of this increased maintenance (3%-5%) and reduced train performance (2%) could cost an additional around £100 million per Control Period.

However, this is a high-level assessment and requires further, more detailed consideration by Network Rail before the HLOS and SoFA. We will review the methodology Network Rail uses for this assessment as part of our supplementary advice.

4.12 The impact on maintenance and train performance would last until asset condition was recovered to a [redacted] level. Network Rail plans to do this through CP8 and CP9 by spreading the spend deferred from CP7 [redacted]. across these Control Periods. To recover deferred renewals, Network Rail estimates renewals funding would need to increase from CP7 [redacted] to CP8 by £600 million. This funding level for renewals would need to be maintained into CP9 (see Figure 4.1 below). This large increase in renewals funding will likely have both an affordability impact in CP8 and CP9 and it may also be difficult to convince funders who are not aware of decisions made in CP7 of its provenance. The impact on the Composite Sustainability Index (CSI) is discussed in more detail below.

Figure 4.1 [redacted]

4.13 We are mindful that the [redacted] funding in CP7 could also have an impact on the supply chain over CP8 and CP9, if Network Rail were to significantly increase its requirements from CP8 in order to recover asset condition. As such (and where relevant), we would expect assurance from Network Rail as part of our SBP review that a reduced funding scenario does not put damaging pressure on

its supply chain in CP8 and beyond. We will be discussing the impact on the supply chain as part of our ongoing engagement with Network Rail Scotland in the lead up to HLOS & SoFA publication.

4.14 Additionally, a period of low expenditure could exacerbate emerging asset obsolescence. This is particularly the case for conventional signalling as more suppliers move to take advantage of the emerging digital signalling market. Network Rail should ensure that obsolescence management forms a key consideration in informing its bottom-up plans for the SBP; this should include assessments of its supplier base and an understanding of the key areas of obsolescence.

4.15 We have conducted analysis of the submission for each asset type; this is available at Annex A. However, our key areas of concern are:

(a) Signalling: The proposed life extension approach, along with a reduction in signalling renewals in CP7, will mean that asset sustainability will decrease during CP7. At present there is not a clear strategy for managing the signalling renewals bow-wave in future control periods or the deliverability and affordability risks that a life extension strategy introduces. This is explored in greater detail below.

(b) Metallic Structures: Current estimates indicate that one in three of Network Rail Scotland's metallic bridge decks are rated as poor or worse. Without suitable expenditure in CP7 there is the potential that a significant (potentially unachievable) volume of bridge work would be needed in future control periods to maintain the assets. We have challenged Network Rail Scotland in this area and expect firm plans on how this risk is being managed to be provided as part of the SBP.

(c) Level Crossings: There has been recent adverse publicity surrounding level crossings in Scotland and there have also been issues associated with implementing new technology (for example the 'meerkat' enhanced warning devices, which detect an oncoming train and provide an audible and visible warning to alert users). Level crossing costs are forecast to increase significantly (by over 60%) in CP7, however, there has not been an increase in indicative volumes planned for delivery indicating a potential anomaly within the planning. Although this is not a large sum of money, Network Rail Scotland will need to develop detailed plans for level crossings ahead of its SBP.

(d) Electrification and Fixed Plant (E&P): Despite recent expenditure on new assets through the enhancements programme, the overall condition of these assets is relatively poor in comparison to other asset groups. E&P assets tend not to degrade in the same way as other assets and failures tend towards sudden and total failure. The submission focuses on asset life extension through targeted expenditure, which can be detrimental as inspections will not always identify potential issues. Noting the asset condition and proposed renewals strategy in Scotland, we are concerned that there will be a significant decline in performance and availability of these assets in CP7.

4.16 Whilst recognising that this is a top-down plan, in our view the sustainability of the overall submission has not been fully justified. We expect this issue to be addressed in the SBP submission in February 2023.

Scottish Government strategic priority: Optimal capacity and capability

Network Rail Scotland has made assumptions about the recovery of passenger numbers and freight growth for CP7. However, until Network Rail Scotland completes more detailed performance analysis it is difficult to assess what these mean for capacity and capability. There is a significant risk that the level of funding in the [redacted] submission will not provide for optimal capacity and capability as spend is significantly lower than both that recommended by the Technical Authority and that required to maintain [redacted].

Signalling (including digital signalling and ETCS enablers)

4.17 Network Rail Scotland is updating its Whole System Signalling Strategy (WSSS), which has been underway for several years. We consider that Network Rail Scotland and Transport Scotland should prioritise the agreement of the WSSS and address the issues we have identified below ahead of CP7.

4.18 To help provide further advice on the issues below, we will also provide an update to the Scottish Government on Network Rail's further thinking on digital signalling in September. Further detail is set out in annex B.

Conventional signalling renewals

4.19 Network Rail Scotland's submission includes a signalling strategy in CP7 that focuses on the life extension of existing conventional signalling assets (at a cost of £149 million). This approach does not consider the whole life cost of the signalling assets and may introduce bow-waves of future renewals. We consider this approach does not offer the right balance between life extension works and long-term efficiency (as discussed in the digital signalling section below). Specifically, we consider that:

(a) The proposed life extension approach, along with a reduction in signalling renewals in CP7, will mean that asset sustainability will decrease during CP7. At present, there is not a clear strategy for managing the signalling renewals bow-wave in future control periods (impacting on CP8 and CP9) or the deliverability and affordability risks that a life extension strategy introduces.

(b) There are likely to be potential issues in securing future conventional signalling volumes given that many UK and European suppliers are moving away from this technology.

(c) There is a risk that Network Rail Scotland may need to replace expensive signalling renewals funded in CP7 earlier than an equivalent digital system due to obsolescence which could reduce value for money and reduce system reliability.

4.20 A significant portion of the spend (£79 million) proposed by Network Rail Scotland is for the Perth re-signalling project. However, the initial submission does not include sufficient information on the detail of this project. We understand from discussions with Network Rail Scotland that it will be renewed conventionally but with electronic interlockings making it 'digital compatible'. This means it can be converted to European Train Control Systems (ETCS, which refers to the wider signalling and control system for digital signalling) in future control periods. If this project proceeds, we expect to subject it to a detailed review, and will require Network Rail Scotland to provide written confirmation on whether:

(a) the renewal will be 'digital compatible' to maximise the efficiencies associated with this project and minimise the whole life cost of renewing these assets;

(b) the renewal will be converted to full ETCS before the end of its remaining asset life and if this embeds inefficiencies in the project; and

(c) programme plans and strategy for migration to full ETCS at Perth in future control periods are robust.

4.21 Network Rail Scotland has calculated its conventional signalling renewals costs using the centrally published indicative rates. We are supportive of this approach at this time.

Digital signalling renewals

4.22 ORR remains supportive of the need for progressing the renewal of Network Rail's signalling assets aligned to the strategy set out in the Long-Term Deployment Plan (LTDP).

4.23 Network Rail Scotland's initial submission assumes there will be no deployment of digital signalling in Scotland in CP7. We are aware that Transport Scotland is not supportive of digital signalling as presented in the LTDP at present. It has asked for more information from Network Rail on the benefits of digital signalling compared to renewing the network conventionally. We understand that the WSSS does not currently include the migration to digital signalling in future control periods. Network Rail Scotland should prioritise discussions with Transport Scotland on digital signalling, so that the migration strategy is agreed and transparent.

4.24 Delaying deployment of digital signalling may lead to long-term inefficiencies by preventing joined up decision making across track and train (for example on the Glasgow suburban lines where concerns over obsolescence of signalling equipment may need to be addressed alongside decisions about replacement rolling stock). In addition, national and international demand for digital signalling is likely to be high in the future. Therefore, Network Rail Scotland needs to be aware of the consequences of not committing to the migration to digital signalling so that it allows sufficient time to efficiently secure its supply chain.

4.25 We would expect to see more detail, as Network Rail's SBP is developed, around planning for the implications of different options in the roll-out of digital signalling. Taking account of our market study into the supply of signalling systems, we also expect to see Network Rail implementing its revised commercial approach aimed at encouraging more suppliers into the signalling market. This reflects the opportunities from deploying new digital signalling technology given that, other things being equal, new technology tends to create better conditions for entry and expansion by suppliers.

Network wide enabling costs, fleet fitment and Research & Development

4.26 Network Rail has included an allocation of £117 million to Scotland which includes network-wide enabling works, fleet fitment and Research & Development (R&D)

for digital signalling. We consider that there is a strong justification to include all the costs of digital signalling within the scope of PR23.

4.27 This reflects that the deployment of digital signalling will require several projects to be implemented before realisation of cost savings such as efficiencies in supply chain mobilisation. Network Rail also expects these savings to include reductions in unit rates. These costs are not dependent on Network Rail Scotland's signalling strategy. Scotland will benefit from these savings in the long-term and, as such, it should bear some of the initial costs.

4.28 As a key enabler, clarity and certainty of fleet fitment funding is crucial to the deployment of digital signalling. This is included in the centrally allocated costs and includes multiple categories and classes of fleet. This is particularly important given the long lead-time for ETCS cab fitment, which is intrinsically linked to the digital signalling renewal (the trains cannot run without the relevant technology being fitted) and these trains will run across the network in both Scotland and England & Wales.

4.29 Further work is required to establish the funding mechanism for commencing the passenger fleet fitment programmes which have not previously been included within the periodic review process. Funding for Heritage and Charter trains in Scotland has been included within the central submission but has been identified as an 'incremental option' in Network Rail's [redacted] submission; it is not clear what the impact would be if this is not taken forward.

4.30 Delaying fleet fitment costs to later control periods would be likely to significantly increase whole-life-costs. Network Rail Scotland will need to investigate and calculate this impact as part of its SBP. Network Rail has recently shown us an indicative forecast of these cost increases and we have asked for this work to be presented to Transport Scotland.

4.31 When Network Rail Scotland is developing its ETCS migration plan it should explore opportunities provided by enabling activities taking place in England & Wales. These could include train fitment of vehicles (freight and passenger) that travel into Scotland and first in class designs of vehicle types that operate in Scotland.

4.32 As part of our further work over the summer on central costs we will consider Network Rail's latest plans and costings in this area. We will provide updated advice in September.

4.33 It is also worth noting that, in CP6, Network Rail is developing a specification as part of its R&D programme for Optimised Train Track Operation (OTTO). The OTTO approach is a development of the Train Protection Warning System (TPWS) which is an optional, interim step prior to full ETCS implementation. We understand from Network Rail that OTTO will provide an enhanced TPWS function that includes an element of continuous speed supervision. This application combines existing onboard equipment with new technology for the specific application (and, as such, offers some of the functionality of digitial signalling). This concept is not yet fully developed and Network Rail has requested funding for the further development of OTTO in CP7. It has also indicated it intends to trial OTTO in CP7. Consideration should be given as to whether Network Rail Scotland could be suitable for this trial.

4.34 The current National Technical Specification Notice (NTSN) does not permit the use of a system like OTTO. Therefore, to support this innovation, a review of current legislation may be required. We understand Network Rail is already considering how this could be adapted.

Scottish Government strategic priority: Value for money

Network Rail Scotland's approach to signalling and asset sustainability may not provide long-term value for money. Focusing on short-term cost reductions will also have implications in the long-term for both affordability and performance.

Options

4.35 As part of its initial submission, Network Rail Scotland has included options which it would undertake if additional funding were available. These options mainly relate to renewals work, although it does provide some proposals relating to maintenance and operations. There are options that are specific to Network Rail Scotland and additional options that are part of centralised Network Rail plans for the whole business. These options are summarised in Table 4.1.

Table 4.1 Additional options in Network Rail Scotland's initial submission

Option/Area of spend	Description of option (not included in baseline)	Forecast expenditure (£ million, 2023-24 prices)
Track	Removal of 10% of "bullhead" rail delivering safety benefits and reduced maintenance costs.	[redacted]
Signalling	Re-signalling at Arbroath and Inverkeilor.	[redacted]
Level crossings	Automation upgrades.	[redacted]
Structures	Upgrade to RA10 allowing heavier freight traffic.	[redacted]
Buildings	Various building renewals and a re-purposing project.	[redacted]
Electrification and fixed plant	Cost of implementing Safer Faster Isolations on legacy overhead line equipment and £6 million for decorative lighting on the Forth bridge.	[redacted]
Other renewals	Funding for offsetting residual emissions as part of the Net Zero strategy being developed. Additional funding for upskilling workforce in sustainability, for tackling air quality and facilitating more expansive renewable energy schemes.	17
National initiatives	National schemes including: infrastructure monitoring fleet, timetable technical strategy, obsolescence management, R&D and optimised train track operations technology.	52
Total		**312**

4.36 We agree with Network Rail Scotland's assessment that these options fall below the safety critical or essential threshold for inclusion within the [redacted] plan. Although potentially viable, the lack of detail and supporting information limits our ability to fully endorse the individual options as presented but they could bring benefits. [redacted]

4.37 The structures option includes funding to strengthen masonry and metallic structures to increase the network capability for freight traffic. This is aligned to key funder requirements for freight growth, which are currently pending consultation. However, the top-down forecast does not provide sufficient information for us to assess the robustness of the costings or associated benefits. Noting our concerns surrounding the condition of metallic structures in Scotland, additional spend on these assets is needed. However, the limited information supplied regarding the freight traffic requirements and potential volumes of work prevent us supporting these options at this stage.

4.38 Network Rail Scotland's submission also includes the national options developed by Network Rail's national functions. Again, overall, we consider these to be reasonable options to be considered, but they are lacking in sufficient detail. They are unlikely to be high priority activities within the current fiscally-constrained environment.

5. Network Rail Scotland's other spend

5.1 Outside of renewals spend, Network Rail's initial submission covers forecast spend and outputs on maintenance, operations and support which, together, make up 38% of Network Rail Scotland's forecast spend. This chapter discusses our views on these areas.

Maintenance activities

5.2 Network Rail Scotland's forecasts are top-down and are dependent on it achieving [redacted] workforce reform in CP6. Network Rail Scotland will also need to deliver additional efficiencies in CP7, plans for which have yet to be fully developed.

5.3 Network Rail Scotland's initial submission shows an increase in total (regionally and centrally incurred) maintenance spend of £91 million (compared to CP6 spend). Increased spend is driven by:

- Enhancements spending in CP6 has increased the asset base that needs to be maintained going forward. In particular, the increase in electrification assets is expected to increase maintenance costs.
- In order to try and keep overall spend close to the CP6 funding level Network Rail Scotland is planning reduced spend on renewing or replacing assets. This means that additional maintenance spend is needed to ensure assets continue to function as required.

5.4 Network Rail's Technical Authority has concluded that maintenance spend is broadly in line with its calculations.

5.5 There are a number of uncertainties that make it difficult to determine with certainty the appropriateness of the submission's proposals for maintenance. In particular:

(a) It is reliant on Network Rail achieving [redacted] workforce reforms to its maintenance activities in CP6 and CP7. [Redacted]. Network Rail's submission assumes this reform is complete in CP6 with the full

benefits being realised from CP7. In light of wider industrial relations issues, we think there is a risk this [redacted] reform may take longer to deliver or that it may not be delivered in its entirety which would impact CP7 outputs. We set out further views on Network Rail's workforce reform efficiencies in Chapter 7.

(b) It is dependent on delivering the benefits of two key R&D programmes that are (as we have discussed in more detail in a recent TAR on technology adoption) facing a number of challenges in implementing the new technology and processes 'on the ground'. These R&D programmes relate to enhanced asset condition monitoring (which is designed to reduce the overall level of maintenance activity by better predicting where asset failures will occur and the operational impact of this) and new tools to optimise operational efficiencies (e.g. relating to cost, time and quality of maintenance delivery).

(c) There are increasing demands on maintenance activities and the initial submission has not clearly explained how these will be resourced over CP7. These relate to, for example, additional works associated with ash dieback and vegetation works due to the effects of climate change, as well as to cater for assets being brought into service following the completion of new enhancement projects.

5.6 In addition, we have some concerns that Network Rail is not accurately reporting its maintenance volumes activities, this in turn may result in incorrect calculation of resourcing requirements, which could have implications for its proposals as set out in the initial submission. As discussed in the March 2022 Independent Reporter work on the accuracy of maintenance reporting volumes, there is scope for Network Rail to improve its monitoring and reporting of maintenance activities, including with respect to volumes and the standards to which assets are being maintained. This would, the review found, help Network Rail improve how it plans and monitors its maintenance activity.

5.7 Using our own statistical model, we have undertaken benchmarking analysis to estimate Network Rail's maintenance expenditure for CP7 by region and have used this to compare against what Network Rail is proposing in its submission. We will share further information with you in the coming weeks on our work in this area. This suggests that Network Rail's forecast expenditure on maintenance is broadly in line with what the model would predict for GB. Furthermore, it suggests that Network Rail's initial submission's maintenance expenditure forecasts represent a potential reduction of around16% in post-efficient cost (compared with the end of CP6); again, this is GB wide. However, there are disparities between

business areas, and Network Rail Scotland's initial submission forecasts are 4.5% higher than our model's prediction.

5.8 Although our modelling alone does not determine the appropriateness of Network Rail's proposals, it does provide a useful tool in forecasting likely expenditure and in identifying significant discrepancies across business units; further information on our cost benchmarking work relating to proposed maintenance spend is provided in supporting document 2.

Support activities

5.9 Network Rail Scotland's initial submission is forecasting to spend £409 million (CP6 -20%) on support expenditure. This is made up of support costs relating to the national functions (e.g. Technical Authority, property unit; £325 million) and professional support provided to and by the regions (e.g. HR, legal; £84 million).

5.10 The significant reduction in support costs is largely driven by the modernising management programme (as the costs related to this have been incurred over CP6). We expect to scrutinise further Network Rail's support costs, including benchmarking analysis it has recently undertaken on its IT and finance costs, as part of our further work. As such, **we will provide an update to the Scottish Government on Network Rail's proposed central costs in September.** This is discussed further in Chapter 8.

Operations activities

5.11 Network Rail Scotland's initial submission forecasts spend of £308 million (CP6 -5%) on its operations. This includes activities such as signalling, emergency response management and staff in control rooms and at stations.

5.12 For CP7, Network Rail says much of its focus is on delivering improvements for train services (e.g. access to signalling simulators, roll-out of a new competency management system), from which it expects to deliver efficiencies. However, Network Rail also faces some workforce reform-related risks in this area, including implementing new work practices (e.g. to meet new rules on fatigue management) that may face resistance.

Industry costs and rates

5.13 Network Rail's initial submission includes rates and industry costs of £256 million (CP6 +18.6%). These costs are largely outside of Network Rail's control and include business rates (£185 million) and Network Rail's contribution to funding

British Transport Police (£48 million), the Rail Safety and Standards Board (£8 million) and ORR (£14 million).

5.14 **The increase in these costs is driven mainly by an assumed increase in business rates**. However, these remain uncertain until a formal decision from the Scottish Assessors regarding future rates, which is not expected until 2023-24.

5.15 The headline cost proposals exclude forecast traction electricity costs (Electric Current for Traction, or EC4T) of £263 million. These were excluded because the cost of traction electricity is passed through to train operators so has a very small overall impact on Network Rail's finances. We note, however, that the Scottish Government will ultimately incur the cost of traction electricity for services it funds (for example through ScotRail Trains Limited).

6. System Operator and national functions' forecasts

6.1 In addition to Network Rail Scotland's latest forecasts, the submission reflects input from the System Operator (SO) and national functions, including Route Services (which provides services to regions in support of the delivery of renewals), the Technical Authority (which provides technical expertise and leadership on asset management) and corporate functions (e.g. the Chief Financial Officer unit and Human Resources). This chapter discusses our views on this aspect of the initial submission.

6.2 In its submission, Network Rail Scotland's contribution to national functions' expenditure amounts to £740 million and accounts for 16% of the overall forecast of spend. The national functions' expenditure has increased by 11% from CP6.

6.3 It is worth noting that, while Network Rail Scotland's submission has been prepared under a [redacted] assumption, the centrally-incurred costs are forecast in line with the England & Wales submission. As discussed in Chapter 2, this was prepared on a [redacted] basis (which seeks to deliver broadly comparable levels of safety, performance and asset condition as in CP6) and which has forecast a higher increase in spend.

6.4 This chapter discusses our views on this aspect of the initial submission.

Allocation of national functions' and SO's costs

6.5 There are benefits in having certain services provided centrally to each of the regions, reflecting wider economies of scale and scope and that Network Rail is one company (albeit with two funders). For example, it is likely to be inefficient to have two payroll systems for different parts of Network Rail.

6.6 **All regions pay a proportion of the costs incurred by the SO and the national functions. Regions also pay a proportion of other regions' costs where they have a wider network benefit.** For example, over CP6, all regions have contributed to the Eastern region's development costs in delivering the digital signalling programme, reflecting the fact that it has wider network benefits.

6.7 In allocating central costs to Network Rail Scotland (and the England & Wales regions), Network Rail has used the current CP6 allocation methodology. This allocates a portion of centrally-incurred costs to each region based on the criteria

most relevant to the costs incurred. These criteria include the region's headcount, train miles and track miles, as well as other factors.

6.8 As part of PR18, we (with support from independent consultants, CEPA) reviewed Network Rail's allocation methodology and found that it was reasonable, although CEPA found that Network Rail could be more transparent about how the allocation process works and widen the allocation methodologies used. Over CP6, we have facilitated a number of sessions between Transport Scotland and Network Rail to help improve the transparency of the allocation process to funders.

6.9 As noted above, national functions developed their input to the initial submission in line with the England & Wales approach [redacted]. While Network Rail has used the same allocation methodologies under both spending proposals, Network Rail Scotland's contribution to national functions renewals spend under the [redacted] options would be £324 million (which is £18 million or 5% lower compared with its contribution under the [redacted] spending proposals). This is mainly due to reductions in planned telecoms renewals.

6.10 The allocation of costs between England & Wales and Scotland is an important issue as the funding for central costs will be included (implicitly) in each funders' SoFA.

6.11 As noted in Chapter 4, **we will provide supplementary advice to the Scottish Ministers on Network Rail's proposed central costs** (including on the allocation between England & Wales and Scotland) in September (see Annex B for details).

Interaction between regions', SO and national functions' submissions

6.12 **We are concerned that, in some cases, there is a lack of coherency between regional forecasts and the SO and national functions' forecasts**. In some cases, the national functions have made assumptions about the regions' CP7 activities that do not align with what the regions are proposing. Similarly, the national functions' plans have not yet benefitted from in-depth challenge or scrutiny from the regions (including Network Rail Scotland) and/or Network Rail's own internal assurance function. **This is likely to create additional opportunities for reduced volumes (and/or savings)**. For example:

(a) The regions' forecasts relating to the use of high-output plant (used in renewal of track in large projects) do not correspond with what is being

proposed by the Route Services function, which is accountable for delivering this service. [Redacted]. This creates a risk that the service [redacted] is underutilised over CP7. There is also a risk that, should track renewals be reduced in CP7, Route Services would be unable to respond to demands for the high-output plant in CP8, when it is more likely to be required compared with CP7.

(b) The SO's input to the initial submission includes £21 million to develop improved operational solutions, focused on supporting improved safety and performance. However, we have not seen any clear indication of efficiencies in the regional plans (including Network Rail Scotland's submission) to indicate that they intend to make use of these tools.

SO and national functions' renewals

6.13 Network Rail classifies renewals expenditure that is not driven by core infrastructure assets as 'other renewals'. This includes, for example, expenditure led by Route Services, the Technical Authority and the SO (e.g. replacement of a timetabling IT system), as well as some non-core asset expenditure in the regions. In its submission, Network Rail Scotland's spend on 'other renewals' is significant, accounting for 18% of total renewals expenditure (£453 million; CP6 +90%), of which £284 million is through national functions. This has increased 60% on CP6 (from £178 million).

6.14 The large increases in regional spend are predominantly relating to sustainability and weather resilience, which are discussed in more detail in Chapter 3, above. Of the increase in 'other renewals' spend through national functions, [redacted] (post efficient) relates to Project Reach, which is discussed in more detail in the efficiencies section of Chapter 7. Excluding Project Reach, national functions' spend on 'other renewals' is [redacted] higher than in CP6. Spend related to digital signalling is discussed in Chapter 4.

6.15 In many cases, we are concerned that there is currently insufficient evidence to justify the increased levels of spend. This is exacerbated by Network Rail's own central internal assurance so far being targeted at the regions' forecasts rather than the 'other renewals' delivered by the national functions.

6.16 As noted above, **we will provide an update to the Scottish Ministers on Network Rail's proposed central costs in September**.

The SO's submission

6.17 As noted above, the SO's forecast spend has been developed on a [redacted] basis rather than on a [redacted] basis. In the Network Rail Scotland submission, the contribution to the SO's expenditure amounts to £47 million (CP6 +2%).

6.18 The SO's plan **includes further work on delivering the timetable technology strategy and a new programme to deliver better operational data** (where Network Rail Scotland's contribution is approximately £12 million), as well as expenditure on a Freight Safety Improvement Programme (approximately £2 million) to address systemic and strategic risks. This is partly offset by savings arising from workforce reform that are being delivered by the SO over CP6.

6.19 Over CP6, some of the SO's responsibilities (e.g. early timetable planning and regional strategic planning) have moved to Network Rail Scotland (as well as regions in England & Wales). **The SO has been undergoing an organisational restructure as part of implementing a new operating model and it now expects to reduce its headcount by around 20% by the end of the CP6**. It is targeting further operational (i.e. operations, support and maintenance) efficiency of 10% by the end of CP7. However, it is worth noting that although the SO has protected timetable planning resource, the level of resourcing is likely to be an on-going constraint on Network Rail's ability to deliver multiple and complex timetable changes. This is especially the case where there are more frequent timetable changes in a condensed period.

6.20 In addition, the SO has also identified a number of [redacted] options (mainly around reducing the scope of proposed [redacted] activities). However, these are not reflected in the current allocations. As noted above we'll consider this as part of our supplementary advice.

Research, development and innovation

6.21 Network Rail Scotland's plans do not include explicit funding for R&D and innovation (R&D), although this is included in the allocations from national functions' spend**. It is important that Network Rail Scotland ensures that it makes the best use of available R&D funding, to the benefit of the region.**

6.22 From our review of the England & Wales initial submission, we are aware that Network Rail's R&D plans focus around eight 'innovation themes' that relate to, for example, increased use of data and digitalisation, environmental sustainability and automation.

6.23 R&D has been a significant focus of our monitoring work over CP6. While Network Rail is generally delivering its R&D programme, we have concerns that all regions, including Scotland, are not taking-up these initiatives or are not putting them into operation in their business-as-usual activity. This creates a risk that potential savings are also not reflected in forecasts and efficiency opportunities are being missed.

6.24 Furthermore, where regions have committed to adopt the changes, these are not always reflected in the information we have received to date. For example, programmes such as 'faster, safer isolations' are likely to have an additional benefit by reducing the time taken to initiate and relinquish possessions and, therefore, allowing more time on task and making high-output-plant more attractive. However, we have not seen them reflected in Network Rail Scotland's submission as we would have expected. This reflects our wider concern that the central and regional plans are not as well-aligned as they could be.

7. Finance issues

7.1 There are a number of financial issues that are important to consider in reviewing Network Rail Scotland's initial submission, to help inform the Scottish Ministers' decisions on the HLOS and SoFA. This chapter discusses our views on these issues. It is important that all relevant parties (Transport Scotland, Scottish Exchequer, UK Government, ORR and Network Rail) are clear on the financial assumptions being made and how these could impact the level of funding in the SoFA.

Inflation

7.2 Network Rail Scotland's CP7 plan is being developed at a time of significant economic uncertainty, with inflation at its highest rate for 40 years. The latest Bank of England (BoE) CPI inflation forecast from May 2022 is 10% for 2022-23, which is far above the bank's own target of 2% per annum.

7.3 We expect that the SoFA will be in cash terms, meaning it is likely that the network grant funding will not be adjusted if CPI inflation is higher or lower than expected. This makes inflation a key risk for Network Rail. However, it is expected that fixed track access charges (FTAC, which refers to the income that it receives from train operators) will be adjusted for inflation.

7.4 Between November 2021 and March 2022, the BoE 2022-23 forecast for CPI inflation increased by 5.3 percentage points. Inflation is forecast to peak in 2022-23 and then fall back to 2% per annum during CP7. However, it is also highly uncertain. Table 7.1 below illustrates how varied and uncertain inflation forecasts are.

Table 7.1 Recent CPI inflation forecasts

Source	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
November 2021 BoE forecast	3.4%	2.2%	2.0%	2.0%	2.0%	2.0%	2.0%
February 2022 BoE forecast	5.8%	2.4%	2.0%	2.0%	2.0%	2.0%	2.0%
March 2022 BoE forecast	8.7%	1.5%	2.0%	2.0%	2.0%	2.0%	2.0%

7.5 Network Rail Scotland has based its initial submission on the November 2021 BoE forecast for CPI inflation. It has also quantified the impact of the movement in the November to March inflation forecast for CP7 to be £160 million. We note, however, that the rate of inflation may decrease as well as increase (e.g. the 2023-24 forecast has now reduced to 1.5%).

7.6 Network Rail Scotland has also included an adjustment for input price inflation over and above CPI inflation. This is because Network Rail considers that it experiences a higher rate of inflation than general inflation based on the specific basket of goods it purchases (such as materials, plant, contracted services etc.). As such, it has included an inflation assumption of CPI plus an adjustment for this input price effect of between 0.5% (for operational spend) and 1.9% per annum (for renewals). These are made up of a range of different assumptions for the different assets and types of spend.

7.7 As such, general CPI inflation plus input price inflation results in an average annual total inflation adjustment of 2.5% for operational spend and 3.9% for renewals. Based on these assumptions, Network Rail estimates the cost of inflation (on a simple basis and in cash prices) over CP7 could be around £448 million, made up of £263 million (CPI inflation) and £185 million (input price inflation). **This highlights that the impact of inflation, and the general uncertainty around future inflation, could materially impact the funding needed.**

7.8 Our PR18 Final Determination for Network Rail included a level of input price inflation. Network Rail's own analysis is improving in this area, and we will work with Network Rail to understand this better in advance of the SBP being finalised.

7.9 There are likely to be some things Network Rail can do to try and manage inflation, such as putting in place longer-term contracts to provide some protection from price increases over time. While we recognise that some strategies might not be possible (e.g. government rules around managing public money do not encourage hedging strategies), we expect Network Rail to explore further the options available to mitigate the risks in this area.

7.10 If inflation turns out to be higher than expected, then there is a risk Network Rail may not have enough funding to meet its outputs (where inflation is higher than expected) or too much funding (where inflation is lower than expected). Network Rail's sensitivity analysis suggests that a variance between actual and forecast inflation of around 1% throughout CP7 would increase costs by around £200 million over five years (around £40 million per annum).

7.11 It is likely that our Final Determination will be based on a later forecast of inflation compared with the SoFA. Assuming the SoFA is in cash prices, Network Rail will need to consider how best to manage any significant departure from the inflation assumptions underpinning the SoFA.

7.12 However, should the Scottish Ministers wish to, they could reduce the inflation risk to Network Rail Scotland by varying the balance between FTAC and the Network Grant. Unlike the Network Grant, income from the FTAC is likely to be adjusted for CPI inflation during the control period, which reduces Network Rail Scotland's exposure to general inflation risk.

7.13 We will continue to engage with Transport Scotland and Network Rail Scotland on inflation ahead of the SoFA decision.

Financial risk

7.14 As noted above, the initial submission has been developed during a period of high economic uncertainty and Network Rail Scotland faces a number of risks during CP7, such as rising inflation and uncertain passenger levels.

7.15 In PR18, Network Rail Scotland had a risk fund of £329 million to manage cost increases and any unexpected additional activities. This put the plan at a P80 confidence basis (i.e. there was an 80% probability that Network Rail Scotland would deliver the plan with the funds available). This has been essential to help Network Rail Scotland manage the risks that have emerged over CP6 including the impact of the pandemic, expenditure on track worker safety and rising inflation. Having a separate risk fund means Network Rail Scotland can manage risks without having to unnecessarily re-plan or defer work, which would be inefficient.

7.16 By period 6 of year 3 (September 2021), it had only £50 million of unallocated risk funding remaining. Based on its own risk analysis, Network Rail Scotland determined that this would be insufficient to manage the risks which might arise in the remainder of CP6 (estimated to cost up to £110 million in a worst-case scenario). Therefore, as part of the cost savings discussions happening around the same time, it identified renewals which could be cancelled without impacting on safety, so that funding could be diverted to manage future risks.

7.17 In total, to bolster its risk funding, Network Rail Scotland decided in late 2021 to reduce planned volumes for asset renewals for signalling, structures, track, buildings and telecoms across the remaining three years of CP6. The overall impact of this was an £83 million (4.2%) forecast reduction in overall CP6

renewals spend. These renewals are in theory only deferred pending decisions to be taken in summer 2022, but it will be difficult to justify reinstatement given the cost pressures Network Rail Scotland is under, including, for example, delivering the as-yet-unfunded recommendations from the Mair and Slingo taskforces. These deferrals have reduced the region's CSI forecast for the control period, as discussed in chapter 3. While this would deliver a short-term improvement in the risk fund, some of the funding has already been allocated to offset the anticipated impact of high inflation.

7.18 In our view any further deferrals of work may jeopardise delivery of efficiency commitments in years 4 and 5 and have a knock-on impact on plans for CP7. We also consider there is a risk that operational and modernisation savings that Network Rail has planned may not be fully delivered or may not be delivered by the end of the control period. Failure to deliver these, or other planned efficiencies, may mean the region has to defer further renewals to fund expenditure in the remaining years of CP6.

7.19 Network Rail Scotland's initial submission for CP7 does not have a separate risk fund. It has said its forecast is nominally based on a P50 confidence level (i.e. there is a 50% chance that costs will not exceed the forecasts in the submission and a 50% chance they will).

7.20 Network Rail's early analysis suggests that there is £470 million of potential risk in CP7 (which, if this was funded, would take the overall confidence in the forecast from P50 to P80, the level of confidence of the CP6 plan). However, Network Rail Scotland has not provided sufficient information at this stage for us to fully understand the impact this will have on renewals activities and, in turn, key outputs such as asset sustainability.

7.21 We are concerned with the initial submission's approach to managing risk. As noted above, it has not included any separate expenditure for risk. Instead, it has indicated that it could 'carve out' funding from renewals work to create a risk fund. If it were to do that, we would expect this to come from certain cost areas (e.g. track renewals) instead of all types of costs because some costs (such as the number of signallers) cannot be easily reduced. This creates some key concerns for us:

(a) 'carving out' risk funding from renewals reduces the transparency of the plan as depending on when this is done there may not be sufficient clarity what the asset volumes Network Rail Scotland would actually seek to deliver; and

(b) delivering the proposed levels of renewals without adequate risk funding is likely to be very challenging (reflecting the lessons from CP5 and how it has improved in CP6). This is particularly difficult in the [redacted] option and would be likely to have more serious implications for the delivery of renewals volumes and associated outcomes as there is less funding overall. This is especially the case given the uncertainty with inflation and that the SoFA is set around 18 months before the start of the control period.

7.22 These concerns are heightened with the current plan, where the indicative renewals volumes will have already been reduced to a minimal level in some key areas (such as track) to meet Transport Scotland's request to focus the submission on a funding envelope as close as possible to CP6.

7.23 It is also difficult for us to be confident that the submission is at P50, especially given the initial submission has so far only been developed on a 'top down' basis. We will be commissioning work to understand if the plan is actually on a P50 basis. This work will inform our review of the SBP.

7.24 By the point at which the Scottish Ministers make their decisions on CP7 funding, it is important that there is an agreed approach to risk funding and a clear understanding of the impact on funding and projected asset volumes. We will continue to work with Network Rail Scotland and Transport Scotland on the governance arrangements for this process to help make it more transparent than it has been in recent years.

7.25 Building on existing CP6 arrangements (e.g. we report on Network Rail Scotland's use of risk funding in our Annual Efficiency and Finance Assessment), we will ensure appropriate governance and control arrangements are in place. This will provide oversight and transparency over when and how Network Rail Scotland uses risk funding.

Efficiency

7.26 In our PR18 Final Determination we challenged Network Rail Scotland to deliver £339 million of efficiency improvements in CP6. This corresponded to a 12% efficiency improvement over the five-year period and was a stretching target in the context of Network Rail Scotland's poor financial performance in CP5. In the first three years of CP6 Network Rail Scotland cumulatively delivered 43% of its forecast efficiencies. Network Rail Scotland delivered around £64 million of efficiency improvements in the year 2021-22, 22% behind its annual target of £82 million.

7.27 This means that Network Rail Scotland will have to significantly increase its delivery of efficiency improvements in the final two years of CP6. The region is now targeting £413 million of efficiency improvements in CP6, £74 million more than in our PR18 Final Determination [redacted].

7.28 Network Rail Scotland's initial submission includes £435 million of efficiencies in Scotland in CP7. If delivered these would make it 13.8% more efficient in the final year of CP7 compared with the end of CP6. Operational expenditure would be 10.0% more efficient and renewals expenditure would be 16.4% more efficient. This is broadly consistent with the assumptions underpinning Network Rail Scotland's summer 2021 submission.

7.29 These targets appear slightly more challenging than those set in England & Wales, although this reflects the larger impact the significant efficiencies planned through Project Reach (discussed below) are having on the forecasts. Excluding Project Reach, the targets are consistent with the approach taken in England & Wales, and overall Scotland would be 12.7% more efficient in the final year of CP7 compared with CP6.

7.30 However, the percentage efficiencies being targeted are in the context of a [redacted], in which lower renewals volumes will make it harder to deliver large scale efficiencies, or savings through economies of scale. In the context of the challenges Scotland has had in delivering its CP6 efficiencies (as discussed in Chapter 2 above), the efficiencies planned in CP7 may not be fully deliverable. Network Rail Scotland should review its efficiency assumptions in more detail as it works towards its SBP and ensure that the efficiencies it is targeting are appropriate for the region, which may mean they are inconsistent with other parts of Network Rail.

7.31 Within its submission, Network Rail Scotland has included a mixture of 'industry reform' initiatives, alongside business-as-usual changes to its delivery. [redacted]

7.32 Network Rail's industry reform initiatives [redacted]. As reported in our latest Annual Efficiency and Finance Assessment, these changes need to be seen in the context of the 10% increase in Network Rail's headcount in the first two years of CP6, including a 27% increase in senior management grades. Network Rail mostly attributed this to the implementation of the Putting Passengers First internal re-organisation.

7.33 We have a number of concerns about the deliverability of Network Rail's assumed workforce reform efficiencies:

(a) as discussed in Chapter 5, there are considerable risks that Network Rail will be unable to deliver planned workforce reforms in its maintenance function. If Network Rail is unable to deliver the full programme of changes in CP6, then this will have a knock-on impact on what can be delivered in CP7, reducing efficiencies; and

(b) [redacted] there could be a delay in achieving the forecast benefits.

7.34 Network Rail Scotland has also included efficiency improvements from improvements to its business-as-usual activities in its plan. Delivery of business-as-usual efficiencies will be challenging in CP7. The progress Network Rail Scotland has made in CP6 to become more efficient will make delivering further efficiencies harder in future, as those efficiencies which would be easier to deliver will already have been targeted.

7.35 However, Network Rail appears to be on track against the recommendations from the Independent Reporter review of Network Rail Contract and Procurement (C&P) practices in February 2021, which made recommendations for improvements to its Procurement Management Framework. Network Rail has also invested in R&D programmes in CP6 that should enable further improvements through, for example, the deployment of new technologies (though, as discussed in Chapter 6, there is insufficient detail about how these initiatives will be put into operation).

7.36 As mentioned above, Network Rail Scotland's initial submission includes [redacted] of assumed efficiency savings in CP7 from Project Reach, with further savings in CP8 and beyond (although accelerating this work into CP7 and treating it as spend distorts the presentation of the pre-efficient CP7 baseline). **We have unresolved questions about how Project Reach can be successfully implemented to achieve Network Rail Scotland's assumed CP7 efficiency.** For example, it is important that Network Rail balances the commercial partner's

installation plans with its own need to maintain and renew the network. Answers to these questions should become clearer as contract negotiations progress.

7.37 Given the early stage we are at in the planning process, **there is little detail about how the planned efficiencies will be delivered**. This means that it is hard for us to assess whether these efficiencies are sufficiently challenging or deliverable.

7.38 Therefore, **whilst we consider that the approach taken to identify efficiencies in Network Rail Scotland's submission is reasonable at this stage of the process, the forecasts remain relatively ambitious and there are significant risks to successful delivery.** Given the wider economic uncertainty and issues around risk and inflation, it is important that Network Rail Scotland's efficiency assumptions for CP7 are sufficiently challenging. However, if the assumptions are too challenging, then Network Rail Scotland will be unable to deliver its plan fully (everything else being equal).

7.39 Furthermore, and given the importance of employment costs to the plan, we recently commissioned independent analysis from Income Data Research (IDR) and Steer consultants to compare employment costs in Network Rail (and the wider industry) with comparable sectors. While this has not yet been finalised, the early findings indicate that Network Rail's total remuneration to employees (including benefits and pensions) is above the market median rate for the majority of roles, with typical variances of between 10% and 20%. This finding is before the impact of workforce reforms, the changes in pay for the remainder of CP6 and the effect of high levels of inflation, all of which mean that, by the start of CP7, Network Rail's employment costs variances to market comparators could look quite different. However, **this work highlights that Network Rail's staff costs and productivity will be a focus for CP7, including with respect to the delivery of efficiencies**.

Headwinds and tailwinds

7.40 Network Rail Scotland's initial submission includes forecasts for 'headwinds' and 'tailwinds'. These terms refer to unforeseen cost and income variances due to factors largely outside of its control. For example, over the past two years, the pandemic has required Network Rail Scotland to purchase additional personal protective equipment (a headwind). However, its staff also undertook fewer business journeys resulting in lower travel costs (a tailwind).

7.41 Network Rail Scotland's initial submission assumes that it will incur £73 million of headwinds in CP7. This is in addition to the financial impact of general inflation and input price increases. To put this in context, Network Rail Scotland expects to incur £142 million of headwinds in CP6, which includes the impact of the pandemic (£37 million).

7.42 The £73 million of forecast headwinds is based on the average value of headwinds in CP6, less pandemic-related costs and exceptional costs in CP6, for example the derailment at Carmont and the lease at Buchanan House. Network Rail Scotland expects this to cover costs including amendments to safety standards, potential changes to tax legislation.

7.43 Network Rail Scotland has not included any explicit tailwinds in its initial submission. We understand that any tailwinds have been netted off against headwinds in this submission. We note that Network Rail Scotland is currently forecasting around £9 million of tailwinds in CP6. In continuing to develop its CP7 plan, we expect Network Rail Scotland to consider in more detail the potential for CP7 tailwinds.

Market-led and whole-system initiatives

7.44 The initial submission discusses some early ideas on market-led and whole-system approaches to planning, though these have not been quantified and/or included in the submission's spending proposals. These include, for example, various initiatives, predominantly related to closer alignment with ScotRail Trains Limited, the newly nationalised passenger operator.

7.45 Taking a greater market-led and whole-industry approach may present opportunities to deliver more efficiencies. However, given that Network Rail Scotland has been in an alliance with ScotRail for a number of years, opportunities to deliver additional efficiencies may be limited. **As Network Rail Scotland's thinking is at an early stage, we cannot form a view on the scope for related efficiencies at this stage**. As Network Rail Scotland develops its ideas in this area, we will need to consider how these approaches can help to realise further efficiency improvements.

Scottish Government strategic priority: Effective integration

Network Rail Scotland's submission assumes that it will align more closely with ScotRail Trains Limited in order to deliver more efficient operations and a better passenger experience. However, it is difficult to quantify the benefits this will bring during CP7.

Network Rail Scotland's property-related income assumptions

7.46 Network Rail Scotland's initial submission includes £122 million (CP6 + 5%) of income from property rentals and sales. It assumes that property income will increase by 2.1% per annum in CP7 (this is a GB wide assumption). This is underpinned by growth assumptions relating to increased train service levels (83% of pre-pandemic levels over CP7) and footfall (85% of pre-pandemic levels, with an expected 1.7% annual increase over CP7) at Network Rail-managed stations.

7.47 We commissioned an independent consultant, Savills, to review Network Rail Scotland's forecast for its CP7 property income. Savills found that the forecast was high-level but appears overall to be reasonable at this stage of the CP7 planning process. However, Savills considered that Network Rail's property forecast was unambitious in some areas, particularly for property development and sales, where Network Rail has not provided sight of a forward pipeline of opportunities.

7.48 Over the course of CP6 to date, responsibility for much of Network Rail's property portfolio has been devolved from the centre to Network Rail Scotland. Savills identified in its review that this new structure is still bedding in. As a result, the property income forecast is highly dependent on central assumptions and guidance, with the opportunity going forwards for Network Rail Scotland to be more pro-active in managing its own portfolio.

7.49 Savills noted that the use of high-level GB-wide assumptions was not appropriate for all of Network Rail's regions. It found the projections were reasonable overall, but that Scotland was the biggest outlier. Savills suggested a more reasonable expectation of retail growth would be around a third lower than Network Rail had forecast. However, the report did note that Network Rail Scotland is less reliant on retail income than other regions as a bigger proportion of its income is derived from property rentals.

7.50 Savills also reviewed the use of hurdle rates (the minimum rate of return required on a project), which have been unchanged for some time. We will ask Network Rail to take account of this report in its SBP.

8. Next steps

8.1 This chapter discusses the next steps in the PR23 process and our early thoughts on how the Scottish Ministers could articulate the outcomes they want Network Rail Scotland to deliver over CP7 in their forthcoming HLOS.

8.2 We also discuss our emerging views on how we intend to hold Network Rail to account for delivery of the PR23 outcomes/outputs (though we note that we expect to set out more detail on this when we consult on our approach in summer 2022).

The Scottish Ministers' Priorities

8.3 Transport Scotland shared an early draft of its HLOS requirements on 14 April which described around 40 draft requirements to deliver the 6 ministerial priorities set out in chapter 1. While there is a read-across from many of these requirements to the initial submission, we have asked that Network Rail Scotland completes a comprehensive review (see annex B for further detail). In particular, Network Rail Scotland's submission is based on a [redacted] whereas some of the ministerial priorities / draft requirements are for improvements, e.g. for freight growth. So, Network Rail Scotland should compare its developing CP7 plan and Transport Scotland's draft HLOS requirements, to clarify:

(a) the draft HLOS requirements that will be delivered by Network Rail Scotland's proposed core CP7 OSMR forecasts in its initial submission;

(b) where these are not compatible with the desire to keep funding levels at a similar level to those in CP6;

(c) any requirements that will not be delivered in its core CP7 OSMR plans with an estimate of the cost impact if the Scottish Ministers choose to include these in the HLOS;

(d) requirements that Network Rail Scotland is expecting to deliver through its assumed CP7 enhancements portfolio; and

(e) where there are choices for the Scottish Government regarding the level of output that will be delivered, such as train performance, be clear what level will be delivered by the initial submission and the cost impact of incremental changes.

8.4 After Network Rail Scotland completes the above comparison, we will provide an independent view on the information provided.

Scottish Government strategic priority: Inclusive and sustainable economic growth

Spend on the railway in Scotland will impact wider economic growth. In developing its submission Network Rail Scotland has given more prominence to delivering the net cost priority and will need to further consider whether it can deliver all of your aspirations in this area as set out in the draft HLOS requirements.

Summer 2022 'supplementary advice'

8.5 We note the positive engagement we have had to date on CP7 funding and outputs. We expect this to increase over the summer as the Scottish Government's decisions on the HLOS and SoFA begin to crystallise, including on the choices (and the merits of the relevant options) that need to be made.

8.6 In this context, we remain willing to provide further input to help support this engagement and the forthcoming decisions. This could include, for example, expanding on aspects of our advice set out herein and/or providing responses to specific, ad hoc questions regarding CP7 funding and outputs.

8.7 More specifically, and as discussed in the context of our findings, we also intend to provide supplementary advice to the Scottish Government on certain key areas over the summer. In addition, we also intend to review Network Rail's (and its consultants) thinking around the relationship between network usage and costs, though our assumption is that a high proportion of Network Rail's costs are fixed and unlikely to vary with a change in usage, at least over the short to medium-term. The full list of where we intend to provide supplementary advice is set out in annex B.

8.8 Reflecting the tight timescales involved, we expect that this will be high-level and centre around providing our views (rather than a full assurance of Network Rail's information, for example). It will also target those priority areas that are likely to be material in helping to conclude on the HLOS and SoFA decisions.

8.9 The extent to which we can provide meaningful and timely advice to inform these decisions is contingent on Network Rail providing appropriate information to us. As such, we have developed the proposed list of supplementary advice in close co-operation with Network Rail, including what it will provide to us (and when), as also

set out in Annex B. In addition, we are providing similar supplementary advice to the UK government.

Our views on the articulation of the Scottish Minister's HLOS

8.10 The Scottish Government needs to decide how it will define the outputs that Network Rail Scotland should deliver in CP7 in its HLOS. This is challenging, as Network Rail Scotland's initial submission is currently based on top-down analysis reflecting its relatively early stage of development. This results in uncertainty around the level of outputs that Network Rail Scotland can deliver in CP7. External factors such as train service recovery post-pandemic and forecasts of inflation add to this uncertainty.

8.11 There are a number of options for how the Scottish Government could set out the HLOS, including:

(a) focusing on high-level strategic outcomes; or

(b) a detailed set of outputs.

8.12 The high-level strategic outcomes approach could, for example:

(a) indicate an expected direction of travel across key outcome areas, such as safety and delivery of train performance to passengers and freight customers; and

(b) highlight the outcome areas where the Scottish Government expects Network Rail Scotland to plan for increased focus in CP7. For example, these could be an increased focus on environmental sustainability or resilience to climate change; and

(c) set out any of the incremental options included in Network Rail Scotland's submission that the Scottish Government considers are particularly important.

8.13 This approach would help us set effective incentives in our Final Determination based on our assessment of Network Rail's more detailed SBP in 2023. This would allow Network Rail to firm up its market led and cross industry proposals so that, where applicable, the benefits of these initiatives are considered in its output forecasts and our Final Determination. We would also consider how our approach to holding Network Rail to account, can respond to uncertainty throughout CP7.

8.14 The Scottish Government may choose to set quantified targets for specified measures in its HLOS. If so, we will align our SBP assessment and approach to holding Network Rail to account with these requirements. However, there is a risk that setting targets based on Network Rail's initial submission in the current uncertain circumstances could be either too easy or too challenging to achieve during CP7, weakening the incentive on Network Rail to deliver.

Development of Network Rail's Strategic Business Plan

8.15 As discussed above, we are working closely with Network Rail on the development of its plans for CP7. This centres around a 'progressive assurance' approach whereby we are engaging with Network Rail Scotland on a regular basis to monitor its progress in developing its plans and to provide clarity around our expectations for Network Rail's key business planning deliverables.

8.16 Increasingly, our focus is around the development of Network Rail's SBP, which we expect to receive by 24 February 2023. To help inform this, we will provide formal guidance to Network Rail on our expectations for the SBP over summer 2022. This will seek to reflect the areas for improvement in the initial submission, as well as lessons learned from PR18 and our on-going work to review changes to Network Rail's CP6 plan. We also expect to set out our expectations for Network Rail's stakeholder engagement in the development of the SBP, reflecting the important role of stakeholder input to and challenge of the plans. We are already working closely with Network Rail in this area.

8.17 Given the limited time available between the finalisation of the HLOS and SoFA and submission of the SBP it is important that an open, transparent and iterative approach is taken by all parties to reduce the risk of misalignment of funding and output expectations. We encourage Transport Scotland to make use of the existing trilateral monthly working group and regular PR23 Scotland Steering Group to share early thinking on the SoFA, as it has already done with the draft HLOS requirements.

8.18 Reflecting the role of stakeholder input and challenge into the plans, we also expect to discuss our expectations for Network Rail's stakeholder engagement.

Holding to account for the PR23 commitments

8.19 While Network Rail's plans are currently at a high level, we have already begun considering how Network Rail should demonstrate that it is achieving the outcomes that will be agreed in the final delivery plan. It is important we have a

robust set of tools in place to hold Network Rail to account for its commitments in CP7, while being flexible enough to cope with uncertainty.

8.20 We will publish a consultation this summer, setting out our high-level approach to holding Network Rail to account in CP7. This consultation will also include proposals on the:

(a) structure of our PR23 funding and output settlements; and

(b) principles of how changes to these settlements during CP7 will be managed.

8.21 A key part of our proposals for holding Network Rail to account in CP7 is to establish a set of headline success measures. These will set clear expectations on the outcomes that should be achieved for CP7. Our initial proposals for these measures will be part of our consultation this summer.

8.22 The success measures will be aligned to the applicable requirements to be specified in the Scottish Government's HLOS. Also, as a minimum, these measures will cover the four objectives of PR23 (safety, performance, asset sustainability and efficiency), as well as potentially other areas, such as environmental sustainability.

8.23 We plan to set-up a robust process for holding Network Rail to account, based around the above success measures. These measures will be used to set clear, quantified expectations that we will hold Network Rail to account against in CP7.

8.24 Our process for holding Network Rail to account will need to be flexible, to cope with change throughout CP7. This flexibility is key to making sure we can monitor Network Rail against its obligations throughout CP7 and incentives are not weakened, as external factors change, and pragmatic trade-offs might need to be considered. Strong change control governance will be required, to provide assurance that Network Rail's obligations to its customers and funders are only changed when there is a clear change to assumed external factors.

8.25 In addition to the above consultation, we plan to continue engagement with Transport Scotland to make sure the Scottish Government's HLOS requirements and our holding to account process are aligned. This should provide the framework required to make sure Network Rail delivers in CP7.

Towards the Final Determination

8.26 Once the UK Government and the Scottish Government issue their HLOS and SoFA documents, our focus will turn to assessing Network Rail's SBP in order to develop our determination of Network Rail's funding and outputs for England & Wales and Scotland, as well as the supporting settlements for each region and the SO. Further details on the longer-term timeline for PR23 is set out here.

Annex A: Our views on Network Rail Scotland's renewals by asset type

This annex provides further, high-level views on Network Rail Scotland's renewals proposals across the different categories of Network Rail Scotland's assets.

The views relate to the [redacted] renewals within the initial submission, unless otherwise stated.

Asset	Our high-level views
Buildings	Buildings work volumes are significantly reduced (CP6 -48%) despite a proposed funding reduction of around 6% compared to CP6, mainly due to increased unit costs for managed station works. The initial submission proposes to defer some building works to CP8. We are not convinced the proposed mitigation measures will prevent asset deterioration, and we have concerns around potential increases in faults and reduced building reliability. We require further evidence to have confidence that the proposed deferrals will be delivering the best combination of cost, risk and performance while sustainably maintaining the required level of service, in particular for critical building assets such as train sheds and platforms.
Drainage	We are supportive of increased spend on drainage compared to CP6, to address climate resilience and historical issues. Network Rail Scotland's proposal is for a significant increase on CP6. The increase follows a resurvey of drainage assets which identified some assets not previously recorded. We note that some assets are underperforming and may result in a failure, but the majority of newly recorded assets are likely not causing an issue. The system being used to consider safety, performance and sustainability risk highlights that the impact of deferring lower priority work to later control periods could be mitigated by

	additional maintenance and refurbishment, however the mitigation measures lack detail, and we expect this to be further explained in Network Rail Scotland's next submission.
Earthworks	We would expect to see increased spending on earthworks in CP7 compared to CP6, given the need to address weather resilience and climate change impacts. Network Rail Scotland proposes spending £216 million (CP6 + 37%), although this is less than the £276 million forecast to achieve [redacted] as Network Rail Scotland addresses the cost challenge from Transport Scotland. It is currently unclear how the risk assessment system has been applied to determine which assets will have reduced spend. Network Rail Scotland has indicated the railway will be susceptible to more asset failures than would be expected under [redacted] and has not yet considered the potential worsening impacts of climate change. The potential mitigations provided are not sufficient to provide confidence they would mitigate safety, performance and asset sustainability risks. The deliverability and robustness of the "potential mitigations" for earthworks are also a concern.
Electrification and Fixed Plant (E&P)	Network Rail Scotland plans to focus on asset life extension through targeted investment, but we are concerned that inspections may not always identify potential issues. Noting the asset condition and proposed renewals strategy in Scotland, we have concerns that there will be a significant decline in performance and availability of these assets in CP7 given failures of these types of assets tend to have a high impact. The proposed volumes of new electrification projects raise a risk that the supply chain will not be readily available for maintenance and renewal of existing assets, potentially increasing costs. This should be a key consideration for Network Rail Scotland's SBP.
Level crossings	Volumes of work proposed on level crossings are similar to CP6, but costs have significantly increased, potentially due to descoping of signalling work. Safety-led conversions have been prioritised within the plans, which is encouraging. We intend to review the indicative unit rates when available for the work mix to validate the suggested cost increases.

Lineside (vegetation)	Network Rail Scotland has been bringing its vegetation profile towards compliance during CP6, targeting full compliance by the end of CP7. It is important that cleared sites are maintained while it continues to work on the remaining vegetation sites and managing ash dieback disease, however a joined-up vegetation management and delivery strategy has not yet been presented.
On track machines (OTM) and Plant	The spend on Network Rail Scotland's Infrastructure Monitoring programme has not been clearly articulated in terms of links to wider Route Services plans in the England & Wales initial submission and it does not appear to have been discussed with Route Services teams yet.
Signalling	Network Rail Scotland's proposed strategy focuses on the life extension of existing assets. We consider that this does not sufficiently take into account the whole life cost of signalling assets and may limit opportunities to adopt digital signalling in future. As conventional signalling assets become obsolete, without a plan to migrate to digital signalling, Scotland is likely to experience abortive costs. We do not consider that there is a clear strategy for managing a potential bow wave of required signalling renewals in future control periods, nor deliverability and affordability risks arising from life extension.
Signalling (Perth re-signalling project)	The Perth re-signalling project forms a significant portion (53%) of the total signalling spend in CP7. We understand that renewals for this will be done conventionally but with base equipment that is digital-compatible, which may offer an ETCS solution in future control periods. We have asked Network Rail Scotland to provide written confirmation on a number of aspects of the proposals.
Structures (Major structures)	Network Rail Scotland proposes around a 60% decrease in spend on major structures from CP6 levels, but we do not know what structures or projects this will impact, in particular whether this includes critical assets. We will need further information on this in the next submission round.
Structures (Tunnels)	Tunnels have a significant proposed reduction in spend from CP6 for CP7, and we will need Network Rail Scotland to provide assurance of its tunnel asset condition and its ability to cope with reduced funding during CP7. Network Rail Scotland has not addressed the risks of deferral of works at this time.

Structures (Underbridges)	Network Rail Scotland's initial submission proposes reduced funding compared to CP6 but increased volumes, and we are concerned this may not be viable. Metallic structures have less funding allocated, which may be the result of plans to defer sustainability schemes which could be insufficient to prevent deterioration, with metallic structures in Scotland already in relatively poor condition compared to other regions. In addition, the significant increase in the minor works budget has not been clearly justified in terms of expected outcomes or impact on asset sustainability by the end of CP7.
Telecoms	The plan submitted for telecoms appears broadly appropriate. Telecoms generally perform well in stand-alone projects but are reliant on other areas for combined projects (e.g. signalling renewals). The main areas of potential concern are around Project Reach (spend and liability, and integration into existing system) and the potential costs arising from the Public Switched Telephone Network (PSTN) switch off in 2025.
Track	We note track renewal volumes are below the Technical Authority's modelled requirements, which causes some concern about the potential continued deterioration of asset condition, but we recognise that this could be recovered by increased spend in future control periods. However, slab track assets are said to be approaching end of life, and the proposed life-extension repair works may lead to a future requirement for currently un-costed wholesale renewal activity. This is a major concern, and we intend to thoroughly investigate this area in future.

Annex B: Areas of supplementary advice

The following table summarises the areas that ORR will give supplementary advice on and the timescales for both further Network Rail work and our advice.

Areas of ORR supplementary advice	Network Rail supplementary information	Scope of ORR supplementary advice
1) Interaction between network usage and costs **ORR will provide this by 26 August.**	Network Rail will provide a paper that draws together its work on cost variability, which will consider the relationship between network usage and cost. **Network Rail will provide this information to us by 1 August.**	We will provide an initial view on Network Rail's methodology, assumptions and analysis relating to the relationship between network usage and costs.
2) Comparison of the proposed outputs delivered by Network Rail's initial submission against Transport Scotland's priorities and draft HLOS requirements. This, and corresponding engagement, will help inform Transport Scotland's development of an aligned HLOS and SoFA. **ORR will provide this information by 26 August.**	The information will provide a comprehensive review of how Network Rail Scotland's developing plan delivers against Scottish Ministers' six priorities, as well as the 40 'draft requirements' Transport Scotland has described. Specifically, it should compare its CP7 developing plan and Transport Scotland's draft HLOS requirements to clarify: • the draft HLOS requirements that will be delivered by Network Rail Scotland's proposed core CP7 OSMR forecasts in its initial submission; • whether the draft HLOS requirements are not compatible with the desire to keep funding levels at a similar level to those in CP6; • whether there are any requirements that will not be delivered in its core CP7 OSMR plans, with an estimate of the cost impact if the Scottish Ministers choose to include these in the HLOS;	We will provide a high-level view on the information provided. This will likely focus around key areas of concern we consider Scottish Ministers should take particular account of in reviewing Network Rail's information.

Areas of ORR supplementary advice	Network Rail supplementary information	Scope of ORR supplementary advice
	• the requirements that Network Rail Scotland is expecting to deliver through its assumed CP7 enhancements portfolio; and • where there are choices for the Scottish Government regarding the level of output that will be delivered, such as train performance, be clear what level will be delivered by the initial submission and the cost impact of incremental changes (see area 2 of the supplemental advice relating to train performance). **Network Rail will provide this information by 1 August.**	
3) The cost implications of Network Rail achieving different train performance options **ORR will provide this information by 26 August.**	This information will focus on: • quantifying the level of train performance (measured in PPM) that Network Rail plans to maintain in CP7 under its [redacted]; and • the impacts on CP7 expenditure of delivering different improved train performance output options. The analysis will: • quantify the current level of train performance (using PPM) that Network Rail plans to maintain in CP7; • look at the implications on planned CP7 expenditure of delivering four train performance output scenarios, i.e: PPM delivered by the [redacted] submission and 0.5pp, 1.0pp and 1.5pp increases in CP7 PPM; and • assess the relationship between asset renewals, service affecting failures and temporary speed restrictions, with a view to articulating a general relationship of asset failures to train performance (punctuality).	We will provide a view on Network Rail's methodology, assumptions and analysis for calculating the likely cost implications of achieving different levels of train performance. We also will provide a view on whether Network Rail has taken a reasonable approach to considering uncertainty around these performance forecasts.

Areas of ORR supplementary advice	Network Rail supplementary information	Scope of ORR supplementary advice
	It is worth noting the high-level nature of the approach (reflecting the time available) and the need for a number of assumptions to be made. **Network Rail will provide this information by 25 July.**	
4) Network Rail's CP7 digital signalling plans **ORR will provide this by 23 September.**	The work will focus on: • A consideration of the impact of the deferral of fleet fitment suggested in Network Rail's initial England & Wales submission as a [redacted] option. This will refer back to our market study into the supply of signalling systems, the Rail Sector Deal and the Long-Term Deployment Plan (LTDP) and discuss the impacts on how the industry can manage the signalling asset and renewals needs. It will also have a particular focus on the supply chain and future signalling renewals bow-wave. **This will be held by 30 June, with follow up as required**. • A workshop to discuss the principles of digital signalling renewals costing and how that translates into Signalling Equivalent Unit (SEU) rates; how this is used by the regions for planning purposes (e.g. in developing the initial submission); and a discussion on the purpose of the digital signalling SEU rate strategy and how it will be used going forward. **This will be held by 30 June, with further follow-up if required**. • Setting out the differences between OTTO and full ETCS including the benefits and potential efficiencies; the timeline for the potential deployment of OTTO; and the funding request. **This will be provided by 22 July**.	We will provide a view on: • progress on the development OTTO; • how the adoption of the SEU rate strategy is being applied across regions and if the assumptions included are reasonable; • the inclusion of fleet fitment funding in the PR23 determination; and • the suggested deferral of funding linked to digital signalling and how this may impact future control periods.

Areas of ORR supplementary advice	Network Rail supplementary information	Scope of ORR supplementary advice
	• Provision of an overarching document that gives a detailed breakdown of and/or an overview of the basis (assumptions, etc) for the assessment of fleet fitment funding requirements in CP7 (which in some cases also looks ahead into CP8). This will include all fleet types for which funding has been requested and show how this aligns to the future digital signalling workbank. Network Rail will provide initial data and host a session to discuss this and agree areas for focus, as well as any additional levels of detail that may be required. This will be held by 30 June, with further follow up if required. **Network Rail will provide a final document by 22 July**. **The dates for Network Rail information are set out above.**	
5) Network Rail's CP7 central costs **ORR will provide this by 23 September.**	The information will include: • an overview of the outputs from structured engagement between regions and network-wide functions, which will review and challenge network-wide functions' plans, including the priorities for the function, particularly around capital spend (e.g. high output plant); • outputs from a review of the allocation methodology for network-wide functions; and • reflections from meetings to provide an updated view of network-wide function costs for CP7. **Network Rail will provide this by 12 August.**	We will provide a view on the latest iteration of CP7 central costs, the allocation of functions' costs, the alignment of Network Rail's regional and functional plans, and the resultant implications of Network Rail's outputs and funding.
6) Implications on maintenance costs under Network Rail's [redacted] spend **ORR will provide this by 23 September.**	The information will set out an updated view on the impact on maintenance costs of the '[redacted] option, which will be based on the latest view of maintenance plans. **Network Rail will provide this by 12 August.**	We will provide a view on the methodology used to generate the cost impact on maintenance of deferral.

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