



ORR Evidence Report

**Network Rail's overall planning,
management and delivery of its
enhancements programme**

October 2015

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1. Executive Summary

- 1.1 This evidence report sets out the findings of ORR's investigation into Network Rail's (NR's) overall planning, management and delivery of its enhancements programme.
- 1.2 We wrote to NR on 31 March 2015 initiating this investigation due to our concerns about NR's performance in four broad areas related to enhancements: project development; project delivery; its approach to complex programmes; and its ability to manage the investment portfolio.
- 1.3 Our investigation has focussed on the late completion of NR's development and delivery milestones because these are regulated outputs. We have also analysed the other areas of concern on cost escalation, understanding of legislation, standards and safety by design, portfolio and programme management. We have concluded that these represent contributory weaknesses that have led to NR missing its regulated outputs. We have considered whether these weaknesses are systemic or isolated incidents. We have also considered how NR has responded to our concerns and what it is proposing to do to improve its performance.
- 1.4 Our analysis has shown that the 30 missed milestones in 2014-15 (36% of all milestones) relate to projects that vary by size, location and complexity. We have concluded that the high number of missed milestones over a wide range of projects indicates that NR's project development and delivery weaknesses are systemic rather than the result of individual project failings or adverse circumstances. NR's own analysis and plan (see below) appears to acknowledge this by focusing on company-wide actions to improve processes, culture and capability rather than presenting individual recovery plans for each failing project.
- 1.5 Our concerns are not new and the formal investigation has been triggered by NR's failure to address them earlier. We first raised concerns about slipping or missed milestones with NR in July 2014 using routine communication channels, but following an unsatisfactory response we escalated the issues through formal letters. The first in November 2014. Similarly we have been discussing concerns (and indeed taking health and safety enforcement action locally) about NR's approach to risk assessment and safety by design since early 2014; and we agreed a set of actions for NR to take to improve its approach to securing interoperability authorisations in April 2014.
- 1.6 NR's response to our concerns has been slow, localised or inconsistent but was strengthened in January 2015 through the initiation of a review led by one of NR's non-executive directors who chaired a specially convened task force known as the Major Projects Delivery Committee (MDPC).

- 1.7 During the course of the investigation, NR has presented several iterations of its Enhancements Improvement Plan (EIP). The EIP has been produced under the auspices of the MDPC and is designed to draw together a range of actions that should address ORR's concerns.
- 1.8 As part of this investigation, we have checked that our concerns are being addressed by the EIP. We have concluded that, at the time of our assessment, NR's improvement plan was still at the development stage. It needed better integration of workstreams and had some omissions and underdeveloped actions, particularly in respect of our concerns around NR's authorisation submissions; its approach to improving 'safety by design'; and its ability to model and forecast train performance during and after delivery of major complex programmes involving timetable changes.
- 1.9 The wide-ranging and long-term actions in the improvement plan acknowledge and demonstrate the scale of the changes needed across the company. It shows how far NR's capability has drifted from what is required in CP5, and is another indicator that the weaknesses are systemic rather than isolated issues. Some actions in the plan require new or changed processes as well as the recruitment or development of suitably skilled and experienced staff. It will be a significant and long-term challenge for NR to embed the improvements into business-as-usual.
- 1.10 Following the conclusion of our meetings with NR on 19 June 2015, NR submitted an updated version of its EIP dated 10 July 2015. Although it is dated and version controlled, it does not appear to have clear executive-level ownership, or address all of our concerns.
- 1.11 The drafting and development of the EIP first started in November 2014 and has continued throughout this formal investigation. The lack of a sufficiently finalised plan as well as the absence of evidence that improvements are being delivered on the ground, suggests that NR is not doing everything reasonably practicable in all the relevant circumstances to plan, manage and deliver its enhancements programme. This also applies to its ability to finance its licensed activities.
- 1.12 In conclusion, NR's improvement plan has made significant progress over the last six months, supported by Board-level ownership, but, at the time of our investigation, it was not sufficiently finalised. The improvement plan appears to address the systemic weaknesses currently within NR. But it demands significant changes to NR's processes, systems, culture, capability and behaviours across many parts of the company. This will take time, extended by NR's slow response to our initial concerns. Until the benefits of these improvements are delivered, it is probable that further regulated milestones will be missed.

1.13 On the basis of our findings, we cannot be satisfied that NR is doing everything reasonably practicable until:

- the EIP is sufficiently finalised; and
- there is evidence of improvement following effective implementation of the finalised EIP

2. Introduction

Background

- 2.1 NR has committed to deliver approximately £13bn of infrastructure enhancements to the rail network in control period 5 (CP5). This continues the significant investment in CP4, but the position is more complex given the route-wide electrification upgrades that depend on new or cascaded rolling stock; the timetable improvements that are expected; and the significant Department for Transport (DfT) re-franchising programme that continues throughout CP5.
- 2.2 To manage and control project development and delivery, NR uses the Governance for Railway Investment Projects (GRIP) process. GRIP divides a project into eight stages, the full list of these can be found on NR's website with further information about the process.¹

Enhancements regulated outputs

- 2.3 In our PR13 final determination, we defined the regulated outputs for mature projects as scheme completion milestones. For the large volume of projects that were at an early development stage, we defined development milestones as regulated outputs, because it was not reasonable to hold NR to account for completion milestones for projects that were not sufficiently developed. We commonly refer to these regulated output milestones using NR's GRIP stage-gates, as set out below:
- GRIP 3 completion (single option development) – scheme development regulated output; and
 - GRIP 6 completion (infrastructure ready for use) – scheme delivery regulated output
- 2.4 These regulated outputs are set out in NR's CP5 enhancements delivery plan² and are subject to a regulatory change control process. We use this process to determine if a changed regulated output milestone will have a status of "missed" or "revised", by reviewing a NR proposal to change its CP5 enhancements delivery plan. We may determine that a GRIP 6 regulated output milestone is "missed", if the reason for the delay to the project was within NR's control. We conclude a GRIP 3 regulated output milestone is missed if the reason for the delays was within NR's control and NR

¹ Further information on the GRIP process can be found at NR's website:
<http://www.networkrail.co.uk/asp/4171.aspx>

² NR's CP5 Enhancements Delivery Plan is one of the CP5 Delivery Plan set of documents, which can be found at: <http://www.networkrail.co.uk/asp/4171.aspx>

submitted a change request within six months of the milestone date. All regulated output milestones in this report that are referred to as missed, use the above definition.

2.5 NR missed 16 of 44 (36%) GRIP 3 regulated outputs and 14 out of 40 (35%) GRIP 6 regulated outputs in 2014-15.

2.6 In addition to the number of missed regulated output milestones, we identified four related concerns regarding NR's management of enhancement projects, programmes and portfolios. These concerns came to light as we carried out our day-to-day regulatory duties and are described in chapter 4 of this document. They are:

- cost escalation during project development stages;
- weaknesses in complying with relevant legislation and standards, and the impact this has on NR's ability to achieve authorisations and safety by design;
- its approach to major complex infrastructure programmes; and
- its ability to manage the CP5 investment portfolio.

Enhancements Cost Adjustment Mechanism (ECAM)

2.7 We determine the efficient cost of the CP5 enhancements portfolio so that NR's funding is based on challenging but achievable expenditure profile. There is a regulatory pain/gain incentive mechanism around the enhancement portfolio so NR is incentivised to out-perform the overall funding provision. This allows it to manage risk across a wide portfolio to achieve efficiencies. For CP5 we had to do this in two steps. We completed the first step in our PR13 Final Determination, where we assessed the efficient cost of the portfolio based on the information in NR's Strategic Business Plan (SBP), submitted to us in January 2013. However, a considerable number of the CP5 enhancement projects were at an early stage of development in January 2013, often at GRIP stage 1 or 2, with an associated high level of uncertainty in what the funder required and NR's assumed cost estimates.

2.8 The second step is to assess if the costs are efficient again, when each project completes GRIP 3 (single option selection) and the estimate has a higher level of certainty. This process is called the Enhancement Cost Adjustment Mechanism (ECAM). It is during ECAM reviews that we identified our concerns regarding cost escalation during project development stages.

Terms of reference for the investigation

2.9 We wrote to NR on 31 March 2015, setting out our intention to investigate its overall planning, management and delivery of its enhancements programme. The aim of the investigation was to:

- identify whether there were systemic weaknesses relating to NR's overall planning, management and delivery of enhancements, and
- assess whether NR was doing everything reasonably practicable to achieve its regulated outputs (milestones).

2.10 We said the investigation would focus on NR's enhancements obligations in four main areas where we had raised concerns:

- project development (including estimating costs, assessing risks and ensuring safety by design);
- project delivery;
- managing major complex programmes (such as Great Western Route Modernisation); and
- management of the CP5 investment portfolio.

2.11 We have attached the complete terms of reference to this document as Annex B. These are also published on our website.

Consideration of issues

2.12 In order to assess whether NR is doing everything reasonably practicable in all the relevant circumstances to plan, manage and deliver its enhancements programme, including the ability of NR to finance its licensed activities, we consider in this report:

- the reasons for NR's failure to meet regulated targets;
- whether opportunities to improve were missed;
- whether the failure to meet regulated outputs was caused by systemic weaknesses within NR's control or by isolated, one-off circumstances;
- whether NR has sufficiently finalised an improvement plan that adequately addresses the problems;
- whether the plan clearly identifies the relevant workstreams and has specific actions with timescales for deliverables against each;

- whether the plan shows clear responsibilities for each workstream and who is accountable overall;
- whether the plan is clear on the intended benefits of each workstream so that progress can be tracked and managed
- whether the work streams in the plan are sufficiently resourced; and
- whether there is evidence that improvements in NR's ability to plan, manage and deliver its enhancements programme have already started to take effect.

Conduct of the investigation

2.13 We welcome the co-operation from NR, the industry and funders in providing a range of evidence and assisting us in carrying out our investigation. This includes correspondence, meetings and review information which form part of the evidence base.

2.14 In order to conduct our investigation we considered the following information:

- NR's CP5 Enhancements Delivery Plan;
- enhancements regulatory change control applications;
- information from regular ORR enhancement project review meetings;
- NR regular (four weekly) enhancements progress reports;
- NR's ECAM submissions;
- NR's enhancements improvement plan, supporting information and our engagement with NR to understand its enhancements improvement plan;
- Independent reporter review of NR's management of major complex programmes; and
- written submissions from train operators, NR's funders and other stakeholders.

Context of the investigation

2.15 In January 2015, NR initiated its own review of enhancements delivery, led by a NR non-executive director, Malcolm Brinded, who chairs the Major Projects Delivery Committee. This review aims to learn lessons and implement plans to improve NR's delivery of enhancements. This aims to conclude in September 2015, but may be extended beyond this date.

- 2.16 DfT has initiated four reviews related to NR. The first is the Colette Bowe review, looking into the planning and processes that informed CP5 and encompassing the three principal organisations (NR, DfT and ORR); the second is the DfT's Enhancements Review, looking at affordability and deliverability of CP5. The DfT terms of reference for these reviews state that the Bowe review will conclude "this summer", and the Enhancements review "should conclude" in July 2015. However, DfT accelerated this and the Secretary of State for Transport announced on 25 June 2015, that electrification of the Midland mainline and the Transpennine route between Leeds and Manchester would be paused.
- 2.17 The Secretary of State for Transport also announced that Sir Peter Hendy, NR's chairman, would be developing proposals for the autumn to set out a deliverable and affordable rail upgrade programme for CP5. The plan was for this review to be completed by the Autumn of 2015. The statement also confirmed that the Colette Bowe review would continue.
- 2.18 The fourth government review was announced in July 2015. The Shaw review will advise the Government on how it should approach the longer-term future shape and financing of Network Rail.
- 2.19 .Although these reviews have different purposes, they were all progressing concurrently during our investigation. We noted that this placed some resource pressures on NR during this period.

ORR Performance Investigation

- 2.20 Separate to this investigation, on 28 April 2015, we wrote to NR setting out our intention to formally investigate its delivery of regulated performance targets (PPM) in 2014-15. In summary, this investigation focused on NR's delivery of train performance metrics to Southern, Govia Thameslink Railway (GTR) (in reference to its Performance Strategy targets), and Scotland (in relation to its regulated performance targets) and whether there was evidence of any wider systemic issues relating to performance delivery.
- 2.21 This investigation concluded in July 2015. The report and associated papers are available on our website³.
- 2.22 A significant factor in the performance investigation, and whether NR was in breach of its licence was the weaknesses in timetabling that resulted in problems at London Bridge in January 2015. For this reason, this issue was not considered as a factor in whether NR was in breach on its enhancements activities. However, we expect the

³ ORR Website, <http://orr.gov.uk/what-and-how-we-regulate/regulation-of-network-rail/enforcement/enforcement-relating-to-operational-performance>

necessary improvements related to enhancement planning and delivery, particularly associated with timetable changes linked to major infrastructure programmes, to be addressed by NR and to be suitably integrated into its EIP.

3. Delivery of enhancements regulated outputs

- 3.1 This chapter reviews NR's delivery of its enhancements regulated outputs, defined as GRIP 3 or GRIP 6 milestones in the CP5 enhancements delivery plan. We have primarily based our findings in this chapter on NR's delivery of regulated output milestones in 2014-15, the first year of CP5. We have also considered if there are any indications that NR's performance in these areas has improved so far in 2015-16.
- 3.2 We review the number of regulated output milestones that NR has achieved or missed so far in CP5 and the length of delay caused by these missed regulated output milestones. We use this evidence to determine if the missed enhancements regulated outputs constitute a systemic issue or are related to isolated projects.
- 3.3 This chapter also considers if NR is doing everything reasonably practicable to deliver its enhancements regulated output milestones, by reviewing its response to the concerns we have raised regarding its management of enhancement projects. This is primarily a review of NR's enhancements improvement plan, which has been developed by the company to improve its management and delivery of the enhancements portfolio.
- 3.4 In the terms of reference for this investigation, we also included the following related areas of concern;
- project cost management;
 - capture of legislation and standards;
 - management of major complex programmes; and
 - management of CP5 investment portfolio.
- 3.5 The above four areas of concern are not regulated outputs, so are not explicitly reviewed in this chapter. However, these areas are key themes that have caused concern from a regulatory perspective. We have therefore reviewed these areas in the chapter 4, including consideration of whether NR's enhancement improvement plan addresses these concerns.

Review of regulated outputs delivery

GRIP 3 regulated output milestones delivery

3.6 The Enhancements Delivery Plan included 44 GRIP 3 regulated output milestones to be completed in 2014-15, the first year of CP5. Table 1 outlines the number of regulated output milestones that were completed on-time, revised (as agreed using the regulatory change control process), or missed.

Table 1: Summary of GRIP 3 regulated output milestones delivery in 2014-15

Milestone status	Number of regulated output milestones	% of total
Completed	16	36%
Missed	16	36%
Revised	12	27%
Total	44	100%

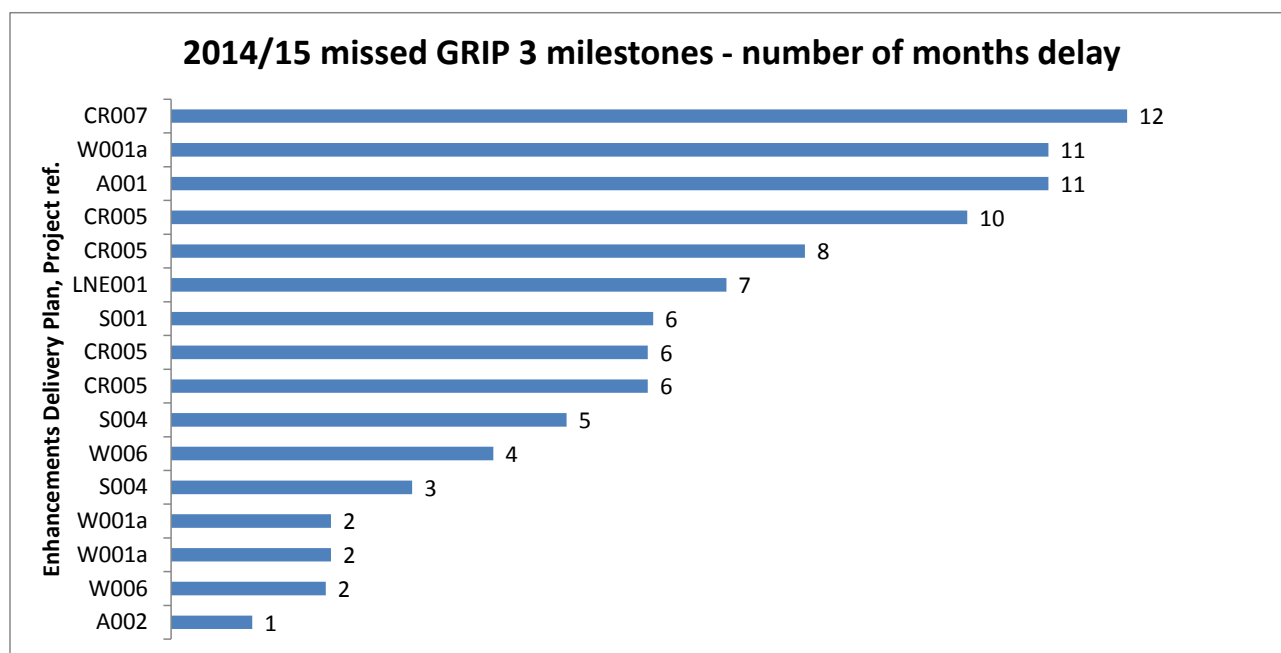
3.7 NR has completed over a third of the GRIP 3 regulated output milestones planned in 2014-15. This means several projects have now successfully moved to the delivery phase. These include East West Rail Phase 1, Redhill additional platform and Kettering to Corby capacity improvements.

3.8 Almost a third of the GRIP 3 regulated output milestones have been revised, as approved using the regulatory change control process. This reflects the number of schemes that were at an early stage of development at the start of the control period and have subsequently been subject to incremental changes in funder requirements or changes to a more efficient approach.

3.9 The remaining 36% of regulated output milestones were missed by NR in 2014-15.

3.10 The average (mean) delay associated with each missed GRIP 3 regulated output milestone is 6 months. The range in delays, associated with each missed milestone, runs from one to twelve months, as illustrated in Figure 1.

Figure 1: Delay associated with missed GRIP 3 regulated output milestones



3.11 NR’s delivery of GRIP 3 regulated output milestones has not improved in the first quarter of 2015-16. NR missed GRIP 3 regulated output milestones for two electrification projects in April 2015: for Thames Valley Branch Lines and South Wales Main Line. It is also forecasting to miss GRIP 3 regulated output milestones for Waterloo and East West Rail Phase 2, which were originally planned for June and November 2015 respectively.

3.12 The complete list of missed GRIP 3 regulated output milestones in 2014-15 is set out in the table in Annex C.

3.13 Where NR fails to deliver a GRIP 3 regulated output milestone on-time, there is not often a direct impact on train operators, passengers or freight customers. However, high numbers of missed GRIP 3 regulated output milestones are an indicator of stress in the investment portfolio. Delays in project development can increase delivery risk by compressing the available time for construction activities. A delay in development of a project could also introduce other risks to a project’s outputs, such as timescales for securing statutory planning consents.

GRIP 6 milestones

3.14 The Enhancements Delivery Plan included 40 GRIP 6 regulated output milestones to be completed in 2014-15, the first year of CP5. The below table shows around a third of these milestones were missed.

Table 2: Summary of GRIP 6 regulated output milestones delivery in 2014/15

Milestone status	Number of regulated output milestones	% of total
Completed	25	63%
Missed	14	35%
Revised	1	3%
Total	40	100%

3.15 Some of the successful projects completed include:

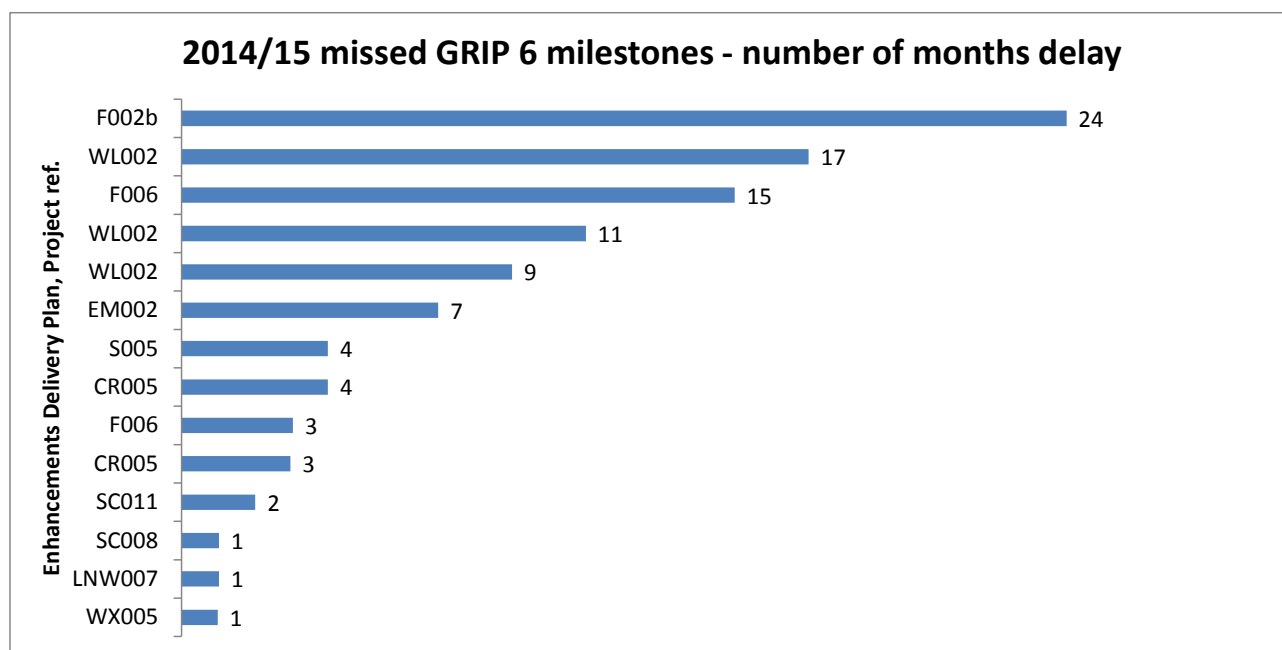
- Haymarket station capacity project (Edinburgh to Glasgow Improvements Programme);
- Reading station area redevelopment; and
- Capacity relief to the East Coast Main Line (ECML) (GN/GE Joint Line).

3.16 The average delay associated with missed GRIP 6 regulated output milestones is just over 7 months, at 222 days. This is slightly skewed by a missed milestone for the Access for All fund, which has delayed the milestone date for completion of a tranche of stations by two years in the CP5 enhancements delivery plan.

3.17 Figure 2 illustrates the delay associated with each missed GRIP 6 regulated output milestone. This shows a delay of over six months for six missed GRIP 6 regulated output milestones.

3.18 Three of the GRIP 6 regulated output milestones that have been delayed by over six months are associated with one project, Barry to Cardiff Queen Street corridor, which includes station enhancements and capacity improvements on this route. The other three milestones that have caused a delay of six months or over are for stations, freight and line-speed improvement projects across different routes.

Figure 2: Delay associated with GRIP 6 regulated output milestones



3.19 The complete list of missed 2014-15 GRIP 6 regulated output milestones can be seen in Annex C: Missed enhancements regulated outputs.

3.20 The impact on NR's customers of it missing these GRIP 6 regulated output milestones varies depending on the project. Some examples are set out below.

3.21 The delay to delivery of North West Electrification Phase 2 resulted in a delay to the introduction of electric trains on the Liverpool to Earlestown line. A further knock-on effect was that diesel trains could therefore not be released to be used on other routes, as originally planned.

3.22 Delays to the Rutherglen and Coatbridge electrification project (Whifflet line), resulted in the late introduction of the new timetable, with its changed origins and destinations, but otherwise there was no direct impact on passengers. Additional diesel trains which were to be cascaded to add resilience to the services for the Ryder Cup had to be retained for the Rutherglen line. This meant ScotRail had to re-plan its services, so although there was no direct impact on passengers, it did impact on ScotRail's business.

3.23 The delayed Access-for-All project at New Cross Gate (to introduce a step free route from station entrance to platform) has a local impact, at one station, but has affected passengers who would benefit from the improved access at the station.

3.24 NR's delivery of GRIP 6 regulated output milestones in the first quarter of 2015-16 has slightly improved. NR has missed one of the six GRIP 6 milestones in the first three months of the year and is forecasting to miss one milestone in January 2016.

Analysis

Location, type and scale of project

3.25 We have categorised the location of the missed regulated output milestones, using the operating routes to which projects are allocated in NR's CP5 enhancements delivery plan. We have also reviewed the types of project (electrification, station upgrades etc.) that have missed regulated output milestones in 2014-15.

GRIP 3 regulated output milestones

3.26 Categorising the missed GRIP 3 regulated output milestones by operating route (as allocated in the CP5 enhancements delivery plan), almost 70% were either in the Western route or allocated as Cross-Route projects. This is because the following two major programmes account for around two thirds of the missed GRIP 3 milestones in CP5:

- Western route: Great Western Route Modernisation (GWRM); and
- Cross-route: Northern of England Programme, London North West (NoE LNW)

3.27 The remaining third of missed GRIP 3 regulated output milestones are split between three routes – Anglia, London North East and Sussex.

3.28 This dominance of GRIP 3 regulated output missed milestones for two major programmes is a reflection of the extent of development work ongoing for these projects within 2014-15. The complexity of these programmes has sometimes not been properly understood from the outset, leading to delays when compared with NR's original programme. We consider NR should be capable of understanding the level of complexity in programmes and putting in place appropriate management controls so that realistic and achievable GRIP 3 regulated output milestones are reflected in the delivery plan. When changes are necessary these should be identifiable more than six months prior to the milestone date and the programme should be revised accordingly– as provided for through the regulatory change control process.

3.29 The seven missed GRIP 3 regulated output milestones with a delay of over six months are spread over a range of programmes and NR operating routes. Two of these are for North of England Programme (LNW), with the other delays of over six months spread over Anglia, Western, Sussex and London North East routes.

3.30 The missed GRIP 3 regulated output milestones are across a range of project types. Electrification projects account for half of the missed milestones, but again this reflects the delays in development of GWRM and NoE LNW programmes.

3.31 Although two major programmes account for around two-thirds of the missed GRIP 3 regulated output milestones, the remaining third are for smaller discrete projects such as power supply upgrades and junction capacity improvements.

GRIP 6 regulated output milestones

3.32 An analysis of the missed GRIP 6 regulated output milestones in 2014-15 by NR route and project type, shows no clear pattern with no noticeable trends.

3.33 The two routes (as allocated in the CP5 enhancements delivery plan) with the most missed GRIP 6 regulated milestones are i) Wales and ii) Ring-fenced funds (England & Wales). As the ring-fenced funds category is actually network-wide rather than based on a geographical route, this makes Wales the route with the highest number of missed GRIP 6 regulated output milestones, with three (21%) of the missed regulated output milestones. These are all linked to one project, Barry to Cardiff Queen Street Corridor where the failure to complete at least two of the milestones on time has been linked to the same issue.

3.34 A comparison of different missed GRIP 6 regulated output milestones across different project types, again shows no particular trends. Capacity projects account for the highest number of missed regulated output milestones (four), but there is no clear causal link between these projects.

3.35 The scale of projects with missed milestones varies from small projects at one location (e.g. Motherwell Area Signalling, Phase 1) up to major programmes (e.g. NoEP LNW).

Reasons for missed regulated output milestones

3.36 The reasons given by NR for missing regulated output milestones are varied and include the following:

- underestimating the time required to develop a project;
- shortages in availability of critical resources (e.g. signalling designers);
- late identification of detailed requirements when handing asset over to operator;
- land and consents arising issues near project completion;
- unknown asset condition, resulting in late increases to scope and replanning;
- productivity is lower than planned;
- safety issues arising during construction;

- scarce resources, sometimes redirected to other projects; and
- inadequate and late technical files for authorisation under interoperability regulations.

3.37 Although the above list appears quite diverse, we consider there is a link between most of these issues and weaknesses in project development and planning. We have set out our reasoning, with some examples below.

3.38 The development of the London Victoria Station capacity improvements (missed GRIP 3 milestone) is an example where the original timescales were not adequate to complete the development work. The delay was to allow better asset information to be gained and to complete a detailed assessment of the retail compensation based on a better understanding of individual terms and conditions of leases at the station.

3.39 Phase 1 of the Oxford Corridor Capacity Improvements is an example of a project that was delayed due to a lack of signalling and NR engineering resources. This led to a GRIP 3 regulated output milestone being missed twice, first in October 2014, then February 2015.

3.40 NR missed its GRIP 6 regulated output milestone for the Cardiff Queen Street entrance enhancement due to a number of issues, including delays associated with land and consents and meeting additional late requirements for handover to the train operator. These delays could have been avoided if NR identified realistic timescales, based on its experience of projects requiring land purchase and consents.

3.41 NR's knowledge of asset condition has caused delays to GRIP 6 milestones for both St Pancras to Sheffield linespeed improvements and Ipswich Yard projects. NR assumed the asset was in better condition than it actually was, resulting in track upgrades not achieving the expected speed improvements (St Pancras to Sheffield) and severe signalling wire degradation on-site causing significantly increased scope and therefore re-planning of possessions (Ipswich Yard).

NR identified issues

3.42 NR's enhancements improvement plan, discussed later in this chapter, attempts to group the common reasons for missing regulated output milestones into themes that need addressing. NR has recognised issues across all areas of management, planning and delivery of enhancements that require improvement. Its plan is split into seven key themes (from project definition to delivery capability) covering the whole project, programme and portfolio lifecycle, demonstrating the range of issues that NR considers is affecting its delivery of regulated outputs for enhancements.

3.43 Examples of some of the themes identified by NR include:

- poor setting of project requirements ('front-end definition') with inadequate change control against a baseline;
- inadequate governance and challenge of projects as they pass through development gateways;
- accountabilities of client, sponsor and deliverer are blurred, as projects move through their lifecycle;
- cost estimation and risk functions are not adequately resourced or governed through the early project lifecycle; and
- the complexity of land and consents issues and the time required to deal with them is underestimated.

NR's Response to our concerns

Development of NR's enhancements improvement plan

3.44 In July 2014 we escalated several concerns regarding NR's planning and delivery of the enhancements portfolio. In October 2014, we asked NR to develop an improvement plan for its management of the enhancements portfolio and we sent letters to NR in November 2014 reflecting concerns that its senior management was not sufficiently engaged.

3.45 NR established the Major Projects Delivery Committee (MPDC) in January 2015. The purpose of this group is to review NR's approach to planning, managing and delivering enhancements. Its remit includes all enhancements, with the aim of improving NR's capability to plan and deliver enhancements effectively and efficiently.

3.46 However, although the MPDC strengthened NR's approach, progress with development of an improvement plan was still unsatisfactory resulting in us writing to NR on 31 March 2015 initiating this investigation.

3.47 We agreed with NR that one improvement plan should cover the issues raised by us in this investigation and by NR via the MPDC. It was quickly evident from our meetings with NR that the MPDC workstreams did not sufficiently address the breadth of ORR's concerns and further development was required. For example, we could not see where our concerns regarding NR's management of the portfolio were addressed in the plan, or where improvements to the planning and delivery of major timetable changes (involving route upgrades) were addressed .

3.48 NR's draft enhancements improvement plan reviewed for this evidence pack was submitted to us on 10 June 2015, with additional information provided on 19 June 2015.

3.49 The slow progress since October 2014 for NR to develop the improvement plan reduces our confidence that NR will finalise and implement it effectively. However, we recognise the management resource demands placed on NR, from DfT and NR's own reviews, is one of the contributory factors to the lack of progress with finalising and implementing the improvement plan.

Status of the plan

3.50 The enhancement improvement plan, submitted to us on 10 June 2015, still had draft status. Additional information submitted on 19 June 2015 included timescales for finalising the plan.

3.51 NR is expecting to issue a final version of the enhancements improvement plan by the end of October.

3.52 The draft plan, described above, was submitted approximately eight months after we first requested an improvement plan. We recognise that there needs to be a thorough approach to developing plan of this scale and importance, and that it needs to evolve through continuous review and challenge to ensure benefits will be delivered. However, the time elapsed since we raised the need for an improvement plan, indicates that the development of the plan should be further advanced than it is.

Structure of the plan

3.53 NR's enhancement improvement plan, submitted on 10 June 2015, was a draft that included overview documents and several appendices providing further information on workstreams that make up the plan. The plan was initially split into nine workstreams, aligned with priorities identified by the MPDC, as listed below:

- project front-end definition;
- project sponsorship and transition management;
- cost estimation, risk and whole life costs;
- project governance (stage gate assurance);
- scope and funding approval process;
- major project execution and monitoring;
- project portfolio monitoring;
- project portfolio delivery capability; and
- ensuring safety by design.

- 3.54 NR allocated the concerns we identified in the terms of reference for this investigation, against the above workstreams in its improvement plan.
- 3.55 Some of the workstreams where NR has assigned our concerns are well aligned. For example, NR allocated our concerns regarding cost escalation against its *project front-end definition* and *cost estimation, risk and whole life costs* workstreams. If NR successfully delivers and implements these areas of the improvement plan, it will improve its early cost estimates.
- 3.56 NR did not explicitly include our concerns regarding portfolio management of the CP5 investment portfolio and performance and timetable modelling for major complex programmes. These are discussed further in the following chapter of this document, which sets out our related concerns.
- 3.57 NR included a workstream related to our concerns regarding capture of current standards and legislation in an additional workstream called *ensuring safety by design* rather than by fully integrating into other parts of the plan. After we raised this issue with NR, it also assigned this concern to *project front-end definition*.
- 3.58 Another example where the plan is not fully integrated is *project sponsorship*. Here two different workstreams included plans to strengthen the sponsor's role, but it is not clear how these two workstreams are aligned.
- 3.59 Each workstream in NR's enhancements improvement plan includes a set of key milestones and deliverables. There are timescales included for 85% of the deliverables, with others to be confirmed; indicating some further development is required. Some further deliverables also need to be developed to give us confidence that the planned benefits will be delivered.
- 3.60 NR has outlined the intended benefits of each workstream in the enhancements improvement plan. For example, the section on *project front end definition* states "we [NR] anticipate that by strengthening activities at this stage (as described above) we will contribute to better schedule adherence throughout the lifecycle". Also, NR stated it uses an enterprise risk model to manage the top issues and risks to delivery of enhancement projects. This process has identified the top two risks to the enhancements portfolio as: "the required key resources may not be available to support the delivery"; and "the market may not have the capability and/or capacity to enable the delivery". The action plans for the *project portfolio delivery capability*, therefore focus on these two issues.
- 3.61 Despite statements that the intended benefits will be delivered by workstreams in the plan, we have not yet seen a clear analysis that shows the 'line of sight' between root causes and all actions in the improvement plan.

Governance and accountabilities

3.62 NR has set out the planned governance arrangements for the enhancements improvement plan, including:

- establishing a Project Management Office (PMO) to establish the programme controls and reporting required to drive the improvement plan forward;
- using the MPDC to provide NR oversight of the plan. When MPDC stops (in October) the National Investment Portfolio Strategic Review Meeting (NIPSRM) will then take on this role;
- making an NR executive accountable lead for each workstream. There will be three different models to track delivery of IP, Group Strategy and Safety by Design workstreams; and,
- reporting progress to ORR four-weekly with quarterly meetings.

3.63 NR has documented its planned governance arrangements for managing and monitoring delivery of the improvement plan. These planned arrangements are adequate, but will require ongoing review once delivery of the plan has commenced.

Resources

3.64 The resources to deliver the NR improvement plan vary between the workstreams.

3.65 NR has provided evidence that it has resources in place to progress workstreams such as cost estimation and project portfolio delivery capability, where workstreams are already underway and there are clear dates for deliverables. However, NR's evidence regarding *project front end definition* and *project sponsorship and transition management* does not yet give us confidence that resources are allocated to progress these workstreams while other reviews of the enhancements portfolio are ongoing.

Conclusions

3.66 NR has missed 36% of GRIP 3 and 35% of GRIP 6 regulated output milestones in 2014-15. These missed milestones were caused by issues within NR's control, as regulated output milestones moved for reasons outside NR's control have a status of "revised", as approved via the regulatory change control process. The average delay associated with each missed regulated output milestone, from the original to re-planned date, is over six months. NR is also forecasting to miss further regulated output milestones in 2015-16.

- 3.67 The number of missed regulated output milestones and length of the delays does not give NR's stakeholders (funders and customers) the confidence they need to plan their businesses effectively.
- 3.68 The missed regulated outputs (GRIP 3 and 6 milestones) have affected projects on ten of the fourteen operating route categories (as defined in the enhancements delivery plan⁴). Also, the missed regulated outputs are not limited to one type of project, for example affecting electrification, station upgrades and capacity projects of different scales – from discrete projects at one location, to major programmes delivering enhancements across several routes. This spread of missed milestones, for projects of varying type and scale, across different locations indicates the failure to deliver CP5 enhancements regulated outputs is systemic and not due to isolated events.
- 3.69 We have identified four wide ranging areas of concern that contribute to NR's delivery of its regulated outputs for enhancements, as described further in Chapter 4. These concerns highlight issues with NR's overall management of the enhancements portfolio, rather than individual projects. Our review of the missed milestones also identified several individual reasons for non-delivery. Also, NR's enhancements improvement plan highlights further issues affecting delivery of enhancements regulated outputs. The number of different reasons for missed regulated output milestones leads us to conclude that NR's project development and delivery weaknesses are systemic, rather than the result of individual project failings or adverse circumstances.
- 3.70 NR submitted a draft enhancements improvement plan on 10 June 2015, around eight months after we first raised concerns regarding slow progress with development of this plan. The plan is not sufficiently developed, given the length of time NR has had since we raised concerns. The draft plan has omissions, duplication between workstreams, requires further integration and it is not clear how the actions link to the issues. For some workstreams, further development is required before it will be clear how the improvements will be embedded into NR's business-as-usual processes.
- 3.71 The plan defines executive level accountability for each workstream and a governance structure is being set up. However, we have not seen evidence to demonstrate that all the workstreams are sufficiently resourced.
- 3.72 We note that some workstreams demand complex business change and some key management posts and organisational changes have already been made, but the slow progress to date and the further development still required lead us to conclude that NR is not currently doing everything reasonably practicable to achieve its

⁴ This is more than NR's standard ten operating routes, as it includes four additional categories for projects: cross-route projects; electric spine; England & Wales funds; and, Scotland funds.

regulated outputs. In order to do so it needs to ensure that the enhancements improvement plan is sufficiently finalised and there is evidence of improvement following effective implementation of elements of the plan.

4. Related areas of concern

4.1 We identified four related areas of concern, via our regular monitoring and regulatory activity that contributed to the number of enhancements regulated outputs NR missed in 2014-15.

Cost escalation during project development

4.2 Those projects submitted for ECAM assessments have exhibited a trend of increased costs compared to early project estimates (reported at GRIP 1 or 2). Some examples of increases to project cost from SBP to NR's ECAM submission are identified in the below table.

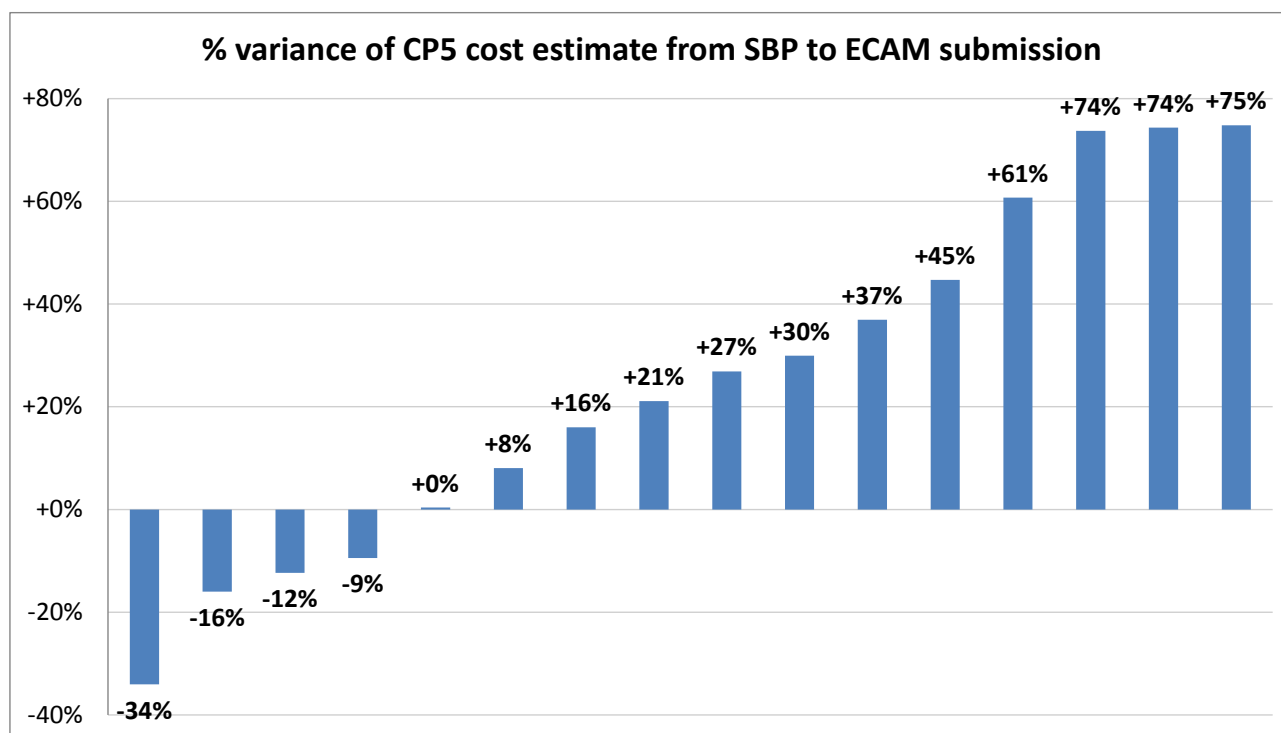
Table 3: Percentage increases in CP5 project cost estimates from Strategic Business Plan (SBP) to ECAM submission

Project	CP5 % cost increase
Scotland rolling programme of electrification	+21%
Redhill additional platform	+74%
Midland main line electrification	+74%
Electric spine: Kettering to Corby capacity	+113%

4.3 Some of the estimates we receive with ECAM submissions have not been consistent with the SBP costing. For example, one SBP project has been split into different phases for the ECAM submissions. However, we have identified sixteen ECAM estimates where it was possible to compare the estimate to the SBP.

4.4 Although there is a significant increase overall, this hasn't been the case for every project. Figure 3 illustrates the percentage variance in the submitted cost estimates (for the CP5 element of works) from SBP to ECAM, for each of the sixteen projects. This shows that there have been some cost estimates which have decreased. However, more of the higher value projects have increased and there is therefore an overall increase of 43% for the total value of these sixteen projects.

Figure 3: Variance of cost estimate from SBP to ECAM for 16 projects



4.5 There has also been evidence of cost estimate increases for some projects not captured by ECAM. For example, the cost estimates of several Strategic Freight Network (SFN) schemes funded via a ring-fenced fund in our final determination have increased.

4.6 Rail Freight Group also identified that costs estimates for SFN have increased in CP5, stating “*There have been clear issues with the most recent early cost estimates which informed the CP5 programme, most notably on the F2N (Felixstowe to Nuneaton) projects... .. we did not see similar problems in early cost estimation on the schemes completed in CP4.*”

Table 4: Percentage increases in SFN projects, not funded via ECAM

Project	% cost increase
Southampton to West Coast Freight Train Lengthening	+28%
Ipswich Yard	+52%
Peak Forest to London	+54%
Doncaster Water Orton	+444%

Project	% cost increase
Yorkshire Terminals Gauge Clearance	+79%
F2N2: Felixstowe branch	+182%
F2N2: Haughley Junction	+155%

4.7 Cost escalation from early stage estimates has an impact on the decisions of NR's funders. For a funder to make planning decisions informed by a business case, they need to be confident in NR's estimating at this stage.

Analysis

4.8 A number of different factors have contributed to the increase in cost estimates from early stages of project development. Not all of these factors are within NR's control but good project management should mitigate against such significant cost escalation across the portfolio.

4.9 We have identified an increase in funder requirements for some projects, during development, which has increased the total estimate for the project. Although NR isn't responsible for specifying the output requirements for most enhancement projects, it should have governance processes in place to identify the impact of any changes or increases to the requirements. One example is the Kettering to Corby capacity project, where the original base-case output requirements were increased by NR with DfT agreement, to allow longer term freight growth and to allow the timetable to cope with future possible upgrades to connecting routes. These decisions may well be the correct decisions for an isolated project where funding is unconstrained, but were made without NR presenting options balancing this decision against other competing funding demands across the portfolio.

4.10 We have observed several increases in scope compared to assumptions made early in the project development. Some of these increases in scope were due to poor asset condition information, resulting in additional works required to meet the outputs. An example is the Redhill platform project, where the scope increased significantly due to a poor understanding of the asset condition and the cost impact of altering the existing signalling equipment to achieve the project requirements.

4.11 There will always be unknowns in the scope of the project at an early stage of development. A contingency (or risk) allocation is therefore included in the project estimate to account for this. NR has guidance on appropriate risk allocations that should be included at early stages of project development, so that modelled risk that is quantified at GRIP3 should normally fall within a range. However we have seen

examples where this guidance has not been followed. An example is the Derby remodelling project, where the level of contingency at GRIP 1 was under 30% of the point estimate (the estimate value excluding contingency and escalation), when it should typically be around 60% for a project with such complexity.

4.12 NR has completed an analysis of the reasons for increases to costs for nine major projects. The results of this analysis are summarised in 5. The table shows that NR's lack of recent electrification experience is the primary reason for increases in electrification estimates. This suggests that improvements in NR's estimating processes alone cannot resolve the issues regarding cost escalation.

Table 5: Reasons for electrification projects cost increases

Reason	% contribution to cost increase
Low level of project maturity – maturity of estimates	9%
Low level of project maturity – funder requirements	7%
Lack of recent electrification experience	52%
Changes to engineering scope	18%
Deliverability constraints	3%
Increased market rates	6%
Other	4%

4.13 Recent ECAM submissions and SFN estimates suggest NR has not resolved cost escalation issues to date. Its improvement plan is expected to result in more robust estimates to inform the next periodic review process.

4.14 NR has recognised issues with cost escalation from early estimates to ECAM submission and has completed reviews to identify the reasons. These reasons include inconsistent outputs specified in the SBP, a lack of accountability and no integrated service across NR for estimating. These are consistent with the issues we have identified. This analysis has provided the rationale for NR's improvement plans in this area.

4.15 NR's enhancements improvement plan includes a specific *cost estimation, risk and whole life costs* workstream. The *project front end definition* section of the plan also

considers improvements to early stage estimates. We are satisfied from the evidence presented that NR has identified the reasons for poor cost estimation and developed plans to mitigate these issues for future cost estimates.

- 4.16 NR's plan to improve cost estimation included evidence that the issues with cost estimates for the SBP in 2013 have been considered. This was used to diagnose the reasons for the overall trend for cost increases demonstrated in ECAM submissions.
- 4.17 We enquired if NR has considered issues with cost estimates outside the ECAM process, e.g. for ring-fenced funds. NR stated it had not yet completed this analysis but concentrated on the projects reviewed via ECAM as this presented the most significant issue.
- 4.18 NR intends to implement new processes and "up-skill" the existing community of estimators within two years. NR intends to increase the level of the in-house estimating team headcount from 25 to 60. These plans are ambitious but achievable if the necessary senior commitment is provided.
- 4.19 We have some concerns about the deliverability of NR's plans to improve its estimating processes. Implementation of estimating improvements has been slow in the past, evidenced by the ECAM process where our requirements for each project to justify its costs against benchmarks appear to place an additional burden on projects. This requirement should be "business-as-usual" and part of NR's internal assurance process. There is also a clear link from this workstream to *project front end definition* where we have significant concerns regarding deliverability, as discussed earlier.
- 4.20 This section of the plan should deliver improvements in processes and enhance the rigour of estimating. We still consider some additional actions are required to make sure these processes are embedded and applied to all projects.

Conclusions

- 4.21 There have been increases in a significant number of NR's project cost estimates, from early stage development to NR's ECAM submission following completion of GRIP 3. This has affected a wide range of projects, from those in one single location to large, route wide electrification schemes. We have also seen this issue affecting some projects not subject to ECAM, such as the SFN fund.
- 4.22 This has created a lack of confidence in NR's cost forecasting at an early stage. This will be a significant concern if this hasn't improved for the next periodic review. NR has recognised this and completed analysis to inform its improvement plan.
- 4.23 There are a variety of different reasons for the increases in project cost estimates. The vast majority of these are within NR's control. NR has conducted a review of the causes. For example, for electrification projects it has identified the major contributor

to increases in these estimates as a lack of recent electrification experience (52% of the cost increase). Also significant were changes in engineering scope (18% of the cost increase). As a result of this analysis, NR's estimating team has constructed an improvement plan focussed on these issues.

4.24 Until we see evidence that the improvement plan recommendations have been successfully implemented and embedded within NR, we will lack confidence that its cost forecasting will be robust for upcoming CP5 projects. This will not only require the actions to be delivered directly by the estimating team, but other cross-cutting actions, such as improving the pre-GRIP process, improving its sponsorship function and the governance around funder requirements.

Legislation, standards and safety by design

4.25 The evidence for our concern about projects' compliance with legislation are drawn from two areas of routine safety regulatory activity:

- supervision/inspection of NR's safety management arrangements for making technical and operational changes to its infrastructure; and
- statutory authorisation of new or upgraded infrastructure under interoperability legislation.

4.26 In general terms, we have identified inconsistencies or weaknesses in NR's approach to addressing legal compliance mainly at the project development stage where requirements capture is poor but also throughout the project lifecycle, which can lead to compliance issues during later stages of project delivery (and project authorisation when applicable).

Analysis

Risk Assessment and Safety by Design⁵

4.27 Over the past three years, ORR's railway safety inspectors have carried out a range of proactive inspection and enforcement activity on NR's approach to risk assessment and safety by design.

4.28 This activity has identified some good practice within specific projects and their client routes. Equally, where we have taken enforcement action (such as by issuing improvement notices) the NR response to the specific issue has often been satisfactory. However, there is inconsistency across routes/projects and some opportunities to turn local lessons from enforcement into national improvements have been missed.

⁵ NR uses the term "Prevention Through Engineering And Design",

4.29 NR's own internal review and audit activity has identified many of the same issues and actions (some of which are included in the EIP) have been developed to address some of them. During our investigation we have pressed NR to demonstrate that these plans will have clear executive ownership, will be rolled out across the business and will be integrated into the other improvement workstreams that this investigation has prompted. NR has accepted that this must be done, but has also acknowledged that its plans will not be fully developed in all these aspects for some time.

4.30 The evidence we have of weakness in project development and delivery includes the issues below:

- ORR's 2013-14 report into safety-by-design sets out common problems (as well as some examples of good practice) over a widespread "geography" based on a sample of 10 major projects. The current investigation has shown that NR has identified many of the same weaknesses and is beginning to put actions in place that it believes will address them in the long-term.
- Improvement notices were served in 2013 on Great Western projects (Swindon Area Re-signalling and Reading Elevated Railway) because NR failed to carry out sufficient risk assessments. NR has complied with the notices, which were local in scope, and has begun to develop a plan to address the issues at a national level.
- There were significant concerns about NR's understanding and delivery of Construction Design and Management (CDM) regulations client and co-ordinator roles (corroborated by NR internal study done by Bovis Lend Lease) which have identified non-compliances with the duty to ensure projects have arrangements in place to manage health and safety. As part of this investigation, NR has explained an outline of its strategy to enable full compliance with CDM duties in response to updated CDM regulations which came into force in 2015. The actions we have seen on the ground remain short of expectations, and it is concerning that NR is responding to regulations after they come into force rather than making the necessary changes in anticipation of new legal duties and requirements.
- Corporately, NR has been slow to amend its ROGS⁶ safety management arrangements, to take into account new European legislation on risk assessment (the Common Safety Method on risk evaluation and

⁶ S.I.2006/599 The Railways and Other Guided Transport Systems (Safety) Regulations 2006 (as amended).

assessment⁷) and embed the requirements contained in Technical Specifications for Interoperability (TSIs).

- Its internal approvals panel, Network Rail Assurance Panel (NRAP), has been a cause for concern following a very critical internal review. During this investigation, NR has outlined plans to better embed understanding and application of the Common Safety Method on risk assessment and evaluation (CSM REA) across the business alongside its strategy for improving CDM compliance. While we welcome the fact that NR is putting some reasonable actions in place, we are concerned that this is also being done after legislation has come into force rather than in anticipation of it.
- NR was unable to secure timely interoperability authorisation for NW electrification phase 2 partly because risk assessment weaknesses meant hazards had not been closed during the design and build phases.

Identifying legislation and standards

4.31 The authorisation process under interoperability legislation has exposed significant weaknesses in NR's project management delivery procedures and processes. This has given us cause for concern in a number of areas.

4.32 Adoption and assimilation of Technical Specifications for Interoperability (TSIs) in Network Rail is in its infancy despite published TSIs applying to the network for upwards of 10 years. Initial work to compare the Infrastructure TSI section on track with NR track standards has only recently been completed by NR and RSSB.

4.33 In some cases, ORR has conducted post authorisation "lessons learned" exercises. These highlight that most projects rely on NR company standards and existing designs because of an erroneous yet strongly held belief that following these often outdated standards will allow projects to reliably meet the requirements of current applicable legislation.

Compliance with relevant statutory provisions

4.34 Projects are still not identifying relevant statutory provisions (RSPs) at an early enough stage in the development process to ensure that the requirements are all captured and incorporated into designs. An exercise was conducted by Trans Pennine Electrification in late 2014 to identify the relevant RSPs for that project. NR has not taken the opportunity to ensure this successful approach has been briefed out and applied to other projects. There is no central guidance on this topic and it is

⁷ Commission Implementing Regulation (EU) No 402/2013 of 30 April 2013 on the common safety method for risk evaluation and assessment and repealing Regulation (EC) No 352/2009

not NRAP's role to give such advice. Furthermore, NRAP does not have the capability to do this.

4.35 It is unclear if or when NR's Business Critical Rules programme is going to consider TSIs. The timetable for embedding TSIs into NR business processes and updating its company standards regime accordingly is unknown. NR has undertaken to put a plan in place for doing this by December.

Conformance with NR's own safety management system

4.36 Recent reviews identified deficiencies in NR's (ROGS) Safety Authorisation, which sets out its safety management system. Section 4.6 covering engineering change and adherence to engineering standards had not been updated to recognise current legislation.

4.37 NRAP was specifically targeted as an area requiring improvement in the ORR - Group Strategy Interoperability Improvement Plan in April 2014. NRAP is beginning to play a pivotal role in schemes, both in terms of providing advice and rigour to decisions made by projects, and by endorsement of submissions on behalf of NR. Improvements have included recent revision of the NRL/2RSE/100/xx series of process standards, increasing the competence of the panel members and development of project categorisation and authorisation strategy documents. However, we are concerned that this is also being done after legislation has come into force rather than in anticipation of it.

4.38 Projects are also having difficulty providing assurance that residual risks are properly controlled and have been discharged to the relevant parties for onward management.

4.39 The next steps for NRAP include NR briefing the process standards changes to over 1000 sponsors and 700 other project staff. There is a risk that, until knowledge and understanding of the regulatory framework increases in NR, especially for those involved in requirements capture and scoping at the very early GRIP stages NRAP will continue to be a decision making body. NRAP will be making decisions or attempting to correct wrong decisions made at earlier stages of development about project scope and application of interoperability legislation rather than being a peer review endorsing body.

Planning for authorisation

4.40 NR's Investment Projects (IP) directorate is not ensuring that there is enough time within the project programme for the compilation of the technical file and its subsequent assessment by ORR.

4.41 ORR engages with projects prior to authorisation and as a result we are offered substantially complete (draft) technical files to review. It is clear, from NR responses

to our reviews of draft submissions, that IP tries to address our concerns but does not have the experience or knowledge to identify the problems itself. When technical files are offered to ORR for us to assess for authorisation we are still identifying large quantities of errors, omissions and inconsistencies. We have refused submissions and the authorisation process usually becomes iterative, supported by detailed involvement of ORR engineers to check NR's work. Our authorisation role should be to undertake a process check with sampling of evidence where appropriate. But the weaknesses in NR's approach mean it is not capable of achieving authorisations without our detailed input.

4.42 At the end of the process, many non-compliance issues have to be dealt with through conditions or limitations on the authorisation. The provisions in the Railways (Interoperability) Regulations, as amended (RIR2011) were designed to be used by exception, but NR's habitually uses them to ensure projects are authorised albeit with a long list of non-compliances.

4.43 As noted above, the introduction of new infrastructure is often linked to significant timetable changes and vehicle cascades with challenging timescales. This results in an industry-wide risk (e.g. for emergency revisions to timetables, rolling stock planning, train crew diagramming, signalling and electrical control duties etc) if projects are not brought into service on time. Delays in the project erode the time available between engineering completion and authorisation.

4.44 ORR has however also engaged with projects which will deliver on time and without the issues described in this section of the report. East West Rail phase 2 is an example where there has been positive engagement with ORR and NRAP since early 2014. The timetable for authorisation remains achievable. The project has been proactive in understanding where other projects have had difficulties and is learning from them.

4.45 The quality and timeliness of NR's applications for authorisation appears to be a symptom of these issues. The tables below, split by lead asset, show the time we have had available to undertake our assessments and the number of conditions/limitations that we have had to apply:

Table 6: Infrastructure / PRM conditions and limitations applied by ORR

Project	Number of Submissions	Time available for authorisation (weeks)	No. of Conditions	No. of Limitations
Ipswich Chord	1**	2	4	0
Nottingham Station	2*	1	5	0

Project	Number of Submissions	Time available for authorisation (weeks)	No. of Conditions	No. of Limitations
Huyton & Roby	2**	1	3	0
Newcourt Station	1**	0	3	0

(* The first submission was refused)

(** The first submission was re-issued)

Table 7: Energy conditions and limitations applied by ORR

Project	Number of Submissions	Time available for authorisation (weeks)	No. of Conditions	No. of Limitations
NWEP – Phase 1	1	1	5	4
RaCE	2	0	12	8
NWEP – Phase 2a	2	1	16	8
NWEP – Phase 2b	2	0	13	9

4.46 In interpreting the tables, it is worth noting that there is no statutory deadline for our consideration of first authorisations. We advise projects to build in at least 4 weeks for authorisation (no project has allowed even half that time for the authorisation process) and that a project that fully identified and complied with TSIs and relevant legislation should expect to attract no conditions or limitations on use. The data does not include the Manchester Station Platform scheme which failed to apply at all for authorisation before being placed into service, despite the project team being correctly advised by NRAP that authorisation would be necessary. Conversely, when NRAP advised the West Coast switches and crossings project that interoperability requirements were not applicable, the project ignored the panel's advice and chose to apply interoperability requirements - but then failed to submit documents for authorisation.

4.47 We have been discussing these concerns with NR for a considerable time, and agreed an Interoperability Improvement Plan with Group Strategy in 2014. NR's IP

directorate carried out its own audit of engineering assurance in 2015 and the findings almost entirely corroborate our concerns and diagnosis of the problem. The later review felt able to conclude that IP was “unable to demonstrate safe delivery to current legislative standards”, which underscores the seriousness of NR’s weakness in these aspects. IP have tasked the new Engineer Director with developing a plan to address these issues, but this is yet to be finalised. Group Strategy has also acknowledged that its work to develop a more robust “pre-GRIP” process must include stronger consideration of legal compliance at the earliest stage of projects.

NR’s enhancements improvement plan

- 4.48 NR has included a separate safety by design workstream in the enhancements improvement plan. The main concern we raised with NR was that this workstream appeared separately and was unlikely to be successful unless integrated with the rest of the improvement plan. NR accepted our concern and has agreed that early lifecycle workstreams (for example, *project front end definition*) must include work to address capture of current legislation, standards and an understanding of the authorisation processes.
- 4.49 We also consider that NR’s IP organisation understands the importance of managing risk assessment and authorisation issues in the GRIP process, from discussions at our meetings regarding the improvement plans. We expect, and NR has agreed, that the *project governance (stage gate assurance)* workstream must explicitly include these requirements.
- 4.50 We acknowledge that actions to address our concerns regarding safety by design and compliance with legislation and standards have been included in NR’s EIP and we now expect these actions to be appropriately integrated with other parts of the plan by the time that it is finalised.
- 4.51 We have been raising safety by design and risk assessment issues with NR for three years, with any progress typically seen at a local rather than company-wide level. This undermines our confidence in the deliverability of the relevant workstreams in NR’s enhancements improvement plan. We expect some of the integration work will mean the completion of *front end lifecycle* actions will need to be completed to address our concerns in this area – an area where we have significant deliverability concerns as described in the previous section on late completion of GRIP 3 milestones.
- 4.52 Despite the concerns raised above, if the plan for safety by design is successfully integrated into the overall improvement plan, resources committed and clear cross-NR accountability is in place to ensure momentum is maintained, we expect it can be delivered.

4.53 The long lead time for many of the actions means that, in some cases, a period of several years will have elapsed between our identifying evidenced concerns about NR's capability (e.g. in our national report on safety by design completed in 2014) and the completion of corporate actions to address the issues.

Conclusions

4.54 As the issues of safety by design, risk assessment, interoperability legislation and standards are so closely linked, we have drawn together our conclusions on these topics here.

4.55 This area of the investigation has been notable for the extent to which NR's own reviews and audits have corroborated our concerns. NR (or various parts thereof) have shown that actions are planned or at an advanced stage of consideration which, if effectively implemented, could address many of the problems. Importantly, during the investigation, NR has recognised that improvements on safety and interoperability aspects must go hand-in-hand with the other development and delivery improvements they have undertaken to make.

4.56 As NR admits, many of these plans are at an early stage of development and/or are not yet integrated into a cohesive programme that will ensure the intrinsically linked safety and delivery challenges are systematically addressed with equal weight. Given that these plans address concerns that have been articulated to NR over a considerable period of time, it remains concerning that many of them are still at such a formative stage. Equally, action plans have been previously agreed with ORR but have not progressed in a timely manner or with sufficient senior buy-in to make lasting changes. For example, we agreed an improvement plan on interoperability in April 2014, but the actions have not all been progressed and the resource to deliver them has moved out of NR's Group Strategy in 2015 and has not been replaced. It is vital that NR clearly sets out a finalised plan and timetable, and ensures executive accountability for its resourcing and delivery.

Managing major complex programmes

4.57 NR has several major infrastructure programmes to deliver in CP5. These programmes are prerequisites for the delivery of new timetables that offer benefits such as faster journey times and / or increased capacity to train operators and their customers. NR needs to plan and deliver the right package of projects that ensure the benefits can be delivered. NR's activities need close co-ordination with other industry parties delivering new trains or introducing changes to services.

4.58 These infrastructure programmes present particular challenges to NR. They require a different approach compared to delivering projects due to the higher level of complexity, particularly in terms of managing the interdependencies with stakeholders.

4.59 This is not a new area for NR. In 2010 there were a series of lessons learnt exercises following completion of the West Coast Route Modernisation Programme, both in terms of delivering complex programmes to cost and schedule, but also the interface with the operational railway. In particular there was a joint ORR/NR study (MVA consulting, May 2010) on why the programme failed to achieve the planned reliability targets.

4.60 The key large infrastructure programmes that NR has to deliver in CP5 are:

- Great Western Route Modernisation (GWRM);
- East Coast Mainline investment in CP5;
- North of England Programmes – North West and Yorkshire; and
- Edinburgh to Glasgow Improvement Programme (EGIP).

4.61 There are also several other projects in the CP5 Enhancements Delivery Plan that require a programme management approach in order to assure the benefits will be delivered to NR's customers.

4.62 We have seen evidence which raises concerns in two key areas regarding NR's management of major complex programmes. The first is NR's delivery of GWRM, where we have escalated concerns on schedule slippage but NR's corrective actions have not yet recovered the programme. The second is major programmes delivering complex timetable changes. Here we commissioned Nichols in September 2014 (as an independent reporter) to complete a review which concluded in July 2015.

Escalation of Great Western Route Modernisation (GWRM) programme issues

4.63 We monitor NR's progress and any risks to delivery of its regulated milestones by reviewing regular reports and attending meetings with the project teams.

4.64 We first escalated concerns with NR in October 2012, due to delays in completing its electrification design and development work – held up by technical difficulties with the new 'Series 1' Overhead Line Equipment (OLE).

4.65 We again raised concern with the GWRM programme in August 2013, when we reached the conclusion that the programme was not coherent or properly integrated. For example:

- NR was slow to update the enhancements delivery plan milestones using the regulatory change control process, because it lacked confidence in its revised dates;

- there was disagreement with stakeholders on some specific delivery dates, including electrification to Bristol Temple Meads; and
- the train operators had expressed concerns about the programme being sufficiently fixed.

4.66 In September 2013, following our escalation of issues with the GWRM integrated programme, NR carried out an internal peer review and implemented a 'Campaign Plan' to reconfigure the programme, drawing on emerging practice on the Thameslink Programme.

4.67 The campaign plan included changes to governance and structure and required capability improvements across the GWRM programme. For example an Industry Systems Integration team was formed to better develop plans and align more closely with stakeholder needs. It wasn't until 28 October 2014 that NR was able to submit evidence to the ORR that its integration function was in place.

Analysis

4.68 In September 2014, we commissioned Nichols to review major programmes delivering complex timetable changes. The objective of this review was to provide ORR and the wider rail industry with confidence that NR's major infrastructure programmes were appropriately organised, governed and resourced to successfully enable the significant timetable changes planned in CP5. We wanted to ensure lessons had been learned and shared from the recent review of GWRM and previous experience on WCRM and the Thameslink Programme.

4.69 The original methodology for the review was to assess NR's overarching assurance process for complex programmes that enable timetable changes.

4.70 It was quickly established however, that there was not an overarching assurance process in place. The study was therefore split into two parts. In Part 1, Nichols reviewed NR's emerging practice on GWRM and Thameslink and developed a 'rapid assessment framework'. In part 2 this was applied to a number of other major programmes, as listed below.

- North of England Programme (LNW and Yorkshire components);
- Midland Mainline programme;
- East coast programme;
- East West Rail;
- Waterloo / South Western Programme; and

- Edinburgh to Glasgow Improvements Programme

4.71 Nichols completed the review in July 2015⁸. The findings were clear - there is no uniform NR approach for major infrastructure programmes delivering complex timetable changes. This has resulted in each programme effectively starting with “a blank sheet of paper”, with varying results across the different programmes.

4.72 One key capability within the rapid assessment framework is the ability to predict and model the timetable performance at each construction stage, and for this modelling to be integrated into the programme so that it informs design and development decisions in a timely way. Despite the lessons learnt following the WCRM and the MVA 2010 report, this area is still a problem, as demonstrated by the experience at London Bridge following the timetable change in December 2014. This example illustrates the negative impact that poor modelling of a timetable change can have on passengers.

4.73 Several stakeholders raised concern regarding NR’s operational capability and performance modelling including:

- Transport for London (TfL): *“TfL supports ORR’s review of the delivery of major complex programmes such as London Bridge. It is important to ensure that robust planning and performance modelling is carried in advance of work.”; and*
- CrossCountry raised issues regarding NR’s ability to maximise the available capacity, both during and after construction: *“It is apparent that NR’s Capacity Planning team cannot currently cope with the former [maximising capacity during construction], which is beginning to cast into doubt their ability to achieve the latter [following construction]”.*

4.74 Several stakeholders have also raised issues with NR’s management of major complex programmes, as set out below.

4.75 Rail Freight Group (RFG) raised the concern that *“overall governance of the F2N project has been challenging”*. RFG also stated *“the lack of a single project director with responsibility for all works along the corridor has been a disadvantage... ..this is perhaps a reflection of NR route structure but may also reflect a failure to identify and manage F2N as a major project from the outset.*

4.76 Cross Country raised issues around the ability of NR’s capacity planning scheme to maximise capacity before and after construction.

⁸ http://orr.gov.uk/_data/assets/pdf_file/0005/18851/cn031-nichols-assurance-for-major-programmes-part2-2015-07-31.pdf

- 4.77 SouthEastern raised concern that *“NR has continued to go through a number of reorganisations over the last few years in an attempt to cut costs. This has led to a great deal of experience and knowledge leaving the organisation”*.
- 4.78 Transport Scotland commented that NR’s approach to systems integration for EGIP has been almost entirely focussed on the technology element of integration. Therefore, TS is not convinced that NR in Scotland has the capability or tools in place to be able to manage this properly.
- 4.79 NR has included actions in the *major project execution and monitoring* and *project portfolio delivery capability* workstreams to introduce a programme approach. The primary actions to achieve this are development of a “GRIP for programmes” (as it is recognised GRIP applies to projects, not programmes) and to follow up the conclusions of the Nichols report into delivering major rail upgrades.
- 4.80 The problems in successfully delivering significant timetable changes after major route upgrades date back to 2009 following completion of the WCRM. This illustrates the size of the challenge for NR to fix this recurring weakness in its enhancement planning and delivery processes – and the importance of doing so for passengers and rail users. We do not yet have confidence the benefits will be delivered without further details in the improvement plan and evidence of progress.

Conclusions

- 4.81 The Nichols review into major programmes and issues with GWRM, have highlighted that NR does not have a consistent process for managing its part in complex, cross-industry programmes to deliver timetable changes. This leads to each major programme starting with “a blank sheet of paper”. This issue is systemic as this lack of process means it will affect every major programme, unless NR makes improvements.
- 4.82 The Nichols review of major programmes also identified the importance of performance modelling for timetable changes during or following major project upgrades. This is an issue we requested NR resolve as far back as 2010, following a lessons learned exercise from the West Coast Route Modernisation (WCRM) programme. It is a concern that resolving this issue isn’t explicit in NR’s enhancements improvement plan.
- 4.83 NR has started to develop a process called “GRIP for programmes”, which is a positive step. It has also engaged well with the Nichols review of major programmes. However, it is at a very early stage with its implementation of improvements and its current performance in this area is inadequate for the number of major programmes where it has a key management role.

Management of CP5 investment portfolio

4.84 Although NR allocates funding to individual CP5 enhancements projects, it is the total cost for England & Wales and for Scotland that we use to incentivise the company to outperform. Therefore, the efficient funding is set at a portfolio level. This means NR has the ability to set individual project budgets at a different level from the amount we assumed in our project level assessments of efficient costs. Any 'overspend' on one project could be compensated for by an 'underspend' elsewhere in the portfolio.

4.85 The underspend / overspend framework (RAB roll forward policy) will apply to the aggregate costs of the CP5 enhancements portfolio. The exceptions to the portfolio level funding arrangements are:

- schemes subject to bespoke target price arrangements. In England & Wales, these are Thameslink and Crossrail. In Scotland, these are EGIP and Borders;
- ring-fenced funds, where NR is funded to spend up to the caps set out in our PR13 Final Determination; and
- the funding allowances we have assumed for R&D (including innovation), depots and European Train Control System (ETCS) cab fitment.

4.86 Further details of funding of enhancement projects can be found in our PR13 Final Determination⁹.

4.87 This approach to funding gives NR the opportunity to manage the portfolio to deliver the enhancements programme for the most efficient cost. The framework allows NR to set efficiency targets and balance risk (both cost and schedule) and contingency across the portfolio.

Analysis

4.88 We monitor NR's delivery of the CP5 enhancements programme using information at both portfolio and project level, by reviewing NR reports and holding formal meetings at project and portfolio level.

4.89 NR does not give us the required visibility of the enhancements portfolio via the reports it submits to us on a regular basis.

4.90 There are two regular portfolio reports that NR submits to us on a four-weekly basis: a milestone tracker spreadsheet and an enhancements overview presentation.

⁹ Periodic Review 2013: Final determination of Network Rail's outputs and funding for 2014-19. Annex E summarises our determination of the funding of enhancement projects.

- 4.91 The milestone tracker report lists all the regulated output milestones in the CP5 delivery plan, with a forecast completion date against each milestone. It also contains some analysis of this planned versus actual project data. This report is produced by NR IP to review project performance against schedule and cost.
- 4.92 Although the milestone tracker provides a snapshot of forecast performance, we don't consider that it provides visibility of the most significant issues and risks for the CP5 programme. For example, two projects could report a forecast completion of a milestone on-time, but with notably different levels of risk around delivery of the milestone. The milestone tracker also doesn't distinguish between projects by scale, value or impact of the missed milestone. We therefore we consider that it is very difficult to use this information to identify which projects present the biggest risk to delivery of the CP5 enhancements programme.
- 4.93 The second portfolio report is the enhancements overview presentation which is produced by NR Group Strategy, to review cost and performance of the portfolio against its regulated outputs. It includes headlines of current issues for the enhancements portfolio and progress updates for the ECAM programme and regulatory change control process.
- 4.94 The headlines of current issues, usually includes a couple of high level statements on the overall health of the enhancements programme and some further issues highlighted where the group strategy team is leading for NR.
- 4.95 NR's ECAM update provides a list of recently, or soon to be submitted, projects for ECAM review and visibility of the total forecast portfolio cost against the PR13 Final Determination.
- 4.96 The change control summary provides an overview of the numbers of projects that have had milestones changed via the regulatory process and a list of milestones which have been logged as missed via the change control process.
- 4.97 In summary, the two reports provide some useful information on the enhancements programme, but do not provide assurance that NR is managing the enhancements portfolio effectively. The following issues have arisen.
- There is insufficient information on forecast cost against baseline for the total portfolio. There is some information on costs assessed or submitted via the ECAM process, but no information on total forecast costs.
 - There is no identification of the most significant risks to delivery and cost across the CP5 enhancements portfolio, or evidence that common risks are being escalated so that they can be mitigated more effectively at portfolio level;

- There is no portfolio level contingency reported (with information on draw-down against this pot);
- Efficiency targets against projects or the portfolio are not reported;
- Data accuracy of the milestone tracker is unreliable (both forecast dates and milestones) and the change control summary is only backward-looking, focussing on missed milestones.
- The reports are produced by two different teams in NR, group strategy and investment projects. It is not clear from the reports who is accountable for management and delivery of the portfolio.

4.98 We therefore do not consider that NR's portfolio reporting provides us assurance of delivery, or that it is managing the CP5 programme effectively or efficiently. Although , NR is starting to make some improvements and report on portfolio affordability to senior level trilateral meetings with DfT and ORR, this is primarily for briefing purposes, rather than evidence of portfolio management.

4.99 In addition to our concerns CrossCountry who is in a unique position as a TOC that runs services across seven of NR's eight operating routes, raised the concern that *"...NR does not have an overall national plan to manage their CP5 investment portfolio"*. The lack of portfolio reporting we have seen backs up the statement. However, NR has presented us with some evidence of how it manages specific issues, such as critical resources across the whole plan.

4.100 NR is not effectively managing the CP5 enhancement projects as a portfolio and therefore isn't maximising the potential opportunity to deliver the portfolio for the most efficient cost and on time. This conclusion is based primarily on the lack of portfolio level reporting we have received from NR.

4.101 It should be noted that NR's management of some ring-fenced funds, as "mini-portfolios" demonstrates where there have been improvements. SFN is an example with RFG stating *"During CP5 to date we have seen a demonstrable improvement from NR in the management of the SFN fund and steering group. This includes chairmanship of the meeting, provision of advance information, financial data and forward planning of milestones. The completion of business case analysis is also timely and robust. This has helped build confidence in fund management and allowed for more effective decision making."* We have also observed NR work with the industry and funders to improve the governance of stations funds – Access for All and the National Stations Improvement Programme (NSIP).

4.102 NR has included an action in its enhancement improvement plan to implement a standard investment portfolio reporting suite in July 2015, as part of its *project portfolio monitoring* workstream. NR stated that this would include portfolio cost, risk and programme information. The report will be reviewed at the National Investment

Portfolio Strategic Review Meeting (NIPSRM) and shared with funders and ORR, every four weeks. NR is also implementing tripartite programme boards, for each major programme, to make sure there is consistent governance across the portfolio.

- 4.103 Although implementation of a reporting pack should be deliverable, historical delays mean we still have concerns about the deliverability of portfolio reporting and whether the benefits will be realised.
- 4.104 Although NR's enhancements improvement plan includes actions to resolve a lack of portfolio reporting, it does not include workstreams to implement more effective management of the portfolio. NR acknowledged that the current actions in this workstream do not address our concerns that it is not balancing risk and contingency across the portfolio, and acknowledged that further development was needed. NR confirmed that the NIPSRM will be the committee used to manage the portfolio.

Conclusions

- 4.105 NR's reporting does not provide evidence that it is managing CP5 enhancements as a portfolio. NR has acknowledged that it is not adequately reporting at a portfolio level, so has included actions in its enhancements improvement plan to put this reporting structure in place. It has also identified the committees that will be used to manage and govern the portfolio.
- 4.106 NR has been late in recognising our concerns regarding portfolio reporting and management. We have yet to see any evidence of progress in this area, to give us confidence NR's performance is improving.
- 4.107 detailed plans to start portfolio management (rather than just reporting) to gain potential efficiencies and better mitigate portfolio schedule risks.

5. Summary Conclusions

- 5.1 Our investigation has focussed on the late completion of NR's development and delivery milestones because these are regulated outputs. We have also analysed our other areas of concern on cost escalation, understanding of legislation, standards and safety by design, portfolio and programme management. We have concluded that these represent contributory weaknesses that have led to NR missing its regulated outputs. We have considered whether these weaknesses are systemic or isolated incidents. We have also considered how NR has responded to our concerns, what it is proposing to do to improve its performance and whether there is evidence that improvements have been delivered in practice.
- 5.2 Our analysis has shown that the 30 missed milestones in 2014-15 (36% of all milestones) relate to projects that vary by size, location and complexity. We have concluded that the high number of missed targets over a wide range of projects indicates that NR's project development and delivery weaknesses are systemic rather than the result of individual project failings or adverse circumstances. The nature of NR's own analysis and improvement plan in response appears to acknowledge this by focusing on company-wide actions to improve processes, culture and capability rather than presenting individual recovery plans for each failing project.
- 5.3 Our concerns are not new and the formal investigation has been triggered by NR not taking the opportunity to address them earlier. We first raised concerns about the high level of slipping / missing milestones with NR in July 2014 through our routine communication channels. But due to an unsatisfactory response we escalated the issues through formal letters – the first in November 2014. We have similarly been discussing concerns (and indeed taking enforcement action locally) about NR's approach to risk assessment and safety by design since early 2014. We agreed a set of actions for NR to take to improve its approach to securing interoperability authorisations in April 2014.
- 5.4 NR's response to our concerns has been slow, localised or inconsistent but was strengthened in January 2015 by the initiation of a review led by one of NR's non-executive directors who now chairs a specially convened task force known as the Major Projects Delivery Committee (MDPC). During the course of the investigation, NR presented several iterations of its Enhancements Improvement Plan (EIP).
- 5.5 We have checked that our concerns are being addressed by the EIP as part of this investigation. We have concluded that, at the time of our assessment, NR's improvement plan had some omissions and underdeveloped actions, particularly regarding our concerns around NR's authorisation submissions; its approach to improving 'safety by design'; and its ability to model and forecast train performance during and after major complex programmes that involve timetable changes.

- 5.6 The wide-ranging and long-term actions in the improvement plan acknowledge and demonstrate the scale of the changes needed across the company. It shows how far NR's capability has drifted from what is required in CP5, and is another indicator that the weaknesses are systemic rather than isolated issues. It will be a significant and long-term challenge for NR to embed the improvements into business as usual and it will take some time before confidence in project milestones is restored.
- 5.7 After we had concluded our investigation with NR, the company submitted another version of its EIP dated 10 July 2015. Although it is dated and version controlled, it is unclear whether it has executive-level ownership, and some of our concerns do not appear to have been addressed. We have not had time to re-open discussions with NR because we have already extended the investigation timescales and need to conclude the process.
- 5.8 In conclusion, the drafting and development of the EIP initiated in November 2014 has continued throughout this formal investigation. NR's improvement plan is finally taking shape, but it is not yet sufficiently finalised. The EIP is appropriately aimed to address the systemic weaknesses currently within NR. But it demands significant changes to NR's processes, systems, culture, capability and behaviours across many parts of the company. This will take time, extended by NR's slow response to our initial concerns. Earlier opportunities to develop and implement the necessary corrective actions more speedily were missed. Until the benefits of these improvements are delivered, it is probable that further regulated milestones will be missed.
- 5.9 On the basis of our findings, we cannot be satisfied that NR is doing everything reasonably practicable until:
- the EIP is sufficiently finalised; and
 - there is evidence of improvement following effective implementation of the finalised EIP

Annexes

Annex A: Glossary

Acronym	Definition
AfA	Access for All programme
BAU	Business As Usual
CDM	Construction Design and Management regulations
CP4	Control Period 4
CP5	Control Period 5
CSM	Common Safety Method
DfT	Department for Transport
ECAM	Enhancements Cost Adjustment Mechanism
EGIP	Edinburgh to Glasgow Improvements Programme
ETCS	European Train Control System
F2N	Felixstowe to Nuneaton capacity project
FOC	Freight Operating Company
GE	Great Eastern
GRIP	Governance for Railway Investment Projects
GWML	Great Western Main Line
GWRM	Great Western Route Modernisation
JTI	Journey Time Improvements
LNE	London North East (Network Rail operating route)
LNW	London North West (Network Rail operating route)
MPDC	Major Projects Delivery Committee
NED	Non-Executive Director
NIPSRM	National Investment Portfolio Strategy Review Meeting
NoE LNW	North of England programme, London North West

Acronym	Definition
NR	Network Rail
NR IP	Network Rail Investment Projects
NRAP	Network Rail Approvals Panel
NSA	National Safety Authority
NSIP	National Stations Improvement Programme
NWEP	North West Electrification Programme
OLE	Overhead Line Equipment
ORR	Office of Rail and Road
PMO	Project Management Office
PR13	Periodic Review 2013
PRM	Persons with Reduced Mobility
R&D	Research & Development
RAB	Regulatory Asset Base
RaCE	Rutherglen and Coatbridge Electrification project
RFG	Rail Freight Group
RSD	Rail Safety Directorate
RSPs	Relevant Statutory Provisions
SBP	Strategic Business Plan
SFN	Strategic Freight Network
TfL	Transport for London
TOC	Train Operating Company
TPE	TransPennine Electrification
TS	Transport Scotland
TSI	Technical Specification for Interoperability
TWA	Transport and Works Act

Acronym	Definition
WCML	West Coast Main Line
WCRM	West Coast Route Modernisation

Annex B: Terms of reference for the investigation

Terms of reference for ORR's investigation into Network Rail's planning and delivery of enhancement projects

Issued 21st April 2015

ORR's letter to Network Rail (NR) dated 31 March 2015 gave formal notice of the above investigation and the context and areas of focus. Due to a number of other enhancement-related reviews currently being carried out by DfT and NR, this document supplements ORR's letter and clarifies the purpose and scope of this investigation.

Purpose

To establish whether NR is doing everything reasonably practicable to meet its licence obligations in relation to achieving its regulated outputs for CP5. This investigation concerns the planning, management and delivery of the enhancements projects in NR's Enhancements Delivery Plan. The investigation will also establish if there is evidence of systemic weaknesses relating to these regulated outputs.

Scope

The investigation will focus on NR's enhancements obligations in four main areas where we have already raised concerns:

- a) project development (including estimating costs, assessing risks and ensuring safety by design);
- b) project delivery;
- c) delivering major complex programmes (such as Great Western Route Modernisation); and
- d) management of the CP5 investment portfolio.

These are expanded below.

Project Development

This is a broad area and there is evidence supporting our concerns in four areas of project development:-

1. Late completion of project development. For projects in development, where the regulated milestone is GRIP3 (single option selection), NR has missed over 30% of its milestone dates so far in CP5
2. Inadequate risk assessments during project development identified through our inspections on Safety by Design. We have served two safety Improvement Notices on Great Western projects because NR failed to carry out sufficient assessments of health and safety risks to passengers and staff from the introduction of new infrastructure. Although we have dealt with this through our safety powers, NR has been slow to incorporate the principles of the latest statutory requirements on risk assessment into its safety management system and this is leading to inefficiencies and abortive costs.
3. Unreliable capture of relevant legislation and standards revealed by our assessment of projects under Interoperability Regulations: Recent authorisation submissions show NR does not have a process which ensures all the relevant legal requirements are identified and understood at the outset of a project. Over the past year submissions for authorisation have been late, incomplete and have resulted in conditional approval or rejection. We have issued safety enforcement notices on 2 out of 5 projects authorised

and we have recently rejected NR's authorisation submission for Northwest Electrification Phase 2a

4. Cost escalation during project development: we are seeing substantial cost escalation across a range of projects through the ECAM process, where project cost estimates submitted to us after GRIP3 have significantly escalated compared to the time of the Strategic Business Plan. Although this may reaffirm that the SBP enhancements submission was very poor, we are concerned that NR does not appear to have the processes and skills in place to measure, value and manage project costs throughout the lifecycle.

Project Delivery

- For project completion milestones, by the end of February 2015, NR had missed over one third of its completion milestones so far in CP5. There have been several reasons for late delivery; including over-optimistic planning, poor management of contractors and projects not taking into account asset condition. Looking forward, of the remaining 94 regulated milestones for project completion in CP5, ORR considers that over 30% are at risk of being delivered late.

Delivering major complex programmes

- There are several complex major programmes in CP5 involving significant route upgrade work that needs to be coordinated with new franchises, major timetable recasts and new or cascaded rolling stock. NR has a critical role in these cross industry programmes, but it does not have a framework or programme lifecycle setting out how NR should be organised, governed and managed. Each major NR scheme appears to start from a 'blank piece of paper', with assumptions not adequately tested by timetable and performance modelling before infrastructure requirements are set; the management of programme-wide risks, assumptions and interdependencies are developed too late. Programmes in this category include Great Western Route Modernisation, North of England Programme (LNW), Northern Programme (Yorkshire), and the Midland Mainline Programme (MML), East Coast Mainline, East West Rail, Edinburgh to Glasgow Improvement Programme.

Management of the CP5 Investment Portfolio

- We have raised concerns that NR may only be managing at project level, with little evidence of portfolio management in terms of efficiency, risks, costs, affordability, value for money and overall schedule. We are concerned that NR may be missing the opportunity to deliver the enhancements programme for the most efficient cost, as it is not yet managing across the portfolio. We would expect NR to set efficiency targets, and balance risk and contingency across the portfolio. To date we have had very little evidence of portfolio cost reporting from NR.

Methodology

We will use internal evidence gathered in the course of our regulatory functions and we will engage further with NR, funders and a selection of train operators.

There will be an initial planning meeting with NR to address any issues arising from this terms of reference. There will then be four subsequent stages of the investigation as follows:

Step 1. Define the problem by clearly identifying our concerns

- We will collate internal evidence that we have gathered in the course of our regulatory duties. This will clearly define the areas we are expecting NR to improve.
- We will consult with affected TOCs and FOCs to get their views of whether there are any other areas that needed addressing.

Step 2. Engage with NR

- We will share the outcome of step 1 to give NR the opportunity to challenge factual accuracy. This should inform NR of the issues we are expecting its improvement plan to address
- We will share our criteria against which we will assess NR's improvement plan

Step 3. NR to explain the scope of its current improvement plan

- We will review and highlight any gaps in NR's plans
- NR will have an opportunity to explain how it is addressing any perceived gaps, or how it proposes to deal with the gaps

Step 4. Conclude whether NR is doing everything reasonably practicable

- we will assess whether NR has:
 - a sufficiently finalised plan in place that adequately addresses the issues:-
 - clearly identified work-streams with specific and time-bound actions for deliverables
 - identified who is responsible and accountable for each work-stream and allocated appropriate resource
 - identified the intended benefits of each work-stream, and explained the governance process so that progress can be tracked and assured
- We will finalise our Evidence pack and make recommendations to the ORR Regulatory Interventions Committee on whether any further regulatory action is needed

Our assessment of the above matters will help us to identify whether there is evidence of systemic failures in NR's planning and delivery of enhancement projects i.e. caused by common weaknesses or isolated circumstances. If any issues are judged to be systemic, we would expect NR's remedial actions in its improvement plan to treat them accordingly.

Investigation team

This investigation is led by Alan Price, Director Railway Planning and Performance, supported by ORR experts across the office.

How the investigation will be conducted

In carrying out its investigation ORR expects to draw upon information and reviews already carried out internally as part of its usual regulatory roles. The review will engage primarily with NR and draw heavily on the NR NED review as well as effected TOCs and FOCs.

Timescales

The ORR aims to complete the investigation by the end of May 2015. It will then consider the investigation findings and decide the next steps in line with its economic enforcement process and policy. As part of these considerations, ORR will decide whether there are grounds to issue a case to answer letter to NR and then will make recommendations to ORR's Board on any licence breach, and if appropriate, enforcement action.

Annex C: Missed enhancements regulated outputs 2014/15

Table 1: Missed GRIP 3 milestones

EDP ref	Project Milestones	Milestone date	Actual / forecast	Route	Project type
W001a	Great Western Electrification - Maidenhead to Newbury, Oxford, Chippenham and Bristol Parkway	May-14	Jul-14	Western	Electrification
W001a	Great Western Electrification - Chippenham to Bristol Temple Meads	May-14	Jul-14	Western	Electrification
CR005	North of England Programmes (LNW) - Phase 4 - Manchester to Preston Electrification and Preston JTI - (NW Electrification Phase 4 - Configuration State 5)	Sep-14	May-15	LNW	Electrification & JTI
W006	Oxford Corridor Capacity Improvements - Phase 1	Oct-14	Feb-15	Western	Capacity
W00i	Oxford Corridor Capacity Improvements - Phase 1	Feb-15	Apr-15	Western	Capacity
S004	London Victoria Station Capacity Improvements	Aug-14	Nov-14	Sussex	Station
S004	London Victoria Station Capacity Improvements	Nov-14	Apr-15	Sussex	Station
W001a	Great Western Electrification - Bristol Temple Meads and Bristol Parkway to Cardiff	Oct-14	Sep-15	Western	Electrification

EDP ref	Project Milestones	Milestone date	Actual / forecast	Route	Project type
CR007	Acton (GWML) to Wilesden (WCML) Electrification (Acton West to Acton Wells)	Dec-14	Dec-15	Cross Route	Electrification
A002	Anglia Traction Power Supply Upgrade - GE bulk supply point & AT	Dec-14	Jan-15	Anglia	Power supply
A001	Ely North Junction Capacity Improvement	Dec-14	Nov-15	Anglia	Capacity
CR005	North of England Programmes (LNW) - Phase 3 - Preston to Blackpool Electrification - (NW Electrification Phase 3 - Configuration State 5)	Dec-14	Oct-15	LNW	Electrification
CR005	North of England Programmes (LNW) - Phase 5 - Guide Bridge to Stalybridge Jcn Electrification - (NW Electrification Phase 5 TPE West - Configuration State 7)	Dec-14	Jun-15	LNW	Electrification
CR005	North of England Programmes (LNW) - Phase 5 - Manchester Victoria to Stalybridge Jcn Electrification and JTI - NW Electrification Phase 5 TPE West - Configuration State 5)	Dec-14	Jun-15	LNW	Electrification
LNE001	Northern Programme (Yorkshire) - Calder Valley	Jan-15	Aug-15	LNE	Capacity
S001	Sussex Power Supply Upgrade	Mar-15	Sep-15	Sussex	Power supply

Table 2: Missed GRIP 6 milestones

EDP ref	Project Milestones	Milestone date	Actual / forecast	Route	Project type
WX005	Package 7, 10 Car South West Suburban Railway - Raynes Park to Dorking	Apr-14	May-14	Wessex	Train lengthening
SC011	Motherwell Area Stabling - Phase 1	May-14	Jul-14	Scotland	Depot & Stabling
WL002	Barry - Cardiff Queen Street Corridor - Valley Lines - Queen Street entrance enhancement	Jun-14	Nov-15	Wales	Station
WL002	Barry - Cardiff Queen Street Corridor - Phase 3 - Barry Lines	Jun-14	May-15	Wales	Capacity
F006	Strategic Freight Network (SFN) - Ipswich Yard	Aug-14	Nov-14	Anglia	Depot and Stabling
LNW007	Chiltern Main Line Lengthening - Except High Wycombe DOWN platform	Aug-14	Sep-14	LNW	Train Lengthening
SC008	Rolling Programme of Electrification - Rutherglen and Coatbridge (R&C) Electrification	Aug-14	Sep-14	Scotland	Electrification
WL002	Barry - Cardiff Queen Street Corridor - Phase 4 - Cardiff East	Oct-14	Jul-15	Wales	Capacity
F006	Strategic Freight Network (SFN) - Peak Forest	May-14	Aug-15	E&W Fund	Train lengthening

EDP ref	Project Milestones	Milestone date	Actual / forecast	Route	Project type
CR005	North of England Programmes (LNW) - Phase 2 (c) - (NW Electrification Phase 2 Configuration State 3)	Dec-14	Apr-15	LNW	Electrification
S005	Belcombe to Copyhold Bi-directional Signalling Upgrade	Dec-14	Apr-15	Sussex	Capacity
CR005	North of England Programmes (LNW) - Phase 2 (a&b) - (NW Electrification Phase 2 Configuration State 3)	Dec-14	Mar-15	LNW	Electrification
EM002	St Pancras - Sheffield Linespeed Improvements	Dec-14	Jul-15	East Midlands	JTI
F002b	Station – Access for All (AfA) – New Cross Gate	Mar-15	Mar-17	E&W Fund	Station

Annex D - List of meetings held as part of investigation

Organisation	Date	Subject
Network Rail	05/05/15	Initial discussion on Network Rail's overall planning, management and delivery of its enhancements programme
Network Rail	27/05/15	Follow up meeting to the initial meeting.
Network Rail	16/06/15	NR provided ORR with details of NR's draft enhancements Improvement Plan (EIP) and its associated workstreams.
Network Rail	17/06/15	NR provided ORR with details of NR's draft EIP and its associated workstreams.
Network Rail	04/09/15	NR set out key changes and developments to the EIP

Annex E: Key supporting documents - reports, reviews and information considered as part of this investigation

1. NR CP5 enhancements delivery plan (quarterly versions from March 2014 to March 2015)
2. NR Enhancements regulatory change control submissions
3. NR enhancements and ECAM update reports
4. NR Project on a page reports
5. NR delivery plan milestone report
6. NR ECAM submissions
7. NR draft enhancements improvement plan
8. MPDC reports and papers
9. ORR Change Control decision letters
10. ORR ECAM conclusion letters
11. Letters from stakeholders
12. Independent reporter review of NR's management of major complex programmes

Annex F: Key correspondence

- 11th November 2014 – Letter from Alan Price (ORR, Director railway planning and performance) to Paul Plummer (NR Group Strategy Director), highlighting concerns in relation to NR's ability to plan and deliver the portfolio of infrastructure projects in CP5 and in CP6.
- 26th November 2014 – Letter from Alan Price to Paul Plummer, confirming actions agreed at a meeting with NR, for NR to provide briefing on organisational changes and provide an improvement plan that would be better developed following Christmas 2014.
- 4th February 2015 – Letter from Alan Price to Paul Plummer, expressing concern with NR's delay in submitting an improvement plan addressing ORR concerns regarding NR's ability to deliver CP5 enhancements.
- 17th February 2015 – Letter from Paul Plummer to Alan Price, including attachment summarising a draft improvement plan that the letter states will continue to evolve and mature.
- 2nd March 2015 – Letter from Alan Price to Paul Plummer (cc Francis Paonessa, NR Director, Infrastructure Projects), expressing concern that it is taking too long to sufficiently finalise, resource and implement the improvement plan.
- 5th March 2015 – Letter from Francis Paonessa to Alan Price, outlining steps NR Infrastructure Projects is taking to prevent any further slippage in North West Electrification Phase 2.
- 31st March 2015 – Letter from Alan Price to Paul Plummer, initiating ORR's investigation into NR's overall planning, management and delivery of its enhancements programme.

Alan Price
Director, Railway Planning and Performance
Telephone 020 7282 3825
alan.price@orr.gsi.gov.uk

Paul Plummer
Group Strategy Director
Network Rail
Kings Place
90 York Way
London
N1 9AG

11 November 2014

Dear Paul,

I am writing to you about the concerns we have in relation to NR's ability to effectively plan and deliver the portfolio of infrastructure projects in CP5 and in CP6.

Over the last 12 months the number of enhancement-related issues that we have escalated with NR has increased from one issue to seven.

The areas of concern can be broadly summarised as follows:

1. Project Delivery – 5 missed project completion milestones in the first 6 months of the control period
2. Project Development – continued late slippage and delay (since November 2013) in the submission of project cost information for the ECAM process
3. Route programme upgrades - absence of a properly worked up integrated plan for great western route modernisation
4. Portfolio level – weaknesses in reporting risk, cost and schedule at CP5 portfolio level

Despite raising these concerns and pressing NR for a response, we have only received a draft improvement plan that is not yet authorised or approved at executive level. Given the breadth of issues above, we are concerned that there could be a systemic problem with NR's planning and management of its enhancement programmes.

Further to our recent discussion I would therefore like to use the four concerns raised above as the agenda for the meeting we now have at 11:30 on 18th November, so that we can better understand the current position and what NR's immediate steps



are, to resolve these issues in the short and long term and what, if any recovery plans are in place.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'A. Price', is positioned above the printed name.

Alan Price

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Paul Plummer
Group Strategy Director
Network Rail
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90 York Way
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26 November 2014

Dear Paul,

ORR concern on Network Rail's management of Enhancements Projects

At our meeting last week we discussed the issues of concern raised in my letter dated of 11/11/14.

You and Francis explained the actions Network Rail is taking to improve its management of enhancements and provided some confidence that the issues we have raised are recognised by the executive team and steps are being taken to address them.

We agreed that the follow up actions were twofold:

- a more detailed briefing on the organisational changes you referred to; and how they aim to solve the problems we discussed; and secondly
- an improvement plan that describes the actions necessary and tracks progress to ensure the intended benefits are delivered

We agreed that the first action should happen in November or December and following the Holding to Account meeting last week should include a wider senior ORR audience.

For the second item, you explained that the actions were only agreed the previous day at executive level, and the improvement plan was not yet finalised, but would be better developed after Christmas.

We would expect the improvement plan to be sufficiently finalised in January to share with ORR, and for it to address the areas of poor performance we have raised



through the regulatory escalator and those areas you have identified internally. The plan should identify the workstreams and specific actions - some of which are currently in progress - and show clear accountability for deliverables to specific timescales.

The plan needs to be clear on what the intended benefits are, and how progress will be tracked. We expect the plan to be owned by an appropriate executive and to be sufficiently resourced so that progress is assured.

I suggest we meet on this specific issue in early January to understand where you are on the above, and I will get something in your diaries in due course.

Yours sincerely,

A handwritten signature in blue ink, which appears to read 'A. Price', is written over a horizontal blue line.

Alan Price



OFFICE OF RAIL REGULATION

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Paul Plummer
Network Rail
Kings Place
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London
N1 9AG

cc. Francis Paonessa

4 February 2015

Dear Paul,

I am writing to express my concern with Network Rail's delay in submitting an improvement plan that addresses concerns we have previously raised on NR's ability to deliver CP5 enhancements.

On the 11th November 2014, I summarised our enhancement-related concerns in a letter, covering Network Rail's ability to effectively develop and deliver CP5 enhancement projects, programmes, and manage portfolios. My letter explained that recent examples of poor performance in these areas were sufficiently broad that we were concerned they might indicate a systemic weakness within Network Rail.

We met on the 18th November to discuss my letter, and you and Francis described organisational changes that had just been agreed with the NR board, and I wrote following this meeting to request a further more detailed briefing, and an improvement plan that demonstrated Network Rail was tackling the problems. The letter said that the improvement plan should:

'Be sufficiently finalised to share with ORR in January, and to address the poor performance issues we have raised through the regulatory escalator and those you have identified internally. The plan should identify the work streams and specific actions - some of which are currently in progress - and show clear accountability for deliverables to specific timescales'

We received a draft improvement plan on the 26th January, but this was incomplete. We gave comments on the plan, and your team undertook to share a signed-off version on the 10th February 2015.





I would like to emphasise that we consider the submission of this plan to be essential in demonstrating that NR is doing everything reasonably practicable to address weaknesses in its business. We are expecting this plan to be submitted on the 10th February; it should be sufficiently comprehensive that we can use it to build confidence that the Business Plan submission later in February is deliverable.

Yours sincerely,

A handwritten signature in blue ink that reads "A. Price". The signature is written in a cursive style and is underlined with a single blue stroke.

Alan Price
Director, Railway Planning and Performance



Paul Plummer
Group Strategy Director

1 Eversholt Street
London, NW1 2DN
Tel: 0330 854 3812

Alan Price
Director, Railway Planning & Performance
Office of Rail Regulation
One Kemble Street
London
WC2B 4AN

17 February 2015

Dear Alan

Thank you for your letter of 4 February and for your previous letters outlining concerns about Network Rail's performance on enhancements in CP5, a topic which also featured in the ORR's Q1-2 monitor report of 20 November 2014.

As you indicated, our respective teams have been in dialogue about the contents of the improvement plan and iterative versions of the working copy were shared on 26 January and 10 February with your team, the latter version having been circulated to Francis Paonessa, Phil Hufton and myself on 9 February for discussion at our Investment Portfolio Strategic Review meeting last week. A draft copy of the improvement plan accompanies this letter. It is the subject of on-going discussion and we anticipate that it will continue to evolve and mature

We are committed to achieving organisational wide improvements in how we deliver enhancements and we see the successful delivery of the enhancements portfolio as an industry priority. We would welcome the opportunity to talk you through the plan.

Yours sincerely,

A handwritten signature in black ink, appearing to read "P. Plummer", written in a cursive style.

Paul Plummer



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Alan Price
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E-mail Alan.Price@orr.gsi.gov.uk

2 March 2015

Paul Plummer
Managing Director, Network Operations
Network Rail
1 Eversholt Street
London
NW1 2DN

cc. Francis Paonessa

Dear Paul,

Thank you for your letter dated the 17th February and the enclosed Improvement Plan.

As you point out, the plan needs further work, but considering our discussions around these issues started in October, we are concerned that it is taking too long to sufficiently finalise, resource and implement the plan.

We will be updating our Board on the 24th March, with a paper submitted a week in advance. The paper will summarise the missed regulatory enhancement milestones to date in CP5; it will consider whether NR is doing everything reasonably practicable to recover the situation. The confidence we have in NR's improvement plan is key to this.

Since we wrote to you in November, there has been further slippage in the North West Phase 2 electrification project; we consider the repeat-slippage of this project to be one of the most pressing problems for NR to tackle, and yet there is very little detail in the plan associated with this.

Given the above we would like to meet to understand your view on the next steps you propose to finalise the plan and manage its implementation, and what if any further assurance you can give us before our next Board meeting in March.

Yours Sincerely

A handwritten signature in blue ink, appearing to read 'A. Price', with a horizontal line underneath.

Alan Price
Director, Rail Planning and Performance



INVESTOR IN PEOPLE



Alan Price
Director, Rail Planning & Performance
ORR
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Francis Paonessa
Managing Director, Infrastructure Projects

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NW1 2DN

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5 March 2015

Dear Alan

Thank you for copying me in on your letter dated 2 March 2015 referencing the Improvement Plan, along with your concerns about North West Electrification Phase 2.

Following dialogue between the Project Director of Phase 2 and the team who are progressing the Improvement Plan, we would like to provide some specific information about the slippage experienced on the programme together with our initial lessons learned. This being in full recognition that further slippage occurred since you wrote to us in November.

The steps Network Rail Infrastructure Projects took to prevent any further slippage on the re-baselined programme to complete Phase 2, with interim completion of Phase 2a and Phase 2b by March 2015, were as follows:

- Network Rail's Project Director performed a deep dive into the project management in Balfour Beatty and as a result co-located himself and some of his team with Balfour Beatty at their Kirkby office in Liverpool, in the spirit of collaborative working.
- The revised programme to complete was developed after quantifying the work done and the work remaining; establishing 'norm' times for task completion with a risk factor for the under productivity encountered previously.
- A track access strategy was developed to provide adequate production time to complete the tasks including float.
- Planned vs. actual curves were produced which forecasted daily production for activities such as Installation of SPS, Wiring, Registration, Bonding, De-vegetation and Quality Assurance, etc.
- A programme was developed based on these planned works which included Authorisation by the ORR. The reduced timescales for Authorisation were

agreed with yourselves ahead of the programme being published and your support is much appreciated in this regard.

- Daily meetings were then chaired by the Network Rail Project Director to review performance against the programme and curves with any slippage being recovered daily and predictive slippage mitigated before it happened. These meetings are ongoing.
- Daily reports and programmes were issued to the DFT and to key stakeholders and followed up with a daily conference call between Network Rail's Project Director and the DFT so issues could be escalated and resolved in real time. These are available on request.

Network Rail acknowledges that the Authorisation timescales normally mandated are there to provide ORR with sufficient time to undertake a thorough review of the technical file, with controlled requests for further information and closure. Future Phases must include the standard time you require for Authorisation and we would like to thank you and your team for the pragmatism and support offered on the Authorisation of Phase 2 to date.

All of the above learning needs to be, and will be, applied to future phases of North West Electrification with the Programme Management capability strengthened to prevent this level of project management intervention being required in the future. Transparency, reporting frequency and escalation processes need to form part of this review.

There are more lessons to be learnt which need to be understood fully and embedded for future phases of North West Electrification and indeed for other electrification schemes. Our initial findings and interventions are to be reinforced with a two day external workshop in April, after the Easter blockades. This will be chaired by a Senior Director and will explore Phase 2 from concept to completion. All funders and stakeholders will be invited including the DFT, ORR, TOC's, NR, Suppliers, etc.

We hope you or a member of your team will be able to join us; details will be sent out in due course. In the meantime we are starting to embed the lessons that have already been learned from Phase 2a into subsequent phases.

Once again, I would like to thank you for the ongoing support on the North West Electrification Phase 2 Programme to date.

Yours sincerely



Francis Paonessa
Managing Director, Infrastructure Projects



OFFICE OF RAIL REGULATION

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Mr Paul Plummer
Group Strategy Director
Network Rail Infrastructure Limited
1 Eversholt Street
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NW1 2DN

31 March 2015

Dear Paul,

Investigation into Network Rail's overall planning, management and delivery of its enhancements programme

As you are aware, we have raised concerns about Network Rail's (NR) delivery of its enhancement programme over the past few months. We have concerns that NR is not on the right trajectory to meet its CP5 regulatory targets therefore we are taking action in response to this. We wrote to you on the 11 November 2014 and raised concerns about the lack of a sufficiently finalised improvement plan setting out how NR intends to address many of the enhancements-related weaknesses we had raised. We met on 18th November to discuss the letter, and followed up with another letter on 26th November outlining what we saw as essential elements that should be included in the improvement plan.

We understand that Network Rail has a number of initiatives underway. However, our most recent letter of 2 March expressed concern that it was taking too long to establish an overall improvement plan to give us confidence that the company is tackling all the issues as best it could. We said we needed further assurance on how and when the plan will be sufficiently finalised.

The enhancement programme is a significant deliverable for CP5 and it is essential that NR does everything reasonable practicable to meet the necessary milestones to deliver within its timescales. The demands of the programme in years 3, 4 and 5 mean that effective planning and delivery of milestones in the early years of the control period are key to the overall delivery of the programme in the long term.

We remain concerned about a broad range of NR's enhancement delivery performance, from early stage development to project completion. In particular, there are common project failings where we have refused authorisation and served improvement notices, both stemming from a lack of sufficient safety risk assessment at early design stages and poor requirements capture. These common failings seem to be happening because each project is starting from a 'blank piece of paper' with little central guidance.



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We therefore consider it is necessary to investigate whether NR is doing everything reasonably practicable to meet its licence obligations and is on the right trajectory for meeting CP5 regulatory targets in relation to enhancements.

Our investigation will focus on 4 key areas of concern that we have previously raised in our letters:

- (a) Project development including managing and estimating costs
- (b) Project delivery
- (c) Managing major complex programmes such as Great Western Route Modernisation
- (d) Management of the CP5 Investment Portfolio

Our investigation will:

- identify whether there are systemic weaknesses relating to NR's overall planning, management and delivery of enhancements, and
- assess whether NR is doing everything reasonably practicable to achieve its regulated outputs (milestones).

This investigation will help inform any recommendation that is made to the ORR Board in relation to whether NR has breached its licence. At this stage we are only talking to NR and DfT but we are likely to want to seek others' views at a later stage: we will let you know what we intend to do before doing so.

We recognise that Network Rail is itself undertaking internal reviews of enhancement planning and delivery – for example through a subcommittee of Network Rail's Board chaired by Malcolm Brinded, and we will want to make sure that wherever possible we draw on these and do not duplicate them. We have accepted the offer to attend, and feed in, to the work of the subcommittee. I would like to discuss with you how we can best achieve that, drawing on existing information where possible, and generating additional information only where we need to. We recognise the DfT, as the funder of enhancement projects, is also looking at certain aspects of them. Again, our aim will be to use any relevant information generated for those purposes not duplicate it.

We welcome NR's continued co-operation and engagement on this matter and any information you would like us to consider as part of this investigation.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'A. Price', with a horizontal line underneath.

Alan Price
Director, Railway Planning and Performance



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