Investigation into Network Rail's Long Distance (LD) and London and South East (LSE) Sector Performance 2012-13 and 2013-14

Evidence Report

Evidence report following ORR's investigation into Network Rail's Long Distance performance 2012-13 and 2013-14

Long Distance

1. Executive Summary

In January 2012, we issued an enforcement order requiring Network Rail to produce a plan for improving performance in the Long Distance sector in 2012-13 to the levels specified in the final determination for CP4. Network Rail submitted its Long Distance Recovery Plan (LDRP) on 30 March 2012. After reviewing the plan, we concluded that Network Rail was not currently in breach of its licence in respect of 2012-13, but that it was critically dependent on delivery of the Joint Performance Improvement Plan (JPIP) commitments it had made and on doing the work to deliver further improvement. However, by the end of the year performance had deteriorated.

On 29th April 2013, we therefore wrote to Network Rail stating our intention to formally investigate performance in Network Rail's Long Distance and London and the South East[1] sectors for 2012-13 and 2013-14.

Network Rail failed to meet its targets for PPM and CaSL in 2012-13. PPM MAA ended 2012-13 4.5pp below the CP4 target and 2.7pp below the JPIP target. CaSL MAA ended the year 0.9pp below the CP4 and JPIP targets. Network Rail also failed to complete the number of deliverables anticipated in its LDRP or deliver the delay minute savings and PPM benefit specified in the plan. Credit should be given for effective management of cable theft and suicides, where a significant reduction in delay minutes was achieved. However, overall the evidence suggested that Network Rail did not do everything it said it would in the LDRP.

Network Rail's evidence said that it had not met the 2012-13 targets for Long Distance PPM MAA due to the effect of the prolonged and occasionally severe weather events and its wider impact on infrastructure. However, our analysis showed that even if the 'extreme' weather days were adjusted, PPM MAA would have remained 3.6pp worse than the CP4 target. Furthermore, through our review of daily incident logs and our one-to-one engagement with each Long Distance TOC, we identified areas where we felt Network Rail did not effectively manage seasonal preparation.

The evidence showed that there were many reasons besides extreme weather for why Network Rail failed to achieve the forecast it originally set out in the LDRP for 2012-13 including:

- It could have managed the impact of weather more effectively;
- It could have had clearer vegetation strategies in place;
- The independent Reporter identified that progress setting up the Weather Resilience and Climate Change Steering Group had been slow;
- The two other national programmes investigated by the independent reporter (RCM and the Long Distance Regulation trial) showed that benefits had been overstated in the LDRP for various reasons;

[1] Please see the LSE evidence pack for more information about LSE.

- Even though some good work had been undertaken, delays attributed directly to train planning remained high in 2012-13;
- Problems relating to operational planning over the Christmas and New Year period in 2012; and
- There was also evidence to support the view that Network Rail was not doing everything it could have to maintain the network on a day to day basis.

On the last bullet point, the Infrastructure Condition Report for period 13 identified several reporting measures within the Long Distance sector which were behind target which tends to indicate inadequate maintenance and/or renewals activities. Additionally, in 2012-13 the volumes of renewals delivered by Network Rail were below plan in most areas (overall by about 20%); although the expenditure was close to budget. Planned and unplanned TSRs had also risen in the latter half of 2012-13, for a number of reasons, and were having a negative impact on performance. Furthermore, despite OLE incidents in 2012-13 being broadly comparable to 2011-12, the delays were associated with 2012-13 were significantly more. A review of the OLE incidents attributable to Network Rail that made it into the periodic top 50 incidents for 2012-13 also indicated that 32% could probably have been prevented by the appropriate application of inspection and maintenance.

With regards to 2013-14, it was disappointing that once again the PPM MAA forecast for the end of CP4 had been reduced and is now 2.9pp below the CP4 target, although we recognise that this new forecast does not include the West Coast South (WCS) Reliability Programme.

In the enforcement order we issued on 23rd July 2012 we said that 'the initiatives in the plan designed to improved performance for the period [2013-14] are not sufficiently developed to demonstrate that Network Rail is and will be taking all necessary steps to deliver the output to the greatest extent reasonably practicable'. We therefore included a reasonable sum, set on a sliding scale of £1.5m for every 0.1 percentage point (pp) below the target that will be paid by Network Rail in April 2014 if it fails to meet the CP4 target. Given what we said in the enforcement order, we had expected to see further development of the initiatives in the plan and possibly have an updated version of the LDRP submitted to us.

In its Q4 progress report, Network Rail told us that many other actions have been taken to improve performance within Network Rail and cross-industry for 2013-14, 'too many to discuss in this quarterly report'. It therefore only gave us details on the WCS Reliability Programme for Long Distance. We think the recommendations of the programme are sensible, and some good progress has been made on suicide prevention measures, although we would like to see the estimated benefits more clearly defined for the other recommendations where possible. It should also keep in mind that this is just a small proportion of the Long Distance sector.

On June 7th 2013, Network Rail wrote to us to tell us that it had recently been able to establish funding of £50m for further performance improvement. Network Rail also announced that projects worth £40m were being undertaken to improve performance on the WCML, however it was unclear if that was part of the performance funding already established.

2. Introduction

2a) Background

1. In January 2012, we issued an enforcement order requiring Network Rail to produce a plan for improving performance in the Long Distance sector in 2012-13 to the levels specified in the final determination for CP4. Network Rail submitted its Long Distance Recovery Plan (LDRP) on 30 March 2012 and, after reviewing the plan, we concluded that Network Rail had complied with the enforcement order for Long Distance performance for 2012-13. It was stated that whilst Network Rail was not currently in breach of its licence in respect of 2012-13, it was critically dependent on delivery of the Joint Performance Improvement Plan (JPIP) commitments it had made and on doing the work to deliver further improvement[2].

2. However, we also concluded that Network Rail was likely to be in breach of condition 1 of its licence in relation to its Long Distance performance target in 2013-14. We therefore issued an enforcement order on July 23rd 2012 requiring Network Rail to meet its Long Distance Public Performance Measure (PPM) target (92%) for 2013-14 to the greatest extent reasonably practicable.[3] This included a reasonable sum, set on a sliding scale of £1.5m for every 0.1 percentage point (pp) below the target that will be paid by Network Rail in April 2014 if it fails to meet the CP4 target.

3. We committed Network Rail to deliver quarterly reports in relation to its performance and delivery of its LDRP and the first of these was received in July 2012. In assessing progress we also took into consideration problems regarding Network Rail's delivery with Cross Country and Virgin. In September and October 2012 we sought commitments from Network Rail to implement the conclusions of the work Chris Gibb[4] was doing to help improve performance in the Long Distance sector.

4. In November 2012 we concluded that Network Rail's plans for the Long Distance sector demonstrated that it continued to do everything reasonably practicable to achieve its JPIP commitments for 2012-13 and was therefore compliant with condition 1 of its Network Licence, however it was also noted that the company faced a major challenge if it was to avoid a significant penalty in 2013-14. We wrote to Robin Gisby on 5 December 2012 with this decision.

[2] http://www.rail-reg.gov.uk/upload/pdf/290512-performance-breach-letter.pdf
[3] http://www.rail-reg.gov.uk/upload/pdf/confirmation-long-distance-perf-enforcement.pdf
[4] Chris Gibb is Virgin's chief operating officer. He was seconded to Network Rail to work with it on improving the performance of the infrastructure on the southern end of the West Coast Main Line.

5. In light of problems relating to operational planning during the Christmas and New Year period in 2012 we wrote to Network Rail raising our concerns[5], asking for more information on the reasons behind the issues and the measures being taken to ensure they didn't happen again. We also advised that we would be considering these issues as part of our end of year review of its performance.

6. On 1st February, Network Rail submitted its third quarterly report on progress against the deliverables committed to in the LDRP and LSEP. The report covered periods 8, 9 and 10, which had seen poor performance, but it was difficult to draw any conclusions because of the bad weather and the impact the transition to the new 'iPAT' system had had on benefits.

7. Network Rail did not met the targets as set out in the LDRP for 2012-13. As per the enforcement order relating to Long Distance performance in 2013-14, we continued to monitor the position across the sector carefully during 2012-13 and will consider taking further retrospective action for 2012-13 if we are not satisfied that Network Rail had complied with its licence obligations.

2b) Terms of reference of our investigation

8. On 29th April 2013, we wrote to Network Rail stating our intention to formally investigate performance in Network Rail's Long Distance and London and the South East[6] sectors for 2012-13 and 2013-14[7]. In summary, this investigation focused on Network Rail's Long Distance and London and the South East sector performance in 2012-13 and an assessment of whether it did everything reasonably practicable to achieve its regulated outputs. We also considered the impact of the Long Distance and London and South East sector performance in 2012-13 on the future delivery of Network Rail's regulated outputs.

9. Our investigation included an analysis of a range of issues affecting performance. They included, but were not limited to: weather (its impact and how Network Rail dealt with it); asset management, (including maintenance, renewals, track faults and TSRs, signalling and power supply, overhead line electrification and remote condition monitoring (RCM)); and train planning. We also considered the operational planning issues including those highlighted over the Christmas and New Year period as referenced in our letters on 3rd January and 22nd February 2013 in annex D.

[5] Please see Annex D for the letters sent to and received from Network Rail
[6] Please see the LSE evidence pack for more information about LSE.
[7] http://www.rail-reg.gov.uk/upload/pdf/20130429-letter-to-NR-performance-investigation.pdf

2c) Context of the investigation

10. We reviewed the original LDRP, the subsequent quarterly progress reports we received throughout the year, the full year review we received on 15th May 2013 and some further evidence Network Rail asked us to consider. We engaged with Network Rail to understand the reports and plans it provided, to answer any questions we had and to discuss any further information Network Rail thought may be relevant to our investigation.

11. We sought views and further information from relevant operators and set up a number of meetings with them to discuss whether they were satisfied that Network Rail was doing everything reasonably practicable to meet its requirements without comprising safety. We also discussed what main factors they believe influenced performance in 2012-13 and how confident they were that Network Rail will hit the figures they have agreed in the 2013-14 JPIPs.

12. We commissioned an independent reporter to provide us with an assessment of the delivery and impact of the actions in the LDRP. The independent reporter undertook three field tests: a review of the Long Distance Regulation trial; a review of the activities of the Weather Resilience and Climate Change Steering Group; and a review of the Intelligent Infrastructure programme. In line with our usual reporter process, a remit was agreed in advance with Network Rail.

13. We finished our investigation at the end of May 2013. At that stage we considered the issues raised in the evidence provided to us and decided whether any further enforcement action needed to be taken.

2d) Consideration of issues

14. This investigation focused on whether we thought Network Rail did everything reasonably practicable to meet its performance commitments in 2012-13 and whether it would meet its commitments in 2013-14. In assessing this we considered the following issues:

- Whether Network Rail did everything it said it would do in the LDRP;
- Whether the performance improvements had the effect Network Rail thought they would;
- Train Operating Companies feedback on whether Network Rail had met its requirements and what they thought impacted on performance in 2012-13;
- The impact the weather had on performance and whether Network Rail did everything reasonably practicable to mitigate the effect it had;
- Whether Network Rail was up to date on its day to day maintenance of the network (including the organisation of maintenance work, asset renewals, track faults, signalling and power supply, overhead line electrification and the implementation of new technology) ;
- The effect train planning had on performance; and
- What other things Network Rail were planning for 2013-14 to improve performance.

3) Performance summary

15. The CP4 regulatory targets for the Long Distance sector PPM moving annual average (MAA) are shown in Table 1.

Table 1: CP4 targets for Long Distance PPM MAA and CaSL MAA

Long Distance	2009-10	2010-11	2011-12	2012-13	2013-14
PPM MAA (%)	88.6	89.8	90.9	91.5	92.0
CaSL MAA (%)	4.9	4.5	4.2	4.0	3.9

PPM MAA forecasts from the Long Distance sector plan and quarter 1, 2 and 3 reports

2012-13 P13	**PPM MAA**	**Percentage point (pp) variance to CP4 target**	**Percentage point (pp) variance to JPIP target**
P13 actual	*87.0%*	*-4.5pp*	*-2.7pp*
LDRP*	89.6%	-1.9pp	-0.1pp
Q1 report - no forecast update, assume as LDRP	89.6%	-1.9pp	-0.1pp
Q2 report – no forecast update, assume as LDRP	89.6%	-1.9pp	-0.1pp
Q3 report	88.3%	-3.2pp	-1.4pp

Forecasts based on the 90% confidence level

*based on the Base, Base+ and Base++ (combined) forecast quoted in the Q3 report. There was no such forecast in the LDRP as delivery of the Base+ and Base++ plans were not fully quantified at the time of publication.

Long Distance CaSL MAA

2012-13 P13	**CaSL MAA**	**Percentage point (pp) variance to CP4 target**	**Percentage point (pp) variance to JPIP target**
P13 actual	*4.9%*	*-0.9pp*	*-0.9pp*

16. Of all the Long Distance operators, Virgin Trains had the greatest variance against CP4 and JPIP PPM MAA target at the end of P13 2012-13, 7.0pp and 4.8pp worse than target respectively (Table 2). However, all Long Distance operators remained worse than their CP4 and JPIP PPM MAA targets.

Table 2: performance against target by TOC

Train operator	PPM MAA (P13)	PPM MAA P13 CP4 target	Percentage point (pp) difference to CP4 target	P13 PPM MAA JPIP target	Percentage point (pp) difference to JPIP target
Cross Country	86.9%	90.9%	-4.0pp	90.9%	-4.0pp
East Coast	83.9%	90.5%	-6.6pp	87.0%	-3.1pp
East Midlands Trains*	92.6%	no target	-	93.4%	-0.7pp
First Great Western*	82.8%	no target	-	85.6%	-2.8pp
First TransPennine Express	91.7%	94.0%	-2.3pp	91.5%	0.2pp
Greater Anglia*	88.3%	no target	-	89.0%	-0.7pp
Virgin Trains	83.6%	90.6%	-7.0pp	88.4%	-4.8pp

*PPM MAA figures based on Long Distance sector component only. There are no CP4 targets for multi-sector TOCs.

17. Analysing the causes of delay across the sector, delay minutes for 2012-13 (P1-13) were worse than the same period in 2011-12 for all categories except externals, operations and track. Analysis of Long Distance delay minutes for 2012-13 identified that non-track assets were the largest cause of delay minutes at 20%, followed by fleet at 19%. Severe weather, autumn and structures caused delay minutes at the end of 2012-13 were 172% worse than 2011-12 but this category only made up 11% of the total 2012-13 delay minutes. Delay minutes caused by operations and external factors were both 15% better in 2012-13 than 2011-12. Table 3 shows this in more detail.

18. When analysing total Network Rail delay minutes by Long Distance train operators (multi sector operators not included[8]), Cross Country accounted for the largest number of minutes with just over 530,000, followed by Virgin Trains with nearly 467,000 minutes, First TransPennine Express with just over 278,000 minutes and then East Coast with nearly 252,000 minutes. Analysis of route data showed that the greatest number of Network Rail caused delay minutes in the Long Distance sector occurred on the London North West route (749,343), followed by the London North East route (566,909).

19. Network Rail analysed the relationship between delay minutes and PPM and this showed that the relationship had changed since the start of CP4. For the Long Distance sector, based on delay minutes, the PPM benefit delivered will be less than expected at the start of CP4.

[8] Multi-sector TOCs not included are East Midlands Trains, First Great Western and Greater Anglia.

Table 3: Long Distance performance by delay category

JPIP category	Responsible owner	2011-12	2012-13	Variance against 2011-12	Proportion of total 2012-13 delay minutes
Externals	Network Rail	441,074	373,539	-15%	12%
Network Management / Other	Network Rail	450,072	481,491	7%	15%
Non-Track Assets	Network Rail	607,780	650,276	7%	20%
Severe Weather, Autumn, & Structures	Network Rail	132,746	360,703	172%	11%
Track	Network Rail	242,613	236,048	-3%	7%
Fleet	TOC	555,418	595,356	7%	19%
Operations	TOC	90,092	76,636	-15%	2%
Stations	TOC	63,726	67,778	6%	2%
TOC Other	TOC	171,563	193,038	13%	6%
Traincrew	TOC	120,705	152,463	26%	5%
Total	**-**	**2,875,790**	**3,187,328**	**11%**	**-**

20. The trend in Long Distance PPM MAA can be seen in Chart 1, which shows the long-term performance against CP4 and JPIP targets. Chart 2 shows the PPM trends for the TOCs that make up the Long Distance sector.

Chart 1: Long Distance PPM MAA performance against target

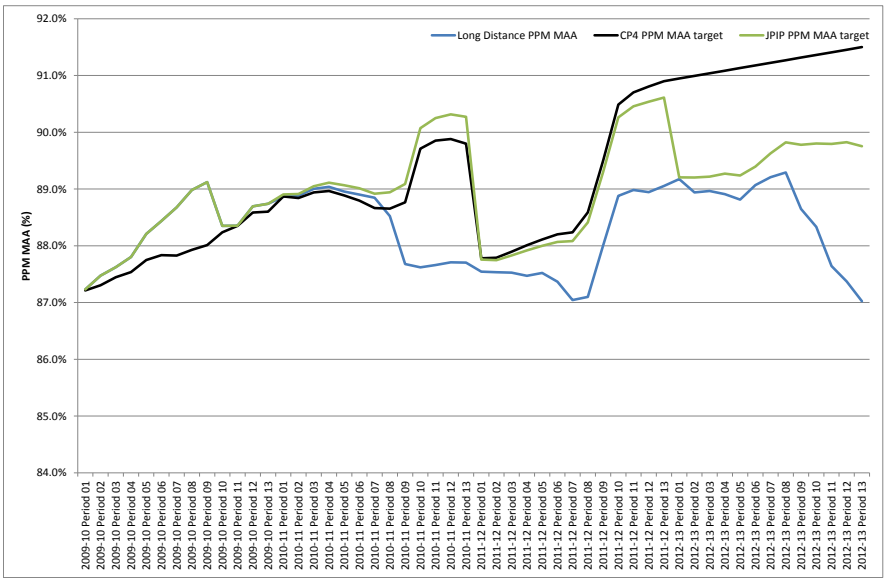
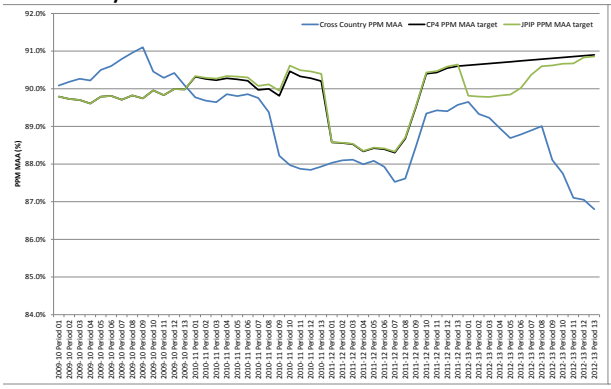
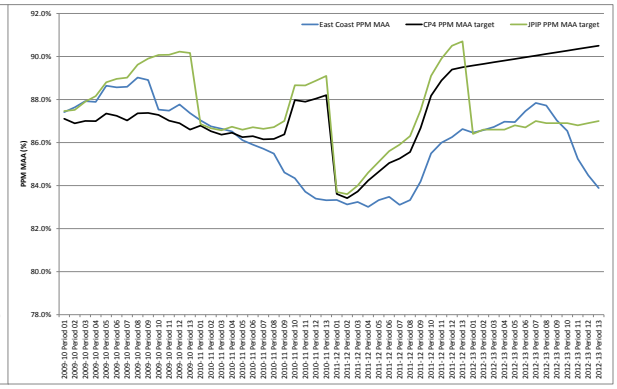


Chart 2: Long Distance train operators PPM MAA performance against target

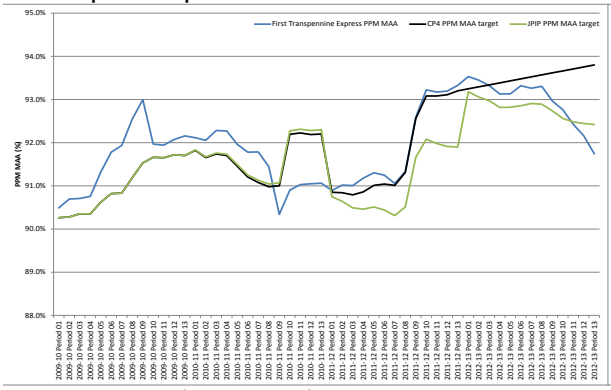
Cross Country



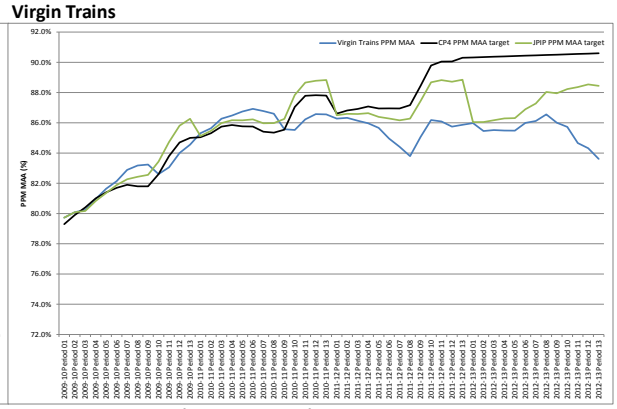
East Coast



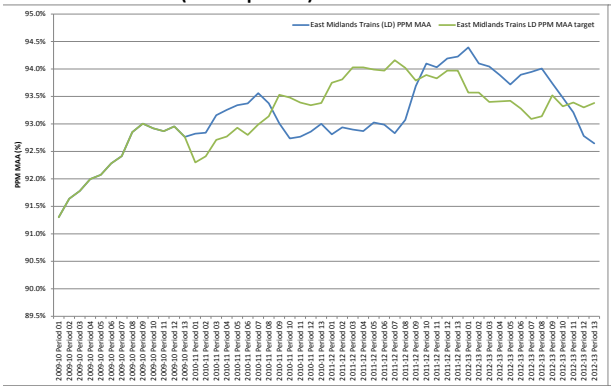
First Transpennine Express



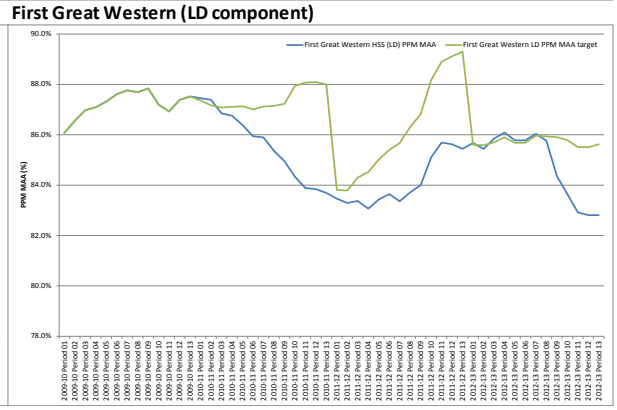
Virgin Trains



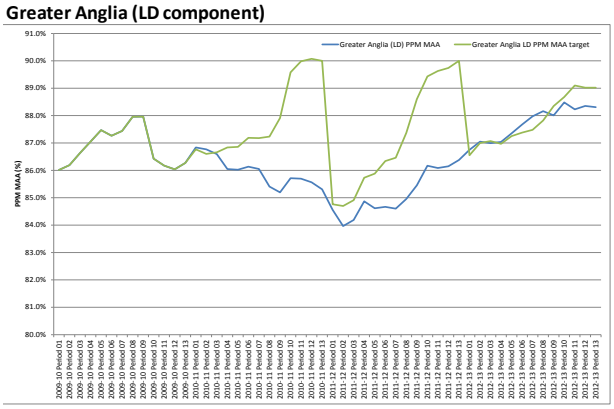
East Midlands Trains (LD component)



First Great Western (LD component)



Greater Anglia (LD component)



*No CP4 targets for multi-sector TOCs

4) Passenger satisfaction in the Long Distance sector

21. An important measure of how performance affects passengers across the sector is the National Passenger Survey. Based on the spring 2013[9] results, which were published on 19th June, the proportion of passengers travelling in the Long Distance sector who were very or fairly satisfied overall was 87 per cent. This was not significantly different compared to spring 2012 (when 88 per cent were satisfied). However satisfaction with train punctuality/reliability was significantly lower than spring 2012 and had fallen by 4% to 83%, ending the steady upward trend that has occurred over the last few years. This reinforces our decision to formally investigate performance in Network Rail's Long Distance sector for 2012-13 and 2013-14.

22. The Long Distance sector does have the highest results for overall satisfaction and satisfaction with train punctuality/reliability compared to other sectors, however it traditionally has higher satisfaction due to the higher proportion of leisure and business travellers (as opposed to commuters) whose satisfaction is traditionally higher.

5) Review of Long Distance performance

2012-13

5a) Was Network rail doing all that it said it would in its LDRP?

Network Rail evidence

23. Network Rail failed to meet its 2012-13 PPM and CaSL regulatory, JPIP and LDRP targets (PPM and CaSL can be seen in Table 1 above). Additionally Network Rail failed to deliver the improvements in delay minutes incurred, which were promised in the plan. Network Rail also failed to fill the gap between actual performance and the targets with new initiatives to deliver the promised performance to the industry.

24. Network Rail told us[10] that of the 193 key deliverables planned for 2012-13 outlined in the LDRP, 174 were delivered, 16 were progressed but were delayed and won't be completed until 2013-14 and three had been withdrawn. No further detail was given as to why three deliverables were withdrawn, and Network Rail only provided detail on the delay minute benefit lost for one (a scheme to upgrade 25 points at Worcester was withdrawn resulting in a 145 minute negative impact on LDRP planned benefits). Various reasons were given for why the 16 key deliverables had been delayed, including a shortage of loggers, a dewirement requiring resources to be reallocated and that TOCs were unable to release train crew to support the deliverable. Network Rail did not explain why it failed to find sufficient new initiatives to fill the gap.

[9] Spring 2013 (wave 28) main fieldwork was undertaken between 12 January and 24 March 2013. Top-up interviews were done within the last three weeks of the fieldwork period.

[10] In further evidence supplied to us on 20th May 2013

25. Network Rail told us in its full year review that delivery of the plans had generally been strong. In particular, that delivery of the Base had been strengthened by the introduction of project managers into route performance teams, there had been development of additional initiatives in the Base + and Base ++ initiatives and further improvement initiatives had been developed through the year. In addition it told us that PPM benefit from the excellent performance during the Olympics, which was previously seen as a risk to performance, came in addition to the planned initiatives.

26. In the 2012-13 performance year Network Rail told us that almost 245,000 delay minutes of benefit was delivered to the Long Distance sector through delivery of the Base plan. This was against a planned target of 286,000. PPM benefit from delivering the Base plan also missed what was planned in the LDRP by 0.12 pp. However Base ++ was ahead of what was planned, delivering 0.6 pp of PPM benefit against a target of less than 0.02 pp. At the end of 2012-13, Long Distance delay minutes totalled just over 3 million, 11% worse than 2011-12 (table 3 above).

27. In the Q4 progress report, Network Rail said that delivery of the LDRP improvement schemes was better than planned for in Quarter 4. It said it had completed 32 more projects (45%) than planned resulting in some early delivery of benefit. However progress with milestones was behind plan and of the 175 missed, 24 had the potential to impact on benefits delivered in CP4. The slippage represented a 1,882 delay minute reduction in benefits in CP4.

28. Network Rail told us that the number of projects in the Base plan for 2013-14 had increased by 576, which had mainly been identified through the JPIP process and the benefits delivered by the Base plan for 2012-13 and 2013-14 had also increased by 75,000 minutes[11]. However as noted above (paragraph 27), delay minutes for the base in 2012-13 were actually behind what was planned for in the LDRP. It should also be noted that the JPIP process always identifies further areas for development and some additional delay minute savings for 2013-14 should have been expected, despite the fact a two year JPIP was developed at the end of 2011-12.

29. Network Rail also gave us evidence on the four national programmes providing direction to the Base plan. On the suicide prevention programme, Network Rail had been working with the British Transport Police (BTP) to reduce delay minutes attributable to suicide events and despite a similar number of events in 2011-12 and 2012-13, delay minutes fell by 95,600. The proportion of suicides that occurred on the railway also seemed to have fallen and Network Rail told us that it was widely recognised that much of that came about through a more proactive and dynamic working relationship between it, the BTP and the Samaritans.

[11] Network rail have told us this ignores the element of risk, which is referred to as negative schemes in iPAT, since not all routes are using this field consistently.

30. Network Rail is also aware that further work needs to be undertaken, particularly at eliminating/reducing the number of non-station incidents. The fatality prevention work is receiving strong support from the routes but Network Rail is conscious that greater TOC engagement is needed to make further progress.

31. Network Rail's evidence on the cable theft prevention programme was also a positive example of a national programme delivering what it set out to do. Collaborative working with a number of agencies, use of technologies such as Smartwater and cross-industry lobbying resulting in a new law regarding scrap metal dealers all seemed to have had the desired effect. While historically the price of copper and the occurrence of cable theft had been closely linked, since period 6 2012-13 the price of copper had risen and yet the number of cable thefts had not[12].

32. With regards to Base ++ initiatives, Network Rail told us that the regulation trial had concluded, was now considered 'business as usual', and the benefit to the Long Distance sector had been 0.9%[13].

TOC engagement

33. We spoke to the Train Operating companies (TOC) that form the Long Distance sector to gain an understanding of how they felt about Network Rail's delivery of the LDRP and their thoughts are summarised below;

- Generally the Long Distance community said that they felt that the LDRP does not have any senior level leadership, and they do not identify it with a named individual as the LSE TOCs do with Dave Ward and the LSEP. One Operations Director said that because of this lack of leadership "the route specific actions from the LDRP do not have a driving force."; and
- The West Coast South project was considered by many to be a distraction from the whole sector picture and some TOCs felt that too much credit was given to this work as a potential savour of the Long Distance sector. One TOC Managing Director said it was "a bit of a distraction, it is mentioned frequently in the Network Rail Q3 progress report, but the fact is that it only covers half of one GM area and no actions are mature enough yet to fully understand."

Our conclusions

34. In conclusion, Network Rail failed to meet its targets for PPM and CaSL in 2012-13. PPM MAA ended 2012-13 4.5pp below the CP4 target and 2.7pp below the JPIP target and CaSL MAA ended the year 0.9pp below the CP4 and JPIP targets. Network Rail also failed to complete the number of deliverables anticipated in its LDRP, delivering 174 in 2012-13 compared to the 193 planned in the LDRP. Completion of 16 of these projects was expected in 2013-14, but three had been withdrawn completely. Network Rail told us that the Base plan would now deliver an additional 75,000 minutes by

[12] The other two national programmes, Remote Condition Monitoring and the weather resilience and climate change steering group are covered in detail under section 5d

[13] Please see paragraphs 116 to 122 for the independent reporter's assessment of the Long Distance regulation trial

the end of 2013-14, however 2012-13 saved 40,000 minutes below what was expected in the LDRP and PPM was also 0.12pp behind plan. Credit should be given for effective management of cable theft and suicides, where a significant reduction in delay minutes was achieved. However, overall the evidence suggested that Network Rail did not do everything it said it would in the LDRP.

5b) If not, why not?

Network Rail evidence

35. In its full year review Network Rail told us that the key challenges to programme delivery had been:

- Likely costs and benefits were less reliably based due to the changing rail environment and decisions on industry trade-offs;
- The need to respond to many real time problems (e.g. weather events) including the need to carry out repair and recover backlog and potentially further mitigation to prevent repeat events; and
- Scope to adjust to strategic focus on issues.

36. More specifically, in the Q4 progress report, Network Rail told us a number of milestones in Q4 were missed due to the pressure on resources over the wintry periods, where delivery of work needed to be prioritised. However it also told us that all routes apart from two were now planning to deliver more benefits than originally published in the LDRP in 2013-14. Further, the two routes planning to deliver slightly less than originally planned had improved their position since the Quarter 3 report.

37. Network Rail also told us in the Q4 progress report that progress made against its plan for the Base + programme in quarter 4 had been slightly behind this quarter, mainly due to inadequate business cases for some incident response time initiatives and delays with one initiative on the freight workstream, although only the latter had seen a reduction in benefits. The timetable for performance workstream had also had a reduction in benefits following re-evaluation as part of the validation process. However, overall, Network Rail said that the Base + initiatives were still expected to deliver more benefit than planned.

38. Network Rail told us that it had to redirect resource away from planned maintenance work, or cancel planned maintenance work due to the impact of the weather. Based on the evidence it provided, it did appear that in some locations there was a maintenance backlog, notably on the Western route where flooding over Christmas and New Year meant work had to be postponed.

39. When reviewing the JPIPs for 2013-14, we found that the sum of all JPIPs for England and Wales was 0.65pp short of the CP4 regulated output. While we recognise that the JPIP as a bottom up process may fall short of the high level targets, we expected that Network Rail's central team would

better enable the routes and their customers to deliver regulated outputs. In this instance, had the LDRP not already been created, we would have been asking Network Rail to either provide additional funding, or develop nationally led programmes to bridge the gap. However as the LDRP is already in delivery phase, our only realistic expectation for Network Rail to address this shortfall in 2013-14 would be for more national programmes to be added to the LDRP and further performance recovery funding to be made available to the routes. We had not yet seen any evidence of this.

Independent reporter field tests

40. In the LDRP, Network Rail noted that its planning approach would use: average weather as a base for planning; put in place proper seasonal management and review arrangements; respond when forecasting weather conditions move beyond expected capability of the railway; and when extreme weather occurs, use the average weather concept to measure the impact 'beyond that which was planned'. In reviewing how it had implemented this approach, Network Rail told the independent reporter that:

- It was reported that not all Routes take seasonal preparedness equally seriously. The evidence presented supports the claim that not all Routes take seasonal preparedness reporting equally seriously, however despite coming from a well-placed stakeholder, it is not possible to conclude whether this comment is correct.. The Weather Resilience & Climate Change Group does not currently have a role in ensuring seasonal preparedness;

- Network Rail was currently reviewing performance at the end of each season and following a major weather event. However it was relatively weak in ensuring that agreed routes actions in response to these reviews are closed out. The Group has no role in ensuring that the actions are closed out;

- It was placing more emphasis on the importance of making its assets more resilient to weather and climate change. To date there had only been a very limited level of central resource assigned to weather and the central weather function only came into place around 18 months ago. In 2012-13 there was a National Weather Specialist supported by Seasonal Delivery Specialists (SDS) in each of the routes. However, there were only three SDS in place to deal with the past winter. Furthermore, the National Weather Specialist is leaving Network Rail in July 2013; and

- It focuses on extreme weather and has tried and trusted ways of working in the event of extreme weather. Network Rail believes that it was actually very effective at responding to extreme weather events and improvements on seasonal preparation had been progressed through the NTF.

41. Whilst extreme weather has a major impact and is rightly the focus of much attention, as important is how Network Rail deals with 'adverse' weather (which happens more frequently than extreme weather, yet there is no effective, established or prescribed method for how routes/control should act in the event of 'adverse' weather). As part of the new weather resilience strategy, Network Rail will look to develop an approach to build resilience to manage the network during periods of 'adverse' weather.

42. Through each of the other field tests, it was noted that Network Rail had delivered many benefits both in Quarter 4 and in 2012-13. However, in each case the benefits delivered had been significantly less than originally anticipated. The benefits to date from RCM were at least 25% less than the revised benefit target and there is doubt as to whether the learning curve had been adequately factored into Network Rail's plans. The Long Distance Regulation trial had also delivered around 30% less benefit than anticipated.

43. It was clear from each of the field tests that all of the staff involved had made a genuine attempt to deliver their respective programmes and seemingly made reasonable endeavours to deliver the planned benefits. However, the benefits had not been realised due to either over optimism in the initial setting of benefit targets, implementation not being rolled-out as widely as planned, lack of adequate capturing of the true benefits, or delays being introduced as a result of management system failures.

TOC engagement

44. All TOCs we spoke to in this sector expressed concern about the number of speed restrictions on the network and felt Network Rail needed to be challenged to remove speed restrictions which were potentially damaging to PPM. Some other items of feedback where TOCs felt Network Rail failed to deliver included:

- Many TOCs said they felt the recent downward trend in performance was less about weather and more about getting the basics right, especially in terms of asset maintenance. Some TOCs said they felt the LDRP was a distraction to Network Rail who needed to just focus on the basic operation of the network. "They did this [plan] but forgot to do the day job" was the comment from one Head of Performance. One TOC MD said that "Had Network Rail got the basics right, there wouldn't be any need for a recovery plan" before going onto say that "I do not think the plan has distracted Network Rail because they should have a capability to deliver the day to day and the improvement plan.";

- Vegetation management was viewed negatively across the industry, with many TOCs saying that Network Rail did not have clear vegetation strategies. One TOC MD noted that "Vegetation management was more of an afterthought of what Network Rail could do with any left over money." The general consensus was that work needed to be identified, funded, delivered and then re-visited at a later date when vegetation was more manageable

(due to the benefit of the previous work) rather than some work being done and then left to become unwieldy again without follow up intervention;

- There was an overwhelming feeling that Network Rail had contributed to the impact of weather by failing to maintain drainage, points heaters and conductor rail heating. One TOC performance manager said "Network Rail spent plenty of capital expenditure to get these culverts designed and installed, but they didn't have the operational expenditure or the physical resource to maintain them – therefore when they became blocked the railway flooded." One TOC Ops Director also said they were "sceptical that Network Rail failed to achieve targets as it had to divert resources to deal with severe weather"; and

- The central Train Planning function was identified as a weakness, with many TOCs saying that they felt there had been an on-going resource shortage since the re-location to Milton Keynes, while other TOCs felt there was a capability weakness with the calibre of people within the team not being as good as it once was historically.

Conclusion

45. In conclusion, there was some evidence that supported Network Rail's assertion that the weather impacted on planned maintenance work. However progress on developing an approach to build resilience and manage the network either through the Weather Steering Group or some other route, which would have helped reduce the impact of the 'adverse' and 'extreme' weather last year, had been slow. TOCs were also less convinced that the weather had been the cause of the downward trend in performance, but even when it had, they felt that Network Rail contributed to the impact by failing to maintain drainage, points heaters and conductor rail heating. Vegetation management was also viewed negatively across the industry and many felt that Network Rail did not have clear vegetation strategies in place. Furthermore, evidence obtained through the independent reporter's field tests highlighted further challenges. Although two of the programmes (RCM and Long Distance Regulation trial) had delivered benefits, in each case the benefits were significantly less than anticipated.

5c) Was it having the forecasted effect?

Network Rail evidence

46. The Network Rail forecasted PPM MAA changed significantly as the year progressed, (see table 4.)

Table 4: Forecasts for the end of 2012-13 which we received throughout the year

2012-13 P13	**PPM MAA**	**Percentage point (pp) variance to CP4 target**	**Percentage point (pp) variance to JPIP target**

P13 actual	*87.0%*	*-4.5pp*	*-2.7pp*
LDRP*	89.6%	-1.9pp	-0.1pp
Q1 report - no forecast update, assume as LDRP	89.6%	-1.9pp	-0.1pp
Q2 report – no forecast update, assume as LDRP	89.6%	-1.9pp	-0.1pp
Q3 report	88.3%	-3.2pp	-1.4pp

Forecasts based on the 90% confidence level

*based on the Base, Base+ and Base++ (combined) forecast quoted in the Q3 report. No such forecast in the LDRP as Base+ and Base++ plan delivery not fully quantified at the time of publication.

47. In the Q4 progress report, Network Rail provided a table summarising progress since the launch of LDRP against the forecasted Long Distance delay minute and PPM savings. It said that the Base plan had and will deliver 1.89pp of PPM benefit, 0.38pp above what was planned when the LDRP was published. However additional evidence showed that in 2012-13 the Base actually delivered 0.12pp below what was planned. In addition, Network Rail provided an overview of the Long Distance PPM benefits delivered by the Base + workstreams. This said that Base + will be delivering 0.88pp of PPM benefit by the end of 2013-14, 0.79pp below what was forecast in the LDRP. Network Rail also said progress had been slightly behind plan in quarter 4 mainly due to inadequate business cases for some incident response time initiatives and delays with one initiative on the freight workstream.

48. In Q4, Network Rail provided commentary around progress on Base ++. It said that the benefit of the regulation trial had been 0.9%, however LNE estimate that the benefit was nearer 0.6%. The only other Base ++ programme for Long Distance was Western Red Route, which was still in the early stages of development and therefore had no benefits attached to it at present. However in the LDRP less than 0.02% PPM benefit was actually planned for in 2012-13, so in fact there had been a net benefit.

49. Overall Network Rail told us that the LDRP had delivered around 1.3% of PPM benefits in Q4. It said this would have resulted in the LDRP expectation of 89.6%[14] being met had PPM not been significantly affected by weather effects and infrastructure faults together with some underlying loss of PPM compared to delay. However it is difficult to follow the evidence provided to us on how Network Rail quantified the 1.3%.

The effect of iPAT

50. The introduction of the iPAT system to track scheme actions and the associated changes to the way scheme benefits were calculated caused a change in the reported numbers, with 80,000 minutes

[14] This is figure quoted by Network Rail in the LDRP as where it was 90% confident it would end the year if the LDRP was delivered, i.e. Base, Base + and Base ++.

benefit removed. The removal of 27,000 of these minutes were due to a change of risk reporting, in that iPAT moved from reporting gross scheme benefits to net inclusive of risk, while the remainder was due to the removal of schemes classified as non-viable, i.e. they were never going to be realised. We received little evidence of how a non-viable scheme was identified.

Conclusion

51. It is hard to say with certainty whether delivering the LDRP had the forecasted effect. However the evidence suggested that it did not since iPAT identified many cases where original schemes in the LDRP were 'non-viable', the independent reporter field tests showed that benefits from programmes such as Long Distance regulation were being over estimated and actual PPM in 2012-13 for Base and Base+ was below what was planned for in the LDRP.

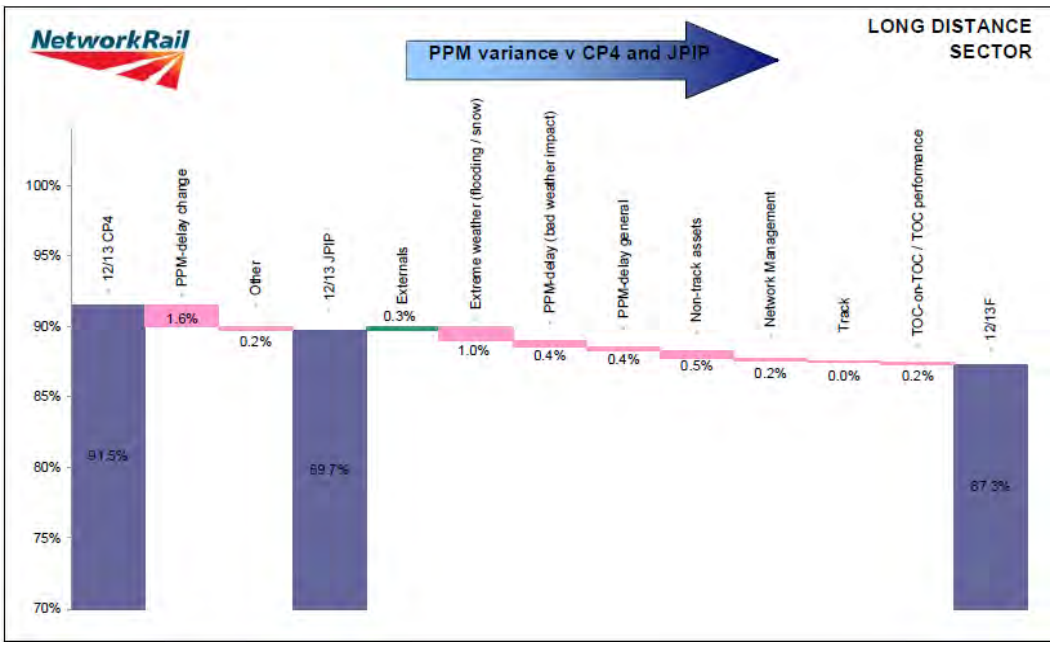
5d) If not, why not?

Network Rail evidence

52. Network Rail's evidence said that it had not met the 2012-13 targets for Long Distance PPM MAA due to the effect of the prolonged and occasionally severe weather events and its wider impact on infrastructure. It said that the infrastructure had also had some relatively isolated (in terms of location) reliability issues, although infrastructure incidents continued to reduce to record low levels, although it added that the benefits were offset to some extent by the rise in delay per incident.

53. Network Rail also provided a waterfall chart in their full year review, (see Chart 3) which showed that the largest negative effect on PPM was the weather (-1.4%), followed by non-track assets (-0.5%), PPM /delay general (-0.4%) network management (-0.2%) and TOC on TOC / TOC performance (-0.2%). However the end of year figure was based on their early March forecast and in fact the year ended on 87.0%. It is unclear where the further 0.3% was lost, but the evidence in the Q4 report implies that Network Rail would attribute this to the impact of the cold weather.

Chart 3: Long Distance waterfall for 2012-13 PPM performance



Weather and performance

54. The full year review we received from Network Rail highlighted some key areas that it needed to focus on to improve performance during extreme weather. Short and long term strategies to target weather mitigation were just beginning to emerge, but further action and detail was required to identify the core areas that had been impacted and the lessons learned, particularly from the recent changes in weather and weather events. Further work also needed to be conducted to better understand the cause-effect relationship between the weather events and performance. Successful planning and implementation of these strategies, utilising the available analysis and funding resources, should help Network Rail mitigate against the effects of weather events from 2013-14 onwards.

55. National weather delay minutes[15] for 2012-13 totalled over 1 million, the highest number of minutes attributed to weather during CP4. In 2009-10 and 2010-11 the country experienced 'extreme' weather conditions, largely due to extreme cold and snowfall. The weather delay minutes in those years totalled approximately 914,000 and 915,000 respectively. Comparison to the total weather delay minutes for 2012-13, showed an 11% and 10% (respectively) increase against these years. Weather delay minutes for 2011-12 were substantially less at just over 429,000.

56. Analysis of JPIP targets for severe weather, autumn and structures indicated a downward trend in the target during each year of CP4 (as a proportion of the annual delay minutes target). In 2009-10 severe weather and autumn structures accounted for 15% of the total delay minutes target, but this had reduced to 10% in 2012-13.

57. Similarly, the Network Rail internal targets for weather incident codes 110A and 110B, had also declined, moving from 10% in 2009-10 to 8% in 2012-13 (as a proportion of the annual internal Network Rail delay minutes targets).

58. Analysis of the Long Distance sector average precipitation levels over the four years of CP4, indicate that precipitation had been highest during 2012-13 (Chart 4). A quarterly breakdown of precipitation levels in each year of CP4 (Chart 5) showed that only quarters 1 and 2 in 2012-13 had the greatest average precipitation and higher average levels of precipitation were seen in 2009-10 for quarter 3 and 2010-11 for quarter 4 (marginally).

[15] Based on weather incident categories 110A (severe weather-beyond design capability of infrastructure) and 110B (other weather-impact on infrastructure or network operations)

Chart 4: Long Distance sector annual average precipitation levels

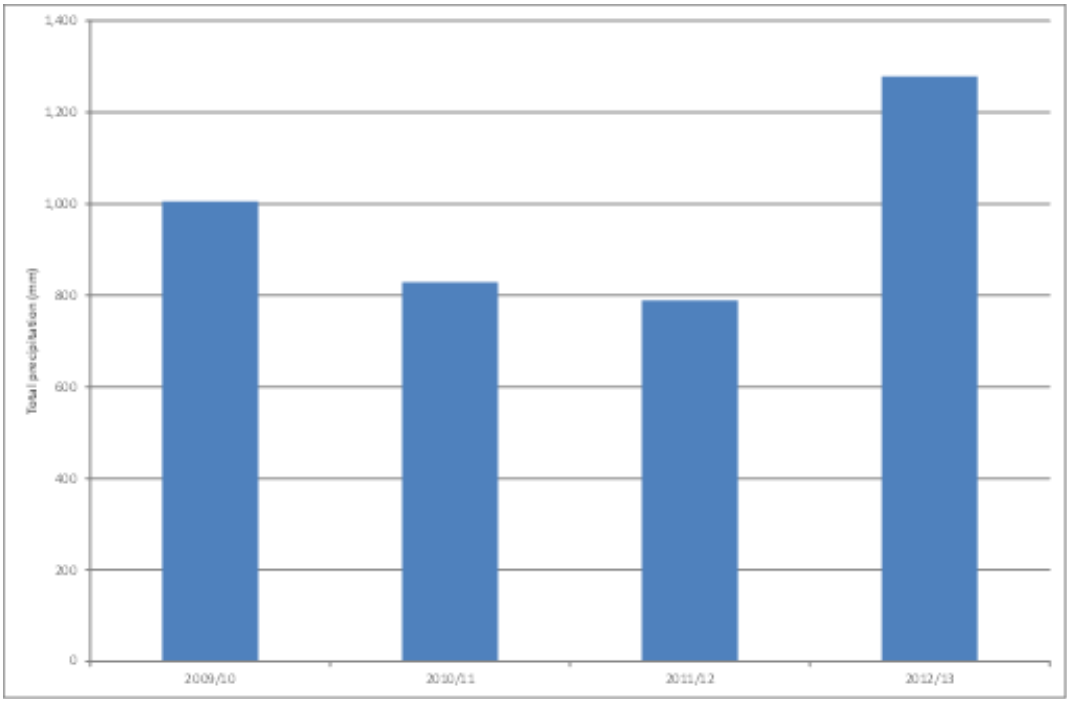
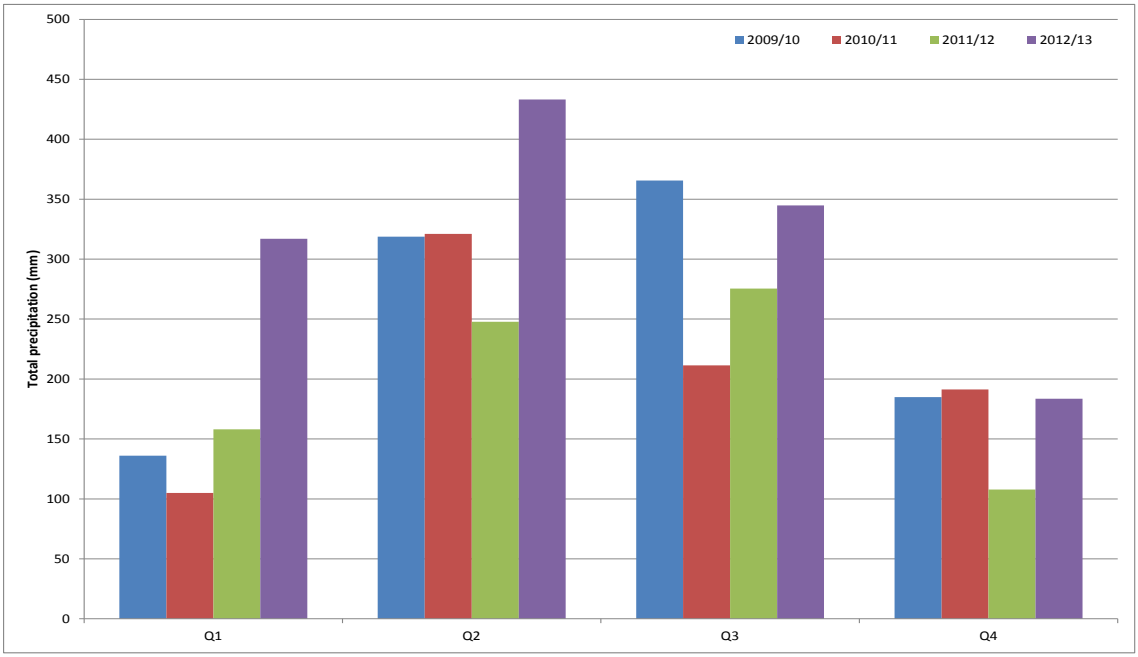


Chart 5: Long Distance sector quarterly breakdown of average precipitation levels



59. A student t-test was used to identify if the amount of precipitation in 2012-13 was significantly more than any previous year in CP4. The results showed that the mean level of precipitation in 2012-13 was statistically significantly more than compared to 2009-10, 2010-11 and 2011-12.

60. Short, heavy bursts of precipitation typically lead to flooding and have more of an impact on the rail industry compared to sustained daily levels of precipitation. Table 5 identifies the number of 'extreme' days adjusted in each quarter of 2012-13 as part of our weather analysis, compared to the

number of amber or red weather warnings issued by the Met Office for rainfall or snow in England and Wales (E&W) in 2012-13[16].

Table 5: Number of adjusted 'extreme' days for the Long Distance sector against the number of amber or red weather warnings issued by the Met Office.

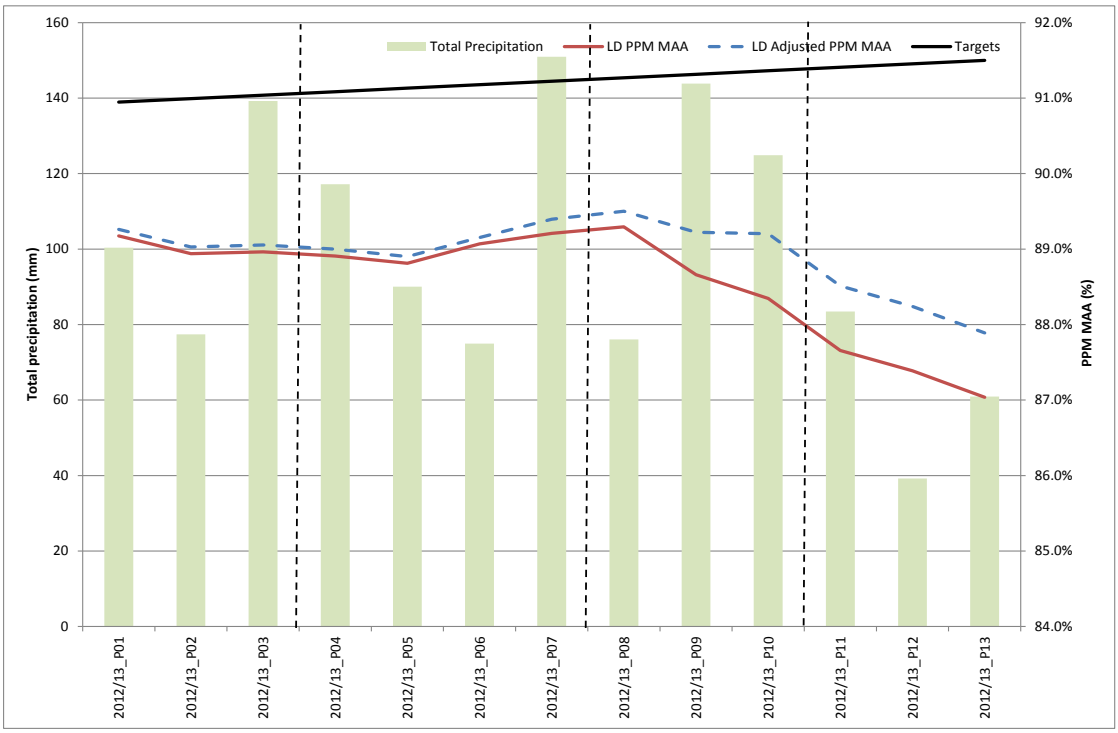
Quarter	Number of adjusted 'extreme' days	Number of amber or red weather warnings issued in 2012-13 for E&W
2012-13 Q1	0	4
2012-13 Q2	7	15
2012-13 Q3	17	8
2012-13 Q4	1	13

61. In quarter 4 of 2012-13 the Met Office issued 13 amber and red weather warnings for snow and rainfall in England and Wales but only 1 adjustment was made to the Long Distance PPM data in this quarter. This may be due to lower Long Distance sector performance in Q4, resulting in no days exceeding the 95th percentile and being adjusted. Furthermore, when compared to other quarters in 2012-13, quarter 4 had the lowest average precipitation for the Long Distance sector. The very small number of adjustments in quarter 4 could also be due to a time lag in the weather event occurring and the subsequent impact on performance (therefore impacting results may be seen in 2013-14 Q1).

62. It was difficult to identify the impact of weather (precipitation levels) on performance in 2012-13 (Chart 6).

[16] Met Office amber and red rainfall and snow weather warnings
http://www.metoffice.gov.uk/guide/weather/warnings#learn-about-warnings

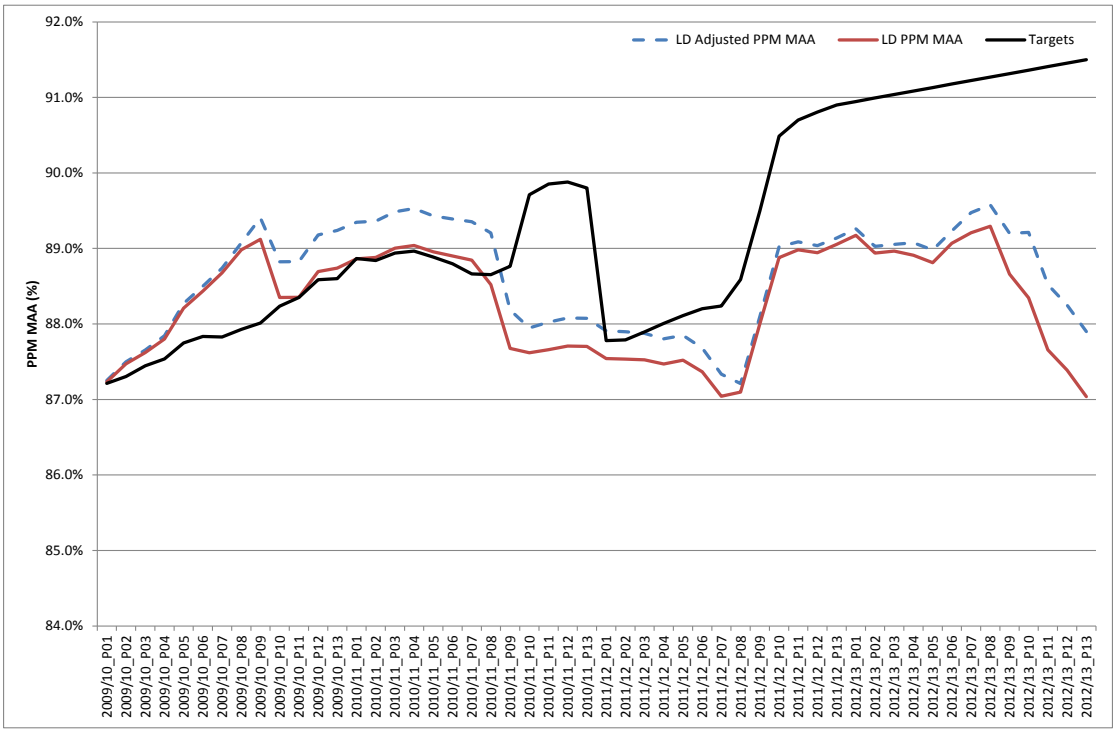
Chart 6: Impact of weather on 2012-13 Long Distance sector performance



63. Based on 'extreme' precipitation levels (above the 95th percentile), adjustment of the Long Distance PPM values led to a slight improvement in performance (largely in 2009-10 and 2010-11,) but overall performance remained worse than the target, ending 2012-13 with a PPM MAA of 87.9% (0.9pp better than actual), 3.6pp worse than the 2012-13 CP4 target and 1.8pp worse than the end of year JPIP target (Chart 7).

64. As part of the weather analysis we looked at the impact of 'extreme' weather on National delay minutes. Alongside looking at specific weather delay minutes the analysis also considered delay minutes that may be attributed to track and non-track assets on 'extreme' weather days and that the weather impact may materialise 1 or 2 days after the weather event. Where these categories appeared to have been impacted, the minutes were adjusted. However, overall performance still typically remained worse than periodic targets and worse than annual targets. This suggested there may be other areas, outside of weather, that may have also impacted performance.

Chart 7: Long Distance sector PPM MAA adjusted for 'extreme' weather days



Weather mitigation

65. Through our review of daily incident logs and our engagement with TOCs, we identified areas where we felt Network Rail did not effectively manage seasonal preparation and therefore caused weather delays to be worse than they would have been if proper mitigation had been put in place.

66. Many TOCs lacked confidence that Network Rail adequately managed drainage assets and told us that a lack of knowledge on the condition of drainage capability over the routes had directly contributed to flooding delays being worse than they would have normally expected. We also observed examples of blocked culverts which contributed to flooding events as well as failures or non-availability of water pumps meaning the time to restore normal train running was longer than necessary.

67. Specific examples included:

- Wednesday 21st November - Flooding on the Up Main line between Tiverton Parkway and Taunton. P'Way staff confirmed the flooding was due to a blocked culvert. Train movements were authorised at 5 mph. Inspection of the Down Main line revealed flooding, for which a 20 mph ESR was imposed; and
- Monday 26th November - Floodwater above rail height on the Up Main line in the Gaerwen area. Pumps were sent to site in an effort to speed up the water drainage. The pumps failed, and with the water level rising, again a 5 mph ESR was imposed on the Up Main line.

68. Winter preparation was also considered inadequate, especially on the LSE sector and many TOCs informed ORR that they were dissatisfied with Network Rail in this area.

69. We were also concerned that points heaters were not being properly maintained causing unnecessary delays in cold conditions, which was also identified when we engaged with the TOCs.

- A specific example of where this caused a problem was on Friday 18th January when three sets of points at Reading West Junction failed with no reverse. Staff attended and reported that the points heaters were not switched on and a build-up of snow had prevented the points from moving to the reverse position.

70. Considering the impact of weather on the network, we expected to see Network Rail develop more weather mitigation plans in the LDRP. While we acknowledge that the Base plans for each JPIP will feature some weather mitigation actions on a route level, we did not see any national steer as yet. Network Rail had set up the Weather Steering Group (although no tangible benefits have been claimed to date) but it will not start to add quantifiable benefits until its Strategic Plan has been implemented.

The Weather Resilience and Climate Change Steering Group - The findings from the independent reporter's field-test.

71. Network Rail identified the actions being devised by the Group as being key mitigations to the impact of weather as Network Rail seeks to bridge the gap between planned and actual PPM performance.

72. The Group had been established with the stated overall purpose of 'establishing and delivering a strategy to manage the risk of weather and climate change impact to rail performance'.

73. Network Rail told us that prior to January 2013 that this Group was largely ineffective and added little value due to a lack of vision and seniority. However, since the appointment of the new Chair in January 2013, the Group had been through a period of transformation.

74. The National Task Force (NTF) directed the Group to focus on asset improvements, operational response and long term planning to improve resilience of the network to the impact of weather and climate change (targeting benefits in CP6 and CP7).

75. To date, the refreshed Group had not delivered any tangible benefits to the business, as it was focused on developing the new Weather Resilience & Climate Change Strategy. It was expected by Network Rail that once this strategy was developed and realised there was significant scope for the Group to deliver benefit to the industry.

76. The Group was well structured, well governed and the strategy that the Group was developing appears to be formed along the right lines, and is planned to be finalised in August 2013.

77. Although some good work has been done in assessing risks and introducing innovative means of enhancing the asset to increase weather resilience, much work is still required to bring about real changes on the ground. The Group however faces a challenge in this regard – the Group can develop innovations and improvements however it cannot mandate or direct the routes to implement them. The Group therefore needs to develop an approach whereby if recommended best practice is identified, senior support or sponsorship is obtained to ensure that as many routes as possible take up the initiative.

78. Based on the limitations, it is conceivable that going forward the Group could have a larger role in ensuring that all routes are sufficiently prepared for seasonal events; ensuring that routes' actions are closed out in response to seasonal and weather event reviews; working with the business to transform the way that Network Rail plans for and responds to 'adverse' weather.

Infrastructure overall

79. Network Rail told us that infrastructure problems were relatively widespread in Q4, with particular problems with OLE and track faults. It also said major dewirements caused significant disruption to Virgin, East Midlands Trains and East Coast services and track faults were especially evident in period 11 and 12. Network Rail added that the more visible impacts of possession overruns and train planning difficulties around possessions had actually had a small impact on Long Distance services.

Maintenance Organisation

80. There is still a question over the quantity and quality of the maintenance resources. It appeared that, during the re-organisation of 2011 when significant numbers of experienced staff were made redundant, a degree of corporate knowledge was lost. In a meeting with Robin Gisby in June 2012, Network Rail admitted that '2BC might have cut too far'. A particular concern at the time was also about delivery units focusing on bidding for capital works schemes, which may have distracted attention from maintaining the railway (e.g. Reading area failing on maintenance because the units were doing small schemes for the project).

81. Table 6 below, shows Network Rail declared progress up to Period 13 of 2012-13 in the key asset management areas that inform the Asset Stewardship Indicator. These elements are a mixture of directly measured conditions (either on a periodic or annual basis), normalised metrics and, for key asset groups, a count of incidents that have affected services above a specific threshold. These are reported by route and have some sector breakdown for the Track and Civils elements, but do not directly align to the LDRP boundaries. For the purpose of this analysis, Long Distance was considered to cover the primary routes on LNW, LNE & Western.

Table 6: Infrastructure Conditions Report (ICR)

Period 13 - 2012/13
Asset Stewardship Indicator
Description: A CP4 composite of measures to reflect overall asset stewardship.
Targets: Set during Business Planning process
Source: Various by Corporate & Regulatory Reporting Team
Notes: The per Route values of KPIs contributing to ASI are shown for current period and at year start.
Not all data splits are available at a route level. Some are small and have potential to distort arithmetic*

Route split of ASI components

KPI		Scotland		Wales		LNW		East Midlands		LNE		Anglia		Kent		Sussex		Wessex		Western		England		National		
		current	year start	current	year start	current	year start	current	year start	current	year start	current	year start	current	year start	current	year start	current	year start	current	year start	current	year start	current	year start	year earlier
238a	Track - Primary and Key L&SE																									
	[1]Good Track Geometry	139.4%	139.5%	153.9%	154.3%	144.5%	143.0%	137.3%	135.1%	136.7%	137.3%	134.2%	126.1%	126.2%	125.1%	129.7%	127.6%	133.6%	130.9%	143.1%	142.2%	139.5%	136.6%	139.3%	137.2%	137.2%
	Poor Track Geometry	1.84%	1.74%	0.71%	0.83%	1.25%	1.27%	2.16%	2.21%	2.59%	2.55%	2.72%	3.85%	3.71%	3.96%	4.54%	4.74%	3.42%	3.97%	1.78%	2.02%	2.31%	2.52%	2.22%	2.43%	2.43%
	Intervention/Immediate action geometry faults per 100Km	17.5	20.5	19.2	25.2	17.0	18.6	15.5	16.3	25.5	24.5	34.3	41.9	53.1	47.6	62.1	69.7	49.2	55.4	21.5	24.6	29.2	31.1	28.2	30.3	29.2
	[1]Rail breaks & serious rail defects per 100Km	2.67	5.09	3.78	1.16	5.10	4.99	4.25	4.14	4.37	3.91	4.92	3.53	5.45	5.16	10.20	9.39	5.35	8.85	6.03	3.95	5.30	4.99	5.10	4.89	5.74
238b	Track - Secondary, Other L&SE and Freight Trunk																									
	[1]Good Track Geometry	140.8%	142.0%	147.1%	147.3%	141.6%	140.2%	132.5%	129.1%	138.6%	139.4%	142.7%	137.1%	126.7%	122.3%	125.6%	122.7%	142.8%	141.1%	142.7%	143.8%	138.8%	137.2%	140.1%	139.3%	139.8%
	Poor Track Geometry	2.20%	2.16%	1.30%	1.36%	2.31%	2.27%	2.18%	2.68%	2.81%	2.61%	2.58%	3.39%	3.51%	4.25%	5.19%	5.44%	2.36%	2.72%	2.24%	1.78%	2.67%	2.78%	2.43%	2.51%	2.44%
	Intervention/Immediate action geometry faults per 100Km	39.7	41.2	24.6	24.4	42.2	42.9	32.8	38.2	48.6	45.7	48.0	54.0	45.7	42.3	61.5	58.9	45.3	40.7	44.6	39.5	45.3	44.5	42.2	41.9	40.4
	[1]Rail breaks & serious rail defects per 100Km	2.49	2.65	1.02	1.97	4.05	3.67	3.20	3.34	4.44	5.82	3.36	2.04	3.45	2.98	2.26	0.75	3.14	0.85	2.92	2.69	3.72	3.52	3.30	3.21	3.55
238c	Track - Rural & Freight Only																									
	Poor Track Geometry	4.02%	3.75%	2.43%	2.70%	2.57%	3.83%	3.32%	4.24%	2.47%	2.89%	2.48%	3.08%	1.71%	1.54%	5.42%	8.49%	3.73%	5.58%	5.47%	5.61%	2.62%	3.71%	2.59%	3.56%	2.95%
	Immediate action geometry faults per 100Km	4.6	5.4	4.6	4.3	3.7	3.7	3.4	3.2	2.6	2.8	3.3	2.2	2.0	1.5	3.5	5.4	2.7	4.9	7.8	7.2	3.6	3.5	3.9	4.0	3.8
	[1]Rail breaks & serious rail defects per 100Km	12.45	3.82	2.03	2.71	1.53	1.58	0.00	3.17	2.38	2.95	2.79	1.11	3.42	1.71	0.96	0.00	0.00	1.03	3.76	4.78	2.18	2.32	4.05	2.57	3.75
243	Structures - Additional Inspections																									
	Primary and Key L&SE	14	15	8	7	46	39	12	12	39	29	10	10	38	41	12	15	30	31	87	91	274	268	296	290	283
	Secondary,Other L&SE and Freight Trunk 32	116	118	36	35	83	89	5	3	64	62	6	5	15	13	15	15	21	24	30	28	239	239	391	392	408
	Rural & Freight Only 39	15	13	26	25	20	19	1	1	21	16	4	3	0	0	2	2	5	6	20	22	73	69	114	107	119
241	Operational Property 44																									
	Station Stewardship Measure (M17)																							2.35	2.38	2.41
	Light Maintenance Depot Stewardship M 45																							2.39	2.43	2.52
239	Signalling 47																									
	Signalling Asset Condition (M10) 48																							2.37	2.39	2.41
	[1]Signalling Failures >10 mins (M9) 49	1,455	1,591	778	897	3,543	3,830	667	666	2,858	2,764	1,252	1,352	1,107	1,109	718	709	1,099	1,109	1,541	1,618	12,785	13,157	15,018	15,645	16,507
240	Electrification & Plant																									
	Condition - AC Traction Feeder Station/ Tck Sect Pt (M13)			n/a	n/a													n/a	n/a					2.29	2.57	2.56
	Condition -DC Traction Substation (M14)	n/a	n/a	n/a	n/a			n/a	n/a											n/a	n/a			2.35	2.45	2.36
	Condition - AC Traction Contact System (M15)			n/a	n/a													n/a	n/a					1.4	1.62	1.6
	Condition - DC Traction Contact System (M16)	n/a	n/a	n/a	n/a			n/a	n/a											n/a	n/a			1.99	1.96	1.95
	[1]Traction Power Failures >10 mins	22	41	0	0	176	147	37	41	117	126	209	254	34	38	72	44	98	59	9	2	744	711	776	752	812
242	Telecomms																									
	[1]Telecom Condition																							0.97	0.95	0.94
	[1]Telecom-related Failures >10min	93	116	78	60	92	66	22	39	142	145	111	85	38	36	50	35	37	30	57	33	549	469	720	645	689

Equal to or better than Comparator	G
Worse than Comparator, but within tolerance	A
Worse than Comparator and beyond tolerance	R
Not applicable/available	N/A
Tolerance multiplier	5%

Comparator = End of Previous year/year start
[1] Increases represent betterment (the opposite to most measures)
[2] Cummulative measure based on last 13 periods (all others are "snapshots")
Route split currently not available
n/a Not applicable

* Kent - Rural & Freight only track is principally 58 Km Ashford to Hastings
* Western - Only 120 Km, Paddington to Heathrow electrification
Note: breaks & serious defects are normalised throughout by current Route sizes

82. In terms of what this told us for the LDRP:

- Track geometry was broadly in line with intended targets for primary routes except for serious rail defects/breaks which was generally well behind target;
    - LNE was the clear exception to this as it was failing to meet all its key targets for the primary routes covered by the LDRP;
- Additional structure inspections were generally lagging behind target for primary routes covered by the LDRP;
- Signalling incidents were ahead of target with the exception of LNE;
- Traction power failures were ahead of target with the exception of LNW; and
- Telecoms failures were behind target with the exception of LNE.

Asset renewals

83. In 2012-13 the volumes of renewals delivered by Network Rail were below plan in most areas, although the expenditure was close to budget. The overall shortfall was in the region of 20%, creating a significant backlog. Some areas where there appeared to be a significant shortfall included:

- Track - while switches and crossings were close to the planned number, plain track renewal was 18% below planned;
- Civils - overall delivery was about 21% less than planned. Delivery exceeded plan by 31% for overbridges, but this was more than offset by significant shortfalls in other areas, including a 24% shortfall for underbridges, 37% for footbridges, 21% for earthworks, and 96% for coastal/estuary defences;

- Signalling - 51 level crossing renewals were delivered, significantly more than the 22 delivered in 2011-12, but still 35% below plan due to slippage on the National Operations Strategy project; and
- Electrification - OLE re-wiring and campaign changes were close to plan overall, but only 7% of conductor rail volume was delivered. Only about 30% of the work planned for DC systems was delivered.

84. The main aim of a renewals programme is to replace worn-out, degraded or life-expired assets, in order to bring asset performance back to as-new. As a result of slippage in the 2012-13 renewals programme, assets in poor condition will have been retained in operation for longer than planned, which is likely to have had a direct adverse effect on performance.

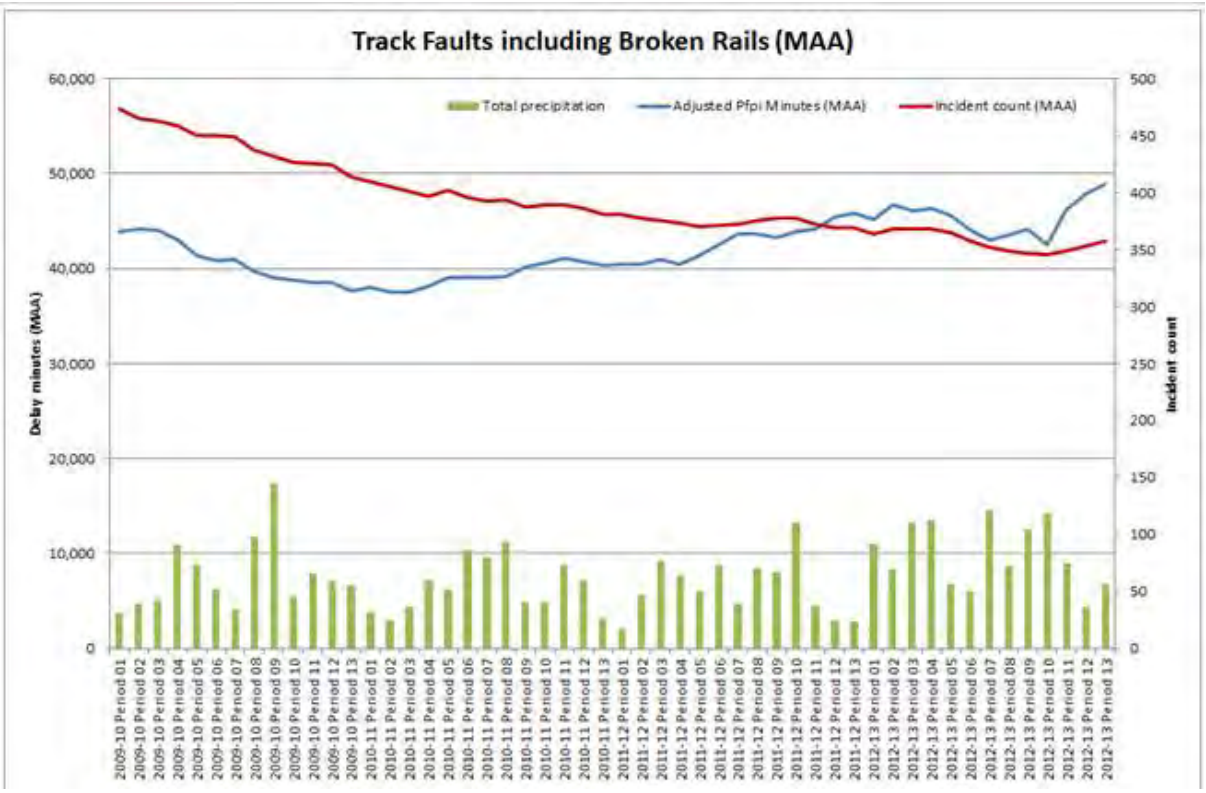
85. Several TOC and Network Rail people we spoke to stressed the need for urgent renewals work, particularly on the routes that constitute the LSE sector. This is possibly supported by the variances to plan in the track assets category grouping. There were suggestions from our engagement meetings that the routes were unable to take renewals possessions as National Delivery Service resource was already allocated for major projects such as Thameslink.

Track faults and temporary speed restrictions (TSRs)

86. Chart 8 shows that although the number of track fault incidents had been steadily falling over time, the delay minutes associated with them had been steadily increasing since the end of 2009-10. The delay minutes continued to rise in 2010-11 and 2011-12 relative to 2009-10 and the beginning of 2012-13, despite there being less precipitation in those two years. Network Rail contends that the delays were due to capacity issues.

87. Incidents continued to trend downwards until period 9 in 2012-13, when both incidents and delay minutes started to increase. One of the underlying problems facing Network Rail was the condition of the ballast, which can only be tamped to improve geometry a certain number of times. Once the dust (fines) has accumulated to a point where the track drainage is ineffective, localised flooding can occur, which leads to other problems such as signalling and traction power issues for example. The sharp rise in delay minutes at the end of 2012-13 after several periods of rain could be an indication that tamping was no longer effective and Network Rail should have focused on more ballast cleaning instead. In our discussions with the Sussex route, it told us ballast cleaning is a key area for its track programme in CP5.

Chart 8: National track faults including broken rails (MAA)



88. The national target for speed restrictions is 200 by 31st March 2014. The total number of speed restrictions nationally as of 2nd March 2013 (end period 12) stood at 328, which had risen from 253 in period 1 2012-13. On the 13th March 2013 Network Rail presented a paper to the NTF detailing the upward trend in TSRs. Both planned and unplanned TSRs had risen in the latter half of 2012-13. As a consequence, delay minutes, including reaction to P-Coded or planned TSRs had increased. A concerning trend was the increase of track renewal TSRs, which demonstrated the impact of less than planned volumes of track being renewed. Earthworks TSRs had also increased, while condition of track TSRs can be applied for many reasons, although wet track beds and drainage issues were a predominant factor in the number of speed restrictions. To help reduce the number of speed restrictions across the network, each route had action plans underway.

Signalling and power supply

89. These assets were responsible for over a third of total infrastructure delays. Signalling and power supply failures delay minutes had increased by 2.5% since 2011-12, 'other non-track assets' (which includes traction power supply) had increased by 15% and axle counter failures had increased by 16%. The key message is that the initiatives did not appear to have made a significant difference for this asset group.

Overhead Line Electrification (OLE)

90. Initial indications for overall year performance show that Network Rail had met its intended target for the number of incidents >10 minutes relating to OLE performance, however, it exceeded its intended target for the number of incidents >300 minutes, with significant incidents over target in Periods 1, 2, 6, 11 and 12.

91. If the total number of incidents is compared to previous years, Network Rail achieved approximately the same number of incidents (>300) in 2012-13 as 2009-10 and 2011-12. However, whilst the total minutes for 2009-10 and 2011-12 were broadly comparable, the delays associated with 2012-13 were significantly more. This was driven by a number of factors including location and timing of incidents, increased system utilisation but also in the length of time taken by Network Rail to rectify the damage in a number of these incidents.

92. A subjective review utilising the National Control Logs and other information sources of the OLE incidents that made it into the periodic top 50 incidents for 2012-13 indicates that, of those attributable to Network Rail, the following breakdown of base cause applied:

- 32% could probably have been prevented by the appropriate application of inspection and maintenance;
- 18% were component failures that maintenance could not have detected;
- 9% were due to historic design decisions (some of which could potentially be negated through enhancements to the system);
- 14% were due to poor quality construction/installation; and
- 27% were unknown due to lack of available information within the ORR to determine a root cause

93. We will be closely monitoring OLE incidents during 2013-14 to provide us with a greater understanding of the incidents occurring to determine whether Network Rail has undertaken reasonable measures to minimise the occurrence of incidents within its control and has taken steps to improve its response to incidents to minimise their impact.

Implementation of new technology

94. This has remained an area of concern throughout previous performance investigations and some TOCs also raised concerns about the introduction of new equipment. We were aware of conductor rail heating problems on the Sussex and Wessex routes, which meant that winter preparations for 2012-13 were not complete. There had also been issues with digital track circuits, amongst a number of other infrastructure components.

Intelligent Infrastructure - Remote Condition Monitoring (RCM) - The findings from the independent reporter's field-test.

95. In the Q4 report, Network Rail noted that the benefit from RCM for the last three periods was estimated at 50,137 of avoided delay minutes nationally. It was noted that the delay associated with the roll-out of RCM in LNW at Euston and Satley has caused the benefit cut-in date to slip by 10 periods. These projects were in the top 30 delivering benefit to Long Distance sector.

96. Until around 12 months ago the Intelligent Infrastructure programme team did not have an effective business change management function. This was reported to have limited the level of successful take-up of RCM across Network Rail. It was noted by Sussex Route that the early stages of implementation were problematic as Control Rooms were flagging alarms almost constantly with no screening of which alarms were real and which were 'false'. This was reportedly because Control Room staff were not sufficiently capable in screening the alarms and numerous false alarms were being raised due to technical, IT and asset calibration factors.

97. Network Rail reported that completion of Long Distance projects in quarter 4 was 45% better than planned, however in 2012-13 overall delivery was worse than planned in the LDRP. Nationally, Phase 2 of the programme was around 80% complete, and Phase 3 was around 40% complete. Both phases were around 3 months behind plan due to material availability and a lack of delivery resources.

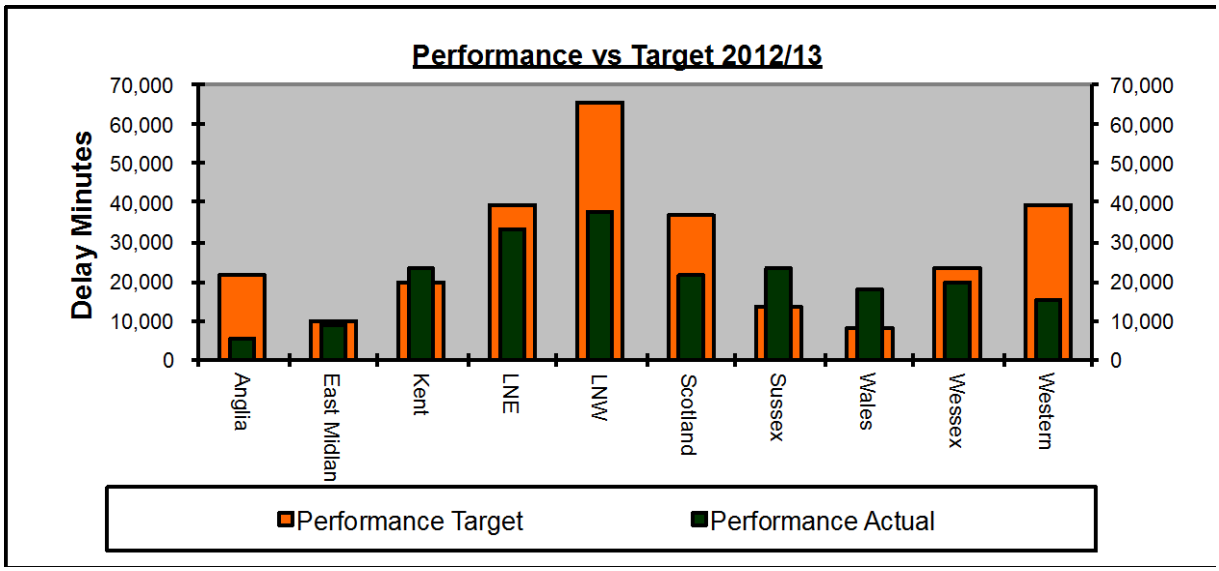
98. The original business case benefits baseline was set in 2009-10 following the completion of a pilot. In May 2012, the programme reforecast and reduced the benefits baseline by 11% for 2011-12 to reflect errors identified in the baseline data, better assumptions, the time lag between installing RCM and the realisation of full benefits, and lessons learnt.

99. At the end of 2011-12 benefits to performance for the whole programme was 24.5% below the *revised* target. The programme planned to close the gap through improved business change management. In 2012-13 the programme, nationally, once again under performed by around 25% from a performance benefits perspective. The target versus actual performance for the whole of Network Rail in 2012-13 is set out below.

2012-13 Target	**2012-13 Actual**	**Variance to Target**
Minutes Performance	**Minutes Performance**	**Minutes Performance**
275,690	205,556	-70,134

100. The Long Distance sector performed particularly weakly in 2012-13 in comparison to the national average with LNW and Western routes delivering significantly less benefits than planned (see Chart 9.) The performance on LNW is particularly concerning as the under-performance impacted both Long Distance and London and South East sectors and a number of the delayed installations were in the top 30 schemes identified as providing benefit to Long Distance and London and South East.

Chart 9 – Comparison of Nationwide Target vs Actual Delay Minute performance for RCM in 2012-13



101. In Q4, Network Rail claimed that 50,137 of minutes of delay had been avoided nationally through the installation and use of RCM. This was obviously a good result however when this was contrasted against planned performance the result was disappointing, as it was actually 45,521 minutes below target. National performance in Q4 is set out below.

Q4 Target	Q4 Actual	Variance to Target
Minutes Performance	**Minutes Performance**	**Minutes Performance**
95,658	50,137	-45,521

102. Whilst overall the Intelligent Infrastructure programme is delivering considerable benefits, it appears that the originally planned benefits were overly optimistic and contained calculation errors and incorrect assumptions. The programme tried to address the identified shortcomings through re-setting the baseline. However, performance since the benefits baseline was re-set repeatedly missed the target, and by significant amounts, particularly in Long Distance. Whilst further improvements will be generated as the system is further bedded-in, and staff become more adept and creative at using RCM, it is difficult to be confident that the RCM programme will close the gap between actual and planned benefits. It appears that the learning curve had not been adequately considered in their planning and the programme will take more time to deliver the intended benefits.

103. The programme team had been successful in achieving a change in culture and behaviours in Control and the routes to the point where much of the organisation is bought-in to the value and importance of RCM.

104. The central programme team estimated that there were considerably more delay minutes (possibly as many as 180,000) that could have been saved nationally, but these were missed due to poor calibration and lack of experience of staff. As above, it is expected that similar missed opportunities will be avoided in the future as the RCM capability of the organisation improves. The

programme is introducing a central quality control function to oversee the performance of all of the routes and to mentor and support them in improving their capability.

105. It was noted that the formula the programme team uses to calculate the benefits from RCM led to a conservative level of benefit being claimed. It was also noted that the programme and the Routes quantify the benefits of RCM differently. The RCM Programme team are only able to calculate the benefits based on the average delay previously attributed to a certain asset. The Routes may take other factors into account such as time of day or avoiding a failure based on the specific location. Therefore it is possible to calculate a different benefit figure for a given situation. Furthermore, not all Routes quantify benefits on the same basis. Accordingly, it is very difficult to build up a true like-for-like comparison for each Route against the national picture.

106. It was noted that the programme is relatively conservative in claiming benefits attributable to RCM, given the current benefit performance of the programme that could be to their detriment. For example, the programme only counts benefits where the asset has failed before previously and a further failure is prevented. For the interventions included, there is an assumption that 100% of them would have gone on to cause a delaying incident. Whilst this rationale is understandable and accepted practice, had the rationale been changed to include assets that have not failed previously then Network Rail could claim around an additional 35,000 avoided delay minutes in the year nationwide.

107. There is still a clear business case for RCM, however based on current performance, particularly in Long Distance, it is not as compelling as it was at the outset. The success will depend upon the improvement in competence of Network Rail staff in the use of RCM.

108. Recently, in Phase 3 material procurement and supply chain some routes had a surplus of equipment and others had none. This was reported to have delayed the programme by 3 months on some routes, although as the matter was not yet under control, further delay could be expected. It was noted that although most routes had been impacted to some extent, the ‘better organised’ routes were less impacted. LNW is reported to have been particularly impacted with a 10 period delay in benefit realisation being reported by LNW. This figure was not consistent with that reported by the central programme team.

109. If this breakdown in the supply chain had occurred in the first or second phases of the work, it could perhaps have been more understandable. However given that it occurred in the third phase, it would appear that there has been either a significant management or system failure. Network Rail should seek to understand and learn lessons from this.

Train planning

110. Over the past year or so the train planning function of Network Rail faced a series of challenges. In particular:

- Completion of centralisation of the activity at Milton Keynes and closure of the Leeds office;
- Moving the office from the original building at Milton Keynes into the Quadrant;
- The Olympics, which required an unusual focus of activity on validation of schedules and creation of special schedules in a particular part of the network; and
- The major spoil heap slip at Hatfield Colliery, near Doncaster, which forced the alteration of up to a quarter of the UK's freight trains to/from Immingham. This continues to be a major un-planned burden.

111. The overall management environment had been under some stress, with the creation of new relationships with devolved routes and staff changes at senior level. Most obviously Dyan Crowther moved from Director of Operational Services to be Route Managing Director for LNW at Birmingham and various other staff were stepped up temporarily in the meantime.

112. Following the enforcement action taken in respect of the implementation of the Integrated Train Planning System (ITPS) in 2010 we had taken a relatively light touch approach to the train planning activity until the enforcement action in respect of Long Distance. The importance of timetabling was evident and appeared in the LDRP, both in detailed JPIP/Base plans (186 schemes) and the Base+ scheme of 'Timetable for Performance'. Various discussions were held with Network Rail train planning staff during evaluation of the plan.

113. It is clear that performance analysis had identified a large number of trains (both in the Long Distance sector and more widely) that regularly lose time on particular sections. Subject to checking that other factors (such as long-running speed restrictions) were not the reason, it was frequently found that minor errors in timetabling parameters (such as sectional running times) or unresolved conflicts were to blame. It is generally possible to correct these in conjunction with the train operators but the nature of timetabling means that it is often only possible at the May and December timetable change dates if publicly advertised times at stations are affected. Experience in Scotland (where the first timetable for the re-opened Airdrie-Bathgate line had significant weaknesses that have now been solved) shows that this approach can make a major difference to PPM.

114. Unfortunately the functionality of ITPS does not yet extend to either automatic sectional running time calculations or automatic conflict detection. Further upgrades to resolve these capability issues are in development, however the supplier being small is unable to progress these as quickly as Network Rail would have hoped.

115. In general terms the timetable modelling tools available to Network Rail are weak. They are cumbersome to set up and produce results in formats that do not relate directly to normal performance measures such as PPM. Relatively few staff are trained in their use. There are no tools suitable for modelling recovery from major incidents (as opposed to relatively minor perturbations). Hence many

revised timetables are introduced without any modelling. Even where modelling is undertaken it may indicate that a new proposed timetable is likely to be better or worse than the existing one but the actual extent of the change is subject to a wide range of uncertainty. Although the benefits of reduced numbers of minor failures can also be simulated, the magnitude of the benefits is again relatively uncertain. Other timetable changes, such as variations in differentials between public and working timetables, can also be assessed but again experience has shown that the benefits can be either under or over-estimated. The relationships between delay minutes, lateness and PPM frequently seem to vary from what has been expected.

116. The train planning activity at Milton Keynes is now relatively stable and staffing had been increased by 22 posts over the original final plan. Most of the additional resource has been committed to validation, particularly of short-term planning (mainly engineering works and changes to freight traffic flows). However, delays attributed directly to train planning remain high and have shown no overall improvement between 2011-12 and 2012-13. It should be remembered that Network Rail had been previously fined over the implementation of the ITPS (timetabling system).

Long Distance Regulation Trial (Base ++ programme) - The findings from the independent reporter's field-test.

117. In the Q4 report, NR reported that the 'regulation trial has now concluded and the approach has been adopted as normal regulating policy. On average the trial delivered 5 additional PPM successes at the cost of on average one other PPM failure. The benefit to the Long Distance sector had been 0.9% PPM'.

118. The Long Distance Regulation initiative appears to be a sound concept that brings considerable benefits to the Long Distance sector at the expense of minor dis-benefits to the Regional operators. For this reason, some operators and some routes have been more willing to embrace Regulation than others. Network Rail has been clear to the TOCs from the outset of the trial that Long Distance Regulation will mean that some Regional services will fail PPM.

119. Network Rail acknowledged that it made a number of mistakes and missed a number of opportunities in the implementation of Long Distance Regulation. However the frequency and severity of these errors reduced as the system bedded in and the signallers learnt to work to the new policy. Network Rail introduced train running specialists into Control to watch specific services and locations to avoid similar mistakes or missed regulating opportunities occurring in the future.

120. Network Rail determined a 0.9% PPM benefit for LNE in August/September 2012. However, and critically in this instance, LNE noted that performance during Q3 and Q4 generated only around a 0.6% improvement in PPM. Network Rail confirmed that the measure was subjective and the initial figure was overly optimistic and based on optimum performance being achieved.

121. Western route decided not to undertake a trial of Regulation as it had been unable to gain consensus with their TOCs. Scotland and LNW will undertake further analysis before deciding whether to implement.

122. If LNE are only expecting to achieve 0.6% PPM benefit in 2013-14 and other routes are not implementing Regulation it will not be possible for Network Rail to achieve a 0.9% PPM benefit. Network Rail has subsequently updated the plan to reflect this reduced target of 0.6% PPM benefit and will further update the projections to consider the impact of implementing Regulation less widely than originally anticipated.

123. Furthermore, the claim in the Q4 report that NR has achieved a 0.9% benefit from Regulation in the Quarter appears out of date following completion of further analysis in the LNE Route and should be closer to 0.6%. However, given that LNE only makes up a proportion of LD it is assumed that the real figure for the whole of LD will be considerably smaller still.

Network Rail capability – TOCs view

124. Some more general thoughts from the train operating companies about Network Rail's capability include;

- There was a very strong feeling amongst the TOC community that Network Rail had some good people who worked hard to deliver performance for passengers and build good local relationships, however the leaders of the organisation themselves let the TOCs and its own people down by often re-organising teams for no apparent purpose, or moving people who were doing well in one role into another to 'fight-fires'; and

- Devolution had been well received and TOCs felt that this was causing the right behaviours to influence performance. There was some criticism levelled at Network Rail's HQ which was perceived as interfering and self-important rather than being a supportive function.

Conclusion

125. In conclusion, the evidence showed there were many reasons why Network Rail failed to achieve the forecast it originally set out in the LDRP.

126. When analysing the effect weather had on performance in 2012-13, we concluded that statistically the mean level of precipitation in 2012-13 was significantly more than compared to 2009-10, 2010-11 and 2011-12. However, whilst the weather almost certainly had an impact, our analysis showed that even if the 'extreme' weather days were adjusted, PPM MAA would have remained 3.6pp worse than the CP4 target. When the analysis was expanded to include minutes attributed to track and non-track assets, taking into account the time lag the impact of weather can have on asset failures, the

results showed little improvement and the National delay minutes would still have missed the end of year CP4 target. Furthermore, through our review of daily incident logs and our engagement with TOCs, we identified areas where we felt Network Rail did not effectively manage seasonal preparation. The number of initiatives relating to weather mitigation in the Base plan also seemed low given the impact weather had in 2012-13.

127. Progress setting up the Weather Resilience and Climate Change Steering Group had also been slow, despite it being identified as a key component to bridging the gap between planned and actual PPM performance. To date, the refreshed Group had not delivered any tangible benefits to the business, as it was focused on developing the new Weather Resilience & Climate Change Strategy.

128. There was also evidence to support the view that Network Rail was not doing everything it could have to maintain the network on a day to day basis. For example, the infrastructure conditions report identified several areas where routes within the Long Distance sector were behind target. Additionally, in 2012-13 the volumes of renewals delivered by Network Rail were below plan in most areas, although the expenditure was close to budget. The overall shortfall was in the region of 20%, creating a significant backlog. As a result of slippage in the 2012-13 renewals programme, assets in poor condition will have been retained in operation for longer than planned, which is likely to have had a direct adverse effect on performance. Several TOC and Network Rail people we spoke to stressed the need for urgent renewals work, although it was particularly on the routes that constitute the LSE sector.

129. The sharp rise in track fault delay minutes at the end of 2012-13 after several periods of rain could also be an indication that tamping is no longer effective and Network Rail should be focused on other methods of maintenance such as ballast cleaning instead. Planned and unplanned TSRs had also risen in the latter half of 2012-13, for a number of reasons, and were having a negative impact on performance.

130. Furthermore, despite OLE incidents in 2012-13 being broadly comparable to 2011-12, the delays were associated with 2012-13 were significantly more. This was driven by a number of factors, including the length of time taken by Network Rail to rectify the damage in a number of these incidents. A review of the OLE incidents attributable to Network Rail that made it into the periodic top 50 incidents for 2012-13 also indicated that 32% could probably have been prevented by the appropriate application of inspection and maintenance.

131. The independent reporter's field test on the implementation of the national RCM programme also identified issues. Whilst overall the Intelligent Infrastructure programme delivered considerable benefits, it appeared that the originally planned benefits were overly optimistic and contained calculation errors and incorrect assumptions. The programme tried to address the identified shortcomings through re-setting the baseline. However, performance since the benefits baseline was re-set repeatedly missed the target, and by significant amounts. Furthermore, Phase 3 had material

procurement and supply chain issues where some routes had a surplus of equipment and others had none. This was reported to have delayed the programme by 3 months on some routes.

132. Over the past year or so the Train Planning function of Network Rail has also faced a series of challenges. The importance of timetabling was evident and appeared in the LDRP and Network Rail did make some progress in 2012-13, for example the train planning activity at Milton Keynes is now relatively stable and staffing had been increased by 22 posts over the original final plan. However most of the additional resource has been committed to validation and delays attributed directly to train planning remained high and showed no overall improvement between 2011-12 and 2012-13.

2013-14

5e) What is the new forecast?

133. Network Rail provided an update of their 2013-14 P13 PPM MAA forecast. The new forecast for 2013-14 was 89.1%, which was 1.5% behind what was forecast in the LDRP (Table 7). This new forecast did not include the West Coast South Reliability Programme as it had not been validated or the TOC on TOC or TOC on Self schemes.

Table 7: Network Rail forecasts over time for PPM MAA 2013-14 P13

2013-14 P13	PPM MAA	Variance to CP4 target
LDRP*	90.6%	-1.4pp
Q1 report - no forecast update, assume as LDRP	90.6%	-1.4pp
Q2 report – no forecast update, assume as LDRP	90.6%	-1.4pp
Q3 report	90.0%	-2.0pp
Q4 report	89.1%	-2.9pp

Forecasts based on the 90% confidence level

*Based on Base, Base+ and Base++ (combined) forecast in the Q3 report. There was no such forecast in the LDRP as Base+ and Base++ plan delivery was not fully quantified at the time of publication.

134. Network Rail told us that there were a number of new risks to performance identified in quarter 4 , namely the gap (resulting from the ‘prolonged impact of worse than average weather’), the distraction of more pressing matters (such as weather mitigation and the Franchise change programme) and safety issues in response to the failed earthworks improvement notice for Scotland.

135. Network Rail also told us that several risks had been cited in previous reports which had since been realised. These was the weather impact (identified in Q3), 2013-14 JPIPs, which are less than planned at the end of 2011-12, the public timetable differentials particularly affecting Virgin and East Coast (identified in Q2&3) and ‘trying to do too much at once’.

136. We are also concerned over the delivery of the new 2013-14 JPIPs, particularly given the previous slippage of iPAT schemes and the benefit realisation for some schemes moving from CP4 to CP5. The benefits from the 2013-14 JPIP schemes were not stated in the LDRP so progress against these schemes will be assessed in the 2013-14 quarter 1 report.

2013-14 period 1 and 2 performance

137. Following a downward trend since Period 9, performance in the Long Distance sector at the end of 2013-14 Period 1 was at the same level as the end of 2012-13. PPM MAA in Period 1 was 87.0%, 4.5pp adrift of the CP4 target and 2.6pp below what was forecast for the end of 2013-14 in the LDRP. At the end of 2013-14 Period 1 CaSL MAA remained at 4.9%, 0.9pp worse than the CP4 target. Period 2 figures show an improvement in performance, with PPM MAA increasing to 87.3%, 4.3pp adrift of the profiled CP4 target and 4.7pp adrift of the end of CP4 target. The CaSL MAA was 4.7%, 0.7pp adrift of the profiled CP4 target and 0.8pp adrift of the end of CP4 target.

Conclusion

138. In conclusion, it was disappointing that once again the PPM MAA forecast for the end of CP4 had been reduced and is now 2.9pp below the CP4 target, although we recognise that this new forecast does not include the West Coast South Reliability Programme.

5f) What else is being done?

139. Network Rail told us in its Q4 progress report that many other actions have been taken to improve performance within Network Rail and cross-industry 'too many to discuss in this quarterly report'. It therefore only gave us details on the West Coast South (WCS) Reliability Programme for Long Distance.

140. Network Rail told us that the WCS reliability programme was leading the implementation of the 15 recommendations relevant to Network Rail that were made by Chris Gibb (there were also 2 for ORR). Three of the recommendations were complete and three others had estimated performance benefits totalling about 22,000 minutes. We asked Network Rail to give us a milestone plan for the WCS reliability project and also a roll-out plan for its adoption on other routes when we reviewed the Q3 report. We have not received this.

141. On 10 April 2013 Alan Price wrote to MDs of TOCs on the WCS joint board, confirming ORR's support to the proposals but asking that they contact us if they felt insufficient progress was being made.

142. We think the recommendations are sensible, although we would like to see the estimated benefits more clearly defined for the other recommendations where possible. Network Rail should also keep in mind that this is just a small proportion of the Long Distance sector, albeit an important one, and that it needs to ensure it maintains focus on other parts of the network which fall under Long Distance too. However we also recognise that three of the recommendations were complete and some good work was being undertaken on suicide prevention measures.

143. In the enforcement order we issued on 23rd July 2012[2] we said that 'the initiatives in the plan designed to improved performance for the period [2013-14] are not sufficiently developed to demonstrate that Network Rail is and will be taking all necessary steps to deliver the output to the greatest extent reasonably practicable'. We also said that we had 'concluded that further work could be carried out to accelerate delivery of initiatives in the plan designed to improve performance in the period so increasing the chance of Network Rail delivering the output'. Given what we said in the enforcement order, we had expected to see further development of the initiatives in the plan and possibly have an updated version of the LDRP submitted to us. With the exception of the WCS reliability programme and additional Base initiatives being identified during the JPIP process (which

was to be expected) we had seen little evidence of the development of any further initiatives by the end of May.

144. On June 7th 2013, Network Rail wrote to us to tell us that it had recently been able to establish funding of £50m for further performance improvement[17]. This was in addition to the £79m already established for performance improvement in 2012. It said some of it was planned to be used to fund national, more strategic initiatives, including the Performance Planning Reform Programme, but the majority was being made available for the routes to target the areas it believes will deliver the biggest performance benefit in CP4, with lasting effects into CP5. Network Rail committed to updating us on the use of all performance funding as part of Quarterly Reporting and assured us that it will remain focused on delivery of these improvement schemes to maximise the performance benefit.

145. On 24th June, Network Rail announced[18] that it had established projects worth nearly £40m to improve performance by targeting some of the most common causes of delay on the WCML. However it was not clear if that was additional money or part of the £70m or £50m which Network Rail had already told us about in its letter to us on 7th June.

6) Other related issues

Operational planning over Christmas

146. We initially wrote to Network Rail on 3rd January asking for its views on operational performance over the Christmas period 2012. This included the possession overruns and planning errors that occurred, where basic errors in planning caused unnecessary disruption. The four failures, three of which were in the Long Distance sector, we identified were:

- ***Balham* (LSE)** – Schedule errors relating to a speed restriction that accompanied engineering work caused significant delays;
- ***LNW(S)* (LD) –** An electrical isolation at Cheddington when electric trains were timetabled to run requiring that section of track;
- ***LNW (LD) – Birmingham*** – A reduction is station capacity for engineering access for the gateway project was combined with some issues regarding knowledge of platform length to cause major delays; and.
- ***First TransPennine Express (LD)*** – A contingency timetable was not fit for purpose following a landslip.

147. Our view was that in all of these examples more thorough planning and validation of the amended plan could have prevented this disruption. There was also no evidence that local operational

[17] See Annex e.

[18] http://www.networkrailmediacentre.co.uk/News-Releases/Major-investment-to-improve-West-Coast-rail-performance-1dbf.aspx

personnel had been engaged in the process until it was too late. After receiving Network Rail's view on operation performance in P10, we wrote again on 22nd February specifically requesting further information on why the operational planning issues occurred over the Christmas and New Year period and what measures were being taken to ensure they didn't happen again. After its response, we wrote again on the 26th March to say we would take its response into account when we were reviewing its performance for 2012-13.

7) Annexes

Annex A – Independent reporter's assessment

Network Rail LD & LSE Recovery Plan Q4 Report

Independent Reporter Field Tests
Report of Findings

Date: 8 July 2013
Final Report

Contents

Introduction

The fourth Quarterly Report (QR) by Network Rail (NR) into the delivery of the Long Distance Recovery Plan (LDRP) and London & South East Plan (LSEP) was submitted to the ORR on 26 April 2013.

The ORR is leading an overarching review of NR performance in 2012-13, including a review of the fourth QR and developing an evidence pack for submission to the ORR Board. A number of items reported by NR in the QR were identified by the ORR for the Independent Reporter (IR) to review in further detail via a number of 'field tests'. As directed by the ORR, these field test looked at performance in 2012/13 and in Q4. This report sets out the findings from the field tests.

The items selected for 'field testing' were chosen on the basis that they satisfied one or more of the following criteria:

1. Key projects within the Plan with Key Deliverables which were reported as having been delivered in the Quarter.

2. KPIs which were reported as having significant adverse delay minute variances at the end of Q4.

3. Management process related to the discharge of the LDRP and LSEP.

The list of field tests selected by the ORR and the IR are as follows:

1. LD Regulation Trial

2. Intelligent Infrastructure - Remote Condition Monitoring

3. The Weather Resilience & Climate Change Steering Group.

This document sets out our findings, conclusions and high-level recommendations from each of the field tests. A summary of these findings has been provided separately for inclusion in the body of the Q4 Evidence Pack.

The Independent Reporter's executive summary of NR's LDRP and LSEP performance is included in Attachment C.

Field Test Findings

Nichols Group, 53 Davies Street London W1K 5JH Tel 020 7292 7000 email info@nichols.uk.com www.nicholsgroup.co.uk

Field Test 1: LD Regulation Trial

Introduction

In February 2012 NR and the TOCs identified Regulation for PPM as a means of helping to close the performance gap in the LD sector. In developing this new way of regulating, it was determined that the concept of regulating for PPM was not easily employed by signallers; accordingly Regulation for LD services was agreed. LNE Route volunteered to conduct a trial of LD Regulation.

In the Q4 report, NR advises that the 'regulation trial has now concluded and the approach has been adopted as normal regulating policy. On average the trial delivered 5 additional PPM successes at the cost of on average one other PPM failure. The benefit to the LD Sector has been 0.9per cent PPM.'

Approach

This field test has been carried out through interview with [redacted], Route Performance Manager LNE and review of supporting evidence including Regulation Policy Statements, Periodic Reports and correspondence between NR and the relevant TOCs.

Findings

The Regulation policy developed for the trial applies to all LD services provided that they are within 30-minutes of timetable, as there is still the opportunity to bring the service back within the CaSL target, and to recover some time for the return journey.

In undertaking the trial, LNE developed (through 17 iterations) a Train Regulation Policy for LNE (refer Attachment A) and a Local Regulating Statement for each box. The policy sets the overarching regulation requirements and the local statement sets out specific regulating priorities at each location.

Initially TOCs and FOCs were resistant to the Regulation policy, however after much consultation Northern and East Coast are reported to be accepting and positive of LD Regulation. It was noted that FCC is not fully bought-in to LD Regulation. Consultation and negotiation is on going between NR and FCC. In order to appease FCC, NR has made a change to the policy whereby the delay threshold for applying LD Regulation is reduced from 30 minutes to 20 minutes south of Peterborough.

The trial has now run for 13 periods and has been adopted as policy on LNE.

It was noted that a key challenge, over and above gaining support from the TOCs, was changing the culture of signallers. It was reported that signallers are keen to avoid introducing delay in to the system, particularly if that delay is then attributed to the signaller. To overcome this, NR introduced a new delay attribution code (YG) to capture delays caused as a result of LD Regulation. This served two purposes – 1. It enabled the signallers to make Regulating decisions on a best for network basis without fear of blame, and 2. It enabled NR to capture, measure and monitor the impact and benefits of LD Regulation on performance.

The TOCs have disputed some of the data captured and attributed to Regulation as it differs from their data in terms of where delay should be attributed. However following a manually intensive analytical exercise NR and the TOCs have agreed that NR's attribution of Regulation data is accurate.

NR has been clear to the TOCs from the outset of the trial that LD Regulation will mean that some Regional services will fail PPM. NR believes that the overall benefit for the Network outweighs the negative impact on the Regional services by a ratio of 5 PPM successes to 1 PPM failure. NR talked the IR through the derivation of this ratio. Whilst the logic of this derivation appears sound, due to the very short timescales associated with undertaking this field test, it is not possible to verify the accuracy of this ratio.

NR acknowledges that it has made a number of mistakes and missed a number of opportunities through the implementation of LD Regulation however the frequency and severity of these errors have reduced as the system beds in and the signallers learn to work to the new policy. NR has introduced Train Running specialists into Control to watch specific services and locations to avoid similar mistakes or missed regulating opportunities occurring in the future.

NR has derived the forecast benefits from LD Regulation using the Regulating data captured from the YG attribution code and reviewed how often Regulation occurred and PPM was achieved as a result of the Regulation. NR then sought to identify instances where decisions had been taken and no benefit was realised. Due to the manual nature of comparing this data, a sample of data

was used to build up an overall view. NR noted that it is impossible to capture and measure the quantum of avoided delay had LD Regulation not been applied.

In conducting this analysis, NR found that for East Coast a 2% improvement in mid-week performance was noted, however NR could not conclude that Regulation was the sole cause of this improvement.

Following further detailed analysis, NR determined a 0.9% PPM benefit for LNE in August/September 2012. However, and critically in this instance, LNE noted that performance during Q3 and Q4 generated only around a 0.6% improvement in PPM. The ratio of 5 PPM improvements at the cost of 1 PPM failure was noted as being consistent across the year.

LNE has noted that when performance is poor on the Network, the Regional operators are particularly negatively impacted by LD Regulation. When performance on the Network is good, the Regional operators have not experienced any impact on performance. It was noted that Northern is on target to achieve its PPM target.

LD Regulation was introduced to help improve performance on Long Distance. Regulation has gone some way to help this, however NR is now looking to address prime cause - the logic being if the prime cause is eliminated Regulation is not required.

East Midlands Route is reported to be rolling out Regulation and Cross Country is reported to be in favour of further rollouts. LNW has noted some potential improvements to LD Regulation and LNE and LNW will meet shortly to understand these potential improvements.

Western Route has decided not to undertake a trial of Regulation as they have been unable to gain consensus with their TOCs. Scotland and LNW will undertake further analysis before deciding what decisions to take.

In the LDRP, NR notes a PPM benefit for LD services as a result of Regulation of 0.07% for 2012/13 and 0.90% for 2013/14. Based on the information received from LNE it appears that these numbers have now changed with more benefit delivered in 2012/13 (0.6%) and less now expected in 2013/14 due to the speed with which the approach was implemented in LNE Route.

NR has not yet formally reconfirmed the 2012/13 and 2013/14 numbers in light of Western, LNW and Scotland's decisions on Regulation. If LNE is expecting to achieve 0.6% PPM benefit in 2013/14 and other Routes are not implementing Regulation it will not be possible for NR to achieve a 0.9% PPM benefit overall for LD in 2013-14, albeit that they over-delivered in 2012/13.

The claim in the Q4 report that NR has achieved a 0.9% benefit from Regulation in the Quarter appears incorrect and should be 0.6% following the completion of further analysis by the LNE

Route following completion of the Quarter 4 progress report. However, given that LNE only makes up a proportion of LD it is assumed that the real figure for the whole of LD will be considerably smaller still.

Conclusions

The LD Regulation initiative appears to be a sound concept that brings considerable benefits to the Long Distance Route at the expense of minor dis-benefits to the Regional operators. For this reason, some operators and some Routes have been more willing to embrace Regulation than others.

NR claims that LD Regulation delivers 5 PPM successes at the cost of 1 PPM failure. Whilst the justification of this claim seems reasonable and is reportedly supported by the TOCs we did not have the opportunity to scrutinise the analysis.

NR determined a 0.9% PPM benefit for LNE in August/September 2012. However LNE noted that performance during Q3 and Q4 generated only around a 0.6% improvement in PPM.

If LNE is expecting to achieve 0.6% PPM benefit in 2013/14 and other Routes are not implementing Regulation it will not be possible for NR to achieve a 0.9% PPM benefit. Network Rail has subsequently updated the plan to reflect this reduced target of 0.6% PPM benefit and will further update the projections to consider the impact of implementing Regulation less widely than originally anticipated.

The claim in the Q4 report that NR has achieved a 0.9% benefit from Regulation in the Quarter appears out of date following completion of further analysis in the LNE Route and should be closer to 0.6%. However, given that LNE only makes up a proportion of LD it is assumed that the real figure for the whole of LD will be considerably smaller still.

Recommendations

It is recommended that NR reviews and reforecasts the target benefit of LD Regulation to reflect the findings from the trial.

Field Test 2: Intelligent Infrastructure – Remote Condition Monitoring

Introduction

The Intelligent Infrastructure programme is a CP4 initiative which deploys Remote Condition Monitoring (RCM) technology on key assets across the network. Performance improvement is achieved through the assessment of asset condition information leading to proactive maintenance interactions prior to a service affecting failure.

Quarter 4 saw the installation of RCM equipment on a further 3,644 assets (points, track circuits, earths and point heaters). A total of over 21,000 assets have been fitted with RCM technology nationally and the programme is now nearing the end of Phase 2 of the rollout meaning all Points Heating and high priority Track Circuit assets have been covered. Phase 3 of the programme focuses on other key assets that were not as high a priority.

The benefit from RCM for the last three periods is estimated at 50,137 of avoided delay minutes.

The Q4 report also noted that the delay associated with the rollout of RCM phase 3 in LNW (Sandwell, Dudley and Euston) resulted in a loss of over 7,000 delay minutes. These schemes are in the top 30 schemes delivering benefit to LD and LSE.

NR reports that completion of LD RCM projects in the quarter was 45 per cent better than planned.

Approach

This field test has been carried out via interviews with Programme Team representatives – [redacted] (Programme Manager), [redacted] (Business Change Manager) and the Sussex Route – [redacted] (IME Croydon), [redacted] (Lead Control Centre Technician), [redacted] (Section Manager), and through review of supporting evidence including standards, quarterly and annual reports, benefits analysis and presentation from the Programme Team.

Findings

The programme has been in place for around 4 years. Until around 12 months ago the programme did not have an effective business change management function attached to the programme. This is reported to have limited the level of successful take up on RCM across NR.

It was noted by Sussex Route that the early stages of implementation were problematic as Control Rooms were flagging alarms almost constantly with no screening of which alarms were real and which were 'false'. This was reportedly because Control Room staff were not sufficiently capable in screening the alarms and numerous false alarms were being raised due to technical, IT and asset calibration factors.

In 2009 a concept-proving pilot of the technology was undertaken on the line between Edinburgh and Glasgow where RCM was fitted to 128 assets. The target benefits for the programme were established based on the data derived from this pilot.

The programme is being delivered in 3 phases. Phase 1 (c.£11m) is complete and focused on points and earth leakage detection units ('Bender units'). Phase 2 (c.£20m) delivers track circuit and Bender unit RCM. Phase 3 (c.£20m) delivers RCM for lower priority points and track circuits.

More scope than planned was delivered in Phase 1 due to efficiency savings of not having to revisit the same location in later phases (e.g. A and B point ends were fitted where end A was planned for Phase 1 and end B was planned for Phase 3).

Phase 2 is around 80% complete however has been delayed due to technical issues, access delays and resources being redirected to higher priority signalling schemes, e.g. Reading re-signalling.

Phase 3 is around 40% complete. At present Phase 3 is around 3 months behind plan due to material availability, lack of delivery resources and possession access.

The Programme supplies the Routes with the generic RCM design and the local engineers modify the design to suit the specific location. The programme provides the RCM equipment free issue to the Routes. The Routes install the equipment using the local works delivery unit.

In reviewing benefits, it was noted that the programme and the Routes quantify the benefits of RCM differently. The RCM Programme team are only able to calculate the benefits based on the average delay previously attributed to a certain asset. The Routes may take other factors into account such as time of day or avoiding a failure based on the specific location. Therefore it is possible to calculate a different benefit figure for a given situation. Furthermore, not all Routes

quantify benefits on the same basis. Accordingly, it is very difficult to build up a true like-for-like comparison for each Route against the national picture.

The original business case benefits baseline was set in 2009/10 following the pilot. In May 2012, the programme reforecast and reduced the benefits baseline by 11% for 2011/12 to reflect errors identified in the baseline data, better assumptions, the time lag between installing RCM and the realisation of full benefits, better business change and lessons learnt. The benefits for the whole life of the programme were reduced by 24.2%

The programme team does not routinely capture or report on performance by LD or LSE, but does so by NR Route.

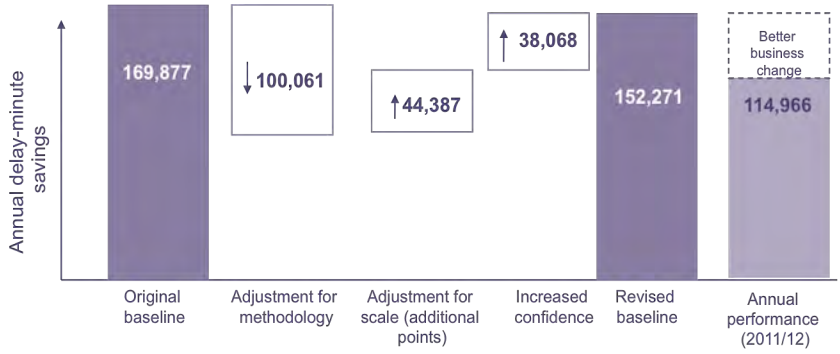


Chart A – NR chart illustrating breakdown of revised benefit baseline

At the end of 2011/12 benefits performance for minutes was 24.5% under target. The programme planned to close the gap through improved business change management.

In the 2012/13 the Programme has once again under performed by around 25% from a benefits perspective. The target vs. actual performance in 2012/13 is set out below.

2012/13 Target	2012/13 Actual	Variance to Target
Minutes Performance	**Minutes Performance**	**Minutes Performance**
275,690	205,556	-70,134

Table A – Actual vs Target Performance for RCM Programme nationally in 2012/13

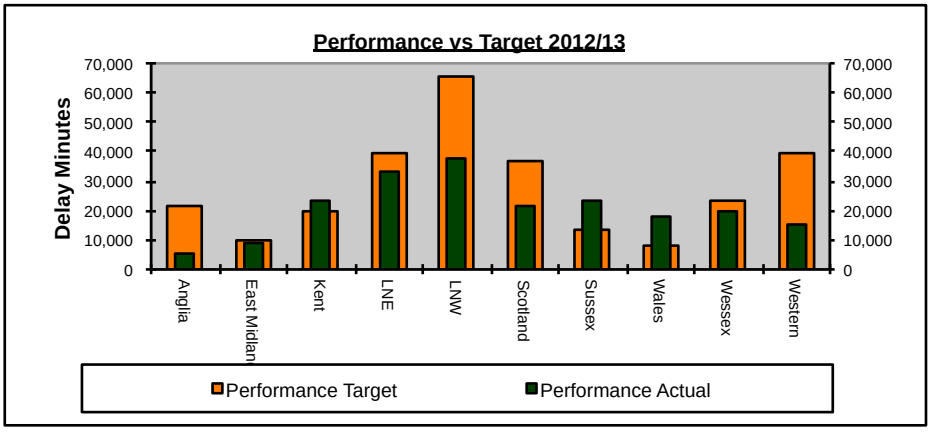


Chart B – NR diagram showing nationwide RCM performance vs target for 2012/13

The Long Distance sector performed particularly weakly in 2012/13 in comparison to the national average with Scotland, LNW and Western Routes delivering significantly less benefits that planned.

As can be seen from the graph above Kent, Sussex and Wessex are achieving substantial benefits from the implementation and use of RCM, and generally achieved their performance targets in 2012/13. The exceptions to this are Anglia and LNW where performance is very significantly below target - 75% and 42% under target respectively.

LNW performance is particularly concerning as the under performance impacts both LD and LSE Routes and a number of the delayed installations are in the top 30 schemes identified as providing benefit to LD and LSE. Sussex was noted as performing particularly well and is embracing and extracting significant value from RCM.

In Q4 NR claims that RCM has led to 50,137 of avoided delay minutes nationally. This is obviously a good result however when this is contrasted against planned performance the result is disappointing, as this is 45,521 minutes below target. Q4 performance is set out below.

Q4 Target	Q4 Actual	Variance to Target
Minutes Performance	Minutes Performance	Minutes Performance
95,658	50,137	-45,521

Table B – Actual vs Target Performance for RCM Programme nationally in Quarter 4 2012/13

As can be seen from the graph below, in Q4 Kent, Wessex, Western, Anglia and LNW all under performed against their targets. This was attributed to delays due to winter weather and material supply issues.

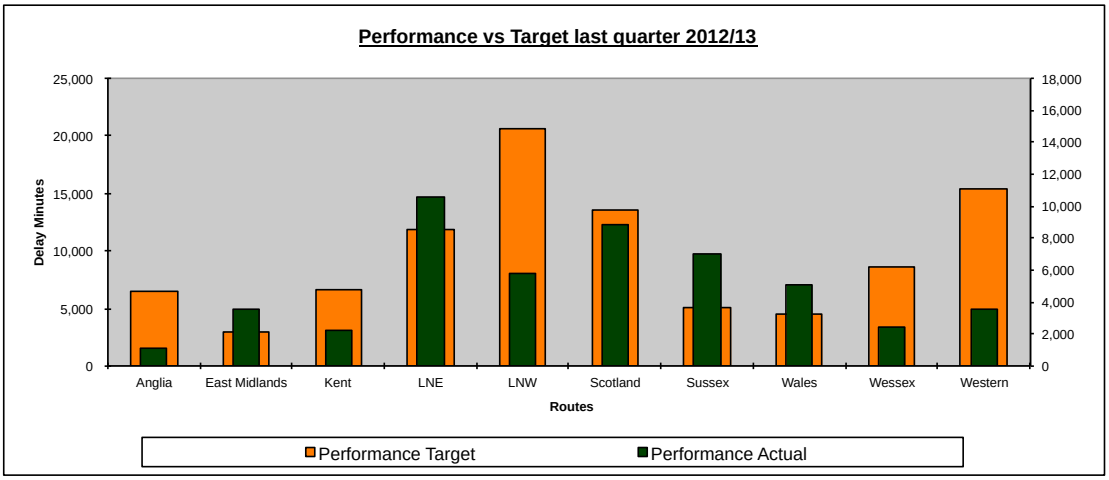


Chart C – NR diagram showing nationwide RCM performance vs target for Q4

This leads to the conclusion that whilst the overall programme is delivering considerable benefits and even over delivering in 4 of the 10 Routes, it appears that the originally planned national benefits were overly optimistic and contained errors of arithmetic and incorrect assumptions. The programme tried to address the identified shortcomings through re-baselining. However performance since the benefits baseline has been reset has repeatedly missed the target, particularly in LD, and by significant amounts. Whilst further improvements may be expected to be generated as the system gets further bedded-in and staff become more adept and creative at using RCM, the IR is not confident that the RCM programme will close the gap between actual and planned benefits. Kent, Sussex, Wessex, LNE and EM are however generally achieving significant benefits, largely in line with or above the re-set benefit targets

The Programme Team tracks the effectiveness of the Routes' use of RCM and have identified a number of missed opportunities where Routes could have avoided particular failures, e.g. missed alarms. It is inevitable that there will be teething problems introducing a system of this nature. NR is confident that once these teething troubles are overcome, the system will deliver significantly more value to the Network.

The programme team has been successful in achieving a change in culture and behaviours in Control and the Routes to the point where much of the organisation is bought-in to the value and importance of RCM.

The programme noted the effectiveness of the training programme that was introduced, however in consulting with Sussex Route, it was noted that this initial training course was (deliberately) limited and basic. It was also noted however that the on-going support and mentoring post-training has been excellent and critical to the effective take up of RCM within Sussex. Furthermore the introduction of the role of 'Flight Engineer' is key to ensuring the right actions are taken to make the most effective use of RCM.

It was noted that the programme is relatively conservative in claiming benefits attributable to RCM, given the current benefit performance of the programme that could be to their detriment. For example, the programme only counts benefits where the asset has failed before previously and a further failure is prevented. For the interventions included, there is an assumption that 100% of them would have gone on to cause a delaying incident. Accordingly it is likely that RCM is delivering greater benefits than NR is claiming (possibly as much at 35,000 minutes in 2012). The impact of this is shown in the diagram below.

The Programme also estimates that there are considerably more minutes (possibly as many as 180,000) that could have been salvaged by the Routes but that these have been missed due to poor calibration and lack of capability of staff. As above, it is expected that similar missed opportunities will be avoided in the future as the RCM capability of the organisation improves. The programme is enhancing their reporting capability and will continue to support the Routes and to mentor them in improving their processes to maximise benefits realisation. It would seem prudent to continue this function into business as usual following the completion of the programme.

The programme has led the development of RCM standards and instructions. These were sighted by the IR and appear fit for purpose. However, in consulting with Sussex Route they were not aware of any new or amended standards or instructions despite the programme reportedly cascading the standards via the NR national cascade process, and the presence of a Sharepoint site and blog. Accordingly, Sussex has developed some of their own processes locally to support the use of RCM. This example demonstrates a breakdown in effective communication between the programme and the Routes.

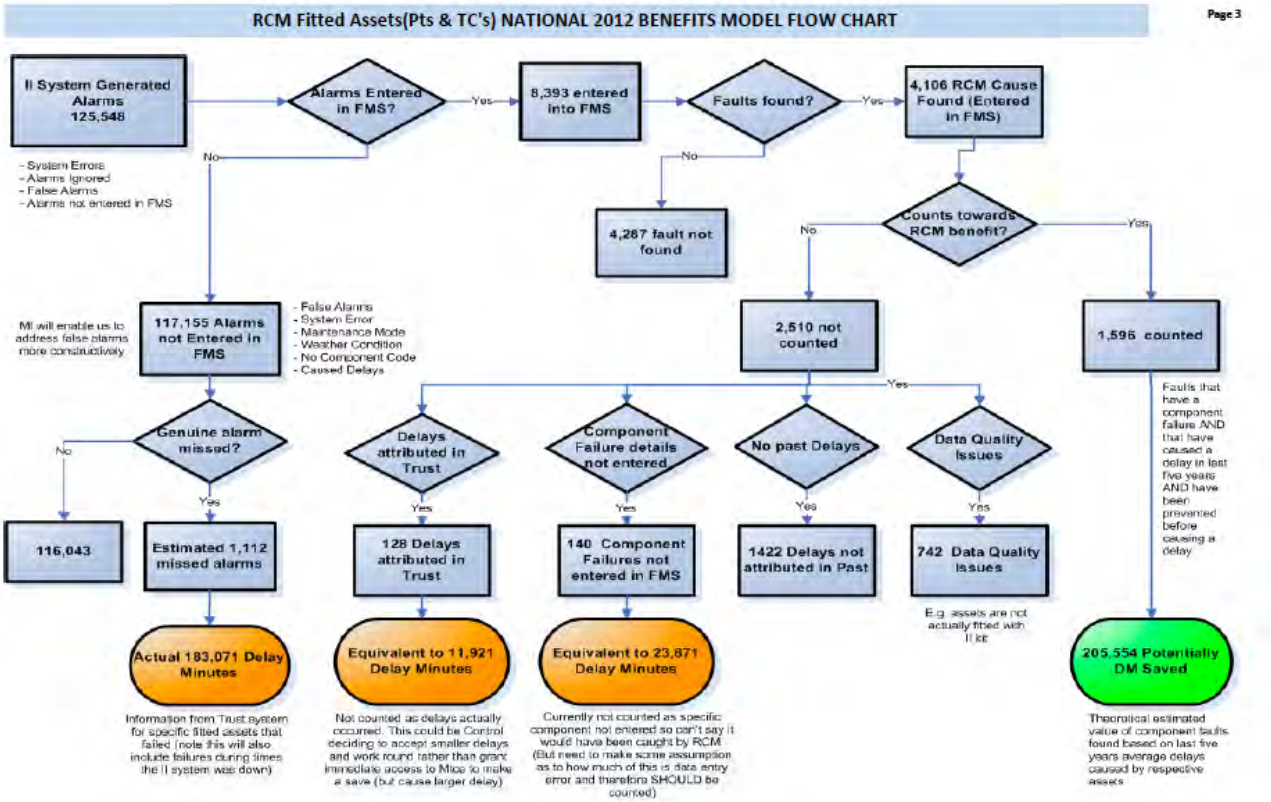


Figure A – NR diagram illustrating how RCM benefits have been captured and quantified

The programme is targeting 30% uplift in benefits performance through improved business change management. It is difficult to assess how achievable this is, however the programme reports that this is a conservative figure. Given that NR can expect to get much more out of the system when the whole organisation is capable of using RCM, then it is reasonable to expect this change will yield significant dividends however based on past performance of the programme 30% would seem high. Related to this, it was noted by Sussex Route that typically it takes up to 12 months after RCM is installed to start realising the full benefits from the equipment although benefits begin to be realised following calibration.

Sussex Route noted that they have used RCM to prevent weather related failures. Two specific examples were cited which involved using RCM to detect the build up of snow in points and to clear them in sufficient time to avoid a failure, and identifying the impact of leaf fall.

The Q4 report noted that the delay associated with the rollout of RCM phase 3 in LNW (Sandwell, Dudley and Euston) resulted in a loss of over 7,000 delay minutes. These schemes are in the top 30 schemes delivering benefit to LD and LSE. The programme team explained that these delays are caused by delays in delivery of materials.

The programme team concedes that recently they 'dropped the ball' with the procurement and supply of RCM materials. The programme offered material to the Routes on a first come first served basis. Accordingly, some Routes now have surplus equipment which they are treating as spare and some Routes have no equipment at all.

The programme team is undertaking a full stock take to try and establish the scale of the problem and to try and bring the programme back under control. The programme estimates this breakdown in the system has caused a 3-month delay to the programme. LNW is claiming that their benefits for the above projects will be delayed by 10 periods. We have not been able to substantiate this claim.

Although the programme takes full responsibility for the breakdown in the material supply chain, it was observed that some Routes are more organised than others in planning for the installation of RCM and have therefore been less impacted through the supply chain failings.

Despite this recent glitch, the Routes are generally very supportive of RCM and have identified a further 13,000 potential fitments, for examples Sussex Route is targeting 100% of points and track circuits fitted with RCM. The programme will seek funding from the August Investment Panel to further extend the programme.

Conclusions

NR has achieved much in developing and implementing RCM. The key elements of the business appear to have embraced RCM and are slowly becoming competent in its use and derive benefits from it.

The programme provided a thorough overview and an honest appraisal of the positives and negatives of the programme.

The programme lacked effective business change management until around 12 months ago, and it would appear that this has had a negative effect on the implementation in previous years.

The programme has established a well thought out means of determining programme benefits however based on the evidence provided it is possible that there are potential benefits that the system is not capturing. This represents a lost opportunity from a NR perspective.

In setting the original programme benefits it appears that NR was overly optimistic, made errors of arithmetic and incorrect assumptions, particularly around the length of time between implementing RCM and realising the benefits of it. Despite the programme recasting the benefits by -11% in 2011/12, over the past two years the programme has consistently under delivered on

benefits by around 25%. It is positive result that, as claimed, NR avoided 50,137 of delay minutes in Q4 as a result of RCM; however in the context that this was 45,521 minutes below target, this is actually quite disappointing performance.

NR is seeking to close the benefits gap through improved business change management. Although this will clearly deliver some improvement in benefit performance it is far from certain that the gap will be sufficiently closed so as to realise the benefits target for the programme.

The programme has introduced training to the Routes and in areas where they have been specifically targeted this has been shown to deliver dividends. However the programme noted that to date the Routes have missed a significant number of opportunities for avoiding failures and this has to be a critical area of focus going forward.

There is still a clear business case for RCM, however it is possibly not quite so compelling as at the outset. The critical success factor is ramping up the competence of NR staff in the use of RCM.

It appears that recently the programme 'dropped the ball' in the Phase 3 material procurement and supply chain whereby some Routes have surplus of equipment and others have none. This is reported to have delayed the programme by 3 months although as the matter is not yet under control, further delay could be expected.

If this breakdown in the supply chain had occurred in the first or second phases of the work, it could perhaps have been more understandable, however given it has occurred in the third phase it would appear that there has been either a significant management or system failure.

The benefits to date nationally from RCM are at least 25% less than the revised benefit target. Although LSE performance is generally achieving target, with the exception of Anglia, LD performance is generally significantly below plan.

Recommendation

1. NR should seek to understand and learn lessons from the failure in the RCM supply chain.
2. NR should continue with the central quality control function for RCM and incorporate this into business-as-usual.

Field Test 3: Weather Resilience & Climate Change Steering Group

Introduction

The Weather Resilience & Climate Change Steering Group ('Group') was established in early 2012 based on an identified need for NR to focus on increasing asset resilience to the long-term impact of Climate Change. The Group was formed by a number of NR staff concerned with the potential impact of climate change on the network. The Group was run along relatively informal lines.

In January 2013, [redacted], A/Director Maintenance Services, was appointed Chairman of the Group.

In the Q4 report, NR identified the actions being devised by the Group as being key mitigations to the impact of weather as NR seeks to bridge the gap between planned and actual PPM performance.

Approach

This field test has been carried out via interviews with [redacted] (Chair), [redacted] (National Weather Specialist), [redacted] (Climate Change Specialist), [redacted] (Steering Group Member). We sought an interview with [redacted] however he was unavailable in the timeframe for the review.

Findings

Prior to January 2013, the Group is reported to have a lacked any real clarity of purpose and vision and failed to deliver any real value to the business. The focus of the Group was slanted heavily in favour of Climate Change as opposed to weather resilience. The membership of the Group only covered a small percentage of the relevant stakeholders and the representatives lacked authority and seniority.

Since the appointment of the new Chair in January 2013, the Group has been through a period of transformation.

The NTF directed the Group to focus on asset improvements to improve resilience, operational response and long term planning to improve resilience of the network to the impact of weather and climate change (targeting benefits in CP6 and CP7). The Terms of Reference for the Group are included in Attachment B. It was reported the balance of the meeting has now shifted from 75:25 climate change: weather to 25:75 in favour of weather.

The membership of the Group has recently been revised and all key stakeholder groups are now represented, with sufficiently senior and credible resources. The Group reports to both Robin Gisby and Jerry England, and has a 'dotted line' report into the NTF.

In the immediate term, the focus of the Group is on developing a Strategic Plan and Road Map to develop and deliver initiatives to deliver short, medium and long-term benefits to address weather resilience and climate change.

This Plan is in draft and was not available for review as part of this field test. From the documents sighted it is evident that work is well under way and the Strategy should be in place by the (currently stated) August deadline.

The Plan has been sensibly structured around 4 quadrants – 1. Understand; 2. Enable, 3. Enhance, 4. Future Planning. Each Quadrant is being led by an accountable member of the Group.

In speaking to the leads for Quadrants 2, 3 and 4 (we were unable to speak to the lead for Quadrant 1), it is clear that the development of the strategy is progressing well and clear evidence was found of joined up working and communication between quadrants, and how one quadrant informs the next. The major reported challenge to the development of this strategy is balancing the cost/benefit of the identified initiatives.

Following the development of the strategy the Group will derive a list of projects with associated benefits and business cases. Funding of the projects will be either through the Route, or some national funding.

Further detail on each of the quadrants is included below:

1.Understand

We did not have the opportunity to meet with the Quadrant lead for 'Understand'. It was noted by other stakeholders however that this is the essential first step and NR must place

sufficient effort into getting a clear handle on the cause and impact data. Through this quadrant, NR will reportedly have contextual data and information by asset, by geography, and by weather event which will allow them to identify which assets are likely to be impacted by which event and where.

In reviewing weather trends in relation to performance it was noted that this is undertaken by the Performance team who provide a briefing to the Group on weather related performance and trends. At this stage however, the Group is almost solely focused on the development of the Strategy.

2. Enablement

Historically, NR developed a series of triggers around weather that triggered key actions for the Routes to undertake when the weather risk occurred. These triggers are in the process of being revised and updated in concert with the weather mitigation strategy, to reflect the latest data and better understanding of the impact of weather on particular asset types to enable more effective mitigation. It was noted that mitigation can only achieve so much and therefore it is key that there is close liaison between the physical mitigation measure and the procedural mitigation measures, e.g. the relationship between Key Route Strategies and points heating.

3. Enhancement

To date, much good work has seemingly been undertaken in regard to developing innovative means of enhancing the asset to increase weather resilience. Initiatives have included strip heater retainers, passive cooling of location cases, and rod roller covers. This and future work will now be captured as part of the Enhancement Quadrant. The centre will develop resilience innovations and recommend them to the Routes for implementation. The centre cannot however mandate whether the Route adopts the enhancement.

The Enhancement lead has consulted with the professional heads around future enhancement and this has led to changes to equipment standards and specifications.

Some members of the Group expressed frustration that these changes cannot be mandated and it was debated whether the Group could have a stronger role in setting weather resilience policy. However, it was acknowledged that in the devolved railway the Group can only recommended actions and not mandate them.

4. Future Planning

In terms of Climate Change, it was noted that the Quadrant lead is working with the relevant Professional Heads to update and amend standards and specifications such that they make provision for the likely future impact of climate change on the assets. It was reported that NR now has a 'huge appetite' to address climate change issues.

The Climate Change lead is working with Western Route to develop a Climate Change resilience strategy. If this is successful this approach will be rolled-out nationwide.

Although some good work has been done in assessing risks, and introducing innovative means of enhancing the asset to increase weather resilience (see Enablement above) much work is still required to bring about real changes on the ground (e.g. considering tensioning of OLE and rail), drainage issues, and sea defences. This needs to be tied in to the risk-based maintenance work in order to firstly identify how and why assets are failing and then putting in place mitigating actions.

The quality of the asset information is still not sufficiently in order to enable NR to predict asset failures. The ORBIS programme will deliver an improvement in data quality but this will take time and we expect to see significant improvement in the early part of CP5.

In the LDRP NR notes that its planning approach will:

1. Use average weather as a base for planning
2. Put in place proper seasonal management and review arrangements
3. Respond when forecasting weather conditions move beyond expected capability of the railway
4. When extreme weather occurs, use the average weather concept to measure the impact 'beyond that which was planned'

In conducting this field test, we also sought to understand to what extent NR is undertaking this approach and what role, if any, the Group plays in this.

Given the time constraints of the review, we were unable to speak to the relevant people in relation to point 1 and 4, however we note the following in relation to points 2 and 3.

Last year was the first year that Routes were required to formally sign off to declare that they are prepared for the coming season. The IR strongly supports the drive to standardise confirmation of the key seasonal deliverables and we understand that the next step will be to transfer the go-live process to the Route Risk Registers, which also appears sensible. It was reported by one key

stakeholder that not all Routes take seasonal preparedness equally seriously – documents were sighted that showed a range of responses from very thorough, well thought out documents to very rough, low on detail responses. The documents sighted clearly suggest that not all Routes take planning and reporting of seasonal preparedness equally seriously, however without further substantiation either way it is difficult to conclude whether the stakeholder's view is correct. The Group does not currently have a role in ensuring seasonal preparedness, however given it is the only high level meeting dedicated to ensuring resilience from weather, it is conceivable that it could have a larger role in ensuring that all Routes are sufficiently prepared. The National Weather specialist is seeking to standardise the responses and the Group should seek to support this.

Evidence was found that NR is reviewing performance at the end of each season and following a major weather event (usually in response to senior management challenge rather than established policy or practice), however NR acknowledged that it is 'weak' in ensuring that agreed Routes actions in response to these reviews are closed out. Again, the Group could potentially take a role in ensuring that the actions are closed out.

Whilst NR seems to be placing more emphasis on the importance of making its asset more resilient to weather and climate change, the lack of central resourcing assigned to weather is somewhat concerning. There has been some weather resource at the centre for some time, however the central weather function was subject to significant changes around 18 months ago. At present there is a National Weather Specialist supported by a Seasonal Delivery Specialist (SDS) in each of the Routes. The SDS is essentially a planning and preparation role, however in the consultation for this review it was reported that there were only 3 SDS in place to deal with this past winter. NR now advises that 'most Routes had an SDS at the beginning of winter and all winter planning is complete by this time'. The current National Weather Specialist is leaving NR in July 2013. Further still, it could be argued that there is merit in having Weather Specialist for each of the LD and LSE Routes.

It was noted that NR focuses on extreme weather and has tried and trusted ways of working in the event of extreme weather – e.g. the establishment of the Emergency Weather Action Teams (EWAT). NR believes that it is actually very effective at responding to extreme weather events. It is certainly true that NR makes every effort to recover performance in the event of extreme weather, and it was noted that NR performed significantly better than other transport modes in the recent extreme weather. NR also noted that PPM is potentially the wrong measure in the event of extreme weather.

NR's National Weather Specialist observed that whilst extreme weather has a major impact and is rightly the focus of much attention, almost more important is how NR deals with 'adverse' weather. As part of the new mitigation strategy, NR will look to develop an approach to build

resilience to and manage in 'adverse' weather, which happens significantly more frequently than extreme weather. It was reported that there is a prescribed means for how Routes/control should act in the event of 'adverse' weather however that this is not thought to be effective. Work is being undertaken to improve this approach that, if endorsed by the NTF, will mean asset owners can stipulate how the weather affects an asset and what mitigation

Currently, in the event that 'adverse' weather is forecast, control will advise a Route of the forecast and the Route will put a system in place for monitoring earthworks and structures. However no equivalent exists for drainage – the default position is to rely on local knowledge. This is seen as a significant shortcoming and accordingly the Group is looking to address this through the Strategy.

Conclusions

Pre-January 2013, this Group was reportedly largely ineffective and added little value due to a lack of vision and seniority.

To date the refreshed Group has not yet delivered any tangible benefits to the business as it is focused on developing the new Weather Resilience & Climate Change Strategy. However it is expected that once this strategy is developed and realised there is scope of the Group to deliver significant benefit to the organisation.

The Group is now well structured and governed (although the Group does currently sit in the maintenance function and this could be reviewed).

The Strategy that the Group is developing appears to be being formed along the right lines and should be finalised in August 2013.

Although some good work has been done in assessing risks much has still to be done in bringing about real changes on the ground.

It was reported that not all Routes take seasonal preparedness equally seriously. The evidence presented supports the claim that not all Routes take seasonal preparedness reporting equally seriously, however despite coming from a well-placed stakeholder, it is not possible to conclude whether this comment is correct. The Group does not currently have a role in ensuring seasonal preparedness, however it is conceivable that it could have a larger role in ensuring that all Routes are sufficiently prepared.

NR is reviewing performance at the end of each season and following a major weather event however NR is weak in ensuring that agreed Routes actions in response to these reviews are closed out. The Group has no role in ensuring that the actions are closed out

Whilst NR seems to be placing more emphasis on the importance of making its assets more resilient to weather and climate change, the lack of central resourcing assigned to weather is somewhat concerning. Furthermore, the National Weather Specialist is leaving NR in July 2013. Further still, it could be argued that there is merit in having Weather Specialist for the LD and LSE Routes.

Whilst extreme weather has a major impact and is rightly the focus of much attention, almost more important is how NR deals with 'adverse' weather. As part of the new mitigation strategy, NR will look to develop an approach to build resilience to and manage in 'adverse' weather.

Recommendations

The Group needs to develop an approach whereby if recommended best practice is identified, senior support or sponsorship is obtained to ensure that as many Routes as possible take up the initiative.

The Group could potentially take a role in ensuring that the actions identified following a seasonal review or following a major weather event are closed out.

NR needs to be sure that it is taking sufficient steps to adequately back-fill this role of National Weather Specialist and should consider whether to have a weather specialist dedicated to both the LD and LSE sector.

Overall Conclusions

Through each of the field tests, it was noted that NR has achieved much and delivered many benefits both in Quarter 4 and in 2012/13. However, in most cases the benefits delivered have been significantly less than originally anticipated.

The benefits to date nationally from RCM are at least 25% less than the revised benefit target. Although LSE performance is generally achieving target, with the exception of Anglia, LD performance is generally significantly below plan.

In setting the original RCM programme benefits, it appears that NR was overly optimistic, made errors of arithmetic and incorrect assumptions. Despite the programme recasting the benefits, the programme has consistently under delivered on benefits. It is positive that, as claimed, NR avoided 50,137 of delay minutes in Q4 as a result of RCM; however in the context that this was 45,521 minutes below target, this is actually quite disappointing performance.

There is still a clear business case for RCM, however it is possibly not quite so compelling as at the outset.

It appears that recently the RCM programme 'dropped the ball' in the Phase 3 material procurement and supply chain and as the matter is not yet 'under control', further delay could be expected. NR should seek to understand and learn lessons from the failure in the RCM supply chain.

The LD Regulation trial has delivered around 30% less benefit than reported (this has subsequently been corrected) and it is now considered highly unlikely that NR will achieve the originally targeted 0.9% PPM benefit. On this basis, NR should review and reforecast the target benefit of LD Regulation to reflect the findings from the trial.

The Weather Resilience and Climate Change Steering Group, although no tangible benefits have been claimed to date, will not start to add quantifiable benefits until their Strategic Plan has been implemented. It is noted that the Group is now 'on the right track' compared to 12 months ago. The Group should look to further extend its reach such that it exerts greater influence in

introducing innovation and best practice into the Routes and ensuring that the actions identified following a seasonal review or following a major weather event are closed out.

It is clear from each of the field tests that all of the staff involved have made a genuine attempt to deliver their respective programmes and seemingly made best endeavours to deliver the planned benefits. However, in general the benefits have not been realised due to either over optimism in the initial setting of targeted benefits, implementation not being rolled-out as widely as planned, the true benefits not being adequately captured, or delays being introduced as a result of management system failures.

Attachment A – LNE Train Regulation Policy excerpt

Train Regulation Policy, London North Eastern Route Effective from 17th April 2013 until further notice.

1. Train Regulating Policy Objectives.

- To maximise the PPM/FPM of all train and freight operators by ensuring that long distance inter-city services are returned to (or as close as possible to) their Working Time Table path at each opportunity.
- To minimise delay to all train and freight operators by operating the LNE Route network in the best interests of all.
- To thoroughly review the findings and data with all train and freight operators and to continuously revise this regulating Policy.

2. Route Level Regulating Statement.

At the Route level, the purpose of the regulating Policy is to:

- Use each opportunity to return the long distance, inter-city service to its Working Time Table path unless it is more than 30 minutes late or **20 minutes South of Peterborough Station**

- Use each opportunity at or close to end destination to regulate to maximise the PPM/FPM of all operators.

3. Local Regulating Statements.

Local level regulating statements will be issued for specific junctions and stations that provide clear objectives and guidance for that particular location.

4. Management of early running trains

A train may be allowed to depart early from its point of origin only when the signaller can ensure it is regulated to prevent delay to trains. If this is to result in the train running significantly early into another signalbox area, this must be authorised by NR control.

Trains that are running early in the course of their journeys must be regulated when necessary to minimise delay to other trains. When such trains are regulated they should be permitted to leave the intermediate regulating point in sufficient time to allow them to regain their booked time at the next timing point in their schedule.

5. Applicability of Train Regulation Policy Policy.

Any specific direction from NR Control regarding the priority of trains on the network takes precedence over this policy.

This Train Regulation Policy is applicable to all parts of the network in situations of operational disruption and will be the only such Policy in force.

In situations where the level of disruption leads to the implementation of a Contingency Plan or Service Recovery these may, whilst in force, take precedence over this Policy statement.

Authorised by
[redacted] Area Director 17
April 2013

Local Regulating Statement for Tyneside PSB

Exceptional priorities

The following exceptional priorities have been established for this Signalbox/location:

Newcastle station and all junctions between Heaton North Jn and Birtley Jn inclusive.

Operators:
Cross Country
East Coast
TransPennine Express
Northern Rail
Freight

Specific Regulating Objective:

The objective at Newcastle station and the surrounding junctions is to regulate to maximise the opportunity to get southbound and then northbound inter-city services back to, or close to, their Working Time Table path and to reduce overall industry delay. Regulation priority must be given to those operators that are in a position to depart south on time.

Unless the Up direction xx.25 or xx.29 East Coast service to King's Cross has presented itself into Newcastle on time and is ready to depart on time, preference must be given to the xx.32/xx.35 Cross Country service if these trains are in a position to leave on time. The East Coast service is then to follow the Cross Country service.

Where possible every opportunity should be taken to minimise the delay to Northern Rail east-west and west-east services.

This will increase the opportunity at neighbouring locations to achieve the objective of maximising PPM/FPM of all operators.

Regulating Principle:

Every opportunity must be taken to return the inter-city service back to its Working Time Table path, back to on time and where a choice between operators has to be made, in the order of priority shown above.

Performance Measures:

The performance thresholds applicable to Train Operators at this Signalbox/Location are as follows:-
0 – 4: Northern Rail
0 – 9: East Coast; Cross Country; Transpennine Express
Authorised by:

[redacted]]
Area Director 6 May 2013

Attachment B – Steering Group Terms of Reference

Steering Group	Weather and Climate Change Resilience
Overall purpose	To establish and deliver a strategy to manage the risk of weather and climate change impact to rail performance
Purpose	This group is set up to; • Analyse and understand which assets and systems are vulnerable to current weather and future climate change impacts • To understand the root causes of asset vulnerability • To develop a business case for improving weather and climate change infrastructure resilience • To develop a range of asset mitigation measures, both short & long term, to improve the resilience of the infrastructure for future changes in the frequency and intensity of weather events • To develop a range of operational mitigation measures, both short & long term, to ensure our response to future changes in the frequency and intensity of weather events is appropriate • To ensure 'fit for purpose' environmental standards and specifications to mitigate future weather and climate change • To align with railway industry objectives • To pro-actively communicate strategy and delivery progress to internal and external parties
Champion (Client)	[redacted]
Chair & Sponsor	[redacted]
Programme Manager	tba
Secretary	[redacted]
Members	Chair – [redacted], Head of Delivery Maintenance Services • Network Operations o [redacted] - National Weather Strategy Specialist o [redacted] - Industry Performance Relationship Manager o [redacted] - Route Asset Management

	o [redacted] – General Manager • Asset Management Services o [redacted] – Railway Systems Modelling Specialist o [redacted] - Professional Heads representative o [redacted] - Asset Management Route Account Manager o [redacted] – Asset Management Support • Infrastructure Maintenance o [redacted] – Maintenance Improvement Specialist o [redacted] – Systems Modelling Specialist • Business Change o [redacted] - Portflio Office Manager • S & SD o [redacted] - Sustainability Specialist (Climate Change Adaptation) • ATOC - [redacted]
Quorum	Minimum of 4 members, including the chair (or deputy)
Agenda	• Minutes and actions from the previous meeting • Progress on key activities; strategy and delivery programme • New issues/papers/knowledge/research/Proposed • Funding sources • AOB
Inputs	• Strategy and policy (Network Ops, AMS, S&SD) • Weather and climate change strategy and delivery progress • Information to support decision making
Outputs	Minutes • Actions to direct and develop; o Strategy o Programme Delivery o Reduction in impact of train performance due to adverse weather & climate change o Research and development o Communicate progress – internally and externally
Frequency	4 weekly
Related Meetings	Internal: • SDS (season delivery specialists) (JB) • S&SD integration (RSIMs) External: • Winter Research Group (TJ) • DfT Impacts of Climate Change on Railways group (KA)

	• TRaCCA steering group (KA)

Attachment C – Executive Summary of LD & LSE Performance

Nichols Group, 53 Davies Street London W1K 5JH Tel 020 7292 7000 email info@nichols.uk.com www.nicholsgroup.co.uk

INDEPENDENT REPORTER'S EXECUTIVE SUMMARY OF NR'S LONG DISTANCE RECOVERY PLAN

Notes:

1 Purpose of Summary:- to understand the big picture painted in the LDRP; to establish a baseline plan for monitoring purposes; to create a framework into which all updates must fit to be consistent; and to extract the quarterly forecasts for PPM MAA which are implicit in the LDRP.

2 CP4 Targets for LD Sector were missed in 2011/12 and the LDRP was created to get performance improvement back on track in response to the ORR Enforcement Order.

3 The Base Forecast is the "JPIP Targets" plus "Downsides / Other Initiatives (net)" for 2012/13 and for 2013/14.

4 The Base Forecast and its components are stated at 75% confidence in LDRP for the totals and individual elements for DM and PPM.

5 The Base+ and Base++ forecasts are stated at maximum values. PPM Base+ and Base++ Totals are stated in LDRP at various confidence levels; 75% confidence values are used for the LDRP Forecast for PPM only.

6 Only Base+ and Base++ PPM at 75% confidence can reasonably be added to Base forecast.

7 New Initiatives and Deliverables for 2013/14 will be added as they become available.

INTRODUCTION - RELATIONSHIP OF THE FOLLOWING TABLES

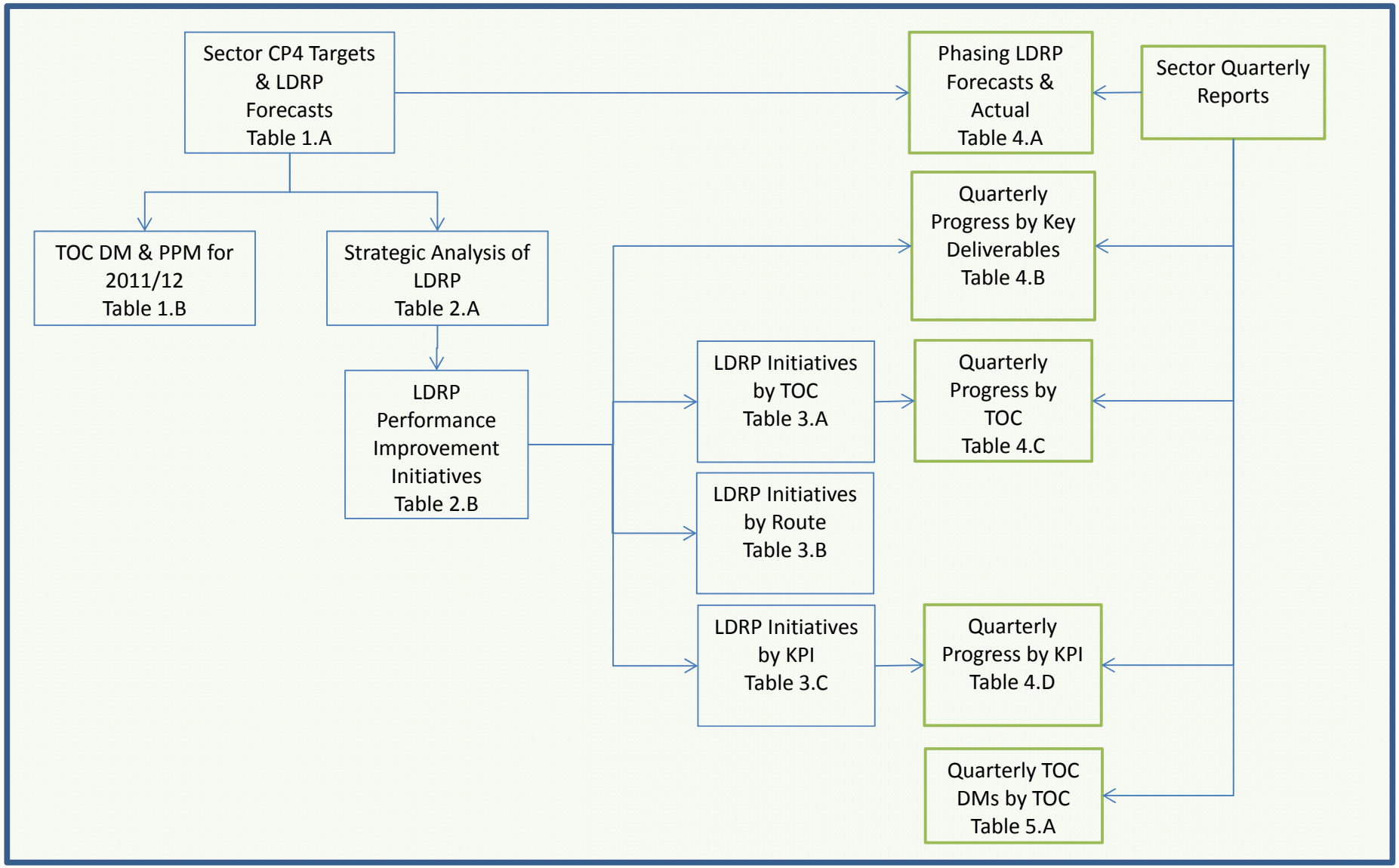


TABLE 1.A - LONG DISTANCE SECTOR CP4 TARGETS AND LDRP FORECASTS FOR 2012/13 & 2013/14 - DM & PPM

Summary statement of the CP4 targets and the NR LDRP Forecasts for DM and PPM MAA

CP4 TARGET

	NR Delay Minutes 000s (NR only)				PPM - MAA				Notes
	2011/12	2012/13	2013/14	Change 2011/12 to 13/14	2011/12	2012/13	2013/14	Change 2011/12 to 13/14	
NR Only	1,677	1,574	1,488	-189	90.9%	91.5%	92.0%	1.1%	1,2

NR LDRP FORECAST

	NR Delay Minutes 000s (NR only)				PPM - MAA				
	2011/12A	2012/13F	2013/14F	Change 2011/12 to 13/14	2011/12A	2012/13F	2013/14F	Change 2011/12 to 13/14	
Prior Year (Base only)		1,882	1,799			89.1%	89.7%		6
JPIP Initiatives		-286	-101	-387		1.1%	0.4%	1.5%	3, 6
Downsides / Other Initiatives (net) 2012/13 & 2013/14		203	-17	186		-0.5%	0.2%	-0.3%	4, 6
Total Base	**1,882**	**1,799**	**1,681**	**-201**	**89.1%**	**89.7%**	**90.3%**	**1.2%**	1, 2, 5, 6
Prior Year Base+ & Base++ Improvement							0.2%		
NR Base+						0.2%	0.3%	0.5%	7, 8
NR Base++						0.0%	0.4%	0.4%	7, 8
Total LDRP					89.1%	89.9%	91.2%	2.1%	8

VARIANCE CP4 TARGET TO LDRP FORECAST (negative is worse)

	NR Delay Minutes 000s (NR only) (compared to Total Base)				PPM - MAA (compared to Base & LDRP)				
	2011/12A	2012/13F	2013/14F		2011/12A	2012/13F	2013/14F		
Against Total Base	**-205**	**-225**	**-193**		**-1.8%**	**-1.8%**	**-1.7%**		**9, 10**
Against Total LDRP					**-1.8%**	**-1.6%**	**-0.8%**		**9, 10**

Notes:

1 DM from Table 4.2 Page 89 of LDRP.
2 PPM from Table 4.2 Page 89 of LDRP.
3 DM & PPM from Tables 9 & 10 on page 30 of LDRP.
4 Downsides / Other Initiatives (net) are taken from Table 2.B in this document.
5 Total Base Actual for 20111/12 is NR's outturn vale for the year.
6 DM and PPM values for Base are at 75% confidence and for DM are NR only values.
7 NR Base+ and NR Base++ are taken from Table 2.B in this document.
8 PPM for Base+ and Base++ are at 75% confidence and therefore can be added to the Base values and are taken from Table 13 on page 85 of LDRP.
9 DM variance is measured against Base only with no allowance for any gains from Base+ and Base++.
10 PPM variance can be measured against Total LDRP and includes 75% confidence gains from Base+ and Base++.
11 Table 2.B in this document expands the above Forecast values.
12 "cerise cell" = "number of note"

TABLE 1.B - LONG DISTANCE DM & PPM MAA BY TOC FOR 2011/12

How much each TOC contributes to the LD Sector and how far adrift from CP4 Target at end 2011/12

NR DM & PPM MAA BY TOC FOR 2011/12

			CP4 Target		Actual		Variance	
TOC	Percent of LD Trains	Percent of trains in LD	DM 000s	PPM	DM 000s	PPM	DM 000s	PPM
FTPE	19%	100%	206	93.2%	238	93.3%	-32	0.1%
Greater Anglia	5%	4%	na	88.7%	71	86.4%	na	-2.3%
FGW	13%	14%	na	89.3%	263	85.4%	na	-3.9%
Cross Country	19%	100%	418	90.6%	463	89.6%	-45	-1.0%
EMT	13%	45%	na	92.7%	144	94.2%	na	1.5%
East Coast	9%	100%	142	89.5%	236	86.6%	-94	-2.9%
Virgin Trains	20%	100%	459	90.3%	418	85.9%	41	-4.4%
Grand Central	1%	100%	15	83.0%	25	84.1%	-10	1.1%
First Hull Trains	1%	100%	15	87.8%	15	81.7%	0	-6.1%
Total	**100%**	**-**	**1677**	**90.9%**	**1882**	**89.1%**	**-205**	**-1.8%**

Notes:

1 Percent trains (both columns) from Table 2 on page 7 of LDRP.
2 2011/12 Targets and Actuals from Table 4 on Page 9 of LDRP.
3 DM values are assessed by NR from data available.
4 "cerise cell" = "number of note"
5 "blue cell" = "big ticket" items and is based on product of percent trains and variance.

TABLE 2.A - LDRP STRATEGIC ANALYSIS

What NR has concluded from strategic analysis of the routes and the TOCs in order to inform the selection of improvement initiatives

1	**Sector-wide**	
1.1	Complex routes	Cross-boundary running, long routes shared with many TOC/FOCs, some critical sections, delay exported, most PPM failures by large margin, major engineering work at hubs.
1.2	Long journeys & late finishes	Long distances run, delay at start of journey unrecoverable, late evening finishes, increased weather susceptibility, higher speeds hit by TSRs.
1.3	Other characteristics	Old HST fleet, advanced seat booking,
2	**Cross Country (19% of Sector Trains)**	
2.1	Operational characteristics	Birmingham hub, all diesel fleet, third party maintained, complex cross boundary routes.
2.2	Headline 2011-12	PPM MAA 89.6% (1.0% worse than CP4 Target).
2.3	Current issues	Fatalities increase, major infra failures, fleet and train crew problems.
2.4	Improvement Opportunities	Getting basics right, focus on mid-journey, possession management, mitigating effect of JT reductions, managing externals.
3	**East Coast (9%)**	
3.1	Operational characteristics	High profile, refranchise in CP4, funnel effect into Doncaster-KX, 2-track sections, few diversionary routes.
3.2	Headline 2011-12	PPM MAA 86.6% (2.9% worse than CP4 Target).
3.3	Current issues	Major asset failures and externals Peterborough-KX, track quality and cable theft, fleet failures.
3.4	Improvement Opportunities	Track asset management, sub-threshold delays, enhancement works at Holgate Jct etc., regulation improvement, HST fleet improvements, better JPIP management.
4	**East Midlands Trains (13%)**	
4.1	Operational characteristics	Multi-sector TOC, main line electrified but whole fleet is diesel, heavy focus on RTR.
4.2	Headline 2011-12	PPM MAA 94.2% (1.5% better than CP4 Target).
4.3	Current issues	Signalling issues Nottingham area and Bedford-StP, fatalities, fleet failures.
4.4	Improvement Opportunities	Increased renewals, RTR re-launch, fatality management.
5	**First Great Western (13%)**	
5.1	Operational characteristics	All 3 sectors, high profile, increasing ridership, ageing fleet, historic poor performance, refranchise in CP4, Crossrail major project works.
5.2	Headline 2011-12	PPM MAA 85.4%(3.9% worse than CP4 Target).
5.3	Current issues	Thames Valley area infra problems esp. TC and pt failures, fatalities Slough-Padd, fleet failures.
5.4	Improvement Opportunities	Thames Valley infrastructure imps, fleet improvements, more RCM, fatality management, ITPS maturity, management of major project works.
6	**First Trans Pennine Express (19%)**	
6.1	Operational characteristics	Three main routes, cross-boundary routes, old infrastructure, low speeds.
6.2	Headline 2011-12	PPM MAA 93.3% (0.1% better than CP4 Target).
6.3	Current issues	Cable theft, track failures esp. TCF, train crew IR problems.
6.4	Improvement Opportunities	Cable theft management, RTR through congested areas, operator delay reduction.
7	**Greater Anglia (5%)**	
7.1	Operational characteristics	Mainly LSE services, ageing fleet, full capacity Ipswich-Liverpool Street.
7.2	Headline 2011-12	PPM MAA 86.4% (2.3% worse than CP4 Target).
7.3	Current issues	Fatalities and cable theft, old OHLE, freight failures.
7.4	Improvement Opportunities	OHLE renewal, focus on frontline, cable theft management, improved freight TT, Olympics management.
8	**Virgin Trains (20%)**	
8.1	Operational characteristics	High profile, 4 routes all using 125mph Pendolinos, franchise about to end, trains lengthened from 9 to 11-car, effectively 2-track section Hanslope Junction-Rugby.
8.2	Headline 2011-12	PPM MAA 85.9% (4.4% worse than CP4 Target).
8.3	Current issues	West Coast south problems of fatalities, failure of ageing points and signals Watford Junction-Euston, bad ride ESRs.
8.4	Improvement Opportunities	Track quality management, OHLE improvements, increased use of spare capacity, better asset management Rugby-Euston, freight reliability.
9	**Grand Central, Hull Trains (2%)**	
9.1	No references	

TABLE 2.B - LDRP RECOVERY INITIATIVES FOR 2012/13 & 2013/14 - DM & PPM

The "big ticket" items amongst the full suite of Initiatives for Base, Base+ and Base++ and for downside items

Recovery Programmes	NR Delay Minutes 000s			PPM			Note #	No of Initiatives		
	2012/13	2013/14	Total	2012/13	2013/14	Total		2012/13	2013/14	Total
JPIP Initiatives										
Autumn Mitigation Plan	-2	-1	-3	0.01%	0.01%	0.01%	1, 2	37	10	47
Civil Engineering Improvements	-10	-3	-13	0.05%	0.01%	0.06%	1, 2	49	12	61
Fatality & Trespass Mitigation	-15	-7	-22	0.07%	0.03%	0.10%	1, 2	92	30	122
Intelligent Infrastructure	-16	-13	-29	0.07%	0.05%	0.12%	1, 2	45	27	72
Major Projects	-7	-11	-18	0.03%	0.05%	0.08%	1, 2	21	7	28
Operations Improvements	-24	-5	-29	0.09%	0.02%	0.11%	1, 2	84	16	100
Other	-18	-8	-27	0.03%	0.02%	0.05%	1, 2	62	36	98
Points Improvement	-19	-9	-28	0.08%	0.04%	0.12%	1, 2	104	25	129
Possession Management & Staff Competency	-13	-5	-18	0.05%	0.02%	0.07%	1, 2	83	31	114
Power Supply Improvements	-21	-3	-25	0.11%	0.02%	0.13%	1, 2	19	10	29
Signal & Telecoms Equipment Improvements	-37	-12	-49	0.16%	0.05%	0.20%	1, 2	156	45	201
Track Improvements	-46	-12	-58	0.16%	0.04%	0.20%	1, 2	96	32	128
Train Detection Improvements	-19	-4	-24	0.08%	0.02%	0.10%	1, 2	80	13	93
Train Planning	-12	-2	-14	0.02%	0.01%	0.03%	1, 2	39	15	54
Vandalism & Theft	-15	-2	-17	0.07%	0.01%	0.08%	1, 2	49	7	56
Weather Mitigations (excluding Autumn)	-11	-3	-14	0.05%	0.02%	0.06%	1, 2	47	18	65
Subtotal JPIP Initiatives	**-286**	**-101**	**-387**	**1.12%**	**0.39%**	**1.51%**		**1,063**	**334**	**1,397**
Downsides / Other Initiatives (net) 2012/13 & 2013/14										
Assumption on weather / autumn 2012/13	40		40	-0.17%		-0.17%	3, 4			
Traffic growth 2012/13	10		10	-0.06%		-0.06%	3, 4			
10% Contingency (NR improvements) 2012/13	29		29	-0.11%		-0.11%	3, 4			
Risks 2012/13	56		56	-0.22%		-0.22%	3, 4			
TOS / TOT net delay change 2012/13				-0.13%		-0.13%	3, 4			
2.4% extra confidence buffer on delay minutes target 2012/13	69		69				3, 4			
PPM-specific schemes (net) / other 2012/13				0.24%		0.24%				
NR other net improvements 2013/14		-17	-17		0.06%	0.06%				
TOS / TOT net improvements 2013/14					0.10%	0.10%				
PPM-specific schemes (net) / other 2013/14					0.00%	0.00%	3, 4			
Subtotal Downsides / Other Initiatives (net)	**203**	**-17**	**186**	**-0.46%**	**0.16%**	**-0.30%**				
Subtotal Base = JPIP Improvements and other Net Changes @ 75% confidence	**-83**	**-118**	**-201**	**0.66%**	**0.56%**	**1.21%**				
Base+ Programmes (maximum achievable)										
Freight Programme				0.03%	0.09%	0.12%	6			
Timetable for Performance				0.03%	0.75%	0.78%	6			
Control Centre Actions				0.14%	0.42%	0.56%	6			
Rules				0.01%	0.09%	0.10%	6			
Incident Response Times				0.00%	0.11%	0.11%	6			
Subtotal Base+ (Maximum)				**0.21%**	**1.46%**	**1.67%**				
Subtotal Base+ @75% confidence				**0.20%**	**0.30%**	**0.50%**	**7**			
Base++ Programmes (maximum achievable)										
Regulation				0.07%	0.90%	0.97%	6			
Timetable				-	-	-	6, 9			
Red Route				0.00%	0.00%	0.00%	6, 8			
Freight				-	-	-	6, 9			
Possessions				-	-	-	6, 9			
Subtotal Base++ (Maximum)				**0.07%**	**0.90%**	**0.97%**				
Subtotal Base++ @75% confidence				**0.00%**	**0.40%**	**0.40%**	**7**			
Subtotal Base+ & Base++ (Maximum)				**0.28%**	**2.36%**	**2.64%**	**6**			
Subtotal Base+ & Base++ @ 75% confidence				**0.20%**	**0.70%**	**0.90%**	**7**			
Total Base, Base+ and Base++ @ 75% Confidence				**0.86%**	**1.26%**	**2.11%**	**4, 7**			

Notes:

1 JPIP DM and PPM from Tables 9 & 10 on page 30 of LDRP.
2 Number of Initiatives from pages 37 to 68 of LDRP.
3 Downsides / Other Initiatives from table 8 on Page 28 of LDRP and "waterfall" spreadsheet provided by NR.
4 DM and PPM for all Base are at 75% confidence.
5 Downsides / Other Initiatives at 75% confidence.
6 Base+ and Base++ are from Table 11 on Page 72 of LDRP and are maximum achievable value NOT 75% confidence.
7 PPM for Base+ and Base++ are also shown at 75% confidence.
8 The Red Route programme links to other programmes and strengthens their delivery rather than delivering in its own right.
9 Some Base++ Programmes are at an early stage of development and have no quantification of benefits.
10 PPM & DM values are increment for each year.
11 "cerise cell" = "number of note"
12 "blue cell" = "big ticket number".

TABLE 3.A - LDRP RECOVERY INITIATIVES BY TOC FOR 2012/13 & 2013/14 - PPM INCREMENT

The big ticket PPM Improvement item for individual TOCs against the full suite of initiatives

JPIP Initiatives	Virgin	Cross Country	FGW	TPE	EMT	East Coast	Greater Anglia	Grand Central	Hull Trains	Grand Total
Autumn Mitigation Plan	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%				**0.01%**
Civil Engineering Improvements (Including External Damage Mitigation)	0.02%	0.02%	0.01%	0.00%	0.00%					**0.06%**
Fatality & Trespass Mitigation Plan	0.03%	0.02%	0.03%	0.01%	0.00%	0.01%	0.00%			**0.10%**
Major Projects	0.04%	0.02%	0.01%	0.00%	0.01%					**0.08%**
Operations Improvements	0.03%	0.03%	0.04%	0.00%	0.01%	0.00%	0.01%			**0.11%**
Other	0.00%	0.01%	0.02%	0.01%	0.00%	0.01%	0.00%		0.00%	**0.05%**
Points Improvement (Excluding Remote Condition Monitoring)	0.03%	0.03%	0.04%	0.01%	0.00%	0.00%	0.00%			**0.12%**
Possession Management & Staff Competence Improvements	0.02%	0.02%	0.02%	0.01%		0.01%	0.00%			**0.07%**
Power Supply Improvements	0.09%	0.01%	0.00%	0.01%	0.01%	0.00%	0.01%			**0.13%**
Intelligent Infrastructure	0.04%	0.04%	0.02%	0.01%	0.01%	0.00%				**0.12%**
Signal & Telecoms Equipment Improvements	0.07%	0.04%	0.03%	0.01%	0.02%	0.01%	0.00%	0.00%	0.00%	**0.21%**
Track Improvements	0.11%	0.03%	0.02%	0.02%	0.01%	0.01%		0.00%	0.00%	**0.20%**
Train Detection Improvements (Excluding Remote Condition Monitoring)	0.02%	0.03%	0.05%	0.01%	0.00%	0.00%	0.00%			**0.10%**
Train Planning Improvements	0.00%	0.01%	0.01%	0.00%	0.00%		0.00%			**0.03%**
Vandalism & Theft Mitigation Plan	0.01%	0.02%	0.01%	0.01%	0.00%	0.01%	0.01%	0.00%		**0.08%**
Weather Mitigations (Excluding Autumn)	0.03%	0.01%		0.01%	0.00%	0.01%	0.00%			**0.06%**
Subtotal JPIP	**0.56%**	**0.34%**	**0.29%**	**0.11%**	**0.07%**	**0.08%**	**0.04%**	**0.01%**	**0.01%**	**1.51%**
Downsides / Other Initiatives (net) 2012/13 & 2013/14										**-0.30%**
Total Base	**0.56%**	**0.34%**	**0.29%**	**0.11%**	**0.07%**	**0.08%**	**0.04%**	**0.01%**	**0.01%**	**1.21%**

Notes:

1 Value 0.00% = <0.005%; Value "blank" = nil%.
2 PPM for Initiatives from Tables on pages 31 & 32 of LDRP.
3 Downsides / Other Initiatives (net) are taken from Table 2.B in this document.
4 "cerise cell" = " number of note"
5 "blue cell" = "big ticket number".

TABLE 3.B - LDRP RECOVERY INITIATIVES BY ROUTE FOR 2012/13 & 2013/14 - DM INCREMENT 000s

The "big ticket" Initiatives for individual routes amongst the full suite of Initiatives

JPIP Initiatives	LNW	Western	Scotland	Anglia	LNE	East Mids	Wessex	Kent	Wales	Sussex	Grand Total
Autumn Mitigation Plan	2	0	0		1	0	0			0	**3**
Civil Engineering Improvements (Including External Damage Mitigation)	5	5	0		1	0	0		1		**13**
Fatality & Trespass Mitigation Plan	9	7	0	1	3	1	1		0		**22**
Major Projects	10	3		0		4		0	0		**18**
Operations Improvements	10	10	1	2	2	1		0	3	0	**29**
Other	8	12	0	0	6	0			1	0	**27**
Points Improvement (Excluding Remote Condition Monitoring)	11	15	0	0	2		0		0		**28**
Possession Management & Staff Competence Improvements	8	5	2	0	2	0	0		0	0	**18**
Power Supply Improvements	21	0	0	2	1	1			0	0	**25**
Intelligent Infrastructure	19	4	1	0		2	1		2		**29**
Signal & Telecoms Equipment Improvements	22	10	4	0	4	7	0	0	0		**49**
Track Improvements	40	6	1	0	9	2	0		0	0	**58**
Train Detection Improvements (Excluding Remote Condition Monitoring)	6	14	1	1	2		0		0		**24**
Train Planning Improvements	6	4	1	1	0	1			1	0	**14**
Vandalism & Theft Mitigation Plan	4	2	0	4	6		1		0		**17**
Weather Mitigations (Excluding Autumn)	9	0	2	0	2						**14**
Total JPIP Initiatives	**192**	**97**	**14**	**11**	**40**	**18**	**4**	**0**	**10**	**0**	**387**

Notes:

1 Value 0 = <0.5; value "blank" = nil.
2 DM from Tables on pages 33 & 34 of LDRP.
3 Downsides / Other Initiatives (net) are not included.
4 Base+ and Base++ are not included in DM tables.
5 "cerise cell" = "number of note"
6 "blue cell" = "big ticket number".

TABLE 3.C - LDRP RECOVERY INITIATIVES BY KPI FOR 2012/13 & 2013/14 - DM INCREMENT '000s

DELAY MINUTES 000s

JPIP Initiatives	101 Points failures	104B Track Faults including Broken Rails	104D Reactionary delay to P-coded TSRs	106 Other infrastructure	107A Possession over-run and related faults	110B Other weather (impact on infrastructure or network operations)	201 OLE/Third Rail faults	301A Signal Failures	301B Track Circuit Failures	302A Signalling System & Power Supply Failures	304 Cable faults (signalling & comms)	401 Bridge strikes	402 External infrastructure damage - Vandalism/Theft	501A Network Rail Operations - signalling	502A Timetable Planning	502C Network Rail commercial takeback/other	503 External fatalities and trespass	506 External other	601 All Z codes - Unexplained	Other Codes	Total
Autumn Mitigation Plan																				3	3
Civil Engineering Improvements (Including External Damage Mitigation)				1								7						0		5	13
Fatality & Trespass Mitigation Plan				2									0				17	1		1	22
Major Projects	1	1	0	0	1		0	0	1	10	1	0	0	0	0	0	0	0		1	18
Operations Improvements	2	0	0	1	0		1	1	3	1	1	0	3	8	0		1	0	0	7	29
Other	0			2					0							6		2	11	4	27
Points Improvement (Excluding Remote Condition Monitoring)	28																				28
Possession Management & Staff Competence Improvements				0	8						0									10	18
Power Supply Improvements							23											2			25
Intelligent Infrastructure	18	0		0				0	9	0	0									1	29
Signal & Telecoms Equipment Improvements	0	0					0	16	0	22	6		0	0			1			4	49
Track Improvements		38	14	0																6	58
Train Detection Improvements (Excluding Remote Condition Monitoring)									22											1	24
Train Planning Improvements														0	12	0			1	1	14
Vandalism & Theft Mitigation Plan											0		16				1				17
Weather Mitigations (Excluding Autumn)	0	1				9														4	14
Total JPIP Initiatives	50	40	14	7	10	9	24	17	36	33	8	7	19	8	13	6	20	6	12	46	387

Notes:

1 Value 0 = <0.5; value "blank" = nil.

2 Data from Tables on pages 35 & 36 of LDRP; only the 19 KPIs common to both years are detailed; all other KPIs are rolled up into "Other

3 Downsides / Other Initiatives (net) are not included.

4 "cerise cell" = "number of note"

5 "blue cell" = "big ticket number".

TABLE 4.A - QUARTERLY PROGRESS FOR LONG DISTANCE SECTOR BY DM AND PPM MAA

Summary statement of the NR LDRP Forecasts and Quarterly Reports for DM and PPM MAA

NR LDRP FORECAST

	NR Delay Minutes 000s (NR only)								PPM - MAA									
	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4	2011/12 Q4	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4	Q4 Change 11/12 to 13/14
Total Base	**385**	**517**	**485**	**412**	**355**	**483**	**455**	**389**	**89.1%**	**89.2%**	**89.6%**	**89.8%**	**89.7%**	**89.9%**	**90.1%**	**90.2%**	**90.3%**	**1.2%**
Base+									0.00%	0.01%	0.06%	0.12%	0.20%	0.28%	0.38%	0.44%	0.50%	0.50%
Base++									0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	0.12%	0.24%	0.40%	0.40%
Total LDRP									**89.1%**	**89.2%**	**89.7%**	**89.9%**	**89.9%**	**90.2%**	**90.6%**	**90.9%**	**91.2%**	2.1%

NR ACTUALS

	NR Delay Minutes 000s (NR only)								PPM - MAA									
	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4	2011/12 Q4	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4	
Total LDRP	418	541	611	538					89.1%	89.0%	89.2%	88.3%	87.0%					

VARIANCE ACTUAL - LDRP FORECAST (negative is worse)

	NR Delay Minutes 000s (NR only)								PPM - MAA									
	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4	2011/12 Q4	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4	
Against Total Base	**-33**	**-24**	**-126**	**-126**					**0.0%**	**-0.2%**	**-0.4%**	**-1.5%**	**-2.7%**					
Against Total LDRP									**0.0%**	**-0.2%**	**-0.5%**	**-1.6%**	**-2.9%**					

Notes:

1 DM & PPM data from Table 4.2 Page 89 of LDRP and NR supporting data.
2 Base+ and Base++ are taken from Table 2.B in this document.
3 PPM Base+ benefits taken from sheets on pages 75 to 83 of LDRP.
4 PPM Base++ benefits taken from Table 11 on page 72 of LDRP.
5 The working assumption for Base+ and Base++ PPM MAA is uniform growth across each year.
6 Q1 Actual DM and PPM from Page 8 in Q1 Report
7 Q2 Actual DM and PPM from Table 4 in Q2 Report
8 "cerise cell" = "number of note"
9 "blue cell" = "big ticket number"

TABLE 4.B - QUARTERLY PROGRESS OF NUMBER OF LDRP KEY DELIVERABLES BY JPIP INITIATIVE

LDRP FORECAST KEY DELIVERABLES

	Cumulative Key Deliverables by Quarter								
Initiatives	**Q4 11/12**	**Q1 12/13**	**Q2 12/13**	**Q3 12/13**	**Q4 12/13**	**Q1 13/14**	**Q2 13/14**	**Q3 13/14**	**Q4 13/14**
Autumn Mitigation Plan	3	5	11	11	12	12	13	13	13
Civil Engineering Improvements (Including External Damage Mitigation)	9	9	9	9	11	11	11	11	11
Fatality & Trespass Mitigation Plan	5	7	10	12	13	13	13	13	13
Intelligent Infrastructure	5	6	6	7	12	12	12	12	12
Major Projects	4	4	4	4	5	5	6	6	6
Operations Improvements	2	6	9	9	9	9	9	9	9
Other	3	5	9	10	10	10	10	10	10
Points Improvement (Excluding Remote Condition Monitoring)	3	3	9	10	13	13	13	13	13
Possession Management & Staff Competency Improvements	10	12	13	13	13	13	13	13	13
Power Supply Improvements	8	8	13	13	15	15	15	15	15
Signal & Telecoms Equipment Improvements	7	8	12	13	13	13	13	13	13
Track Improvements	1	2	6	8	10	10	10	11	11
Train Detection Improvements (Excluding Remote Condition Monitoring)	7	13	14	15	15	15	15	15	15
Train Planning Improvements	0	1	4	10	10	10	10	10	10
Vandalism & Theft Mitigation Plan	9	13	14	14	15	15	15	15	15
Weather Mitigations (Excluding Autumn)	6	7	7	13	14	14	14	14	14
"Structures, Takeback/Unexplained &TSRs COT/GCC"				8					
TOTAL BASE (JPIP)	**82**	**109**	**150**	**179**	**190**	**190**	**192**	**193**	**193**

ACTUAL KEY DELIVERABLES

	Cumulative Key Deliverables by Quarter								
Initiatives	**Q4 11/12**	**Q1 12/13**	**Q2 12/13**	**Q3 12/13**	**Q4 12/13**	**Q1 13/14**	**Q2 13/14**	**Q3 13/14**	**Q4 13/14**
Autumn Mitigation Plan	3	5	11	11					
Civil Engineering Improvements (Including External Damage Mitigation)	9	9	9	20					
Fatality & Trespass Mitigation Plan	6	7	9						
Intelligent Infrastructure	5	6	6						
Major Projects	4	4	4						
Operations Improvements	2	6	9	12					
Other	3	5	9	10					
Points Improvement (Excluding Remote Condition Monitoring)	2	3	3	26					
Possession Management & Staff Competency Improvements	10	13	13	18					
Power Supply Improvements	5	8	13						
Signal & Telecoms Equipment Improvements	7	8	11	19					
Track Improvements	1	2	5	9					
Train Detection Improvements (Excluding Remote Condition Monitoring)	7	13	14	19					
Train Planning Improvements	0	1	4	12					
Vandalism & Theft Mitigation Plan	9	13	14						
Weather Mitigations (Excluding Autumn)	6	7	7	16					
"Structures, Takeback/Unexplained &TSRs COT/GCC"	6	7	7	17					
TOTAL BASE (JPIP)	**79**	**110**	**141**	**189**					

VARIANCE KEY DELIVERABLES (negative is worse)

	Cumulative Key Deliverables by Quarter								
Initiatives	**Q4 11/12**	**Q1 12/13**	**Q2 12/13**	**Q3 12/13**	**Q4 12/13**	**Q1 13/14**	**Q2 13/14**	**Q3 13/14**	**Q4 13/14**
Autumn Mitigation Plan	0	0	0	0					
Civil Engineering Improvements (Including External Damage Mitigation)	0	0	0	11					
Fatality & Trespass Mitigation Plan	1	0	-1						
Intelligent Infrastructure	0	0	0						
Major Projects	0	0	0						
Operations Improvements	0	0	0	3					
Other	0	0	0	0					
Points Improvement (Excluding Remote Condition Monitoring)	-1	0	-6	16					
Possession Management & Staff Competency Improvements	0	1	0	5					
Power Supply Improvements	-3	0	0						
Signal & Telecoms Equipment Improvements	0	0	-1	6					
Track Improvements	0	0	-1	1					
Train Detection Improvements (Excluding Remote Condition Monitoring)	0	0	0	4					
Train Planning Improvements	0	0	0	2					
Vandalism & Theft Mitigation Plan	0	0	0						
Weather Mitigations (Excluding Autumn)	0	0	0	3					
"Structures, Takeback/Unexplained &TSRs COT/GCC"	6	7	7	9					
TOTAL BASE (JPIP)	**-3**	**1**	**-9**	**10**					

Notes:

1. Number of Base (JPIP) Key Deliverables from pages 37 to 68 of LDRP.
2. DM for Base+ & Base++ initiatives undefined in LDRP.
3. Key Deliverables for 2013/14 will be provided as they are developed by NR.
4. 2011/12 Q4 Actuals are from LDRP pages 37 to 68.
5. 2012/13 Q1 Actuals are from Q1 report pages 44 to 59.
6. 2012/13 Q2 Actuals are from Q2 report pages 27 to 42.
7. "cerise cell" = "number of note"
8. "blue cell" = big ticket number"

TABLE 4.C - QUARTERLY PROGRESS OF LDRP FORECAST BY TOC

The MAA PPM LDRP Forecasts are implied by the LDRP for JPIP Base

LDRP FORECAST BY TOC PPM 2012/13 & 2013/14 - BY QUARTER

TOC	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	P01-03 MAA	P04-07 MAA	P08-10 Qtr	P11-13 Qtr	P01-03 Qtr	P04-07 Qtr	P08-10 Qtr	P11-13 Qtr
FTPE	93.0%	92.9%	90.1%	92.8%	tba	tba	tba	tba
Greater Anglia	87.1%	87.5%	87.2%	88.5%	tba	tba	tba	tba
Grand Central	83.8%	84.3%	83.4%	85.9%	tba	tba	tba	tba
FGW	85.7%	86.0%	81.8%	86.8%	tba	tba	tba	tba
CrossCountry	89.8%	90.4%	88.0%	91.5%	tba	tba	tba	tba
EMT	93.4%	93.1%	91.5%	93.9%	tba	tba	tba	tba
East Coast	86.6%	87.3%	85.7%	87.4%	tba	tba	tba	tba
Virgin Trains	86.2%	87.3%	85.9%	89.0%	tba	tba	tba	tba
Hull Trains	80.8%	82.5%	82.5%	84.2%	tba	tba	tba	tba

ACTUAL BY TOC PPM 2012/13 & 2013/14 - BY QUARTER

TOC	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	P01-03 MAA	P04-07 MAA	P08-10 Qtr	P11-13 Qtr	P01-03 Qtr	P04-07 Qtr	P08-10 Qtr	P11-13 Qtr
FTPE	93.3%	93.3%	89.5%	90.0%				
Greater Anglia	87.0%	88.0%	84.0%	87.0%				
Grand Central	84.2%	85.1%	78.8%	73.8%				
FGW	85.8%	86.0%	72.1%	83.6%				
CrossCountry	89.2%	88.9%	81.9%	86.6%				
EMT	94.1%	93.9%	91.1%	91.2%				
East Coast	86.7%	87.8%	80.1%	77.0%				
Virgin Trains	85.5%	86.1%	79.8%	79.3%				
Hull Trains	81.2%	84.6%	80.1%	76.3%				

VARIANCE BY TOC PPM 2012/13 & 2013/14 - BY QUARTER (negative is worse)

TOC	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	P01-03 MAA	P04-07 MAA	P08-10 Qtr	P11-13 Qtr	P01-03 Qtr	P04-07 Qtr	P08-10 Qtr	P11-13 Qtr
FTPE	0.3%	0.4%	-0.6%	-2.8%				
Greater Anglia	-0.1%	0.5%	-3.2%	-1.5%				
Grand Central	0.4%	0.8%	-4.6%	-12.1%				
FGW	0.1%	0.0%	-9.7%	-3.2%				
CrossCountry	-0.6%	-1.5%	-6.1%	-4.9%				
EMT	0.7%	0.8%	-0.4%	-2.7%				
East Coast	0.1%	0.5%	-5.6%	-10.4%				
Virgin Trains	-0.7%	-1.2%	-6.1%	-9.7%				
Hull Trains	0.4%	2.1%	-2.4%	-7.9%				

Notes:

1 Quarterly forecasts from page 117 of LDRP and NR supporting data.
2 Downsides / Other Initiatives (net) for 2012/13 & 2013/14 are included in Base.
3 Q1 Actuals from pages 16 to 36 (and page 8 for Total) of Q1 Report.
4 Q2 Actuals from Table 6 (and Table 4 for Total) of Q2 Report
5 "cerise cell" = "number of note"
6 "blue cell" = "big ticket number"

TABLE 4.D - QUARTERLY PROGRESS OF LDRP FORECAST BY KPI - DM PER QUARTER 000s - sheet 1 of 2

LDRP FORECAST BY KPI FOR 2012/13 & 2013/14 - BY QUARTER 000s

		2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	KPIs	P01-03	P04-07	P08-10	P11-13	P01-03	P04-07	P08-10	P11-13
101	Points failures	27	34	32	28	24	31	29	26
104B	Track Faults including Broken Rails	39	50	42	45	36	47	40	43
104D	Reactionary delay to P-coded TSRs	4	7	6	5	3	7	6	4
106	Other infrastructure	11	14	12	9	10	14	11	9
107A	Possession over-run and related faults	7	10	10	9	6	9	9	8
110A	Severe weather (beyond design capability of infrastructure)	12	27	55	25	12	26	53	25
110B	Other weather (impact on infrastructure or network operations)	3	5	4	6	3	4	3	6
201	OLE/Third Rail faults	8	12	10	14	8	11	9	14
301A	Signal Failures	11	14	13	12	10	13	12	11
301B	Track Circuit Failures	29	36	30	27	26	33	28	25
302A	Signalling System & Power Supply Failures	23	33	23	23	22	31	22	23
304	Cable faults (signalling & comms)	9	11	13	11	7	9	11	9
401	Bridge strikes	7	9	7	6	6	8	7	6
402	External infrastructure damage - Vandalism/Theft	41	44	27	28	38	41	25	27
501A	Network Rail Operations - signalling	14	19	15	14	13	18	14	14
502A	Timetable Planning	10	14	11	10	10	13	10	10
502C	Network Rail commercial takeback/other	10	12	13	10	9	12	12	10
503	External fatalities and trespass	39	53	33	41	36	51	31	39
506	External other	12	17	15	13	11	15	14	12
601	All Z codes - Unexplained	15	23	22	18	14	22	21	17
	Subtotal "19 - KPIs"	**329**	**443**	**394**	**357**	**304**	**414**	**369**	**336**
	Other Codes	56	73	91	55	51	69	86	52
	Total Base	**385**	**517**	**485**	**412**	**355**	**483**	**455**	**389**
	Total for Year				1,799				1,681

ACTUAL: BY KPI FOR 2012/13 & 2013/14 - BY QUARTER

		2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	KPIs	P01-03	P04-07	P08-10	P11-13	P01-03	P04-07	P08-10	P11-13
101	Points failures	31	35	32	36				
104B	Track Faults including Broken Rails	35	43	45	72				
104D	Reactionary delay to P-coded TSRs	7	6	7	10				
106	Other infrastructure	12	15	33	11				
107A	Possession over-run and related faults	7	7	11	14				
110A	Severe weather (beyond design capability of infrastructure)	24	67	118	53				
110B	Other weather (impact on infrastructure or network operations)	14	7	3	7				
201	OLE/Third Rail faults	16	21	15	46				
301A	Signal Failures	8	14	13	18				
301B	Track Circuit Failures	28	36	24	31				
302A	Signalling System & Power Supply Failures	28	37	27	31				
304	Cable faults (signalling & comms)	9	16	12	5				
401	Bridge strikes	6	10	10	6				
402	External infrastructure damage - Vandalism/Theft	22	15	18	15				
501A	Network Rail Operations - signalling	13	23	16	14				
502A	Timetable Planning	14	15	15	14				
502C	Network Rail commercial takeback/other	8	14	15	8				
503	External fatalities and trespass	43	55	46	41				
506	External other	17	14	17	14				
601	All Z codes - Unexplained	17	25	29	22				
	Subtotal "19 - KPIs"	**357**	**473**	**506**	**470**				
	Other Codes	62	68	110	68				
	Total Base	**420**	**541**	**617**	**538**				
	Total for Year				2,115				-

TABLE 4.D - QUARTERLY PROGRESS OF LDRP FORECAST BY KPI - DM PER QUARTER 000s - sheet 2 of 2

VARIANCE BY KPI FOR 2012/13 & 2013/14 - BY QUARTER (negative is worse)

		2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	KPIs	P01-03	P04-07	P08-10	P11-13	P01-03	P04-07	P08-10	P11-13
101	Points failures	-4	-1	0	-8				
104B	Track Faults including Broken Rails	4	7	-3	-26				
104D	Reactionary delay to P-coded TSRs	-4	1	0	-6				
106	Other infrastructure	-1	-1	-22	-2				
107A	Possession over-run and related faults	0	3	-1	-5				
110A	Severe weather (beyond design capability of infrastructure)	-11	-39	-63	-28				
110B	Other weather (impact on infrastructure or network operations)	-11	-3	0	0				
201	OLE/Third Rail faults	-8	-9	-5	-32				
301A	Signal Failures	3	0	0	-6				
301B	Track Circuit Failures	1	0	6	-4				
302A	Signalling System & Power Supply Failures	-5	-4	-4	-8				
304	Cable faults (signalling & comms)	-1	-5	1	7				
401	Bridge strikes	1	-1	-3	0				
402	External infrastructure damage - Vandalism/Theft	19	30	9	13				
501A	Network Rail Operations - signalling	1	-4	-1	0				
502A	Timetable Planning	-3	-1	-4	-4				
502C	Network Rail commercial takeback/other	2	-1	-3	2				
503	External fatalities and trespass	-5	-2	-13	-1				
506	External other	-5	2	-2	-1				
601	All Z codes - Unexplained	-2	-2	-7	-4				
	Subtotal "19 - KPIs"	**-28**	**-30**	**-113**	**-113**				
	Other Codes	-7	6	-19	-13				
	Total Base	**-35**	**-24**	**-131**	**-126**				
	Total for Year				-316				-

Notes:

1 Value 0 = between +0.499 and -0.499.

2 Quarterly forecasts from pages 114 & 115 of LDRP.

3 Downsides / Other Initiatives (net) for 2012/13 & 2013/14 are included in DM tables.

4 Only the 19 KPIs from Table 3.C plus 110A (added due to significant variance in Q2) are identified; the other KPIs are rolled up into "other Codes".

5 "cerise cell" = "number of note"

6 "blue cell" = "big ticket number"

TABLE 5.A - QUARTERLY PROGRESS OF TOC ON TOC AND TOC ON SELF - DM

FORECAST OF TOC ON TOC & TOC ON SELF - BY QUARTER - DM '000s

TOC	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	P01-03	P04-07	P08-10	P11-13	P01-03	P04-07	P08-10	P11-13
FTPE	32	48	46	35	tba	tba	tba	tba
Greater Anglia	9	12	11	10	tba	tba	tba	tba
Grand Central	4	6	4	3	tba	tba	tba	tba
FGW	36	54	46	35	tba	tba	tba	tba
CrossCountry	50	68	63	54	tba	tba	tba	tba
EMT	22	33	33	25	tba	tba	tba	tba
East Coast	24	37	28	27	tba	tba	tba	tba
Virgin	36	48	47	37	tba	tba	tba	tba
First Hull Trains	2	4	2	2	tba	tba	tba	tba
Total Base	**214**	**309**	**281**	**228**	**tba**	**tba**	**tba**	**tba**

ACTUAL TOC ON TOC & TOC ON SELF - BY QUARTER - DM '000s

TOC	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	P01-03	P04-07	P08-10	P11-13	P01-03	P04-07	P08-10	P11-13
FTPE	27	40	46	40				
Greater Anglia	7	8	8	8				
Grand Central	3	4	5	5				
FGW	32	60	46	43				
CrossCountry	53	83	73	72				
EMT	16	24	24	23				
East Coast	24	32	26	31				
Virgin	32	58	58	51				
First Hull Trains	3	3	2	2				
Total Base	**197**	**311**	**288**	**276**				

ACTUAL TOC ON TOC & TOC ON SELF - BY QUARTER - DM '000s (negative is worse)

TOC	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	P01-03	P04-07	P08-10	P11-13	P01-03	P04-07	P08-10	P11-13
FTPE	5	8	1	-5				
Greater Anglia	2	4	3	2				
Grand Central	0	2	0	-2				
FGW	4	-6	0	-8				
CrossCountry	-3	-15	-10	-18				
EMT	6	9	9	3				
East Coast	-1	5	2	-4				
Virgin	4	-10	-11	-14				
First Hull Trains	-1	1	0	0				
Total Base	**17**	**-2**	**-7**	**-48**				

Notes:

1 Forecast Data for 2012/13 from NR Spreadsheet "LDQ2 Extract Delay" dated 28 November 2012.

2 NR have advised that Forecast data for 2013/14 (second year of JPIP) is not available for all TOCs.

3 Q1 & Q2 Actuals are from NR Spreadsheet "LDQ2 Extract Delay" dated 28 November 2012.

4 "blue cell" = "big ticket number"

INDEPENDENT REPORTER'S EXECUTIVE SUMMARY OF NR'S LONDON & SOUTH EAST PLAN

Notes:

1 Purpose of Summary:- to understand the big picture painted in the LSEP; to establish a baseline plan for monitoring purposes; to create a framework into which all updates must fit to be consistent; and to extract the quarterly forecasts for PPM MAA which are implicit in the LSEP.

2 The Base Forecast is the "JPIP Targets" plus "Downsides / Other Initiatives (net)" for 2012/13 and for 2013/14.

3 The Base Forecast and its components are stated at 50% confidence in LSEP for the totals and individual elements for DM and PPM.

4 The Base+ and Base++ forecasts are stated at maximum values. PPM Base+ and Base++ Totals are stated in LSEP at various confidence levels; 50% confidence values are used for the LSEP Forecast for PPM only.

5 Only Base+ and Base++ PPM at 50% confidence can reasonably be added to Base forecast.

6 New Initiatives and Deliverables for 2013/14 will be added as they become available.

INTRODUCTION - RELATIONSHIP OF THE FOLLOWING TABLES

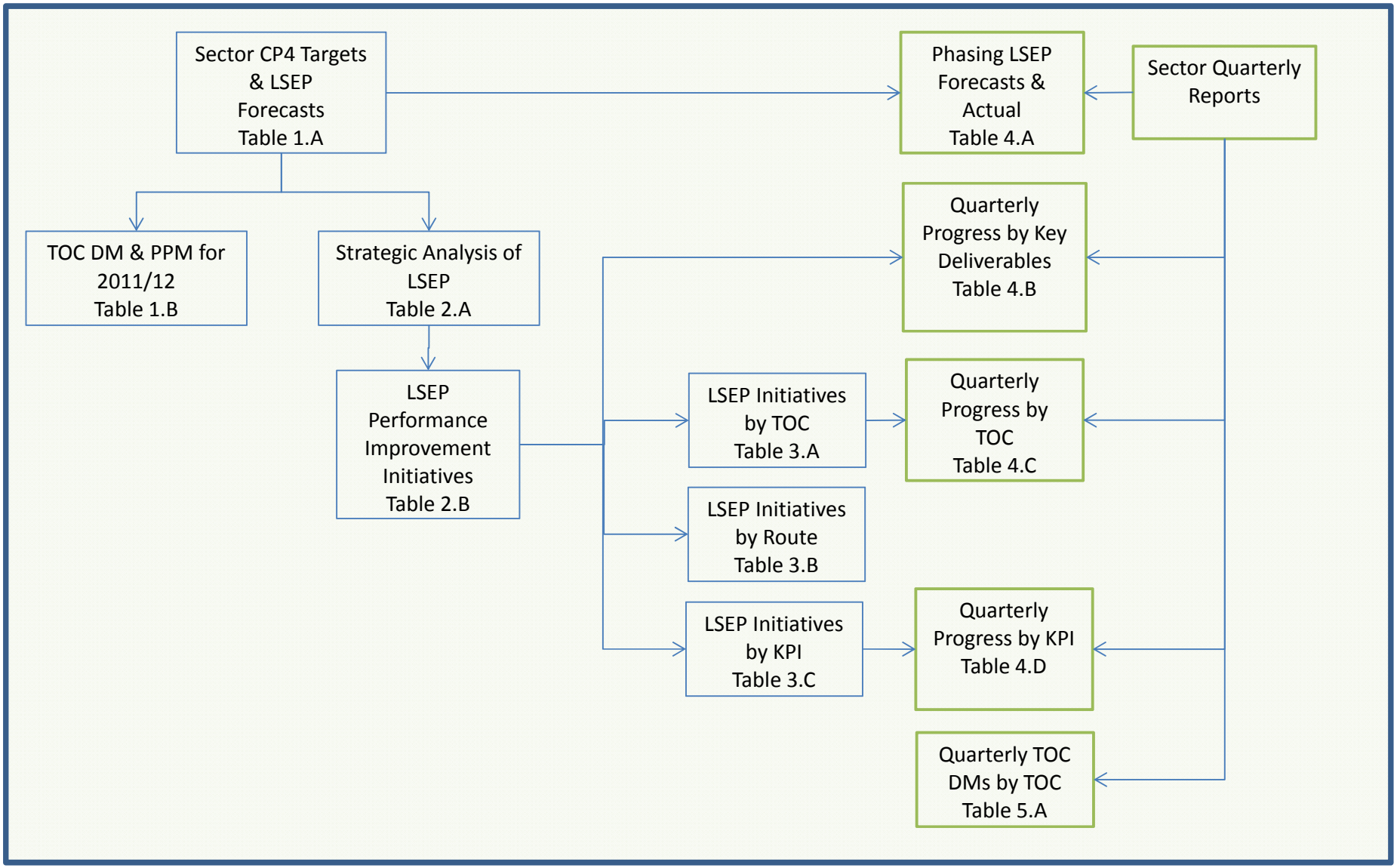


TABLE 1.A - LONDON & SOUTH EAST SECTOR CP4 TARGETS AND LSEP FORECASTS FOR 2012/13 & 2013/14 - DM & PPM

Summary statement of the CP4 targets and the NR LSEP Forecasts for DM and PPM MAA

CP4 TARGET

	NR Delay Minutes 000s (NR only)				PPM - MAA				Notes
	2011/12	2012/13	2013/14	Change 2011/12 to 13/14	2011/12	2012/13	2013/14	Change 2011/12 to 13/14	
NR Only	2,182	2,085	2,001	-77	92.4%	92.7%	93.0%	0.6%	1,2

NR LSEP FORECAST

	NR Delay Minutes 000s (NR only)				PPM - MAA				
	2011/12A	2012/13F	2013/14F	Change 2011/12 to 13/14	2011/12A	2012/13F	2013/14F	Change 2011/12 to 13/14	
Prior Year (Base only)		3,032	2,694			91.7%	92.3%		6
JPIP Initiatives		-481	-142	-623		0.8%	0.2%	1.0%	3, 6
Downsides / Other Initiatives (net) 2012/13 & 2013/14		143	-22	121		-0.2%	0.1%	-0.1%	4, 6
Total Base	**3,032**	**2,694**	**2,530**	**-502**	**91.7%**	**92.3%**	**92.6%**	**0.9%**	1, 2, 5, 6
Prior Year Base+ & Base++ Improvement							0.0%		
NR Base+ & Base++						0.0%	0.4%	0.4%	7, 8
Total LSEP @50% Confidence					91.7%	92.3%	93.0%	1.3%	8

VARIANCE CP4 TARGET TO LSEP FORECAST (negative is worse)

	NR Delay Minutes 000s (NR only) (compared to Total Base)				PPM - MAA (compared to Base & LSEP)				
	2011/12A	2012/13F	2013/14F		2011/12A	2012/13F	2013/14F		
Against Total Base	**-850**	**-609**	**-529**		**-0.7%**	**-0.4%**	**-0.4%**		**9, 10**
Against Total LSEP					**-0.7%**	**-0.4%**	**0.0%**		**9, 10**

Notes:

1 DM from data provided by NR spreadsheet.
2 PPM from Table 4.2 on Page 94 of LSEP.
3 DM & PPM from Tables 14 & 15 on pages 33 &36 of LSEP.
4 Downsides / Other Initiatives (net) are taken from Table 2.B in this document.
5 Total Base Actual for 20111/12 is NR's outturn value for the year.
6 DM and PPM values for Base are at 50% confidence and for DM are NR only values.
7 NR Base+ and NR Base++ are taken from Table 2.B in this document.
8 PPM for Base+ and Base++ are at 50% confidence and therefore can be added to the Base values and are taken from Table 18 on page 89 of LSEP.
9 DM variance is measured against Base only with no allowance for any gains from Base+ and Base++.
10 PPM variance can be measured against Total LSEP and includes 50% confidence gains from Base+ and Base++.
11 Table 2.B in this document expands the above Forecast values.
12 "cerise cell" = "number of note"

TABLE 1.B - LONDON & SOUTH EAST SECTOR DM & PPM MAA BY TOC FOR 2011/12

How much each TOC contributes to the LSE Sector and how far adrift from CP4 Target at end 2011/12

NR DM & PPM MAA BY TOC FOR 2011/12

			CP4 Target		Actual		Variance	
TOC	Percent of LSE Trains	Percent of trains in LSE	DM 000s	PPM	DM 000s	PPM	DM 000s	PPM
Greater Anglia (LSE	15%	96%	na	92.3%	514	91.1%	na	-1.2%
FGW (LSE)	7%	52%	na	93.6%	228	91.2%	na	-2.4%
FCC	9%	100%	177	92.4%	315	90.0%	-138	-2.4%
London Midland (LS	2%	22%	na	91.0%	124	87.6%	na	-3.4%
LOROL	8%	100%	92	94.0%	93	96.6%	-1	2.6%
HEx	1%	100%	23	93.2%	21	95.3%	2	2.1%
Chiltern	3%	100%	74	95.6%	114	93.0%	-40	-2.6%
c2c	3%	100%	35	95.2%	38	96.8%	-3	1.6%
Southeastern	17%	100%	359	92.2%	414	91.8%	-55	-0.4%
Southern	19%	100%	420	91.1%	626	90.0%	-206	-1.1%
SSWT	15%	100%	407	92.8%	542	92.0%	-135	-0.8%
Total	**100%**	**-**	**na**	**92.4%**	**3032**	**91.7%**	**na**	**-0.7%**

Notes:

1 Percent trains (both columns) from Table 2 on page 8 of LSEP.

2 2011/12 Targets and Actuals from Table 4 on Page 10 of LSEP, except for Total Actual DM which is the final outturn value provided by NR and is 3k greater than the sum of TOC values.

3 DM values are assessed by NR from data available.

4 "cerise cell" = "number of note"

5 "blue cell" = "big ticket" items and is based on product of percent trains and variance.

TABLE 2.A - LSEP STRATEGIC ANALYSIS Sheet 1 of 2

What NR has concluded from strategic analysis of the routes and the TOCs in order to inform the selection of improvement

1	**Sector-wide**	
1.1	High capacity utilisation	High DPI, small incidents cause long ripple effects of both attributed and sub-threshold delay
1.2	Dependence on good asset reliability	Falling asset failure rates are in line with predictions but high DPI negating benefits (particularly of non-track assets)
1.3	Fleet mix & reliability	Large range of RS used, fleet cause of 23% PPM failures particular problems in areas of mixed LSE & freight services
1.4	Major engineering work	Programme affecting major junctions in next 2 years
1.5	Fatalities	Increase around London, upwards trends now under control
2	**Greater Anglia (15%)**	
2.1	Operational characteristics	New short franchise, integrated working with NR, very high capacity utilisation on mostly 2-track railway between Liv St and Ipswich shared with expanding freight market
2.2	Headline 2011-12	PPM MAA 90.9% (1.2% worse than CP4 Target)
2.3	Current issues	Recent high levels of fatalities & cable theft, unreliable OLE equipment currently being renewed, right-time railway vital for pipeline
2.4	Improvement Opportunities	OLE reliability, cable theft, front line operations, freight timetabling
3	**First Great Western (7%)**	
3.1	Operational characteristics	Operates in all 3 sectors, LSE 52% of TOC services, integration of passenger services a challenge at London end and with freight operations Didcot to Oxford, major enhancement activity, franchise currently being re-let
3.2	Headline 2011-12	PPM MAA 90.6% (1.6% worse than CP4 Target)
3.3	Current issues	Track circuit and points failures, increased fatalities, major fleet issues
3.4	Improvement Opportunities	Thames valley asset management, fleet reliability, use of RCM, management of fatalities & enhancements, train planning
4	**First Capital Connect (9%)**	
4.1	Operational characteristics	Two routes; one radial, one cross-London, constraints at 2-track Welwyn viaduct, Hitchin flat junction and integration with BML. Franchise re-let in 2013.
4.2	Headline 2011-12	PPM MAA 90.0% (2.4% worse than CP4 Target)
4.3	Current issues	Asset reliability, recovery from major incidents, fatalities on LNE, Anglia & Sussex, cable theft in E Midlands
4.4	Improvement Opportunities	Asset reliability, cross-London traffic management, impact of Thameslink programme, management of externals
5	**London Midland (2%)**	
5.1	Operational characteristics	Suburban services around London & Birmingham, integration with LSE services on WCML with high asset maintenance standards required, new franchisee expected to pursue high passenger growth
5.2	Headline 2011-12	PPM MAA 90.5% (0.6% better than CP4 Target)
5.3	Current issues	Asset reliability, particularly points & signals between Watford & Euston, management of fatalities, track faults and 'bad bumps'
5.4	Improvement Opportunities	Track management, OLE reliability, franchise activity, management of Rugby to Euston corridor, freight reliability
6	**LOROL (8%)**	
6.1	Operational characteristics	Suburban services between Euston and Watford, as sole operator in some sections.
6.2	Headline 2011-12	PPM MAA 96.6% (2.6% better than CP4 Target)
6.3	Current issues	Very few.
6.4	Improvement Opportunities	Maintaining high standards.

TABLE 2.A - LSEP STRATEGIC ANALYSIS Sheet 2 of 2

7	**Chiltern (3%)**	
7.1	Operational characteristics	Mostly sole operator out of Marylebone, increasing services to Birmingham needing to integrate with freight along Cherwell Valley and suburban services into Birmingham
7.2	Headline 2011-12	PPM MAA 93.0% (2.6% worse than CP4 Target)
7.3	Current issues	New timetable (Evergreen 3) in 2011 requiring better asset availability
7.4	Improvement Opportunities	Fleet reliability, timetable adjustments, infrastructure improvements
8	**c2c (3%)**	
8.1	Operational characteristics	Mostly sole operator out of Fenchurch ST, shared with freight services on Tilbury loop only very good performance
8.2	Headline 2011-12	PPM MAA 96.8% (1.6% better than CP4 Target)
8.3	Current issues	Very few.
8.4	Improvement Opportunities	Maintaining high standards.
9	**Southeastern (17%)**	
9.1	Operational characteristics	Operates Kent rail network & HS1 domestic services into St Pancras, mostly sole operator, complex & heavy service pattern with many flat junctions into multiple London termini, Thameslink programme
9.2	Headline 2011-12	PPM MAA 91.8% (0.4% worse than CP4 Target)
9.3	Current issues	Asset & fleet reliability, management of Thameslink programme
9.4	Improvement Opportunities	Asset & fleet reliability, passenger movements, Thameslink programme
10	**Southern (19%)**	
10.1	Operational characteristics	Operates Sussex rail network, complex & heavy service pattern, shared with other operators, with many flat junctions along BML and into multiple London termini, Thameslink programme
10.2	Headline 2011-12	PPM MAA 90.0% (1.1% worse than CP4 Target)
10.3	Current issues	Asset & fleet reliability during Thameslink programme
10.4	Improvement Opportunities	Management of servicer, asset & fleet reliability, management of externals, sub-threshold delays, timetable adjustments
11	**SSWT (15%)**	
11.1	Operational characteristics	Operates Wessex rail network, mostly sole operator with single London terminus, integration with LSE & freight services SW of Basingstoke, mostly grade separated junctions, NR and TOC formal Alliance
11.2	Headline 2011-12	PPM MAA 92.0% (0.8% worse than CP4 Target)
11.3	Current issues	Asset reliability, particularly RCF, management of externals
11.4	Improvement Opportunities	RCF mitigation, introduction of RCM< management of externals, development of Alliancing
12	**HEx (1%)**	
12.1	No references	

TABLE 2.B - LSEP RECOVERY INITIATIVES FOR 2012/13 & 2013/14 - DM & PPM

The "big ticket" items amongst the full suite of Initiatives for Base, Base+ and Base++ and for downside items

Recovery Programmes	NR Delay Minutes 000s			PPM			Note #	No of Initiatives		
	2012/13	2013/14	Total	2012/13	2013/14	Total		2012/13	2013/14	Total
JPIP Initiatives										
Autumn Mitigation Plan	-8	0	-8	0.01%	0.00%	0.01%	1, 2	90	13	103
Civil Engineering Improvements (inc External Damage Mitigation	-19	-7	-25	0.03%	0.01%	0.04%	1, 2	53	5	58
Fatality & Trespass Mitigation Plan	-46	-15	-61	0.07%	0.02%	0.09%	1, 2	78	7	85
Major Projects	-6	-3	-10	0.01%	0.01%	0.02%	1, 2	27	6	33
Operations Improvements	-71	-11	-81	0.11%	0.02%	0.13%	1, 2	100	20	120
Other	-18	-8	-26	0.01%	0.01%	0.02%	1, 2	69	29	98
Points Improvement (exc. Remote Condition Monitoring)	-32	-9	-42	0.05%	0.02%	0.07%	1, 2	109	34	143
Possession Management & Staff Competence Improvements	-29	-7	-37	0.05%	0.01%	0.06%	1, 2	60	24	84
Power Supply Improvements	-25	-4	-30	0.05%	0.01%	0.06%	1, 2	66	24	90
Intelligent Infrastructure	-31	-12	-44	0.05%	0.02%	0.07%	1, 2	62	36	98
Signal & Telecoms Equipment Improvements	-52	-25	-77	0.09%	0.04%	0.13%	1, 2	140	41	181
Track Improvements	-40	-23	-63	0.06%	0.04%	0.10%	1, 2	84	27	111
Train Detection Improvements (exc. Remote Condition Monitoring)	-36	-11	-47	0.06%	0.02%	0.08%	1, 2	102	19	121
Train Planning Improvements	-19	-4	-22	0.03%	0.00%	0.03%	1, 2	56	13	69
Vandalism & Theft Mitigation Plan	-38	-2	-40	0.06%	0.00%	0.07%	1, 2	52	10	62
Weather Mitigations (excluding Autumn)	-10	-1	-11	0.02%	0.00%	0.02%	1, 2	54	17	71
Subtotal JPIP Initiatives	**-481**	**-142**	**-623**	**0.76%**	**0.23%**	**0.98%**		**1,202**	**325**	**1,527**
Downsides / Other Initiatives (net) 2012/13 & 2013/14										
Assumption on weather / autumn 2012/13	97		97	-0.15%		-0.15%	3, 4			
Traffic growth 2012/13	9		9	-0.02%		-0.02%	3, 4			
Risks (provision for increased risk)2012/13	60		60	-0.09%		-0.09%	3, 4			
TOS / TOT net delay change 2012/13				0.09%		0.09%	3, 4			
PPM-specific schemes 2012/13				0.10%		0.10%	3, 4			
PPM Contingency 2012/13				-0.10%		-0.10%	3, 4			
Additional NR Delay Improvements Required 2012/13	-23		-23				3, 4			
TOS / TOT net improvements 2013/14					0.08%	0.08%	3, 4			
NR other net improvements 2013/14 & reversal of 2012/13 Risks		-22	-22				3, 4			
Subtotal Downsides / Other Initiatives (net)	**143**	**-22**	**121**	**-0.17%**	**0.08%**	**-0.09%**				
Subtotal Base = JPIP Improvements and other Net Changes @ 50% confidence	**-338**	**-164**	**-502**	**0.59%**	**0.31%**	**0.89%**				
Base+ Programmes (maximum achievable)										
Freight Programme				0.00%	0.01%	0.01%	6			
Timetable for Performance				0.00%	0.05%	0.05%	6			
Control Centre Actions				0.01%	0.12%	0.13%	6			
Rules Changes				0.00%	0.02%	0.02%	6			
Incidence Response Times				0.00%	0.01%	0.01%	6			
Vegetation Management				0.00%	0.05%	0.05%	6			
Performance Campaigns				0.00%	0.06%	0.06%	6			
Passenger Interface at Stations				0.00%	0.04%	0.04%	6			
Remote Condition Monitoring				0.00%	0.01%	0.01%	6			
Subtotal Base+ (Maximum)				**0.01%**	**0.37%**	**0.38%**				
Base++ Programmes (maximum achievable)										
Red Route				0.00%	0.10%	0.10%	6			
Peak Timetable Rules				0.00%	0.09%	0.09%	6			
Subtotal Base++ (Maximum)				**0.00%**	**0.19%**	**0.19%**				
Subtotal Base+ & Base++ (Maximum)				**0.02%**	**0.55%**	**0.57%**	**6**			
Subtotal Base+ & Base++ @ 50% confidence				**0.00%**	**0.39%**	**0.39%**	**7**			
Total Base, Base+ and Base++ @ 50% Confidence				**0.59%**	**0.70%**	**1.28%**	**4, 7**			

Notes:

1 JPIP DM and PPM from Tables 14 & 15 on pages 35 & 36 of LSEP.
2 Number of Initiatives from pages 37 to 68 of LSEP.
3 Downsides / Other Initiatives from table 13 on Page 35 of LSEP.
4 DM and PPM for all Base are at 50% confidence.
5 Downsides / Other Initiatives at 50% confidence.
6 PPM benefit for Base+ and Base++ are from Table 17 on Page 89 of LSEP and are maximum achievable value NOT 50% confidence.
7 PPM benefit for Base+ and Base++ are also shown at 50% confidence from Table 18 on Page 89 of LSEP.
8 PPM & DM values are increment for each year.
9 "cerise cell" = "number of note"
10 "blue cell" = "big ticket number".

TABLE 3.A - LSEP RECOVERY INITIATIVES BY TOC FOR 2012/13 & 2013/14 - PPM INCREMENT

The big ticket PPM Improvement item for individual TOCs against the full suite of initiatives

JPIP Initiative	London Midland	Southern	FGW	Chiltern	HEX	Greater Anglia	LOROL	SWT	FCC	Southeastern	c2c	Grand Total
Autumn Mitigation Plan	0.00%	0.01%	0.00%	0.00%			0.00%		0.00%	0.00%		**0.01%**
Civil Engineering Improvements (Including External Damage Mitigation)	0.00%	0.01%	0.00%	0.00%			0.00%	0.02%	0.00%	0.01%		**0.04%**
Fatality & Trespass Mitigation Plan	0.00%	0.03%	0.01%	0.00%	0.00%	0.00%		0.04%	0.01%		0.00%	**0.09%**
Major Projects	0.01%	0.00%	0.00%	0.00%					0.01%	0.00%		**0.02%**
Operations Improvements	0.00%	0.07%	0.01%	0.00%	0.00%	0.01%	0.00%		0.02%	0.01%	0.00%	**0.13%**
Other	0.00%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	**0.02%**
Points Improvement (Excluding Remote Condition Monitoring)	0.01%	0.01%	0.02%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.02%		**0.07%**
Possession Management & Staff Competence Improvements	0.00%	0.01%	0.01%			0.00%		0.03%	0.01%	0.01%		**0.06%**
Power Supply Improvements	0.01%	0.01%				0.02%	0.01%		0.01%	0.01%		**0.06%**
Intelligent Infrastructure	0.01%	0.01%	0.01%	0.01%		0.00%		0.03%	0.00%	0.01%		**0.07%**
Signal & Telecoms Equipment Improvements	0.01%	0.05%	0.01%	0.01%	0.00%	0.00%		0.02%	0.02%	0.01%		**0.13%**
Track Improvements	0.02%	0.01%	0.00%	0.01%		0.00%		0.05%	0.01%	0.00%		**0.10%**
Train Detection Improvements (Excluding Remote Condition Monitoring)	0.00%	0.01%	0.01%	0.01%	0.00%	0.00%	0.00%	0.02%	0.01%	0.02%		**0.08%**
Train Planning Improvements	0.00%	0.00%	0.01%	0.00%	0.00%	0.01%	0.00%		0.00%	0.00%		**0.03%**
Vandalism & Theft Mitigation Plan	0.00%	0.00%	0.00%			0.03%	0.00%	0.02%		0.00%	0.01%	**0.07%**
Weather Mitigations (Excluding Autumn)	0.00%	0.00%		0.00%		0.00%			0.00%	0.01%		**0.02%**
Grand Total	**0.07%**	**0.22%**	**0.10%**	**0.05%**	**0.01%**	**0.09%**	**0.02%**	**0.23%**	**0.10%**	**0.10%**	**0.01%**	**0.98%**

Notes:

1 Value 0.00% = <0.005%; Value "blank" = nil%.
2 PPM for Initiatives from Appendix 2 pages 142 & 143 of LSEP
3 "cerise cell" = "number of note"
4 "blue cell" = "big ticket number".

TABLE 3.B - LSEP RECOVERY INITIATIVES BY ROUTE FOR 2012/13 & 2013/14 - DM INCREMENT 000s

The "big ticket" Initiatives for individual routes amongst the full suite of Initiatives

JPIP Initiatives	LNW	Western	Scotland	Anglia	LNE	East Mids	Wessex	Kent	Wales	Sussex	Grand Total
Autumn Mitigation Plan	2	0		0	0	0	1	1		3	**8**
Civil Engineering Improvements (Including External Damage Mitigation)	4	1			0		14	3	0	4	**25**
Fatality & Trespass Mitigation Plan	4	5		2	1	0	29	0	0	19	**61**
Major Projects	4	1		0		0		4	0		**10**
Operations Improvements	4	9		8	1	3		14	0	42	**81**
Other	4	8		-4	2			4	0	11	**26**
Points Improvement (Excluding Remote Condition Monitoring)	6	13		3	0		5	13	0	2	**42**
Possession Management & Staff Competence Improvements	1	3		7	1	1	16	5	0	3	**37**
Power Supply Improvements	4	0		12	0	3		3	0	6	**30**
Intelligent Infrastructure	11	4		1		0	17	6	0	5	**44**
Signal & Telecoms Equipment Improvements	9	7		2	1	7	40	10	0	2	**77**
Track Improvements	17	3		6	1	0	31	3	0	2	**63**
Train Detection Improvements (Excluding Remote Condition Monitoring)	5	8		3	0		12	15	0	3	**47**
Train Planning Improvements	4	5		8	0	0		3	0	3	**22**
Vandalism & Theft Mitigation Plan	2	0		23	0		14	0	0		**40**
Weather Mitigations (Excluding Autumn)	3	0		2	0			3		2	**11**
Total JPIP Initiatives	**86**	**68**		**73**	**8**	**16**	**178**	**88**	**1**	**107**	**623**

Notes:

1 Value 0 = <0.5; value "blank" = nil.
2 DM from Tables on pages 144 & 145 of LSEP.
3 Downsides / Other Initiatives (net) are not included.
4 Base+ and Base++ are not included in DM tables.
5 "cerise cell" = "number of note"
6 "blue cell" = "big ticket number".

TABLE 3.C - LSEP RECOVERY INITIATIVES BY KPI FOR 2012/13 & 2013/14 - DM INCREMENT '000s

DELAY MINUTES 000s

JPIP Initiatives	101 Points failures	104B Track Faults including Broken Rails	106 Other infrastructure	107A Possession over-run and related faults	108 Mishap - infrastructure causes	110A Severe weather (beyond design capability of infrastructure)	201 OLE/Third Rail faults	301A Signal Failures	301B Track Circuit Failures	302A Signalling System & Power Supply Failures	401 Bridge strikes	402 External infrastructure damage - Vandalism/Theft	501A Network Rail Operations - signalling	502A Timetable Planning	503 External fatalities and trespass	506 External other	601 All Z codes - Unexplained	Other Other Codes	Total TOTAL
Autumn Mitigation Plan			1															8	8
Civil Engineering Improvements (Including External Damage Mitigation)			0			1					23							2	25
Fatality & Trespass Mitigation Plan			1									0			58	0		1	61
Major Projects	0	0	0	1	0	0	0	-1	4	4	0	0	0	0	0	0	0	0	10
Operations Improvements	4	1	2	1	10	3	7	1	8	7	0	1	10	0	9	3	0	12	81
Other	0		1			0			0							2	15	8	26
Points Improvement (Excluding Remote Condition Monitoring)	42																		42
Possession Management & Staff Competence Improvements			3	17	9													8	37
Power Supply Improvements							24									6			30
Intelligent Infrastructure	21	0	0			0	1	0	18	3								1	44
Signal & Telecoms Equipment Improvements	0	0			0	0	0	15	0	56		0	0		1			4	77
Track Improvements		54	0															9	63
Train Detection Improvements (Excluding Remote Condition Monitoring)									44									3	47
Train Planning Improvements			0			0							0	21			2	0	22
Vandalism & Theft Mitigation Plan												32			8			0	40
Weather Mitigations (Excluding Autumn)	1	0				7												3	11
Total JPIP Initiatives	68	56	7	19	20	12	32	16	74	70	23	33	10	21	76	11	17	58	623

Notes:

1 Value 0 = <0.5; value "blank" = nil.

2 Data from Tables on pages 146 & 147 of LSEP; only the 17 KPIs common to both years are detailed; all other KPIs are rolled up into "Other Codes".

3 Downsides / Other Initiatives (net) are not included.

4 "cerise cell" = "number of note".

5 "blue cell" = "big ticket number".

TABLE 4.A - QUARTERLY PROGRESS FOR LONDON & SOUTH EAST SECTOR BY DM AND PPM MAA

Summary statement of the NR LSEP Forecasts and Quarterly Reports for DM and PPM MAA

NR LSEP FORECAST

	NR Delay Minutes 000s (NR only)								PPM - MAA									
	2012/13 Q1 P01-P03	2012/13 Q2 P04-P07	2012/13 Q3 P08-P10	2012/13 Q4 P11-P13	2013/14 Q1 P01-P03	2013/14 Q2 P04-P07	2013/14 Q3 P08-P10	2013/14 Q4 P11-P13	2011/12 Q4 P11-P13	2012/13 Q1 P01-P03	2012/13 Q2 P04-P07	2012/13 Q3 P08-P10	2012/13 Q4 P11-P13	2013/14 Q1 P01-P03	2013/14 Q2 P04-P07	2013/14 Q3 P08-P10	2013/14 Q4 P11-P13	Q4 Change 11/12 to 13/14
Total Base	**540**	**714**	**811**	**628**	**502**	**674**	**758**	**595**	**91.7%**	**91.7%**	**92.0%**	**92.0%**	**92.3%**	**92.3%**	**92.4%**	**92.5%**	**92.6%**	**0.9%**
Base+ & Base++									0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.4%	0.39%
Total LSEP									**91.7%**	**91.7%**	**92.0%**	**92.0%**	**92.3%**	**92.4%**	**92.5%**	**92.7%**	**93.0%**	1.3%

NR ACTUALS

	NR Delay Minutes 000s (NR only)								PPM - MAA									
	2012/13 Q1 P01-P03	2012/13 Q2 P04-P07	2012/13 Q3 P08-P10	2012/13 Q4 P11-P13	2013/14 Q1 P01-P03	2013/14 Q2 P04-P07	2013/14 Q3 P08-P10	2013/14 Q4 P11-P13	2011/12 Q4 P11-P13	2012/13 Q1 P01-P03	2012/13 Q2 P04-P07	2012/13 Q3 P08-P10	2012/13 Q4 P11-P13	2013/14 Q1 P01-P03	2013/14 Q2 P04-P07	2013/14 Q3 P08-P10	2013/14 Q4 P11-P13	
Total LSEP	647	753	868	838					91.7%	91.5%	91.8%	91.4%	91.0%					

VARIANCE ACTUAL - LSEP FORECAST (negative is worse)

	NR Delay Minutes 000s (NR only)								PPM - MAA									
	2012/13 Q1 P01-P03	2012/13 Q2 P04-P07	2012/13 Q3 P08-P10	2012/13 Q4 P11-P13	2013/14 Q1 P01-P03	2013/14 Q2 P04-P07	2013/14 Q3 P08-P10	2013/14 Q4 P11-P13	2011/12 Q4 P11-P13	2012/13 Q1 P01-P03	2012/13 Q2 P04-P07	2012/13 Q3 P08-P10	2012/13 Q4 P11-P13	2013/14 Q1 P01-P03	2013/14 Q2 P04-P07	2013/14 Q3 P08-P10	2013/14 Q4 P11-P13	
Against Total Base	**-107**	**-38**	**-57**	**-210**					**0.0%**	**-0.3%**	**-0.2%**	**-0.6%**	**-1.3%**					
Against Total LSEP									**0.0%**	**-0.3%**	**-0.2%**	**-0.6%**	**-1.3%**					

Notes:

1 DM & PPM data from Table 4.2 Page 94 of LSEP and NR supporting data.
2 DM quarterly data provided by NR in spreadsheet "LSE_Target_Info_-_Table_7" dated 3/10/2012.
3 PPM MAAA quarterly data provided by NR in spreadsheet "LSE_Target_Info_-_Table_7" dated 3/10/2012 and in spreadsheet "LSEQ2_extract_delay_p1-7" dated 11/12/2012.
4 Base+ and Base++ are taken from Table 2.B in this document.
5 The working assumption for Base+ and Base++ PPM MAA is uniform growth across each year.
6 Actual DM for Q1 & Q2 provided by NR in spreadsheet "LSEQ2_extract_delay_p1-7" dated 11/12/2012.
7 Actual PPM MAA for Q4, Q1 & Q2 provided by NR in Spreadsheet "LSE_PPM_history_p7_1213" dated 26/10/2012.
8 "cerise cell" = "number of note"
9 "blue cell" = "big ticket number"

TABLE 4.B - QUARTERLY PROGRESS OF NUMBER OF LSEP KEY DELIVERABLES BY JPIP INITIATIVE

LSEP FORECAST KEY DELIVERABLES

Initiatives	Cumulative Key Deliverables by Quarter								
	Q4 11/12 P13	Q1 12/13 P03	Q2 12/13 LSEP / P06	Q3 12/13 P10	Q4 12/13 P13	Q1 13/14 P03	Q2 13/14 P07	Q3 13/14 P10	Q4 13/14 P13
Autumn Mitigation Plan	3	3	7	11	11	11	12	12	12
Civil Engineering Improvements (Including External Damage Mitigation)	6	11	12	13	15	15	15	15	15
Fatality & Trespass Mitigation Plan	6	7	9	13	13	14	14	14	14
Major Projects	5	6	6	7	8	8	8	8	8
Operations Improvements	7	11	14	15	15	15	15	15	15
Other	7	9	11	13	14	14	14	14	14
Points Improvement (Excluding Remote Condition Monitoring)	7	7	7	8	12	13	13	13	13
Possession Management & Staff Competence Improvements	3	4	6	6	9	9	9	9	9
Power Supply Improvements	5	5	10	10	13	13	13	13	13
Intelligent Infrastructure	1	1	2	10	11	11	11	11	11
Signal & Telecoms Equipment Improvements	2	3	7	9	14	14	14	14	14
Track Improvements	4	5	6	9	11	11	11	12	12
Train Detection Improvements (Excluding Remote Condition Monitoring)	5	5	5	7	11	11	11	11	11
Train Planning Improvements	2	6	7	12	12	12	12	12	12
Vandalism & Theft Mitigation Plan	9	12	13	15	15	15	15	15	15
Weather Mitigations (Excluding Autumn)	6	9	12	15	15	15	15	15	15
"Structures, Takeback/Unexplained &TSRs COT/GCC"				7					
Subtotal Base(JPIP)	**78**	**104**	**134**	**180**	**199**	**201**	**202**	**203**	**203**

ACTUAL KEY DELIVERABLES

Initiatives	Cumulative Key Deliverables by Quarter								
	Q4 11/12 P13	Q1 12/13 P03	Q2 12/13 LSEP / P06	Q3 12/13 P10	Q4 12/13 P13	Q1 13/14 P03	Q2 13/14 P07	Q3 13/14 P10	Q4 13/14 P13
Autumn Mitigation Plan			7	16					
Civil Engineering Improvements (Including External Damage Mitigation)			12	15					
Fatality & Trespass Mitigation Plan			9						
Major Projects			6						
Operations Improvements			14						
Other			11	6					
Points Improvement (Excluding Remote Condition Monitoring)			7	10					
Possession Management & Staff Competence Improvements			6	24					
Power Supply Improvements			9	17					
Intelligent Infrastructure			2						
Signal & Telecoms Equipment Improvements			7	19					
Track Improvements			6	7					
Train Detection Improvements (Excluding Remote Condition Monitoring)			6	21					
Train Planning Improvements			8	13					
Vandalism & Theft Mitigation Plan			12						
Weather Mitigations (Excluding Autumn)			12	19					
"Structures, Takeback/Unexplained &TSRs COT/GCC"				13					
Subtotal Base(JPIP)			**134**	**180**					

VARIANCE KEY DELIVERABLES (negative is worse)

Initiatives	Cumulative Key Deliverables by Quarter								
	Q4 11/12 P13	Q1 12/13 P03	Q2 12/13 LSEP / P06	Q3 12/13 P10	Q4 12/13 P13	Q1 13/14 P03	Q2 13/14 P07	Q3 13/14 P10	Q4 13/14 P13
Autumn Mitigation Plan			0	5					
Civil Engineering Improvements (Including External Damage Mitigation)			0	2					
Fatality & Trespass Mitigation Plan			0						
Major Projects			0						
Operations Improvements			0						
Other			0	-7					
Points Improvement (Excluding Remote Condition Monitoring)			0	2					
Possession Management & Staff Competence Improvements			0	18					
Power Supply Improvements			-1	7					
Intelligent Infrastructure			0						
Signal & Telecoms Equipment Improvements			0	10					
Track Improvements			0	-2					
Train Detection Improvements (Excluding Remote Condition Monitoring)			1	14					
Train Planning Improvements			1	1					
Vandalism & Theft Mitigation Plan			-1						
Weather Mitigations (Excluding Autumn)			0	4					
"Structures, Takeback/Unexplained &TSRs COT/GCC"				6					
Subtotal Base(JPIP)			**0**	**0**					

Notes:

1 Number of Base (JPIP) Key Deliverables from pages 37 to 68 of LSEP.
2 LSEP contains first reported Actuals and as report is dated 28/09/2012 it is effectively end Period 6 (15/09/2012).
3 Forecast Key Deliverables for 2013/14 will be provided as they are developed by NR.
4 "cerise cell" = "number of note"
5 "blue cell" = "big ticket number"

TABLE 4.C - QUARTERLY PROGRESS OF LSEP FORECAST BY TOC - PPM

The MAA PPM LSEP Forecasts are implied by the LSEP for JPIP Base

LSEP FORECAST BY TOC PPM 2012/13 & 2013/14 - BY QUARTER

TOC	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	P01-03 MAA	P04-07 MAA	P08-10 Qtr	P11-13 Qtr	P01-03 Qtr	P04-07 Qtr	P08-10 Qtr	P11-13 Qtr
Greater Anglia (LSE)	93.7%	93.4%	89.8%	91.2%	tba	tba	tba	tba
FGW (LSE)	91.8%	92.2%	88.9%	92.1%	tba	tba	tba	tba
FCC	91.8%	91.9%	87.6%	91.0%	tba	tba	tba	tba
London Midland (LSE)	89.3%	89.3%	86.1%	89.6%	tba	tba	tba	tba
LOROL	96.9%	97.0%	96.3%	96.8%	tba	tba	tba	tba
HEx	95.0%	95.4%	94.6%	95.4%	tba	tba	tba	tba
Chiltern	94.0%	94.2%	92.7%	94.2%	tba	tba	tba	tba
c2c	97.1%	96.8%	96.8%	96.2%	tba	tba	tba	tba
Southeastern	93.9%	93.4%	88.8%	93.1%	tba	tba	tba	tba
Southern	93.0%	92.5%	85.9%	90.4%	tba	tba	tba	tba
SSWT	92.7%	93.3%	89.9%	93.1%	tba	tba	tba	tba

ACTUAL BY TOC PPM 2012/13 & 2013/14 - BY QUARTER

TOC	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	P01-03 MAA	P04-07 MAA	P08-10 Qtr	P11-13 Qtr	P01-03 Qtr	P04-07 Qtr	P08-10 Qtr	P11-13 Qtr
Greater Anglia	91.0%	91.8%	91.3%	90.9%				
First Great Western	91.0%	90.4%	86.2%	91.0%				
First Capital Connect	89.3%	90.0%	85.3%	84.1%				
London Midland	87.2%	87.2%	75.9%	79.7%				
London Overground	96.4%	96.7%	97.2%	96.0%				
Heathrow Express	95.4%	95.4%	88.9%	92.7%				
Chiltern	92.9%	94.0%	94.9%	95.1%				
c2c	97.0%	97.4%	97.4%	97.1%				
South Eastern	91.5%	92.0%	86.6%	89.3%				
Southern	89.6%	89.7%	82.7%	86.1%				
SSWT	91.6%	91.6%	87.4%	90.4%				

VARIANCE BY TOC PPM 2012/13 & 2013/14 - BY QUARTER (negative is worse)

TOC	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	P01-03 MAA	P04-07 MAA	P08-10 Qtr	P11-13 Qtr	P01-03 Qtr	P04-07 Qtr	P08-10 Qtr	P11-13 Qtr
Greater Anglia (LSE)	-2.6%	-1.6%	1.5%	-0.3%				
FGW (LSE)	-0.8%	-1.7%	-2.7%	-1.1%				
FCC	-2.5%	-1.9%	-2.3%	-6.9%				
London Midland (LSE)	-2.2%	-2.1%	-10.2%	-9.9%				
LOROL	-0.5%	-0.3%	0.9%	-0.8%				
HEx	0.4%	0.0%	-5.7%	-2.7%				
Chiltern	-1.1%	-0.2%	2.2%	0.9%				
c2c	-0.1%	0.6%	0.6%	0.9%				
Southeastern	-2.4%	-1.5%	-2.2%	-3.8%				
Southern	-3.4%	-2.8%	-3.2%	-4.3%				
SSWT	-1.1%	-1.7%	-2.5%	-2.7%				

Notes:

1 Quarterly forecasts from page 114 of LSEP and NR supporting data.
2 Downsides / Other Initiatives (net) for 2012/13 & 2013/14 are included in Base.
3 Actual PPM MAA for Q1 & Q2 provided by NR in Spreadsheet "LSE_PPM_history_p7_1213" dated 26/10/2012.
4 "cerise cell" = "number of note"
5 "blue cell" = big ticket number"

TABLE 4.D - QUARTERLY PROGRESS OF LSEP FORECAST BY KPI - DM PER QUARTER 000s - sheet 1 of 2

LSEP FORECAST BY KPI FOR 2012/13 & 2013/14 - BY QUARTER 000s

		2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	KPIs	P01-03	P04-07	P08-10	P11-13	P01-03	P04-07	P08-10	P11-13
101	Points failures	38	50	48	42	36	47	46	40
104B	Track Faults including Broken Rails	44	63	67	58	39	56	59	52
106	Other infrastructure	14	21	21	17	14	20	21	16
107A	Possession over-run and related faults	12	16	18	17	10	14	15	15
108	Mishap - infrastructure causes	15	13	11	10	14	13	11	10
110A	Severe weather (beyond design capability of infrastructure)	13	24	70	53	12	24	67	50
201	OLE/Third Rail faults	21	32	26	24	19	30	25	23
301A	Signal Failures	12	15	16	12	12	15	15	12
301B	Track Circuit Failures	40	53	55	45	37	51	52	43
302A	Signalling System & Power Supply Failures	43	49	41	42	41	47	39	40
401	Bridge strikes	9	16	13	13	9	16	13	13
402	External infrastructure damage - Vandalism/Theft	32	32	24	21	31	31	24	21
501A	Network Rail Operations - signalling	34	46	41	38	32	44	38	37
502A	Timetable Planning	15	20	17	15	14	19	16	14
503	External fatalities and trespass	69	89	64	66	66	86	63	65
506	External other	14	19	20	16	11	15	15	13
601	All Z codes - Unexplained	25	36	39	31	23	35	37	30
	Subtotal "17 - KPIs"	**451**	**595**	**591**	**519**	**421**	**563**	**557**	**494**
	Other Codes	89	120	220	109	81	111	201	101
	Total Base	**540**	**714**	**811**	**628**	**502**	**674**	**758**	**595**
	Total for Year				2,694				2,530

ACTUAL: BY KPI FOR 2012/13 & 2013/14 - BY QUARTER

		2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	KPIs	P01-03	P04-07	P08-10	P11-13	P01-03	P04-07	P08-10	P11-13
101	Points failures	44	57	43	61				
104B	Track Faults including Broken Rails	61	61	70	111				
106	Other infrastructure	17	23	27	15				
107A	Possession over-run and related faults	14	10	24	29				
108	Mishap - infrastructure causes	17	14	19	15				
110A	Severe weather (beyond design capability of infrastructure)	60	24	52	59				
201	OLE/Third Rail faults	29	39	31	39				
301A	Signal Failures	19	21	21	17				
301B	Track Circuit Failures	56	67	43	52				
302A	Signalling System & Power Supply Failures	47	44	40	52				
401	Bridge strikes	10	18	14	11				
402	External infrastructure damage - Vandalism/Theft	16	16	10	16				
501A	Network Rail Operations - signalling	38	54	61	54				
502A	Timetable Planning	19	19	22	19				
503	External fatalities and trespass	70	91	71	43				
506	External other	16	14	17	13				
601	All Z codes - Unexplained	30	50	53	42				
	Subtotal "17 - KPIs"	**562**	**621**	**619**	**646**				
	Other Codes	85	132	3	2				
	Total Base	**647**	**753**	**868**	**838**				
	Total for Year				3,107				-

TABLE 4.D - QUARTERLY PROGRESS OF LSEP FORECAST BY KPI - DM PER QUARTER 000s - sheet 2 of 2

VARIANCE BY KPI FOR 2012/13 & 2013/14 - BY QUARTER (negative is worse)

		2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	KPIs	P01-03	P04-07	P08-10	P11-13	P01-03	P04-07	P08-10	P11-13
101	Points failures	-6	-8	5	-20				
104B	Track Faults including Broken Rails	-18	2	-3	-53				
104D	Reactionary delay to P-coded TSRs	-2	-2	-4	-4				
107A	Possession over-run and related faults	-2	6	-6	-12				
108	Mishap - infrastructure causes	-2	-1	-8	-5				
110A	Severe weather (beyond design capability of infrastructure)	-48	0	18	-6				
110B	Other weather (impact on infrastructure or network operations)	-8	-2	-8	-58				
301A	Signal Failures	-7	-6	-5	-5				
301B	Track Circuit Failures	-16	-14	11	-6				
302A	Signalling System & Power Supply Failures	-4	5	2	-10				
401	Bridge strikes	-1	-2	-1	2				
402	External infrastructure damage - Vandalism/Theft	17	16	14	5				
501A	Network Rail Operations - signalling	-4	-8	-21	-15				
502A	Timetable Planning	-4	1	-5	-4				
503	External fatalities and trespass	-1	-1	-7	23				
506	External other	-1	5	3	3				
601	All Z codes - Unexplained	-5	-13	-14	-11				
	Subtotal "17 - KPIs"	**-111**	**-26**	**-28**	**-127**				
	Other Codes	4	-13	22	-1				
	Total Base	**-107**	**-38**	**-57**	**-210**				
	Total for Year				-413				-

Notes:

1 Value 0 = between +0.499 and -0.499.
2 Quarterly forecasts from pages 111 & 112 of LSEP.
3 Downsides / Other Initiatives (net) for 2012/13 & 2013/14 are included in DM tables.
4 Only the 17 KPIs from Table 3.C are identified; the other KPIs are rolled up into "Other Codes".
5 Actual data for 2012/13 Q1 & Q2 provided by NR in spreadsheet "LSEQ2_extract_delay_p1-7" dated 11/12/2012.
6 "cerise cell" = "number of note"
7 "blue cell" = "big ticket number"

TABLE 5.A - QUARTERLY PROGRESS OF TOC ON TOC PLUS TOC ON SELF - DM

FORECAST OF TOC ON TOC & TOC ON SELF - BY QUARTER - DM '000s

TOC	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	P01-03	P04-07	P08-10	P11-13	P01-03	P04-07	P08-10	P11-13
Greater Anglia (LSE)	60	78	72	63	tba	tba	tba	tba
FGW (LSE)	32	46	41	31	tba	tba	tba	tba
FCC	39	55	52	41	tba	tba	tba	tba
London Midland (LSE)	13	18	16	13	tba	tba	tba	tba
LOROL	14	24	17	16	tba	tba	tba	tba
HEx	3	4	3	2	tba	tba	tba	tba
Chiltern	21	29	31	22	tba	tba	tba	tba
c2c	4	7	5	4	tba	tba	tba	tba
Southeastern	70	101	108	78	tba	tba	tba	tba
Southern	75	112	130	95	tba	tba	tba	tba
SSWT	52	80	78	56	tba	tba	tba	tba
Total Base	**382**	**554**	**552**	**421**	**tba**	**tba**	**tba**	**tba**

ACTUAL TOC ON TOC & TOC ON SELF - BY QUARTER - DM '000s

TOC	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	P01-03	P04-07	P08-10	P11-13	P01-03	P04-07	P08-10	P11-13
Greater Anglia (LSE)	55	70	69	72				
FGW (LSE)	31	59	39	37				
FCC	36	42	52	64				
London Midland (LSE)	14	24	32	28				
LOROL	14	17	15	14				
HEx	2	4	4	4				
Chiltern	20	31	24	23				
c2c	3	5	5	8				
Southeastern	59	76	117	85				
Southern	90	107	139	130				
SSWT	50	70	86	56				
Total Base	**374**	**505**	**580**	**520**				

VARIANCE TOC ON TOC & TOC ON SELF - BY QUARTER - DM '000s (negative is worse)

TOC	2012/13 Q1	2012/13 Q2	2012/13 Q3	2012/13 Q4	2013/14 Q1	2013/14 Q2	2013/14 Q3	2013/14 Q4
	P01-03	P04-07	P08-10	P11-13	P01-03	P04-07	P08-10	P11-13
Greater Anglia (LSE)	4	8	3	-9				
FGW (LSE)	1	-13	2	-6				
FCC	4	13	1	-23				
London Midland (LSE)	-1	-7	-15	-15				
LOROL	0	7	2	2				
HEx	1	0	-1	-2				
Chiltern	2	-3	7	-1				
c2c	1	2	0	-3				
Southeastern	11	25	-9	-8				
Southern	-16	4	-9	-35				
SSWT	2	11	-8	0				
Total Base	**8**	**49**	**-28**	**-99**				

Notes:

1 Forecast data for 2012/13 provided by NR in spreadsheet "LSEQ2_extract_delay_p1-7" dated 11/12/2012.

2 NR have advised that Forecast data for 2013/14 (second year of JPIP) is not available for all TOCs.

3 Actual data for 2012/13 Q1 & Q2 provided by NR in spreadsheet "LSEQ2_extract_delay_p1-7" dated 11/12/2012.

4 "blue cell" = "number of note"

Annex B – Analysis of extreme weather

Analysis of underlying train performance (delay minutes and PPM) in 2012-13 P1-13

Objective

1) Analyse underlying performance taking into account the impact of 'extreme' weather.

Analysis to focus on

i) National (delay minutes and PPM)
ii) London and South East (PPM only)
iii) Long Distance (PPM only)

Key results

Precipitation

- National total average precipitation was highest in 2012-13 – 29% greater than the next highest total average precipitation, seen in 2009-10.

- When compared to previous years of CP4, three quarters in 2012-13 had the highest total average precipitation. Quarter 4 in 2009-10 had a higher level of precipitation than 2012-13.

- London and South East and long distance sectors show a slightly different picture with 2012-13 having the highest precipitation in quarters 1 and 2 only.

- A student t-test statistical test was used to identify if the amount of precipitation in 2012-13 was significantly more than any previous year in CP4. The results showed that the mean level of precipitation in 2012-13 was significantly more than in each of the other three years.

Delay minutes

- When compared to previous years of CP4, 2012-13 weather delay minutes were the highest in every quarter, except quarter 3.

- A total of 26 days were adjusted but National Network Rail caused delay minutes remain worse than period and annual targets.

PPM

- For the National data, a total of 44 days were adjusted but PPM MAA remains worse than the 2012-13 end of year CP4 target.

- For the London and South East data, a total of 54 days were adjusted but PPM MAA remains worse than the 2012-13 end of year CP4 target.

- For the long distance data, a total of 54 days were adjusted but PPM MAA remains worse than the 2012-13 end of year CP4 target.

Data sources (from Network Rail)

Weather data

This analysis used daily MeteoGroup weather data from 01/04/2009 to 31/03/2013 based on a selection of weather stations across the country. These weather stations were mapped to a route. For analysis of the National level data, all of the weather stations were included but for the London and South East and long distance sector analysis, a selection of weather stations were used (based on their location/route), as shown in table 1 below.

A map of the weather station locations was also produced – see Appendix 1.

Table 1: Weather stations

Weather station	Route	Sector
Andrewsfield	Anglia	
Nottingham, Watnall	East Midlands	
East Malling	Kent	LSE
Herstmonceux, West End	Kent	LSE
Durham	LNE	LD
Waddington	LNE	
Coventry, Coundon	LNW	
Keswick	LNW	LD
Bedford	East Midlands	LD
Dalwhinnie	Scotland	
Edinburgh, Gogarbank	Scotland	
Glasgow/Bishopton	Scotland	
Charlwood	Sussex	LSE
St Athan	Wales	
Hurn	Wessex	LSE
Wisley	Wessex	LSE
Cardinham, Bodmin	Western	LD
Heathrow	Western	
Lyneham	Western	LD

Table 2 below highlights the weather data used as part of the analysis

Table 2: Weather data used in the analysis

Weather metric	Data	Reasoning
Precipitation	24 hour precipitation	Average precipitation each day, capturing rainfall and snow
Cumulative precipitation	Moving 28 day total based on total 24 hour precipitation	Attempt to capture ground saturation
Minimum temperature	Minimum temperature	'Extreme'/cold weather leads to asset failures
Minimum temperature range	Variance in minimum temperature compared to the previous day	Rapid changes in weather lead to asset failures

As part of this analysis only precipitation and cumulative precipitation data were used to identify days to adjust. The minimum temperature and minimum temperature range metrics identified an excessive number of days to

adjust and insufficient time was not available to identify an alternative method to incorporate/utilise this data within the analysis.

Met Office weather warnings data was also used as part of this analysis.

Performance data

Delay minutes

- Daily delay minutes from 01/04/2009 to 31/03/2013, by all JPIP categories.
- Daily delay minutes from 01/04/2009 to 31/03/2013 for two weather codes – 110A (Severe weather (beyond design capability of infrastructure) and 110B (Other weather (impact on infrastructure or network operations).
- Christmas day was excluded from all datasets as no trains run on this day.
- The latest delay minutes data may still be subject to change due to dispute resolutions.

PPM

- Daily PPM data from 01/04/2009 to 31/03/2013, for National, long distance, London and South East, Regional and Scotland.
- Christmas day was excluded from all datasets as no trains run on this day
- Boxing day was also excluded from the long distance sector analysis as no long distance trains run on this day
- All daily PPM data should be treated as provisional

Methodology

Overview of methodology

- Calculate the 95th percentile value for each period in the specified weather time series. This 95th percentile is based on the overall data and not each period.
- Any values that exceed the 95th percentile value to be classed as 'extreme' weather days
- Calculate the 5th percentile for the performance data for each period.
- Plot the different weather metrics data against the daily weather delay minutes and PPM values to identify where performance may have been impacted by the weather. This to be reviewed alongside the 5th percentile value for each period, identifying days where performance is below this value.
- Calculate percentage change between each performance data point and the period MAA
- Using this percentage variance between each day and the period MAA, calculate the average percentage variance for each day. For example, the average percentage variance of 1st April against the period would be calculated by taking an average of all of the 1st April percentage variances between 2009/10 and 2012/13
- Where performance is considered to be worse than the average and impacted by the weather, daily value to be adjusted by the average percentage change value for that day
- Where adjusted value falls below the actual value, day was not adjusted.
- PPM MAA values to be recalculated for the adjusted time series based on daily trains planned data

- Adjusted data to be re-plotted and performance assessed against the relevant targets

Caveats/Assumptions

Weather data

- The 24 hour precipitation data is based on an average for the day (from hourly readings) and the total precipitation data presented is based on the sum of these average daily values. Therefore, the total precipitation values should be used for indicative purposes.
- A cumulative precipitation metric was developed as a means of understanding/identifying ground saturation. This metric is based on a 28 day moving total of the 24 hour precipitation data.
- It has been identified that cold weather and extreme changes in temperature cause asset failures. A 'minimum temperature range' metric was developed to attempt to capture this, based on the difference in minimum temperature to the previous day. However, initial analysis quickly identified that the temperature metrics were not as reliable as the precipitation metric, highlighting a very large number of days to adjust. Insufficient time meant the use of the minimum temperature and minimum temperature change metrics could not be developed further for use in this analysis.
- The weather data should be used for indicative purposes only. The British climate is constantly changing and the 4 years of data analysed here is not sufficient to draw firm conclusions about the British weather and the impact on train performance.

Analysis

- Where adjustments to the daily delay minutes or PPM led to a lower value than the actual value, the adjustment did not take place.
- Quarterly data presented in this analysis is based on the periods stated in each Network Rail quarterly report.
- Please be aware that there can be a time lag between weather events occurring and the impact this has on performance.

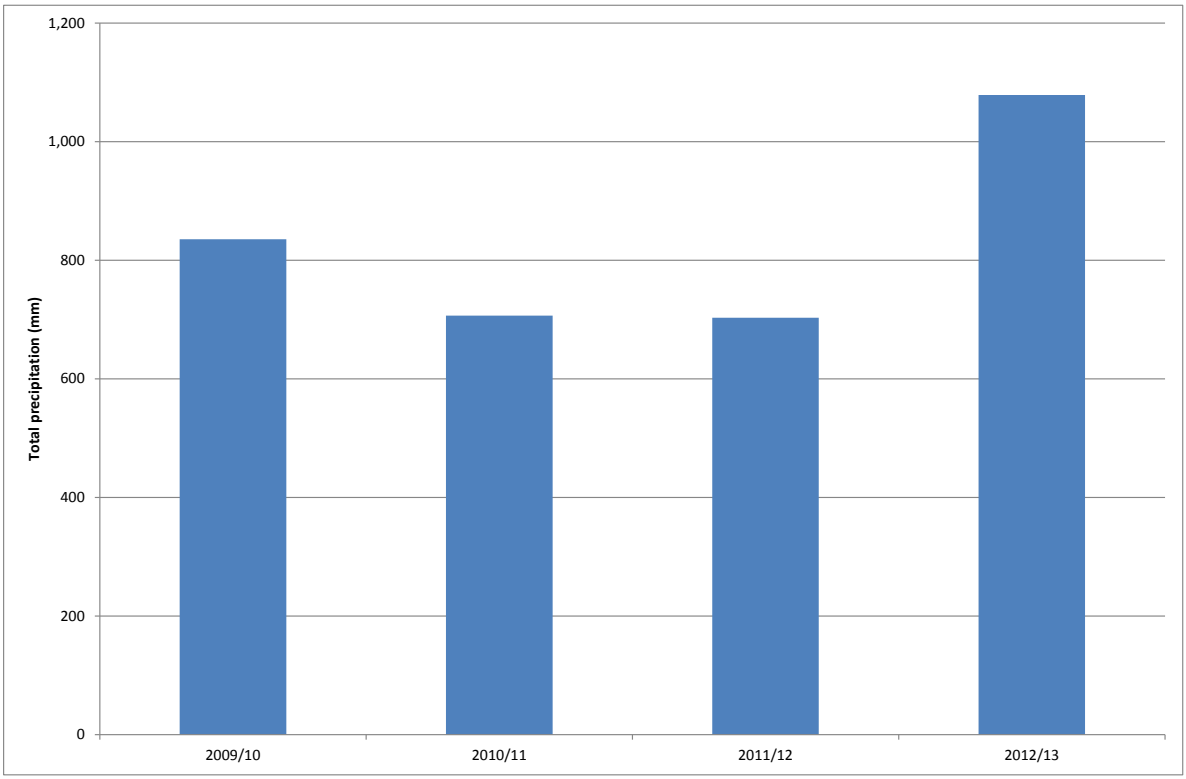
Analysis

Precipitation levels[19]

As Chart 1 shows, the highest level of total average precipitation was seen in 2013/12. This is 29% greater than the total average precipitation 2009/10.

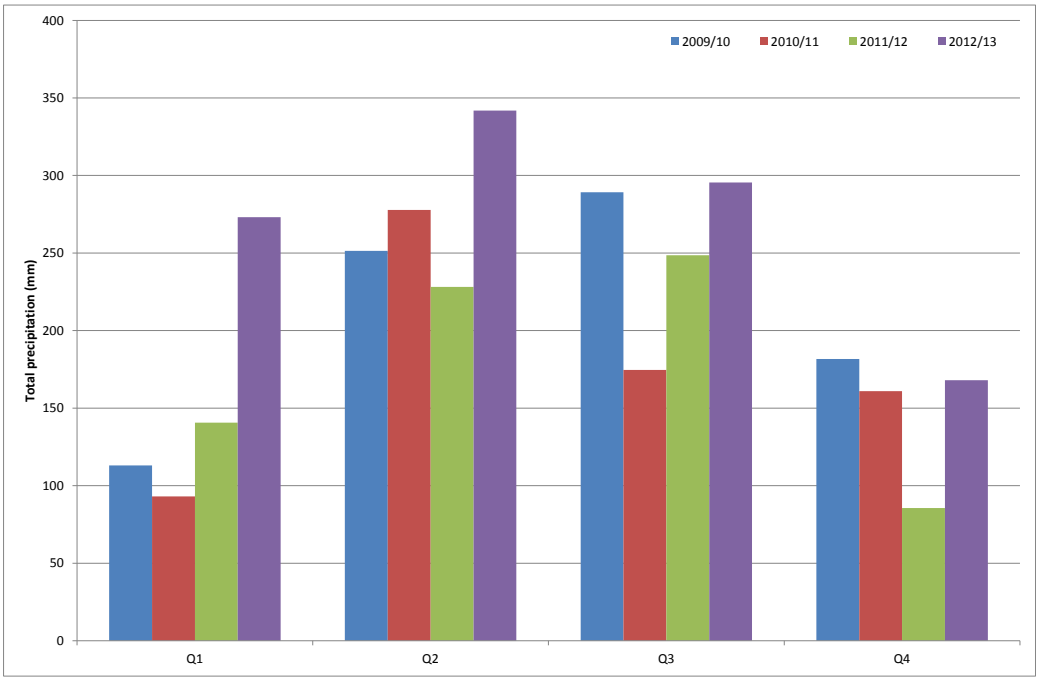
Chart 1: National total average precipitation by year

[19] Total precipitation is calculated by summing the 24 hour precipitation weather. The daily 24 hour precipitation weather readings are based on an average of hourly readings for a given day. Therefore, the precipitation data should only be used for indicative purposes.



Analysis of National total average precipitation by quarter shows that quarterly precipitation has been the highest in 2012/13, except in Q4, when precipitation in 2009/10 was 8% higher.

Chart 2: National total average precipitation by quarter and year



For London and South East sector, a slightly different picture is seen. Total average precipitation in 2012/13 was highest in Q1 and Q2 but Q3 and Q4 experienced greater precipitation in 2009/10 (Chart 3).

The long distance sector shows a similar pattern (Chart 4) to the London and South East sector but total average precipitation in Q4 was greatest in 2010/11, closely followed by 2009/10 and then 2012/13.

Chart 3: London and South East total average precipitation by quarter and year

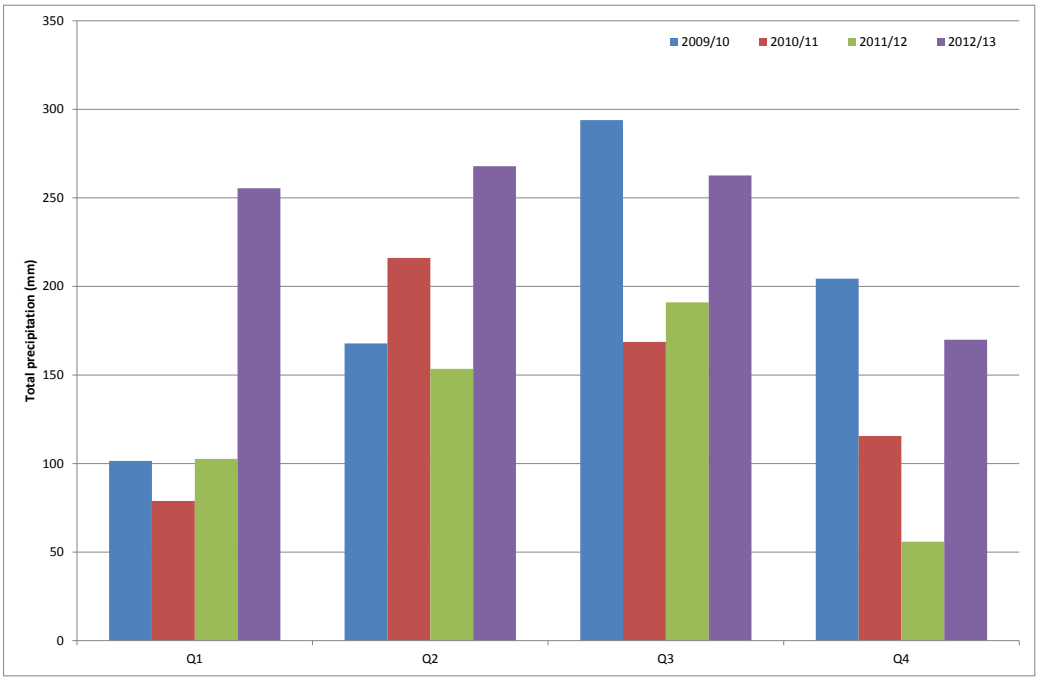
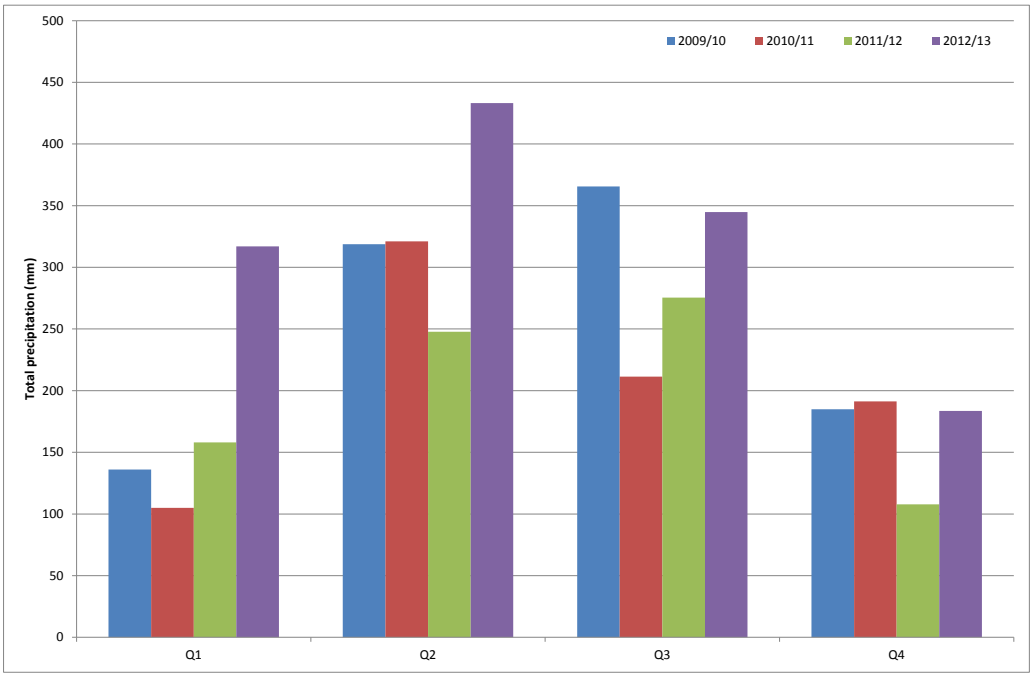


Chart 4: Long distance total average precipitation by quarter and year



Is the level of precipitation in 2012/13 statistically significant to previous years?

A student t-test statistical test was used to identify if the amount of precipitation in 2012-13 was significantly more than any previous year in CP4. The results showed that the mean level of precipitation in 2012-13 was significantly more than in each of the other three years (table 1).

The student t-test calculates a test statistic based on comparing the means for each of the two years being tested. If the test statistic is greater than the critical value, this means that there is a statistically significant difference. In each of these tests, the critical value was 1.962.

Table 1: Student t-test results for precipitation levels

	T statistic (critical value = 1.962)		
Year	**National**	**LSE**	**LD**
2009/10 and 2012/13	7.939	3.561	5.042
2010/11 and 2012/13	7.903	7.130	8.607
2011/12 and 2012/13	8.136	8.989	9.638

Short, heavy bursts of precipitation typically lead to flooding and have more of an impact on the rail industry compared to sustained daily levels of precipitation. To help understand this I analysed the 2012/13 London and South East and long distance PPM data.

Tables 2 and 3 identify the number of 'extreme' days adjusted in each quarter of 2012/13 as part of the weather analysis, compared to the number of Met Office weather warnings issued in 2012/13.

The Met Office weather warnings are based on the number of amber or red warnings[20] for rainfall or snow issued for a given day in England and Wales.

Table 2: Number of 'extreme' days adjusted (LSE PPM data) and Met Office weather warnings in 2012/13

Quarter	Number of adjusted 'extreme' days	Number of Met Office amber or red warnings
2012-13 Q1	7	4
2012-13 Q2	3	15
2012-13 Q3	10	8
2012-13 Q4	0	13

Table 3: Number of 'extreme' days adjusted (LD PPM data) and Met Office weather warnings in 2012/13

Quarter	Number of adjusted 'extreme' days	Number of Met Office amber or red warnings
2012-13 Q1	0	4
2012-13 Q2	7	15
2012-13 Q3	17	8
2012-13 Q4	1	13

In quarter 4 the Met Office issued 13 red and amber warnings for snow and rainfall but no adjustments were made to the London and South East PPM data and only 1 adjustment to long distance data in this quarter. This may be due to lower sector performance in Q4, resulting in no days exceeding the 95th percentile and being adjusted. Furthermore, when compared to other quarters in 2012-13, quarter 4 had the lowest average precipitation for both the London and South East and long distance sectors. The lack/small number of

[20] Met Office amber and red rainfall and snow weather warnings
http://www.metoffice.gov.uk/guide/weather/warnings#learn-about-warnings

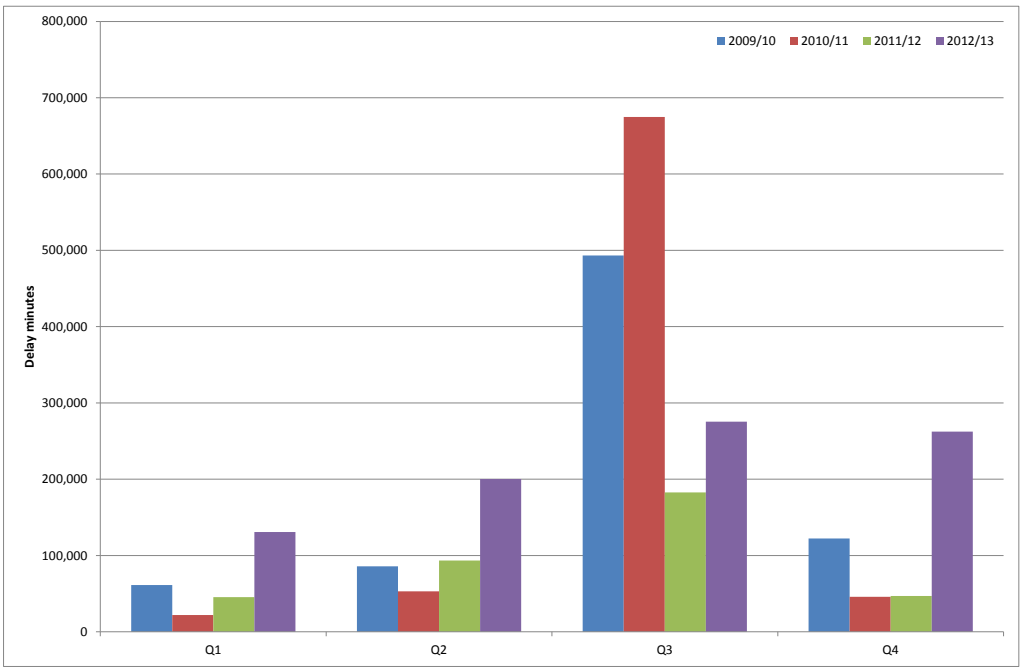
adjustments in quarter 4 could also be due to a time lag in the weather event occurring and the subsequent impact on performance (therefore impacting results may be seen in 2013-14 Q1).

National delay minutes

Chart 5 shows that when compared to previous years of CP4, 2012/13 weather delay minutes were the highest in every quarter, except quarter 3, when it was exceeded by 2010/11. Total weather delay minutes in quarters 3 and 4 of 2012/13 were relatively similar, with only a 5% difference between the two quarters.

Looking back at the National total average precipitation levels, the highest levels in 2012/13 were seen in Q2, followed by Q3, Q1 and Q4.

Chart 5: National weather delay minutes by quarter and year



Based on the analysis, a total of 26 days were adjusted. However, as Charts 6 and 7 show, National delay minutes would still typically be worse than the periodic and end of year targets.

As part of the weather analysis I looked at the impact of 'extreme' weather on National delay minutes. Alongside looking at specific weather delay minutes the analysis also considered delay minutes that may be attributed to track and non-track assets on 'extreme' weather days and that the weather impact may impact performance 1 or 2 days after the weather event. Where these categories may have been impacted, the minutes were adjusted. However, overall performance still typically remained worse than periodic targets and worse than annual targets.

Chart 6: Actual and adjusted National delay minutes by period, against target

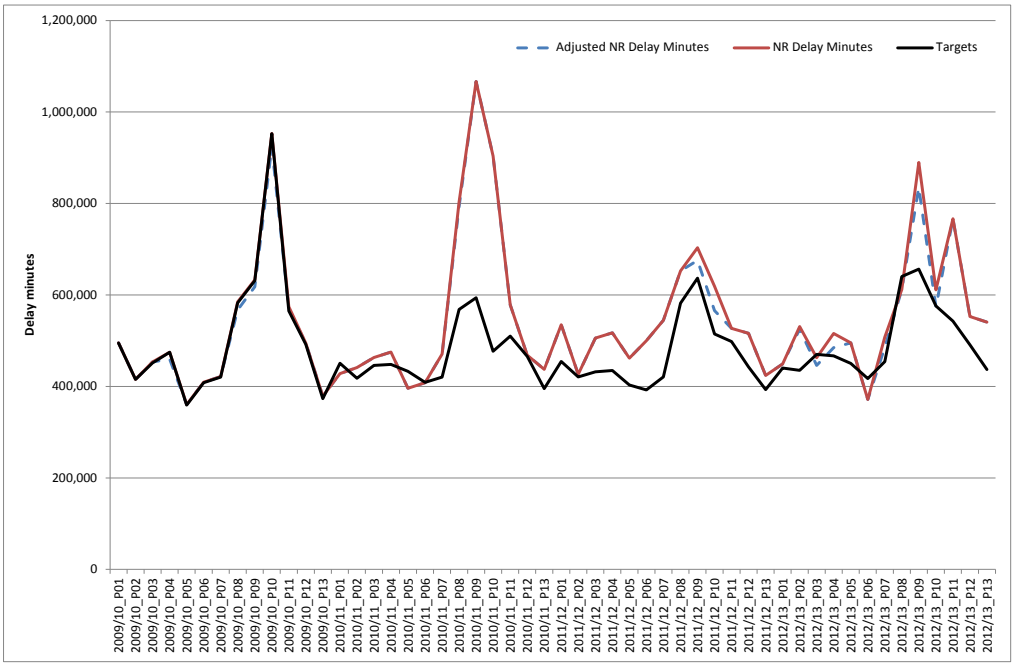
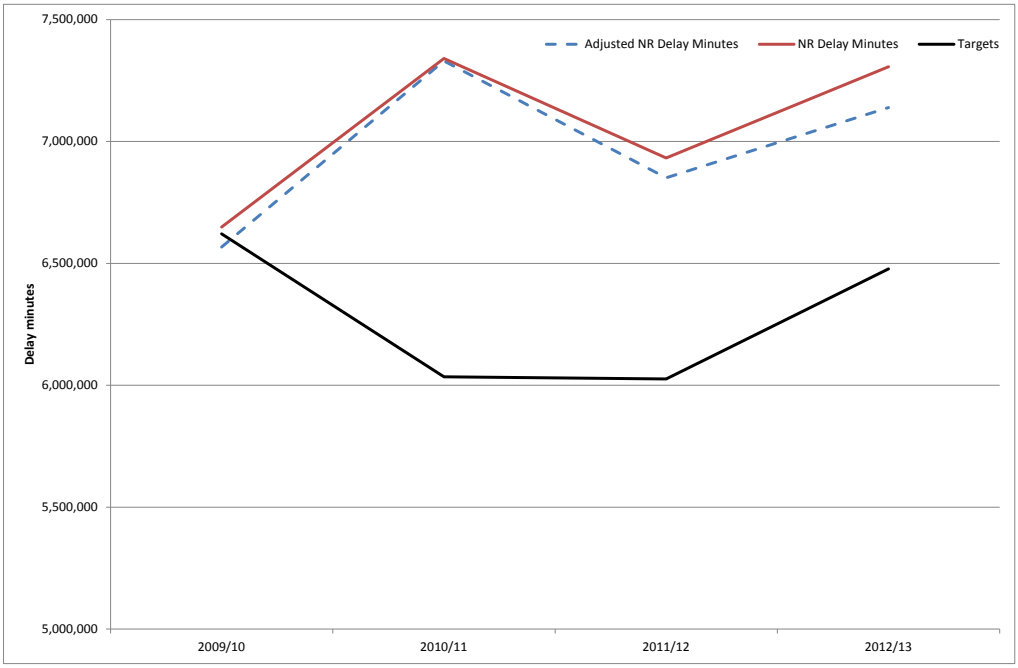


Chart 7: Actual and adjusted National delay minutes by year, against target

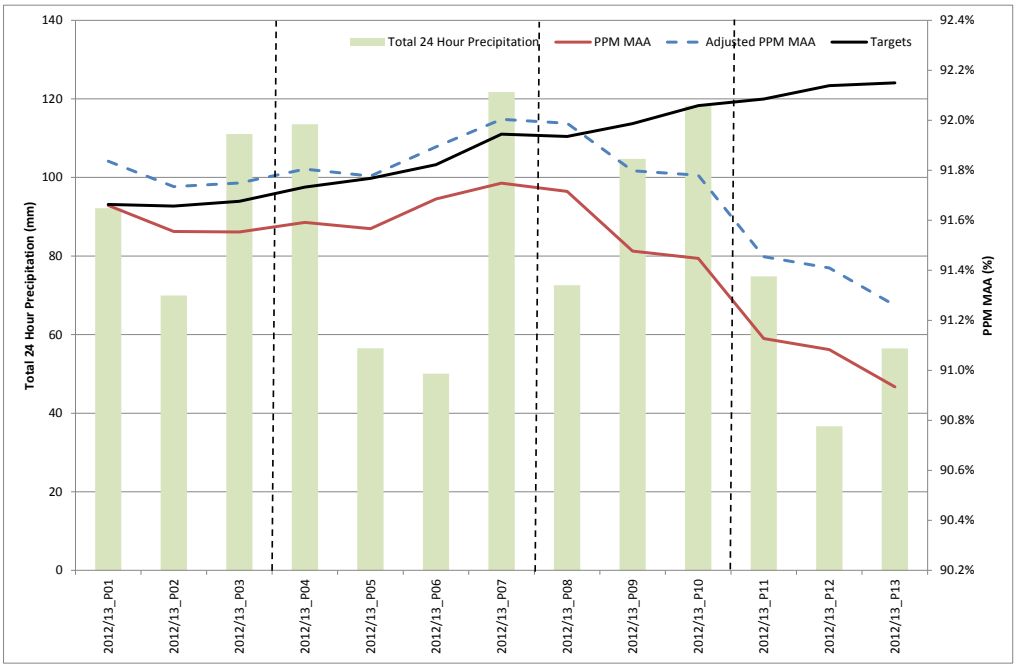


National PPM

A total of 44 days were adjusted.

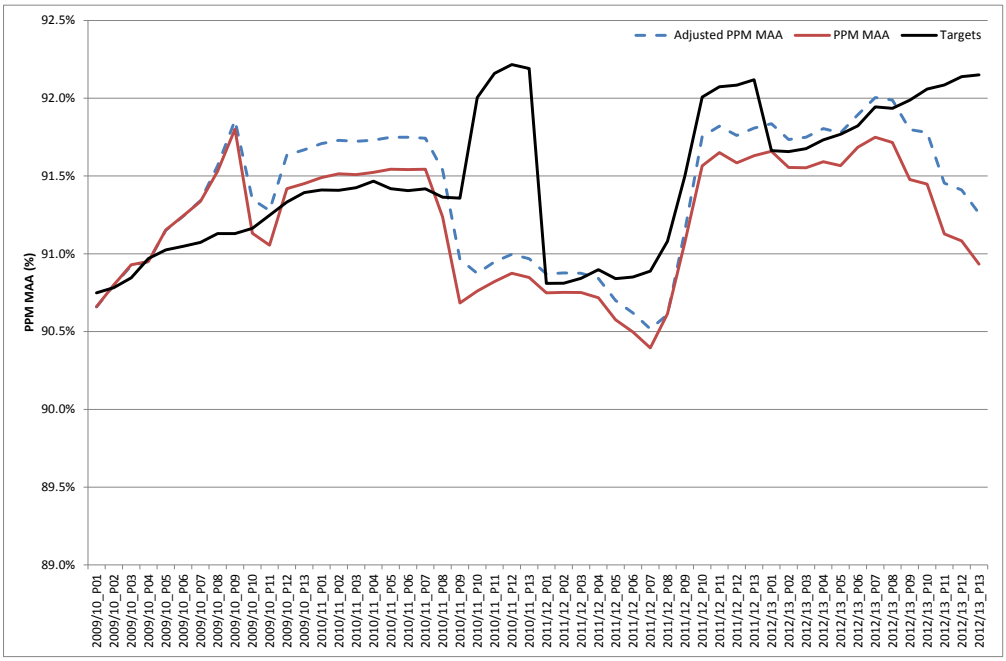
Analysis of precipitation levels and National PPM MAA in 2012/13 are inconclusive (Chart 8), with no clear inferences being drawn regarding the relationship between these two factors.

Chart 8: Total average precipitation levels and actual and adjusted National PPM MAA in 2012/13 by period



The adjustments increased National PPM MAA by 0.4 percentage points to 91.3%. As Chart 9 shows National performance still typically remains worse than period and end of year targets

Chart 9: Actual and adjusted National PPM MAA by period, against target

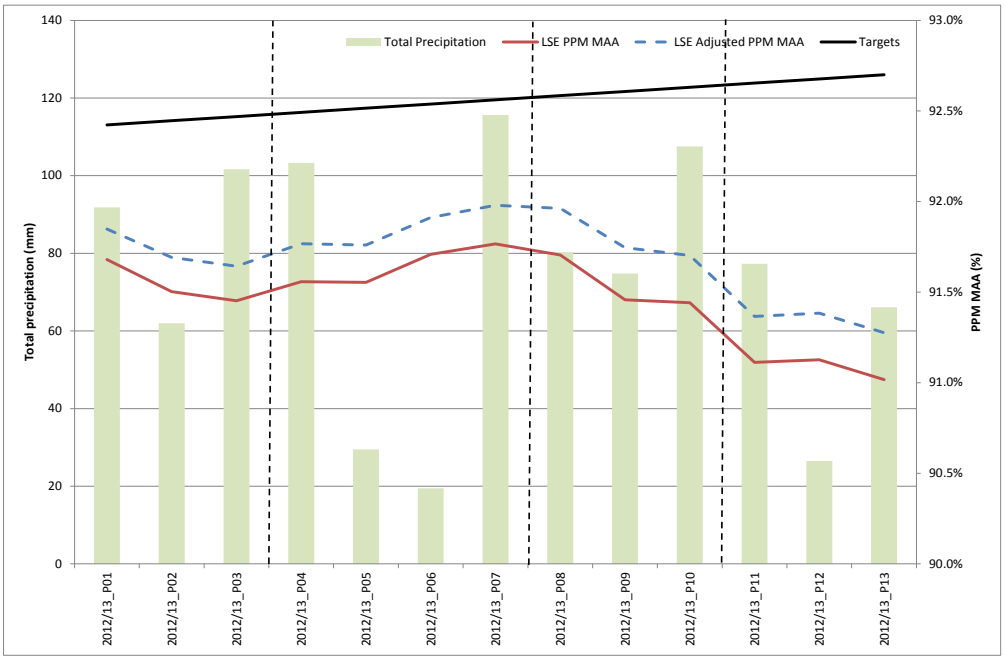


London and South East PPM

A total of 54 days were adjusted.

Analysis of precipitation levels and LSE PPM MAA in 2012/13 are somewhat inconclusive (Chart 10), with no clear inferences being drawn regarding the relationship between these two factors.

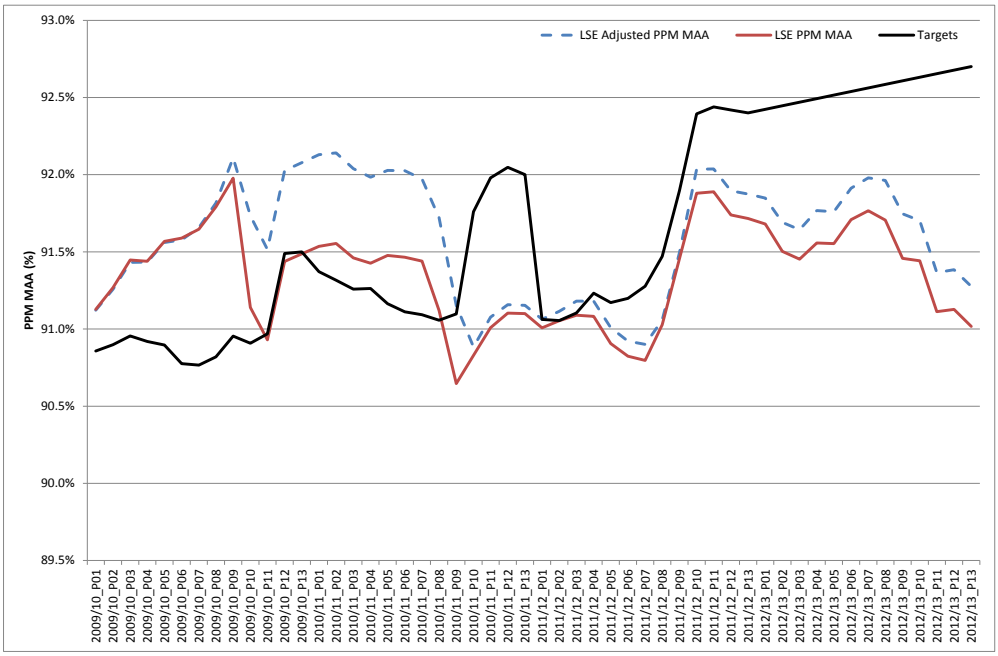
Chart 10: Total average precipitation levels and actual and adjusted LSE PPM MAA in 2012/13 by period



As Chart 11 shows LSE performance typically remains worse than period and end of year targets.

Based on the adjustments, the London and South East sector would have ended 2012/13 with a PPM MAA of 91.3% (0.3% better than actual), 1.4 percentage points worse than the 2012/13 CP4 target and 1.0 percentage point worse than the JPIP target.

Chart 11: Actual and adjusted LSE PPM MAA by period, against target

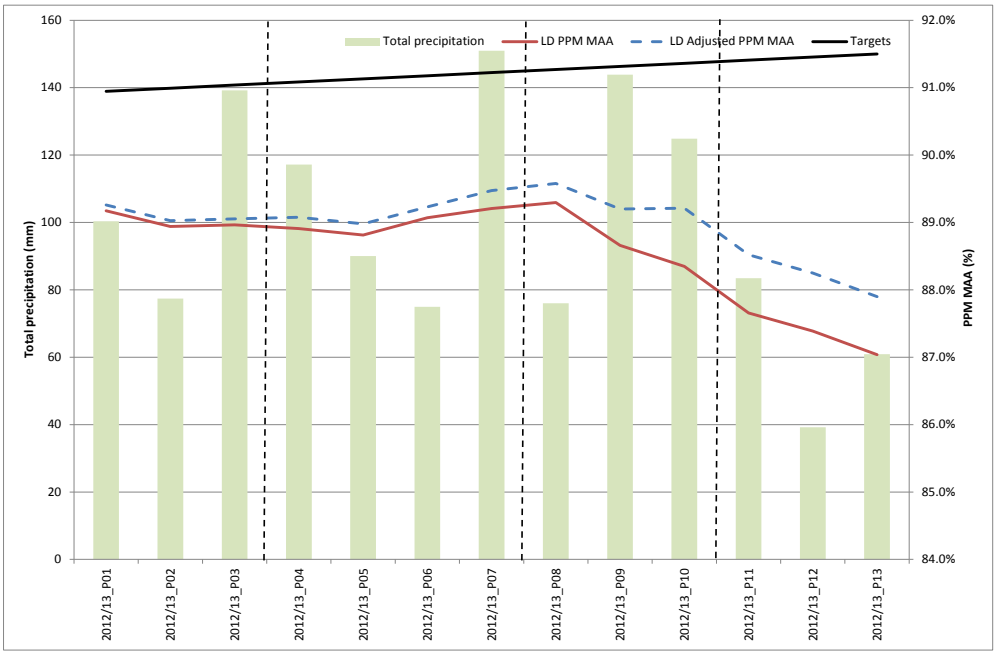


Long distance PPM

A total of 55 days were adjusted.

Analysis of precipitation levels and LD PPM MAA in 2012/13 are somewhat inconclusive (Chart 12), with no clear inferences being drawn regarding the relationship between these two factors.

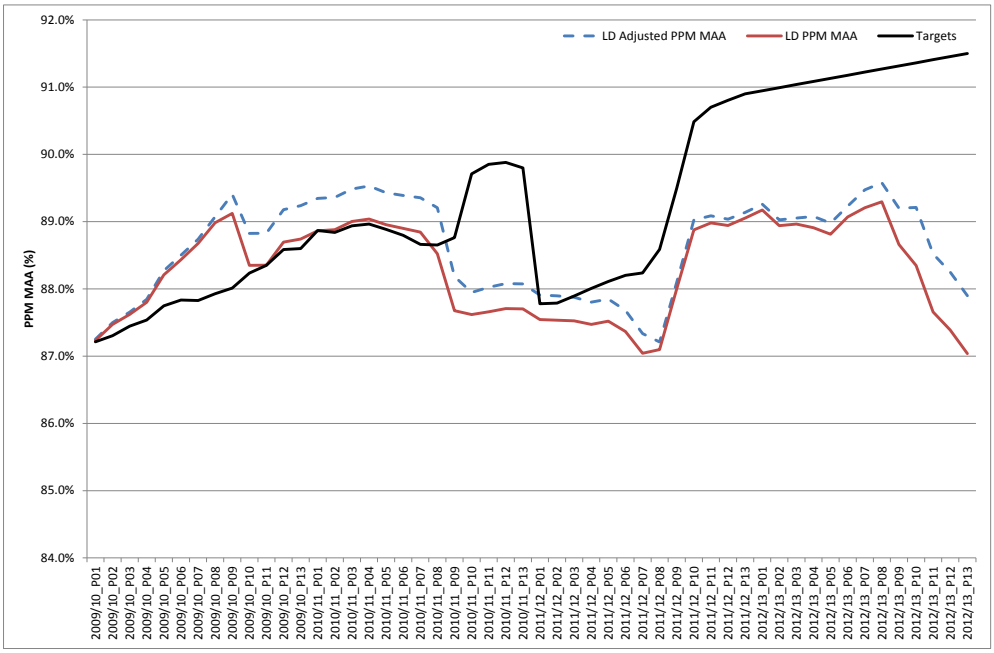
Chart 12: Total average precipitation levels and actual and adjusted LD PPM MAA by period in 2012/13



As Charts 13 shows LD performance typically remains worse than period and end of year targets.

Based on the adjustments, the long distance sector would have ended 2012/13 with a PPM MAA of 87.9% (0.9% better than actual), 3.6 percentage points worse than the 2012/13 CP4 target and 1.8 percentage points worse than the end of year JPIP target.

Chart 13: Actual and adjusted long distance PPM MAA by period, against target



Limitations of the analysis

A selection of weather stations was used for the National analysis and judgement was used to identify the weather stations which fell within each sector. However, these weather stations may not be totally representative of the weather for the country or sectors.

The main weather metric used in the analysis was precipitation levels. As previously mentioned in this paper, this is based on a daily average rather than daily total.

Short, intense periods of precipitation can have more of an impact than sustained daily levels of precipitation and the daily average total precipitation and cumulative precipitation weather metrics may not capture the impact of shorter periods of precipitation on train performance.

A separate metric for snow would have been useful as rainfall and snow impact the railway in different ways.

Cold weather and large changes in temperature can impact the functioning of assets and ultimately lead to asset failures. Although data for minimum temperature and changes in minimum temperature were initially included, this data highlighted a very large number of days to be adjusted. This is an important weather metric and further analysis would be needed to understand the impact on assets/performance and the days to be adjusted.

This analysis tries to takes to consideration the time lag between weather events occurring and the impact on performance. However, as this is difficult to quantify and the time period may vary for different assets/incidents, it may not be fully reflected in the analysis.

Conclusion

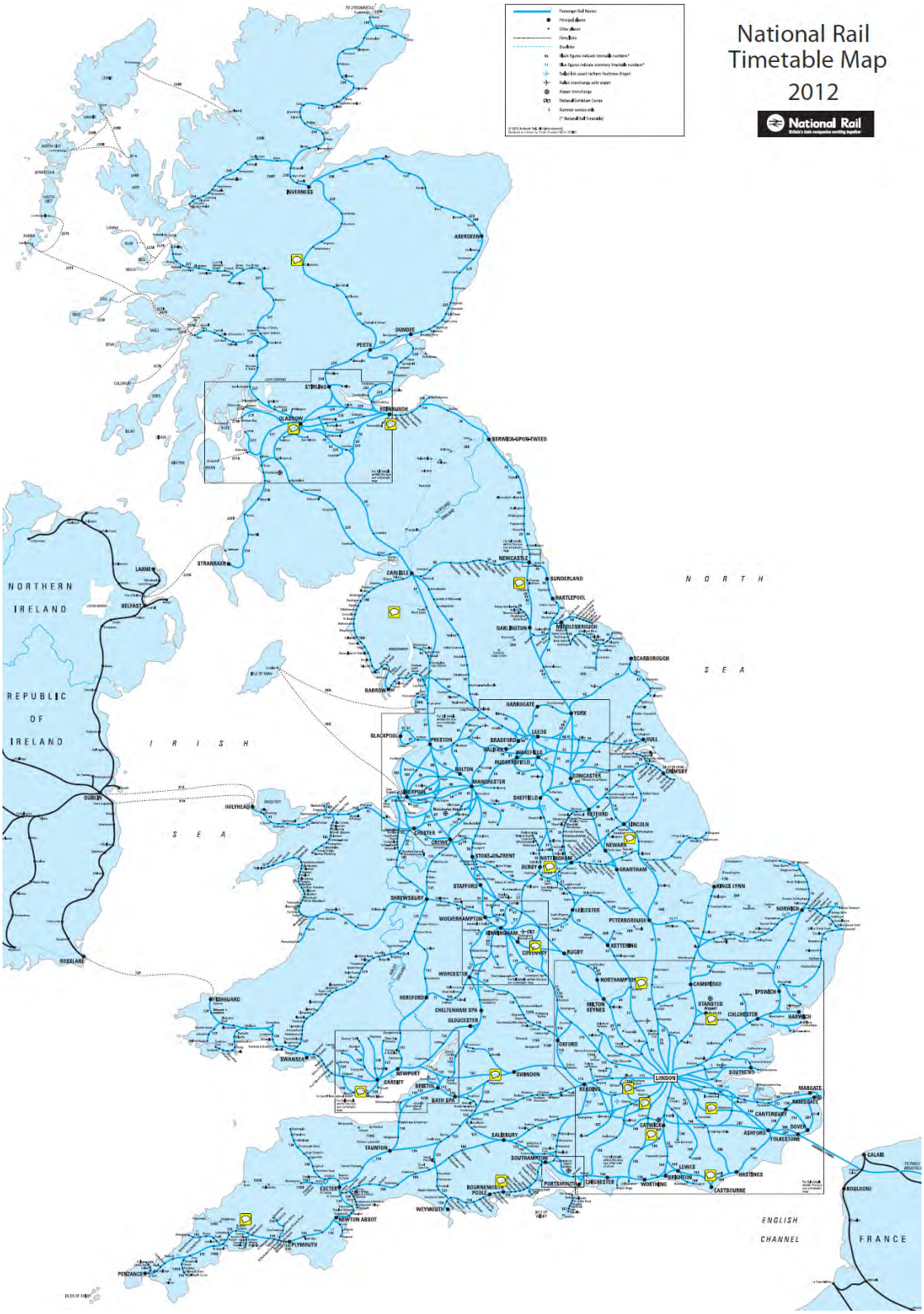
The analysis suggests that the overall precipitation levels in 2012/13 were greater than previous years and the amount of precipitation 2012/13 was statistically significant compared to other years in CP4.

However, analysis of the precipitation levels and delay minutes and PPM MAA data is inconclusive, making it difficult to draw conclusions regarding the relationship between precipitation levels and PPM MAA.

Adjustment of the delay minutes data and PPM data by sector highlights that performance would typically still be worse than periodic and end of year targets, particularly for the London and South East and long distance sectors, suggesting other factors outside of weather, may have also impacted performance, such as ineffective management of seasonal preparation.

Appendix 1

Map of weather stations



Annex C – TOC engagement paper

TOC Engagement Summary

Network Rail in general

There is a very strong feeling amongst the TOC community is that Network Rail have some good people who work hard to deliver performance for passengers and build good local relationships, however the leaders of the organisation themselves let the TOCs and their own people down by often re-organising teams for no apparent purpose, or moving people who are doing well in on role into another to 'fight-fires'. One TOC MD in an LSE sector TOC said that "Network Rail needs stability in senior jobs."

Devolution has been well received and TOCs feel that this is causing the right behaviours to influence performance. There was some criticism levelled at Network Rail's HQ which is perceived as interfering and self-important rather than being a supportive function.

There is a clear lack in confidence in NDS. One Operations Director said "NDS are not in a position to understand and deliver on the routes resource requests."

Vegetation management was viewed negatively across the industry, with many TOCs saying that Network Rail do not have clear vegetation strategies. One TOC MD noted that "Vegetation management was more of an afterthought of what Network Rail could do with any left over money." The general consensus was that works needed to be identified, funded, delivered and then re-visited at a later date when vegetation was more manageable (due to the benefit of the previous work) rather than some works being done and then left to become unwieldy again without follow up intervention.

There was an overwhelming feeling that Network Rail had contributed to the impact of weather by failing to maintain drainage, points heaters and conductor rail heating. One TOC performance manager said "Network Rail spent plenty of CapEx to get these culverts designed and installed, but they didn't have the OpEx or the physical resource to maintain them – therefore when they became blocked the railway flooded." One TOC Ops Director also said they were "sceptical that Network Rail failed to achieve targets as it had to divert resources to deal with severe weather."

The central Train Planning function was identified as a weakness, with many TOC people saying that they felt there had been an on-going resource shortage since re-location to Milton Keynes while other people felt there was a capability weakness with the calibre of people within the team not being as good as it once was historically. One TOC stated that with train planning paying a low salary (£22,000) many people join Network Rail in this role and move on quickly, causing vacancy gaps and a lack of knowledge.

Many people said that they felt the recent downward trend in performance was less about weather and more about getting the basics right, especially in terms of asset maintenance. Some people said they felt the LDRP and LSEP were a distraction to Network Rail who needed to just focus on basic operation of the network. "They did this [plan] but forgot to do the day job" was the comment from one Head of Performance. One TOC MD said that "Had Network Rail got the basics right, there wouldn't be any need for a recovery plan" before going onto say that "I do not think the plan has distracted Network Rail because they should have a capability to deliver the day to day and the improvement plan." Other TOCs supported the view that as the recovery plan is led by different people to day-to-day operation there should be no argument that Network Rail are distracted.

LDRP SPECIFIC

The Long Distance community has demonstrated in its feedback that the LDRP does not have any senior level leadership, and they do not identify it with a named individual as the LSE TOCs do with Dave Ward and the LSEP. One Ops Director said that because of this lack of leadership "the route specific actions from the LDRP do not have a driving force."

Some TOCs were only slightly aware of the LDRP, and had been involved in the initial development of the plan, but thereafter had no engagement or updates from Network Rail.

The West Coast South project was considered by many to be a distraction from the whole sector picture and TOC people felt that too much credit was given to this work as a potential savour of the Long Distance sector. One TOC MD said it was "a bit of a distraction, it is mentioned frequently in the NR Q3 report, but the fact is that it only covers half on one GM area and no actions are mature enough yet to fully understand."

The Long Distance Regulation Trial has been criticised by some TOCs for having over-stated benefits and a negative impact on LSE and Regional services, furthermore there was a suspicion that some Long Distance services are incorrectly perceived as being regional services, particularly services operated by First TransPennine Express and East Midlands Trains' Liverpool-Norwich services.

All TOCs we spoke to in this sector expressed concern about the number of speed restrictions on the network and felt Network Rail needed to be challenged to remove speed restrictions which are potentially damaging to PPM.

OFFICE OF **RAIL REGULATION**

Alan Price
Director, Railway Planning and Performance
Telephone 020 7282 2073
E-mail alan.price@orr.gsi.gov.uk

3 January 2013

Robin Gisby
Managing Director, Network Operations
Network Rail
Kings Place, 90 York Way
London
N1 0AG

Dear Robin

Operational performance over the Christmas period

I am writing to seek your assessment of operational issues that occurred over the Christmas and New Year period.

In terms of operational performance, period 10 has clearly been poor, with England and Wales being affected by flooding, electrical issues and possession overruns. I would like to receive your assessment of whether Network Rail did everything reasonably practical to meet its performance obligations in period 10 and the lessons that you have learnt from these issues.

There are four broad issues that we need to consider:

1. P10 performance and the extent to which it was influenced by weather related issues and asset failures. Please can you provide an update on the P9 report we discussed with Norman Baker which included your commitment to significant extra drainage works. In terms of delivery, can I suggest the information is made available such that we can review it, prior to also sharing it at 16 Jan NTF meeting.
2. The possession overruns and planning errors that occurred. I have separately spoken with Simon Kirby regarding these and will be working with him to ensure that all lessons learnt are fully embedded. For example, we expect to review the lessons learnt from the Acton possession over-run at the Western PDG on 16 Jan.
3. The information given to passengers during the disruption that occurred over this period. I am currently seeking the views of operators and Passenger Focus.

Head Office: One Kemble Street, London WC2B 4AN T: 020 7282 2000 F: 020 7282 2040 www.rail-reg.gov.uk

4. The derailment at Barrow-on-Soar. Initially this will be treated as a safety issue and we await the outcome of the RAIB investigation. The embankment failure does, however, raise asset management issues. I am particularly concerned that given the flooding that was taking place adjacent to the site that no precursor indicators were picked up by the maintenance inspection regime and I will be working with our safety team to consider what assurance we will require that the lessons from this are being taken forward.

In the context of these issues I would also be grateful for your views on whether the current JPIPs and performance recovery plans remain fit for purpose and whether they properly reflect the underlying asset condition issues as well as the current programme of renewals and enhancements.

I would expect your views to also be reflected in the next quarterly reports on progress against the Long Distance and LSE performance recovery plans, due for submission to us on 1 February. From a passenger point of view I am also keen to understand given the flooding impact to what extent you ran the service for capacity rather than performance.

Yours sincerely

Alan Price

cc: Paul Plummer, Network Rail

Paul Rodgers, Department for Transport

Chris Burchell, Southern Railway

Gary Cooper, National Task Force

Alan Price
Director, Railway Planning and Performance
One Kemble Street
London
WC2B 4AN

14 January 2013

Robin Gisby
Managing Director, Network Operations

Kings Place, 90 York Way, London, N1 9AG

T 020 3356 9170
F 020 3356 9113
E robin.gisby@networkrail.co.uk

Dear

Re: Operational Performance over the Christmas period

Following receipt of your letter regarding operational issues that occurred over the Christmas and New Year period I have undertaken an extensive review of the key issues that you referred to, and have set out below a summary of the position. I have provided an assessment of whether Network Rail did everything reasonably practical to meet its performance obligations in Period 10, and lessons learnt from these issues.

Weather related issues

Our P9 report has been updated to reflect the full P10 events together with improved assessment of overall impact and is attached to this letter, with this letter forming the basis for the discussion at the NTF meeting on 16 January. In the meantime I can confirm that we have continued to experience issues with both the extreme levels of rainfall as well as the impact of the underlying ground saturation levels that we face. There is little doubt that the exceptional rainfall levels in the UK since April, and the wettest year in England since records began, has presented a significant challenge in terms of operational performance. The current and extraordinary levels of saturation leave us exposed to ongoing issues potentially triggered by much lower levels of rainfall than we normally have to worry about.

Network Rail operated the railway safely as the situation deteriorated. In our role to lead and monitor such conditions, we took pre-emptive and preparatory action, sometimes closing the railway based on the weather forecast and our experience of our assets before deterioration commenced.

The flooding, and its impact, was much more widespread than usual:

- The rainfall and flooding was more geographically dispersed.

- Once again flooding on multiple parts of the rail network and on the surrounding road network made it difficult to access the railway to assess and address faults in order to resume services for passengers and freight or provide alternative road transport.
- Some routes were closed due to the level and speed of flood water under our bridges, and due to the thresholds we impose to manage that risk being exceeded. Where this happened it often took several days for the water levels to recede and slow down sufficiently for us to deploy our divers to inspect the integrity of each structure.
- There was significant land slippage and track flooding, which takes longer to clear and repair.
- In some cases, ongoing poor weather conditions during repairs caused further damage and again destroyed the repair work carried out just 24 hours earlier.

Response by the industry has continued to be exemplary. For Network Rail response teams, many people have been working in arduous conditions, often outside of normal hours, to pre-empt or deal with events, and return services wherever it was practicable to do so. Other works have been deferred to provide additional resource to help the repair effort. This level of focus has been repeated with many train operators working to provide the best service to customers in often changing conditions of network availability. In some areas, response and repair had to be prioritised due to availability of inspection and design resource, this affected the time it has taken to return full service levels after the weather has subsided. In some areas where flooding re-occurred the impact was less as flooding resilience had been built into earlier repairs and new innovative equipment used to limit the spread and impact of the flooding (especially at Cowley Bridge to the north of Exeter).

It is recognised that there are plans for significant investment in structures and earthworks in CP5, but there are also big strategic funding and planning decisions to be made as an industry in terms of responding to the changing weather and environmental conditions.

It should also be noted that the current saturation levels across much of the UK suggest that even small amounts of rainfall may create a disproportionate impact on the network, and we will monitor the recognised risk sites accordingly; initial assessment is that even with normal levels of rainfall, this risk is likely to extend into the new financial year.

Asset Failures

With regard to asset failures, Period 10 was actually unexceptional in terms of underlying asset reliability (expressed as number of incidents) although there were some high impact failures. Incidents for points, train detection, track and signalling systems & power supply were either in line or better than the 13 period average.

Telecoms incidents causing >10 minutes delay has risen again, resulting from the rapid increase in the number of telecom assets on the network with the entry into service of GSM-R and the associated FTN transmission across the midlands and the south of England.

With regard to the high profile incidents, Neil Henry wrote to Fazilat Dar at ORR on 28/12/2012 providing initial details of a number of specific incidents across the network, which I have included in Appendix One to this letter. These larger incidents

will typically be subject to Incident Reviews, and the lessons learnt will be identified and shared within and across the Routes.

Possession overruns and planning errors

I will address the planning errors (Operational Planning) first. Over Period 10 as a whole the delays associated with the timetable were 35k minutes against a target of 25k. The majority of this variance was caused by four specific planning issues:

- On Sussex Route (Balham) the traffic remarks relating to a safety speed restriction on the adjacent line were misinterpreted. Although extra time was included in schedules to take account of this, the time was allocated to the wrong location causing significant delay. Simply put, this is human error, which though relatively rare will continue to be a risk until we are able to develop even further intelligence and automation into the timetable planning tools.
- On LNW Route an isolation planning error led to delays of 4k minutes of delay. The Incident Review will detail what specifically occurred but at a high level the isolation that was taken on the day could not have supported the amended plan. There will be lessons to be learnt from this for both the engineering and Operational Planning teams.
- A large incident at Birmingham New Street was caused by a local amendment after the agreed deadline for the train planning without advice to the Operational Planning team. Again the reason this was done is still under investigation, but the result was that the possession taken and the agreed amended train plan were not compatible with each other.
- Finally a large incident was caused by a TransPennine Express Day A for B timetable bid that was uploaded on Christmas Eve to mitigate a land slip between Manchester and Liverpool, but without time to fully validate the plan against other services. This is likely to have ultimately reduced delays but it certainly switched them from a structures / civil engineering code to appear as an issue with the timetable.

Its important to remember that Day A for Day B timetables uploaded in response to infrastructure issues such as the last event carry higher levels of performance risk owing to the limited validation time available. The industry is much better equipped to support Day A for Day B now, and the ITPS system fully supports this capability. It should be noted that this issue is to some extent simply reflective of the inherent challenge of creating high quality timetables in changing circumstances.

With regard to the possession overruns I note that you have been in separate conversation with Simon Kirby on this matter, and will be working with him on the lessons learnt from the Infrastructure Projects possessions. In overall terms though, the number of possessions over the second half of Period 10 (23/12/2012 - 05/01/2013) was in line with the equivalent timeframe in previous years, with a total of 1140 possessions, of which 428 were from Infrastructure Projects, which was more than double the amount we undertook during the same period last year. Nevertheless delay minutes associated with all possessions were the highest since 2006/07, with more cancellations than we have previously experienced. The analysis from Infrastructure Projects at this stage does not indicate any abnormal level of delays or cancellations, and we are continuing to fully investigate the situation with

Maintenance related possessions. I will confirm the conclusions of this work before the end of Period 11.

However, over the Christmas period this year our biggest ever portfolio of projects work was undertaken and so it is appropriate this context is considered when comparing this year with previous years. The chart below details overall performance relating to Infrastructure Projects delivered possessions over the last three years:

INFRASTRUCTURE PROJECTS	2010/11	2011/12	2012/13
Total Possessions	240	189	428
Total Overruns	14	14	11
% of possessions that overran	5.8%	7.4%	2.6%
Total delay minutes	6660	4737	8254
Total train cancelations	220	236	277
Delay mins per overrun	476	338	750
Train cancelations per overrun	16	17	25
Delay minutes per possession	28	25	19
Train cancelations per possession	0.9	1.2	0.6
% possessions handed back on time	94.2%	92.6%	97.4%

Clearly though despite a very productive and generally successful Christmas and New Year period which included 300,000 man hours worked on 851 separate worksites delivering £80m of improvements, we did have some high impact overruns. These included those listed in Appendix One for Acton, Stockley and Cuxton Road. The underlying causes of these possession overruns continue to be investigated in order to identify lessons for the future.

Passenger Information During Disruption

Network Rail are acutely aware of the important role we play in keeping passengers informed when there is disruption, including issues resulting from possession overruns.

We have consulted Passenger Focus in relation to the passenger information aspects highlighted in your letter; this being in addition to the regular meetings held with them to gain their input into improving Passenger Information. Whilst they had no strong adverse comments to make, they have asked us to specifically assess our contribution to Passenger Information in relation to incidents on the Western Route. A full consultation with the Route teams overseeing the key incidents in Period 10 (including Western Route) has been completed, with each confirming that there had been no adverse feedback from the TOCs in relation to Network Rail's role in the end-to-end processes associated with Passenger Information.

Each Route Passenger Information Champion has confirmed that each of these incidents will be subject to a review, which will give the TOCs an opportunity to formally raise any issues from Period 10 and work with us to understand any future improvements that can be made in this area.

To build on the work we have been running to improve Passenger Information, we have recently agreed with Graham Richard's team to continue with the successful Periodic meeting held with ORR over the course of last year. This will allow us to gain further useful input to feed into our Programme of works.

Derailment at Barrow-on-Soar

At approximately 0504 on 27 December 2012 there was an embankment slip on the up slow line where the loss of material caused a twist fault with the track and the subsequent derailment of 6L73 Peak Forest to Ely which was carrying 20 x 100 tonnes wagons loaded with road stone. The previous service had passed over the line at 0315 without incident.

Whilst we cannot pre-judge the outcome of ongoing investigations and acknowledge the standing water on the slow-line side of the railway where it was not expected, our current understanding of the failure mechanism suggests that there was nothing to indicate the water was affecting the embankment prior to its failure. During December 2012 a rough-ride was reported at the site of the landslip and remedial works were undertaken; there was nothing about these works to indicate anything other than minor track movement had occurred (ballast shoulder still intact and no fresh ballast required on site). Following this manual correction work undertaken to lift and pack the track, the up slow line was cab-ridden by the Track Maintenance Engineer who found the track quality satisfactory. Subsequent basic visual inspection and supervisory inspections during December 2012 identified no actionable defects and a rear camera still from an East Midlands Trains service dated 24th December 2012 shows the track in good order with a complete ballast shoulder and no sign of movement on the crest of the embankment slope.

Our earthworks examination records show the slope as marginal with no requirements for additional examinations or cause for concern and the site is not on the track maintenance engineer's list of weak embankments. The recent New Measurement Train runs, whilst showing a slight deterioration in track quality and in one instance an intervention limit fault requiring action to be taken, do not give rise to concern requiring action over and above that detailed above. Pending the outcome of the formal investigations underway the route team have worked with the central asset management team to put mitigating actions in place until we have a full understanding of the root cause and trigger mechanisms relating to this failure.

As you state in your letter this is subject to an RAIB investigation, and obviously our team will fully support the investigation and work with RAIB. If there are lessons to be learnt and opportunities to define precursor indicators to reduce these risks then appropriate action will be taken.

You will also appreciate that over the period referenced in this letter the industry consciously ran the service for capacity rather than performance. Some operators (Long Distance), when given the choice of amended Day A for Day B timetables wisely chose to run the full timetable more slowly, given the volume of reservations and other key considerations at this time of year particularly. With a lot of passengers to move, holiday bookings and other critical factors to consider our (joint) Route Controls did decide to move people with PPM and Delay Minutes lower priorities. CaSL was still higher than target but could have been even worse and the nature of the large events such as the overrun at Acton left no alternative except cancellation on the day.

General Comments

It should be noted that Network Rail caused delay for P10 was only 1% (7k minutes) worse than target, yet PPM for England & Wales was 2.05% worse than JPIP target

with CaSL nearly 0.9% worse than target. Delay per incident was higher than in recent periods, probably resulting from the major incidents described above and in other exchanges. The are relatively large differences in the balance of delay compared to target and PPM / CaSL which our initial analysis suggests often occur during times when major weather impacts are visible, but we also consider that, whilst missing target these results are no small achievement given the adverse conditions.

It is also worth drawing attention to Delay per Incident (DPI), which has suffered a significant worsenment over the last two periods.

Summary

You asked whether the current JPIP and performance recovery plans remain fit for purpose, and whether they reflect the underlying asset condition. I believe it is fair to state that the JPIP, and associated recovery plans, are going to have to run to catch up for a little while yet. Having said this, the extraordinary saturation levels that are in place across many parts of the network have resulted in additional risks that need to be factored into the JPIP planning assumptions. The full impact of this is being determined locally with the Routes based on their specific circumstances. The Recovery Plan Quarterly Report, due to you on 1st February, will make reference to this position. We recognise that meeting the regulatory targets for CP4 remain challenging and whilst there is no reason to assume that the same extreme weather will be experienced in the last year of CP4 it is clear that there is a real need to understand more about the risks from what is now confirmed to be changing weather patterns and consider what more reasonably practicable steps we can take to reduce the impact on services. We have of course already started this work.

It should also be noted that our year end forecast for national PPM has reduced by 0.3% since P8. With the MAA figure for PPM being 0.6% worse than JPIP target at the end of P10 it is very unlikely that we will recover the situation for 2012/13, though again it is worth noting that the daily average since the new year has been over 93% indicating that with stable weather, underlying performance remains strong. We do recognise that the saturation levels present a greater level of risk for some time to come, but as soon as the flood situation eased the railway recovered to good levels of performance. Having said this, our current forecasts indicate that for all the England & Wales indicators (except LSE CaSL) our year end position this year is likely to be worse than both target and the year end position for 2011/12. The latest forecast numbers are included in Appendix Two.

I hope this letter provides the confidence you are seeking that Network Rail did all that was reasonably practical to provide services to our customers over this exceptional period. We recognise that the issue of dealing with an increasingly wet environment is something that has to be fully addressed through significant investment for the UK as a whole, but I do believe that we operated a credible service over the worst of the flooding period. Despite some significant overruns, we believe that we have improved the quality of our planning and delivery of possessions, though again recognise that there are opportunities to further improve as the events at Haymarket and Acton demonstrated all too well. With regard to the derailment at Barrow-on-Soar we will await the outcome of the RAIB investigation and will also increase our own understanding as to whether there are any possible precursor indicators that can be identified to reduce this risk in the future.

I am copying this letter to Paul Plummer, Paul Rodgers, Chris Burchell and Gary Cooper.

Yours sincerely

Robin Gisby

Managing Director, Network Operations

Appendix One – update on high profile incidents sent to ORR 28/12/2012
From: Henry Neil **Sent:** 28 December 2012 17:17 **To: [Redacted names]** Thompson John (IPRM);
Subject: RE: Briefing required on key infrastructure failures around the Xmas period

[Redacted names],
Here's some detail on the specifics you mention and some other issues. Hope it's helpful, shout if you need anymore.

Sussex Route Fire at Preston Park. - 21st December

Around 0015 early on the morning of Fri 21st (so night of Thurs 20th), multiple and fierce lineside fires reported and loss of all track circuits and points in Brighton area * Cause is under investigation, but is believed to be a traction power cable overheating, melting and then transferring power to the lower capacity domestic power cable in some route, which then led to destruction of lineside signalling, traction power and telecoms equipment. Fire service attended what was a major fire of the electrical equipment. * With support from neighbouring routes and round the clock working in dreadful weather all the key infrastructure was restored by early morning on Christmas Eve. We also restored the damaged Brighton - Lewes signalling by 1022 on the first day * Excellent teamwork with the support from TOCs: agreement very soon after the incident started on 21st Dec on train plan. FCC started / terminated at Haywards Heath, whilst Southern provided Brighton to Three Bridges / Gatwick half-hourly all stations shuttle. We were not being over-ambitious with the train service and by the afternoon of the first day, the TBW and shuttle train service was running well

Western Route, General Flooding in the West Country from night of 21st December

The significant rainfall event that spread up through Devon and Cornwall into Somerset and beyond overnight on Friday 21 December and the morning of Saturday 22 December caused disruption to services with flooding at the following locations:
Plympton (just east of Plymouth)
Wivelscombe (between St Germans and Saltash)
Rattery (near Totnes)
Athelney (between Castle Cary and Taunton)
Flax Bourton (south Bristol)
Chipping Sodbury (between Bristol Parkway and Swindon)
Wickwar (Bristol Parkway to Cheltenham)
Patchway (Bristol Parkway to Newport)
There was a landslip at Parson Tunnel (sea cliffs near Teignmouth) which caused a line closure and subsequently SLW until close of service on Christmas Eve. The route here fully re-opened on 27 December with 50 EROS on down and 20 EROS on up and watchman in place.
Newquay branch reopened Christmas Eve after repairing a washout site

LNW Route - Glazebrook - 21st Dec

Landslip reported by driver of Northern Trains unit
Exam found the Up line ballast shoulder had fallen away, damaging cabling route in process
Described as a rotational failure of earthworks caused by excessive water / flooding
Amended service using down line only on 22/12/12 and 24 hr possession agreed for 23/12/12
Up line repairs made on 23/12, but down line deteriorated and engineers assessed that full regrade of embankment required.
Resources obtained and plan agreed to retain possession of line with a view to re-opening on 28/12/12
Line re-opened as planned this morning with ESR on both lines

Wales, Power Failure Cardiff - 22nd Dec

Cardiff power failure appears to have been caused by floodwater entering the system - probably through a cable and earthed. Approximately 30 additional technical staff drafted in to help. Saturday, saw problems on Cambrian route where we closed near Machynlleth and Borth due to floods We were closed at 14 places at the height on Saturday 22ND Dec.

Scotland, Flooding Between Dundee and Aberdeen – 23rd Dec

Sunday 23rd the Dundee - Aberdeen route was blocked by multiple flooding events/minor landslips, caused by extreme rainfall (as widely reported, places like Stonehaven were severely flooded). The recovery was very effective though and enabled services to run again the following day - Christmas Eve.

East Midlands, Derailment of freight train at Barrow on Soar (near Loughborough) – 27th Dec.

At approximately 0504 there was an embankment slip on the up slow line where the loss of material caused a twist fault with the track and the subsequent derailment of 6L73 Peak Forest to Ely which was carrying 20 x 100 tonnes wagons loaded with road stone. The previous service had passed over the line at 0315 without incident.

Scour on a bridge at Lympstone on the Exmouth branch initially led to a 5 EROS with watchman before Christmas, and then a line closure which we hope to reopen with an EROS this afternoon

Looe branch suffered a number of washouts, currently expecting to reopen next Thursday 3rd Jan

Barnstaple branch, 22 separate wash out sites identified between Crediton and Barnstaple – likely to be another week before reopens

And finally, Cowley Bridge where we employed temporary inflatable dams to try to stem the flow of flood water – these were not able to prevent a significant wash out on Saturday such was the force of the water, but the line has reopened this afternoon with fully operational signalling. When a similar event happened on 21 November it took nearly three weeks to fully reinstate the signalling after a number of location cabinets, a relay room, and numerous point machines and cables spent a few days under water – so the dams have done their job in protecting the electronics and signalling kit and allowed us to reopen the line significantly quicker than the previous incident just a month earlier.

- **LNW Route - Glazebrook - 21st Dec**

Landslip reported by driver of Northern Trains unit
Exam found the Up line ballast shoulder had fallen away, damaging cabling route in process
Described as a rotational failure of earthworks caused by excessive water / flooding
Amended service using down line only on 22/12/12 and 24 hr possession agreed for 23/12/12
Up line repairs made on 23/12, but down line deteriorated and engineers assessed that full regrade of embankment required.
Resources obtained and plan agreed to retain possession of line with a view to re-opening on 28/12/12
Line re-opened as planned this morning with ESR on both lines

- **Wales, Power Failure Cardiff - 22nd Dec**

Cardiff power failure appears to have been caused by floodwater entering the system - probably through a cable and earthed. Approximately 30 additional technical staff drafted in to help.

Saturday, saw problems on Cambrian route where we closed near Machynlleth and Borth due to floods

We were closed at 14 places at the height on Saturday 22ND Dec.

- **Scotland, Flooding Between Dundee and Aberdeen – 23rd Dec**

Sunday 23rd the Dundee - Aberdeen route was blocked by multiple flooding events/minor landslips, caused by extreme rainfall (as widely reported, places like Stonehaven were severely flooded). The recovery was very effective though and enabled services to run again the following day - Christmas Eve.

- **East Midlands, Derailment of freight train at Barrow on Soar (near Loughborough) – 27th Dec.**

At approximately 0504 there was an embankment slip on the up slow line where the loss of material caused a twist fault with the track and the subsequent derailment of 6L73 Peak Forest to Ely which was carrying 20 x 100 tonnes wagons loaded with road stone. The previous service had passed over the line at 0315 without incident.

The engine and first 10 wagons remained on the track 2 derailed and 7 parted from the train and fell/were leaning at 45 degrees away from the adjacent line. The down slow and both fast lines were not affected. Albeit the down slow remains blocked whilst recovery works are underway

Recovery of the derailed vehicles starts tonight with all lines blocked at night only for the next 4 nights as agreed with the TOCs

Following the removal of the wagons earth work stabilisation will commence to the banking with completion of all works anticipated to be 6th January and hence the slow lines will remain blocked until then.

From the information currently available it would appear that there was standing water at the foot of the embankment on both sides effectively retaining water from the adjacent River Soar and flood plain and this had been the case for some days prior to the incident. It is believed this has at least exacerbated if not been the cause of the problem.

Embankment failures in this way are quite uncommon, and thus we have issued advice to other routes pending further investigation.

- **Scotland, Disruption around Edinburgh - 27th Dec**

Disruption caused by a combination of factors involving renewal works in Princes Street Gardens. These were - minor overruns of the work (which had three staged handbacks during the course of the day to allow services to run); axle counter failures at Haymarket (which it seems were related to disconnections necessary for the renewal); then compounding the impact of the above an extremely tight train plan at Haymarket station, where many services turned, which due to complex crew/unit diagramming made it very difficult to implement effective service recovery. This was compounded by the failure of the train planners to provide a robust plan for the altered workings at either Haymarket or Waverley, leaving the signallers to use best endeavours on the platform plan for the day which should have enabled them to signal trains around the possession issues. An extensive review is to be undertaken.

- **LNW Route - Birmingham Signalling failure - 27th Dec**

Signalling system (TDM) lost for Birmingham International interlocking area controlled by New St PSB. Therefore Signallers unable to control signalling in the area
Coventry – New St route blocked to traffic pending emergency method of working being agreed and introduced
TDM had been renewed over Xmas break. Installers team were on site and investigated with NR maintenance team
A blown power fuse was discovered at Birmingham New St. This was replaced and equipment restored at 1620hrs
Further investigations into cause of ruptured fuse are ongoing with our installation contractors and maintenance team

- **Western Route Possession Overrun – 27th December**

This possession was to facilitate Crossrail works. The main lines were due to be handed back at 0415hrs on 27th December following the completion of Crossrail surface work to the east of Hayes. The main lines were actually handed back at 1044hrs, a 6 hour 29 minute over-run. The relief lines were still being worked on as part of Crossrail surface work at Acton and hence all traffic from the west of West Drayton was blocked until trains started moving again at 1100hrs.

In the week prior to Christmas a major electrical fault on the main lines in the Acton and Stockley areas closed the main lines for over 24 hours. Crossrail project signalling resources assisted Maintenance in identifying and resolving the faults. During the possession, on the night of the 26th, similar electrical faults were encountered that prevented the commencement of the signal testing process required to bring the mains into service. This delay and the subsequent discovery of some installation faults during testing, resulted in the signal testing not being complete until after 1000hrs on the 27th.

Kent Route Cuxton Road Underbridge Renewal. Possession Overrun – 28th Dec

Cuxton Road Underbridge is a single span bridge located between Sole Street and Rochester which carries the Up / Down Victoria to Ramsgate lines. The work is a complete replacement of the bridge deck and is Project Managed by our Infrastructure Projects team.
Possession details; 2330 Mon 24/12/12 to 0400 Fri 28/12/12. Also 12hr on 30/12/12.
Our risk assessment prior to the work indicated confidence was 90% for finishing at 21:30hrs on 27/12/12
The Project Contingency Plan in the event of a possession overrun:- TOC will implement a diversionary route as detailed in their contingency plan C1. Trains will be diverted via Dartford with passengers continuing to be bussed between Swanley, Sole Street and Rochester.
Reasons for delay resulting in the possession overrun:-
1.
Breaking out of abutments – material was a lot stronger than expected, leading to delays.

Drilling of dowel holes (due to flints in the concrete / backfill) and locating the new bridge on top of these was slower than anticipated.

Confined location - Position of buildings, bridge skew and scaffold bridge (that carries cables) has lead to slower than anticipated move and installation of new bridge. The ALE unit is difficult to adjust to small amounts

Setting out – Discrepancy between Permanent Way and Civils details.

Waterproofing membrane was attached to cill beam and lead to protection and sighting difficulties.

Possession expected to be handed back now at 0030 tonight. A lessons learnt will be held by the Route and Infrastructure Projects in the New Year.
Possession now anticipated to be handed back at 0400 Saturday 29th Dec
Neil.

Neil Henry
Head of Operations & Performance
Network Rail

Appendix Two – Latest Forecasts at P10 2012/13 Year end forecast						JPIP		CP4
Period 8	Period 9	Period 10	P10 - P8	target		P10 var	target	P10 var
PPM								
L&SE	91.7%	91.5%	91.5%	-0.2%	92.3%	-0.8%	92.7%	-1.2%
LD	89.0%	88.4%	88.1%	-0.9%	89.7%	-1.6%	91.5%	-3.4%
Regional	92.0%	91.7%	91.5%	-0.5%	92.8%	-1.3%	91.9%	-0.4%
Scotland	93.2%	93.1%	93.1%	-0.1%	91.5%	1.6%	91.9%	1.2%
National	91.7%	91.5%	91.4%	-0.3%	92.2%	-0.8%	n/a	n/a
Delay mins (passenger)								
E&W	6318	6587	6632	-314	6014	-618	5190	-1442
Scotland	363	379	381	-18	400	19	386	5

OFFICE OF **RAIL REGULATION**

Alan Price
Director, Railway Planning and Performance
Telephone 020 7282 2073
E-mail alan.price@orr.gsi.gov.uk

22 February 2013

Robin Gisby
Managing Director, Network Operations
Network Rail
Kings Place, 90 York Way
London
N1 0AG

Dear Robin

Operational performance over the Christmas period

Thank you for your letter of 14 January 2013 concerning the issues that arose over the Christmas period. I am grateful for the detailed nature of your response and acknowledge the significant efforts made by both Network Rail and your contractors' front line staff, to keep services running over this period.

However, I remain concerned that Network Rail may not have done all that was reasonably practicable to meet your customer and funders' reasonable requirements, as required by condition one of your licence. You will understand that ORR will wish to carefully consider such matters, particularly given our on-going concerns in relation to Long Distance and London and South East performance. Whilst you may be able to demonstrate that Network Rail has carried out the activities listed in the recovery plans, additional avoidable delays have clearly been caused by your own process failures.

I am particularly concerned that a number of the operational planning issues that occurred over this period, such as the Cheddington isolation, seem to have been caused solely by human error and to have had a serious effect on the running of the network. Given the volume of activity proposed in the CP5 plan this phenomenon is clearly capable of having a serious effect on performance across the network in the future. I would therefore be grateful for your views on:

- The reasons for the operational planning issues that occurred over the Christmas and new year period and;

Head Office: One Kemble Street, London WC2B 4AN T: 020 7282 2000 F: 020 7282 2040 www.rail-reg.gov.uk

- the measures you are taking to ensure that your systems and processes are sufficiently robust to prevent such failures from occurring again in the future.

Please ensure this information reaches me by 8 March 2013.

At the end of this control period ORR will have to determine whether Network Rail has complied with its licence obligations in relation to performance. We will also have to determine, at that stage, whether Network Rail has complied with the order made by ORR in May 2012 in relation to long distance performance targets. The extent to which Network Rail learns lessons from recent events and implements measures to prevent their recurrence will clearly be relevant to that decision.

I look forward to hearing from you shortly.

Yours sincerely,

Alan Price

OFFICE OF RAIL REGULATION

Alan Price
Director, Rail Planning and Performance
Telephone 020 7282 2073
E-mail Alan.Price@orr.gsi.gov.uk

26th March 2013

Robin Gisby
Managing Director, Network Operations
Network Rail
Kings Place
90 York Way
London
N1 9AG

Dear Robin,

Operational performance over the Christmas period

Thank you for your detailed letter of 11th March in response to the concerns I had previously raised about operational issues over the Christmas and New Year period.

I have noted your comments regarding the causes of the incidents identified and will take your response into account at the end of the current industry year, when we come to review Network Rail's performance for 2012-13 and assess whether it has done everything reasonably practicable to achieve its regulated outputs.

I will also be looking closely at how the industry performs over the Easter period in light of the actions you have put in place.

Yours Sincerely

Alan Price

5289893

Annex E - Letter from Network Rail to ORR on performance recovery funding

National Performance Team
Network Rail Infrastructure Limited
The Quadrant:MK
Elder Gate
Milton Keynes
MK9 1EN

June 7, 2013

Nigel Fisher
Head of Performance, Information and Analysis
Office of Rail Regulation
One Kemble Street
London
WC2B 4AN

Dear Nigel,

Performance Recovery Funding

As described in the Quarter 4 Progress Report submitted to ORR in relation to the Long Distance Recovery Plan (LDRP) and London and South East Plan (LSEP), Network Rail are currently forecasting to miss the end of Control Period 4 (CP4) Public Performance Measure (PPM) and Cancellations and Significant Lateness (CaSL) Moving Annual Average (MAA) Targets for both Sectors at the end of 2013/14. This is a situation we are not complacent about and we remain committed to doing everything reasonably practicable to recover train performance.

We have previously discussed the 'Performance Fund' used to finance performance improvement schemes throughout CP4. Use of this fund has progressed well with material benefits being seen in many areas including major investment mitigating weather effects. In 2012, Network Rail recognised the need for further investment in performance improvement and created an additional £79m fund: the 'Performance Recovery Fund'. This has been used to fund schemes that will deliver performance benefit to these under-performing Sectors with specific emphasis on:

- £30m funding for LSE Sector asset reliability improvements, including aerial inspections of overhead line and 3rd Rail equipment leading to significant incidents being avoided on a weekly basis;
- £10m funding for the West Coast South Reliability Programme which is leading the implementation of the recommendations made by Chris Gibb, Chief Operating Officer, Virgin Trains;
- wider funding of national Base+ / ++ schemes; and
- £10m awarded to the Freight business to support the aims of the Freight Reform Programme.

Given further challenges to performance delivery and the rationale for positively preparing for CP5, Network Rail has recently been able to establish funding of £50m for further performance improvement. Some of this is planned to be used to fund national, more strategic programmes including the Performance Planning Reform Programme but with the majority being made available for the Routes to target the areas they believe will deliver the

biggest performance benefit in CP4, with lasting effects into CP5. We believe this provides further evidence of Network Rail's commitment do doing all that it can to improve the forecast for the end of CP4, and we wanted you to be aware of the initiative.

Network Rail will continue to update ORR on the use of all performance funding as part of Quarterly Reporting and remain focused on delivery of these improvement schemes to maximise the performance benefit.

Yours sincerely

John Thompson
Industry Performance Relationship Manager
Network Rail

Cc: Neil Henry, Richard Fisher

Annex F – Glossary

BTP	British Transport Police
CaSL	Cancellations and Significant Lateness
ICR	Infrastructure conditions report
iPAT	Improved performance action tracker (the system which captures performance improvements and the benefits of those)
ITPS	Integrated Train Planning System
JPIP	Joint performance improvement plan
LD	Long Distance (sector)
LDRP	Long Distance Recovery Plan
LNE	London North East (route)
LNW	London North West (route)
LSE	London and South East (sector)
LSEP	London and South East Plan
MAA	Moving annual average
NTF	National Task Force
OLE	Overhead line electrification
PP	percentage points
PPM	Public performance measure
RCM	Remote condition monitoring
SDS	Seasonal Delivery Specialist
TOC	Train Operating Company
TSRs	Temporary speed restrictions
WCS	West Coast South (reliability programme)

Evidence report following ORR's investigation into Network Rail's London and the South East performance 2012-13 and 2013-14

Executive Summary

Network Rail volunteered to produce a plan to recover performance for the London and South East (LSE) sector in the same way it had done for Long Distance. The final LSE plan (LSEP) was submitted to us on 28th September 2012. Based on the final plan we received we decided that, on balance, Network Rail was not currently in breach of licence condition one since it was doing everything reasonably practicable to recover performance in the LSE sector. In coming to this view we had regard to our assessment of the plan, the high level of leadership attached to it and the relatively small margin PPM was missing the target compared to Long Distance. LSE TOCs also felt that more harm than good would be done by taking enforcement action in demotivating Network Rail staff. However, by the end of the year performance had deteriorated.

On 29th April 2013, we therefore wrote to Network Rail stating our intention to formally investigate performance in Network Rail"s Long Distance[1] and London and the South East sectors for 2012-13 and 2013-14.

Network Rail failed to meet its targets for PPM and CaSL in 2012-13 in the LSE sector. PPM MAA ended 2012-13 1.7pp below the CP4 target and 1.3pp below the JPIP target. CaSL MAA ended the year 0.5pp below the CP4 target and 0.4pp below the JPIP target. Network Rail also failed to complete the number of deliverables anticipated in its LSEP or deliver the delay minute savings and PPM benefit specified in the plan. Credit should be given for effective management of cable theft and suicides, where a significant reduction in delay minutes was achieved. However, overall the evidence suggested that Network Rail did not do everything it said it would in the LSEP.

Network Rail"s evidence said that it had not met the 2012-13 targets for LSE PPM MAA due to the effect of the prolonged and occasionally severe weather events and its wider impact on infrastructure. However, our analysis showed that even if the „extreme" weather days were adjusted, PPM MAA would have remained 1.4pp worse than the CP4 target. Furthermore, through our review of daily incident logs and our one-to-one engagement with each LSE TOC, we identified areas where we felt Network Rail did not effectively manage seasonal preparation.

The evidence showed that there were many reasons besides extreme weather for why Network Rail failed to achieve the forecast it originally set out in the LSEP for 2012-13 including:

- It could have managed the impact of weather more effectively;
- It could have had clearer vegetation strategies in place;

[1] Please see the Long Distance evidence pack for more information about Long Distance.

- The independent Reporter identified that progress setting up the Weather Resilience and Climate Change Steering Group had been slow;
- The other national programme investigated by the independent reporter (RCM) showed that benefits had been overstated in the LSEP for various reasons. However the issue was not as pronounced in LSE compared to Long Distance, since the Kent, Sussex and Wessex routes were an exception to this rule and were generally achieving significant benefits, largely in line with original expectations;
- Even though some good work had been undertaken, delays attributed directly to train planning remained high in 2012-13;
- Problems relating to operational planning over the Christmas and New Year period in 2012; and
- There was also evidence to support the view that Network Rail was not doing everything it could have to maintain the network on a day to day basis.

On the last bullet point, the Infrastructure Condition Report for period 13 identified several reporting measures within the Long Distance sector which were behind target which tends to indicate inadequate maintenance and/or renewals activities. Additionally, in 2012-13 the volumes of renewals delivered nationally by Network Rail were below plan in most areas (overall by about 20%); although the expenditure was close to budget. Several TOC and Network Rail people we spoke to stressed the need for urgent renewals work, particularly on the routes that constitute the LSE sector.

Furthermore, planned and unplanned TSRs had also risen in the latter half of 2012-13, for a number of reasons, and were having a negative impact on performance. However the Sussex route had made good progress by the end of 2012-13 and had reduced existing TSRs from 20 to three. In addition, despite OLE incidents in 2012-13 being broadly comparable to 2011-12, the delays associated with 2012-13 were significantly more. A review of the OLE incidents attributable to Network Rail that made it into the periodic top 50 incidents for 2012-13 also indicated that 25% could probably have been prevented by the appropriate application of inspection and maintenance.

At the end of 2012-13 LSE TOC on Self delay minutes were 53,000 minutes worse than target and 16,000 minutes higher than last year. The largest variance against target was for traincrew issues and improvement plans are expected in 2013-14 to address the issues. Fleet also remained significantly worse than target despite a great improvement from last year.

Network Rail provided an update of their 2013-14 PPM MAA forecast in Q4. The new forecast for 2013-14 PPM MAA was 91.7%, 1.3pp below the CP4 target and 1.1pp behind what it forecast in the LSEP. However this new forecast only reflected part of the LSE asset management programme, as there were still 18 schemes left to quantify.

Period 2 figures showed a marginal improvement in the LSE sector with a PPM MAA of 91.1%, 1.6pp adrift of the profiled CP4 target and 1.9pp adrift of the end of CP4 target, whilst CaSL MAA remained at 2.5%, 0.5pp adrift of both the profiled CP4 target and end of CP4 target.

In its Q4 progress report, Network Rail told us that many other actions had been taken to improve performance within Network Rail and cross-industry for 2013-14, „too many to discuss in this quarterly report". It therefore only gave us details on the LSE Asset Management Programme. The appointment of Dave Ward to the post of RMD LSE has been viewed very positively by people within the operating community and there is evidence of „green shoots" of progress as the LSE Asset Management Programme starts to gather momentum. The reduction of TSRs on Sussex and the positive performance on Anglia route demonstrate this.

On June 7th 2013, Network Rail wrote to us to tell us that it had recently been able to establish funding of £50m for further performance improvement. It also wrote on to tell us that a Joint Performance Board had been set up between Network Rail and Govia.

2. Introduction

2a) Background

1. Network Rail volunteered to produce a plan to recover performance for the London and South East (LSE) sector in the same way it had done for Long Distance. An initial LSE plan (LSEP) was submitted to us on 7th August 2012, but Network Rail told us that it was still a work in progress and agreed to issue the final plan by 28th September. Based on the final plan we received we decided that, on balance, Network Rail was not currently in breach of licence condition one since it was doing everything reasonably practicable to recover performance in the LSE sector. In coming to this view we had regard to our assessment of the plan, the high level of leadership attached to it, the relatively small margin PPM was missing the target when compared to Long Distance and our view that Network Rail (and the train operators) had been much quicker to recognise and address the problem than on Long Distance. In addition we took in to account the views of Network Rail customers, the TOCs, that it was trying hard in the new devolved organisation and that it should be given a chance to deliver. It was felt by the TOCs that more harm than good would be done by enforcement action in demotivating Network Rail staff.

2. In light of problems relating to operational planning during the Christmas and New Year period in 2012 we wrote to Network Rail raising our concerns[2], asking for more information on the reasons behind the problems and the measures being taken to ensure they didn't happen again. We also advised that we would be considering these issues as part of our end of year review of its performance.

[2] Please see Annex D for the letters sent to and received from Network Rail

3. On 1st February, Network Rail submitted its third quarterly report on progress against the deliverables committed to in the LDRP and LSEP. The report covered periods 8, 9 and 10, which had poor performance, but it was difficult to draw any conclusions because of the bad weather and the impact the transition to the new „iPAT" system had had on benefits. We have continued to monitor performance in this sector closely during 2012-13 and will consider taking further action in respect of 2012-13 if we are not satisfied that Network Rail had complied with its licence obligations.

2b) Terms of reference of our investigation

4. On 29th April 2013, we wrote to Network Rail stating our intention to formally investigate Network Rail"s Long Distance[3] and LSE performance for 2012-13 and 2013-14[4]. In summary, this investigation focused on Network Rail"s Long Distance and London and the South East sector performance in 2012-13 and an assessment of whether it did everything reasonably practicable to achieve its regulated outputs. We also considered the impact of the Long Distance and LSE sector performance in 2012-13 on future delivery of Network Rail"s regulated outputs.

5. Our investigation took account of analysis of a range of issues affecting performance. They included, but were not be limited to, weather (its impact and how Network Rail dealt with it), asset management (including maintenance, renewals, track faults and TSRs, signalling and power supply, overhead line electrification and remote condition monitoring (RCM)), train planning and fleet / driver shortage issues. We also considered the operational planning issues including those highlighted over the Christmas and New Year period as referenced in our letter to Network Rail on 26th March 2013[5].

2c) Context of the investigation

6. We reviewed the original LSEP, the subsequent quarterly progress reports we received throughout the year (Q3 and Q4), the full year review we received on 15th May 2013 and some further evidence Network Rail asked us to consider. We engaged with Network Rail to understand the reports and plans it provided, to answer any questions we had and to discuss any further information Network Rail thought might be relevant to our investigation.

7. We sought views and further information from relevant operators and set up a number of meetings with them to discuss whether they were satisfied that Network Rail was doing everything reasonably practicable to meet its requirements without comprising safety. We also discussed what main factors they believe influenced performance in 2012-13 and how confident they were that Network Rail will hit the figures they have agreed in the 2013-14 JPIPs.

[3] Please see the Long Distance evidence pack for more information about Long Distance
[4] http://www.rail-reg.gov.uk/upload/pdf/20130429-letter-to-NR-performance-investigation.pdf

8. We commissioned the independent reporter to provide us with an assessment of the delivery and impact of the actions in the LSEP. The independent reporter undertook three field tests: a review of the activities of the weather resilience and climate change steering group; a review of the remote condition monitoring programme; and a review of the LD regulation trial (which is not relevant for the LSE evidence pack). In line with our usual reporter process, a remit was agreed in advance with Network Rail.

9. We finished our investigation at the end of May 2013. At that stage we considered the issues raised in the evidence provided to us and decided whether any further enforcement action needed to be taken.

2d) Consideration of issues

10. This investigation focused on whether we thought Network Rail did everything reasonably practicable to meet its performance commitments in 2012-13 and was planning to in 2013-14. In assessing this we considered the following issues:

- Whether Network Rail did everything it said it would in the LSEP;
- Whether the performance improvements had the effect Network Rail thought they would;
- Train Operating Companies feedback on whether Network Rail had met its requirements and what they thought impacted on performance in 2012-13;
- The impact the weather had on performance and whether Network Rail did everything reasonably practicable to mitigate the effect it had;
- Whether Network Rail was up to date on its day to day maintenance of the network (including the organisation of maintenance work, asset renewals, track faults, signalling and power supply, overhead line electrification and the implementation of new technology) ;
- The effect train planning had on performance;
- The impact fleet issues had on performance; and
- What other things Network Rail are planning for 2013-14 to improve performance.

3) Performance summary

11. The CP4 regulatory targets for the LSE sector PPM MAA are shown in Table 1 below.

Table 1: CP4 targets for LSE PPM MAA and CaSL MAA

London and South East	2009-10	2010-11	2011-12	2012-13	2013-14
PPM MAA (%)	91.5	92.0	92.4	92.7	93.0
CaSL MAA (%)	2.3	2.2	2.1	2.0	2.0

PPM MAA forecasts from the LSE sector plan and quarter 3 report

2012-13 P13	PPM MAA	Percentage point (pp) variance to CP4 target	Percentage point (pp) variance to JPIP target
P13 actual	*91.0%*	*-1.7pp*	*-1.3pp*
LSEP*	92.1%	-0.6pp	-0.2pp
Q3 report	91.5%	-1.2pp	-0.8pp

*based on the Base, Base+ and Base++ (combined) forecast in the Q3 report.

LSE CaSL MAA

2012-13 P13	CaSL MAA	Percentage point (pp) variance to CP4 target	Percentage point (pp) variance to JPIP target
P13 actual	*2.5%*	*-0.5pp*	*-0.4pp*

12. Of all the London and South East train operators, at the end of 2012-13 London Midland (LSE only) had the greatest variance against JPIP PPM MAA target, 5.7pp worse than JPIP, followed by Southern trains at 2.7pp worse than target.

Table 2: performance against target by TOC

Train operator	PPM MAA (P13)	PPM MAA P13 CP4 target	Percentage point (pp) difference to CP4 target	P13 PPM MAA JPIP target	Percentage point (pp) difference to JPIP target
c2c	97.5%	95.3%	2.2pp	96.7%	0.8pp
Chiltern	94.9%	95.8%	0.9pp	94.0%	0.9pp
First Capital Connect	88.3%	92.7%	-4.4pp	90.7%	-2.4pp
First Great Western*	89.6%	no target	-	91.4%	-1.8pp
Greater Anglia*	92.4%	no target	-	91.7%	0.7pp
London Midland*	83.0%	no target	-	88.7%	-5.7pp
London Overground	96.6%	94.4%	2.2pp	96.5%	0.1pp
South West Trains	91.4%	93.1%	-1.7pp	92.7%	-1.3pp

Southeastern	91.1%	92.5%	-1.4pp	92.5%	-1.4pp
Southern	88.0%	91.6%	-3.6pp	90.7%	-2.7pp

*PPM MAA figures based on LSE sector component only. No CP4 targets for multi-sector TOCs.

13. Analysing the causes of delay across the sector, year to date delay minutes for 2012-13 (P1-13) were worse than the same period in 2011-12 for severe weather autumn and structures, stations, TOC other, track and traincrew. Non-track assets were the largest cause of delay minutes at 19%, closely followed by network management/other at 17% and fleet at 16%. Severe weather, autumn and structures caused delay minutes at the end of 2012-13 were 126% worse than 2011-12, but this category only made up 8% of the total 2012-13 delay minutes. Delay minutes caused by external factors in 2012-13 were 31% better than 2011-12. Table 3 shows this in more detail.

14. When analysing Network Rail delay minutes by London and South East train operators (multi sector operators not included), Southern accounted for the largest number of minutes with just over 684,000, followed by South West Trains with just over 566,000 minutes and Southeastern with just over 527,000 minutes. Analysis of route data showed that the greatest number of Network Rail caused delay minutes in the LSE sector occurred on the Sussex route (677,718), followed by Kent route (621,490).

15. The delay minute and PPM relationship has changed since the start of CP4. For the London and South East sector, based on delay minutes, the PPM benefit delivered will be more than expected at the start of CP4.

Table 3: London and South East performance by delay category

JPIP category	**Responsible owner**	**2011-12**	**2012-13**	**Variance against 2011-12**	**Proportion of total 2012-13 delay minutes**
External	Network Rail	694,064	481,206	-31%	9%
Network Management / Other	Network Rail	872,383	871,845	0%	17%
Non-Track Assets	Network Rail	999,237	979,837	-2%	19%
Severe Weather, Autumn, & Structures	Network Rail	187,490	423,400	126%	8%
Track	Network Rail	290,994	336,797	16%	7%
Fleet	TOC	855,937	828,124	-3%	16%
Operations	TOC	224,100	203,592	-9%	4%
Stations	TOC	165,091	173,359	5%	3%
TOC Other	TOC	388,954	425,752	9%	8%

Traincrew	TOC	317,830	373,361	17%	7%
Total		**4,996,081**	**5,097,272**	2%	

16. The trend in LSE PPM MAA can be seen in Chart 1, which shows the long-term performance against target.

Chart 1: London and South East PPM MAA performance against target

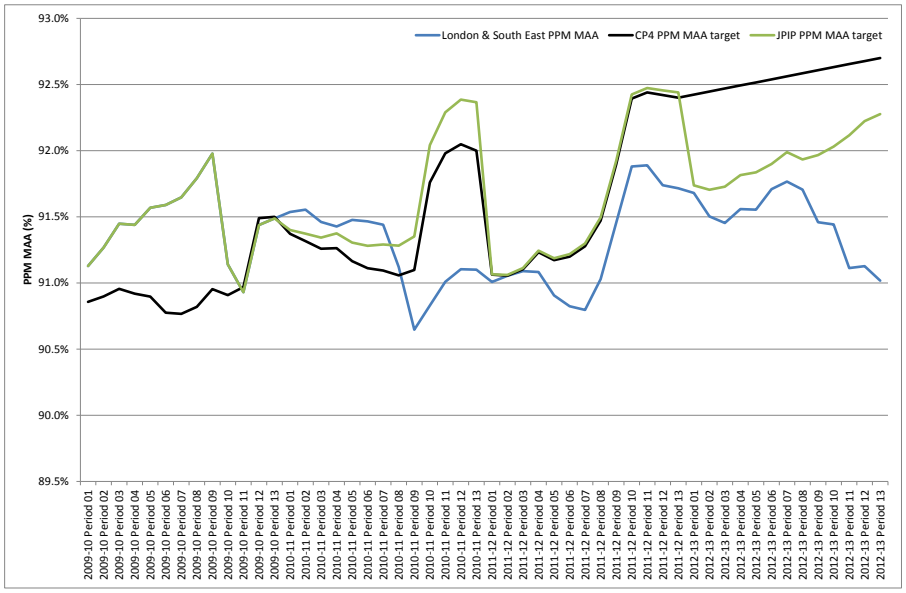
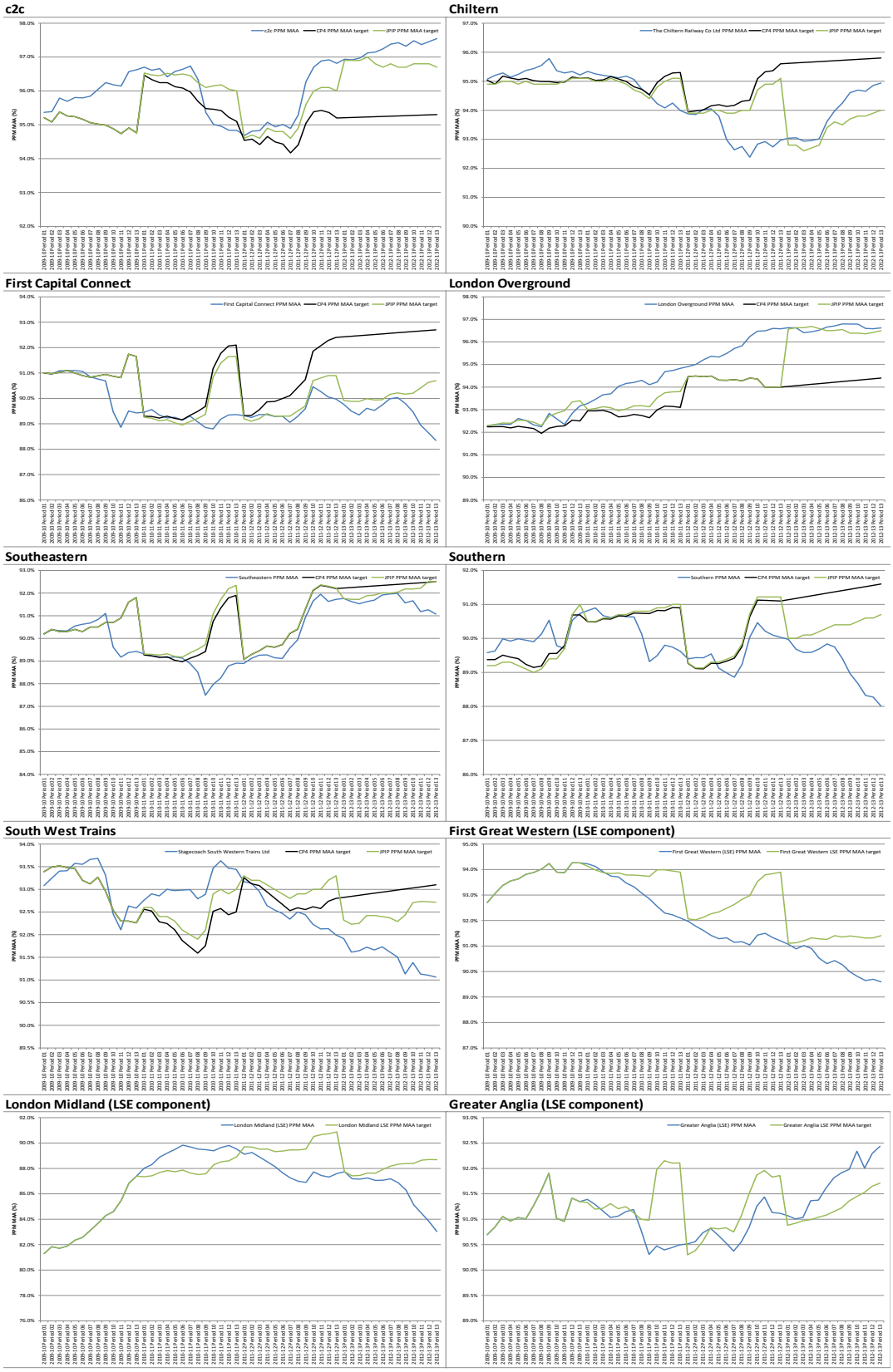


Chart 2: London and South East train operators PPM MAA performance against target



*No CP4 targets for multi-sector TOCs

4) Passenger satisfaction in the LSE sector

17. An important measure of how performance affects passengers across the sector is the National Passenger Survey. Based on the spring 2013[6] results, which were published on 19th June, the proportion of passengers travelling in the LSE sector who were very or fairly satisfied overall was 81 per cent. This was significantly down compared to spring 2012 (when 82 per cent were satisfied). Satisfaction with train punctuality/reliability was also significantly lower than spring 2012 and had fallen by 3% to 76%, ending the gradual upward trend that has occurred over the last few years. This reinforces our decision to formally investigate performance in Network Rail"s LSE sector for 2012-13 and 2013-14.

18. Comparison by sector showed that the LSE sector consistently had the lowest results for overall satisfaction and satisfaction with train punctuality/reliability but this, to some extent, reflects the make-up of the sector which includes a high proportion of commuters who were typically less satisfied than business and leisure passengers.

5) Review of LSE performance

5a) Was Network rail doing all that it said it would?

Network Rail evidence

19. Network Rail failed to meet its 2012-13 PPM and CaSL regulatory, JPIP and LSE plan targets (PPM and CaSL can be seen in Table 1 above). Additionally Network Rail failed to deliver the improvements in delay minutes incurred which were promised in the plan. Network Rail also failed to fill the gap between actual performance and the targets with new initiatives to deliver the promised performance to the industry.

20. Network Rail told us[7] that of the 203 key deliverables planned for 2012-13 outlined in the LSEP, 177 were delivered, 14 were progressed but were delayed and won"t be completed until 2013-14 and eight had been withdrawn completely. Four others were always planned for 2013-14. Some assumptions by the central team have been made as to why eight deliverables had been withdrawn, for example previous work had been undertaken which may have identified that there was no value continuing with the scheme, but no detail was given on the delay minute benefit lost for any of them. Various reasons were given for why the 14 key deliverables had been delayed, including a dewirement, funding issues, expansion of the scheme and a lack of knowledge of the type of work involved. Network Rail did not explain why it failed to find sufficient new initiatives to fill the gap.

[6] Spring 2013 (wave 28) main fieldwork was undertaken between 12 January and 24 March 2013. Top-up interviews were done within the last three weeks of the fieldwork period.

[7] In further evidence supplied to us on 20th May 2013

21. Network Rail told us in its full year review that delivery of the plans had generally been strong. In particular that delivery of the Base had been strengthened by the introduction of project managers into route performance teams, the development of additional initiatives in the Base + and Base ++ initiatives and further improvement initiatives developed through the year. In addition it told us that excellent performance during the Olympics, which was previously since as a risk to performance, came on top of the initiatives.

22. In the 2012-13 performance year Network Rail told us that almost 374,000 delay minutes of benefit was delivered to the LSE sector through delivery of the Base plan. This was against a planned target of 481,000. PPM benefit from delivering the Base plan also missed the planned target by 0.15pp. However Base + delivered 0.02pp of PPM benefit, when none was actually planned for. At the end of 2012-13, LSE delay minutes totalled just over 5 million, 2% worse than 2011-12 (table 3 above).

23. In the Q4 progress report, Network Rail said that delivery of the LSE improvement schemes was better than planned for in Quarter 4. It said it had completed 22 more projects (30%) more than planned resulting in some early delivery of benefit. However progress with milestones was behind plan and of the 165 missed, 10 had the potential to impact on benefits delivered in CP4. The slippage also represented a 2,960 delay minute reduction in benefits in CP4.

24. Network Rail told us that the number of projects in the Base plan for 2013-14 has increased by 579, which had mainly been identified through the Joint Performance Improvement Plan (JPIP) process and the benefits delivered by the Base plan for 2012-13 and 2013-14 had also increased by 105,000 minutes[8]. However as noted above (paragraph 22), delay minutes for the Base in 2012-13 was actually behind what was planned for in the LSEP. It should also be noted that the JPIP process always identifies further areas for development and some additional delay minute savings for 2013-14 should have been expected, despite the fact a two year JPIP was developed at the end of 2011-12.

25. Network Rail also gave us evidence on the four national programmes providing direction to the Base plan. On the suicide prevention programme, Network Rail had been working with the British transport Police (BTP) to reduce delay minutes attributable to suicide events and despite a similar number of events in 2011-12 and 2012-13, delay minutes fell by 95,600. The proportion of suicides that occurred on the railway also seemed to have fallen and Network Rail told us that it was widely recognised that much of that came about through a more proactive and dynamic working relationship between it, the BTP and the Samaritans, leading to the introduction of the BTPs fatality guidance early in 2012-13 and a pamphlet created by Network Rail and the Samaritans entitled „journey to recovery".

26. Network Rail is also aware that further work needs to be undertaken, particularly at eliminating/reducing the number of non-station incidents. The fatality prevention work is receiving strong support from the routes but Network Rail is conscious that greater TOC engagement is needed to make further progress.

[8] Network rail told us this ignored the element of risk, which is referred to as negative schemes in iPAT, since not all routes are using this field consistently.

27. Network Rail"s evidence on the cable theft prevention programme was also a positive example of a national programme delivering what it set out to do. Collaborative working with a number of agencies, use of technologies such as Smartwater and cross-industry lobbying resulting in a new law regarding scrap metal deal all seemed to have the desired effect. While historically the price of copper and the occurrence of cable theft had been closely linked, since period 6 2012-13 the price of copper had risen and yet the number of cable thefts had not[9]. We also saw evidence of good local initiatives on LSE sector routes; in particular the Anglia route was using Land Sheriffs who operate high visibility patrols in known problem locations to positive effect.

28. With regards to Base ++ initiatives, the two initiatives, which were unquantified, were Red routes and Timetabling for Performance. They remained unquantified and deliver what Network Rail describes as “incremental benefits”.

TOC engagement

29. We spoke to the Train Operating companies that form the LSE sector to gain an understanding of how they felt Network Rail"s delivery of the LSEP had been managed and their thoughts are summarised below:

- The general consensus of the LSE sector TOCs was that with Dave Ward as RMD LSE, the LSEP has a good chance of being delivered, although the sense of the plan being a distraction from the day to day operation of the railway was more prevalent in this sector; and
- Many TOC people did not think they had been able to see evidence of the Base+ and Base ++ initiatives being delivered and many did not see that these schemes will have the same success as just having a detailed approach to every day management of the railway.

Conclusion

30. In conclusion, Network Rail failed to meet its targets for PPM and CaSL in 2012-13 and PPM MAA ended 2012-13 1.7pp below the CP4 target and 1.3pp below the JPIP target. CaSL MAA ended the year 0.5pp below the CP4 target. Network Rail also failed to complete the number of deliverables anticipated, delivering 177 in 2012-13 compared to the 203 planned in the LSEP. Completion of 14 of these projects was expected in 2013-14, but eight had been withdrawn completely. Network Rail told us that the Base plan would now deliver an additional 105,000 minutes by the end of 2013-14, however 2012-13 actually saved105,000 minutes below what was expected in the LSEP and PPM was also 0.15pp behind plan. Credit should be given for effective management of cable theft and suicides, where a significant reduction in delay minutes was achieved. However, overall the evidence suggested that Network Rail did not do everything it said it would in the LSEP.

[9] The other two national programmes, Remote Condition Monitoring and the weather resilience and climate change steering group are covered in detail under section 5x

5b) If not, why not?

Network rail evidence

31. In their full year review Network Rail told us that the key challenges to programme delivery had been:

- Likely costs and benefits were less reliably based due to the changing rail environment and decisions on industry trade-offs;
- The need to respond to many real time problems (e.g. weather events) including the need to carry out repair and recover backlog and potentially further mitigation to prevent repeat events; and
- Scope to adjust to strategic focus on issues.

32. More specifically, in the Q4 progress report, Network Rail told us that a number of milestones were missed due to the pressure on resources over the wintry periods where delivery of work had to be prioritised. However that also told us that the only route now planning to deliver less benefit to LSE than originally planned was Wessex following on from the removal of non-viable schemes in Q3.

33. Network Rail also told us in the Q4 progress report that progress made against the plan for the Base + programme in quarter 4 has been slightly behind this quarter, mainly due to inadequate business cases for some incident response time initiatives and delays with one initiative on the freight workstream, although only the latter had seen a reduction in benefits. The timetable for performance workstream had also had a reduction in benefits following re-evaluation as part of the validation process. However, overall, Network Rail said that the Base + programme was still expected to deliver more benefit than planned.

34. Network Rail told us that it had to redirect resource away from planned maintenance work, or cancel planned maintenance work due to the impact of the weather. Based on the evidence it provided, we concur that in some locations there was a maintenance backlog, notably on the Western route where flooding over Christmas and New Year meant work had to be postponed.

35. When reviewing the JPIPs for 2013-14 we found that the total performance for the sum of all JPIPs for England and Wales was 0.65pp short of the CP4 regulated output. While we recognise that the JPIP as a bottom up process may fall short of the high level targets, we expect that Network Rail"s central team would better enable the routes and their customers to deliver regulated outputs. In this instance, had the LSEP not have already been created, we would have been asking Network Rail to either provide additional funding, or developing nationally led initiatives to bridge the gap however as the LSEP is already in delivery phase, our only realistic expectation for Network Rail to address this shortfall in 2013-14 would be for more national initiatives to be added to LSEP and further performance recovery funding to be made available to the routes. We have not yet seen any evidence of this.

Independent reporter field tests

36. In the LSEP Network Rail noted that its planning approach will use average weather as a base for planning; put in place proper seasonal management and review arrangements; respond when forecasting weather conditions move beyond expected capability of the railway; and when extreme weather occurs, use the average weather concept to measure the impact „beyond that which was planned". In reviewing how Network Rail has implemented this approach, Network Rail told us that:

- It was reported that not all Routes take seasonal preparedness equally seriously. The evidence presented supports the claim that not all Routes take seasonal preparedness reporting equally seriously, however despite coming from a well-placed stakeholder, it is not possible to conclude whether this comment is correct. The Weather Resilience & Climate Change Group does not currently have a role in ensuring seasonal preparedness;

- Network Rail was currently reviewing performance at the end of each season and following a major weather event, however it was relatively weak in ensuring that agreed routes actions in response to these reviews were closed out. The Group has no role in ensuring that the actions are closed out;

- It is placing more emphasis on the importance of making its assets more resilient to weather and climate change. There has only been a very limited level of central resource assigned to weather to date. The central weather function only came into place around 18 months ago. In 2012-13 there was a National Weather Specialist supported by Seasonal Delivery Specialists (SDS) in each of the routes However, there were only 3 SDS in place to deal with this past winter. Furthermore, the National Weather Specialist is leaving Network Rail in July 2013; and

- It focuses on extreme weather and has tried and trusted ways of working in the event of extreme weather. Network Rail believes that it is actually very effective at responding to extreme weather events. It is certainly true that Network Rail makes every effort to recover performance in the event of extreme weather and improvements on seasonal preparation had been progressed through the NTF.

37. Whilst extreme weather has a major impact and is rightly the focus of much attention, almost more important is how Network Rail deals with „adverse" weather (which happens more frequently than extreme weather, yet there is no effective, established or prescribed method for how routes/control should act in the event of „adverse" weather). As part of the new mitigation strategy, Network Rail will look to develop an approach to build resilience to and manage in „adverse" weather.

38. Through each of the field tests, it was noted that Network Rail had delivered many benefits both in Quarter 4 and in 2012-13. However, in each case the benefits delivered had been significantly less than originally anticipated. Nationally, the benefits to date from RCM were at least 25% less than the

revised benefit target, although Sussex was noted as performing particularly well and was embracing and extracting significant value from RCM. The Weather Steering Group (although no tangible benefits have been claimed to date) will not start to add quantifiable benefits until its Strategic Plan has been implemented.

39. It is clear from each of the field tests that all of the staff involved had made a genuine attempt to deliver their respective programmes and seemingly made reasonable endeavours to deliver the planned benefits. However the benefits had not been realised due to either over optimism in the initial setting of benefit targets, implementation not being rolled-out as wide as planned, lack of adequate capturing of the true benefits, or delays being introduced as a result of management system failures.

40. Some items of feedback where TOCs felt Network Rail had failed to deliver include:

- Many TOCs said that they felt the recent downward trend in performance was less about weather and more about getting the basics right, especially in terms of asset maintenance. Some TOCs said they felt the LSEP was a distraction to Network Rail who needed to just focus on basic operation of the network. “They did this [plan] but forgot to do the day job” was the comment from one Head of Performance. One TOC MD said that “Had Network Rail got the basics right, there wouldn’t be any need for a recovery plan” before going onto say that “I do not think the plan has distracted Network Rail because it should have a capability to deliver the day to day and the improvement plan.”;

- Vegetation management was viewed negatively across the industry, with many TOCs saying that Network Rail do not have clear vegetation strategies. One TOC MD noted that “Vegetation management was more of an afterthought of what Network Rail could do with any left over money.” The general consensus was that works needed to be identified, funded, delivered and then re-visited at a later date when vegetation was more manageable (due to the benefit of the previous work) rather than some works being done and then left to become unwieldy again without follow up intervention;

- There was an overwhelming feeling that Network Rail had contributed to the impact of weather by failing to maintain drainage, points heaters and conductor rail heating. One TOC performance manager said “Network Rail spent plenty of capital expenditure to get these culverts designed and installed, but it didn’t have the operational expenditure or the physical resource to maintain them – therefore when they became blocked the railway flooded.” One TOC Ops Director also said they were “sceptical that Network Rail failed to achieve targets as it had to divert resources to deal with severe weather”; and
- The central Train Planning function was identified as a weakness, with many TOC people saying that they felt there had been an on-going resource shortage since re-location to Milton Keynes while other people felt there was a capability weakness with the calibre of people within the team not being as good as it once was historically.

41. In conclusion, there was some evidence that supported Network's assertion that the weather impacted on planned maintenance work. However progress on developing an approach to build resilience and manage the network, either through the Weather Steering Group or some other route, which would have helped reduce the impact of the „adverse" and „extreme" weather last year, had been slow. TOCs were also less convinced that the weather had been the cause of the downward trend in performance, but even when it had, they felt that Network Rail contributed to the impact by failing to maintain drainage, points heaters and conductor rail heating. Nationally, the benefits to date from RCM were at least 25% less than the revised benefit target, although Sussex was noted as performing particularly well and was embracing and extracting significant value from RCM.

5c) Was it having the forecasted effect?

Network Rail evidence

42. The Network Rail forecasted PPM MAA changed as the year progressed (see table 4.)

Table 4: Forecasts for the end of 2012-13 which we received throughout the year

2012-13 P13	**PPM MAA**	**Percentage point (pp) variance to CP4 target**	**Percentage point (pp) variance to JPIP target**
P13 actual	*91.0%*	*-1.7pp*	*-1.3pp*
LSEP*	92.1%	-0.6pp	-0.2pp
Q3 report	91.5%	-1.2pp	-0.8pp

*based on the Base, Base+ and Base++ (combined) forecast in the Q3 report.

43. In the Q4 progress report, Network Rail provided a table summarising progress since the launch of LSEP against the forecasted LSE delay minute and PPM savings. It said that the Base plan had and will deliver 1.18pp of PPM benefit, 0.20pp above what was planned when the LSEP was published. However additional evidence showed that in 2012-13 the Base actually delivered 0.15pp below planned. Network Rail also provided an overview of the LSE PPM benefits delivered by the Base + workstreams. This said that Base + will be delivering 0.42pp of PPM benefit by the end of 2013-14, 0.11pp above what was forecast in the LSEP. No PPM benefit was originally planned for 2012-13, however 0.2pp of that had already been delivered in 2012-13. However, Network Rail also said progress had been slightly behind plan in quarter 4 mainly due to inadequate business cases for some Incident Response Time initiatives and delays with one initiative on the freight workstream.

44. In Q4, Network Rail provided commentary around progress on Base ++. It said that the Thameslink Red Route is starting to make progress after two workshops with stakeholders from FCC, Southeastern and the two Network Rail routes, Kent and East Midlands. To help achieve Red Route there were 10 workstreams being taken forward, the majority of which were still being scoped. The Purley Red Route had also held a workshop and workstreams were also been developed, but it was not as well defined as the Thameslink Red Route. The other Base ++ programme, targeted timetable improvements, was still at an early stage but Network Rail told us that performance managers had been challenged to come up with three key actions by the end of May 2013 which would lead to an improvement in PPM.

45. Overall Network Rail told us that the LSEP had delivered around 0.5% of PPM benefits in Q4, which it said meant it would have met the LSEP expectation of 92.1% had PPM not been significantly affected by weather effects and infrastructure faults together with some underlying loss of PPM compared to delay. However it is difficult to follow the evidence provided to us on the 0.5% had been quantified.

The effect of iPAT

46. The introduction of the iPAT system to track scheme actions and the associated changes to the way scheme benefits were calculated caused a change in the reported numbers, with 168,000 benefit minutes removed. The removal of 54,000 (almost one third) of these minutes were due to a change of risk reporting, in that iPat moved from reporting gross scheme benefits to net inclusive of risk, while the remainder was due to the removal of schemes classified as non-viable. There has been little evidence of how a non-viable scheme was identified.

Conclusion

47. In conclusion, it is hard to say with certainty whether delivering the LSEP had the forecasted effect. The evidence suggested that it did not since iPAT identified many cases where original schemes in the LSEP were „non-viable" and in 2012-13 Base delivery was over 105,000 delay minutes and 0.15 PPM pp below what was planned for in the LSEP.

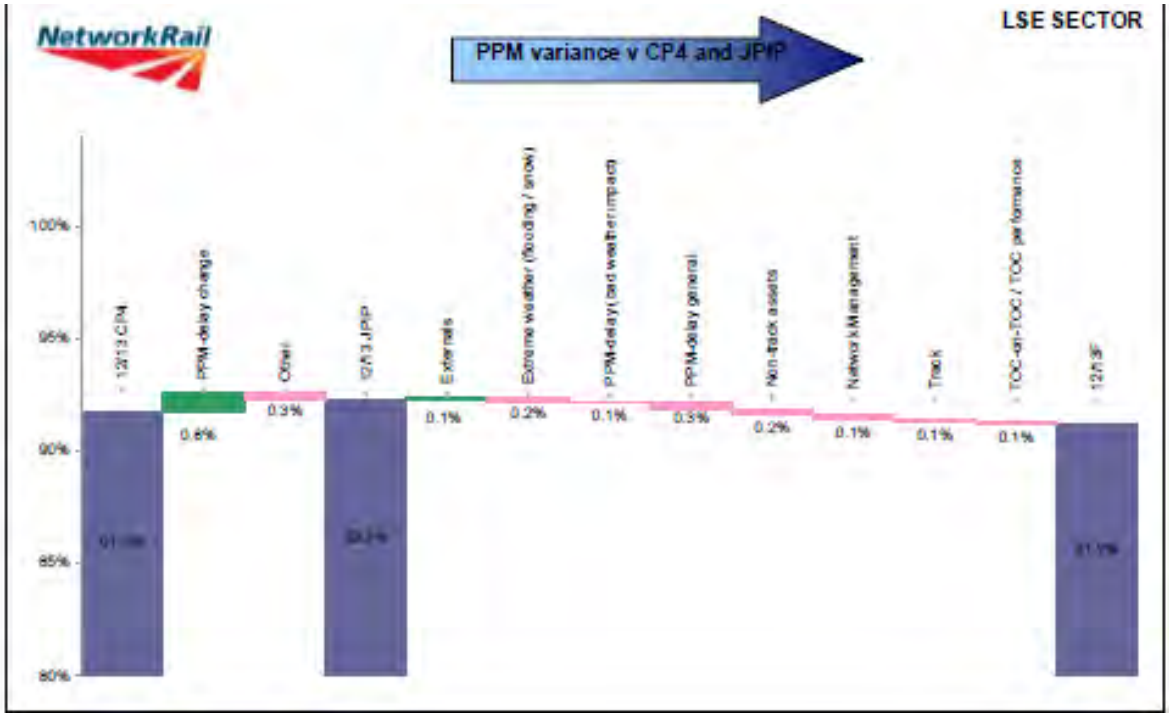
5d) if not, why not?

Network Rail evidence

48. Network Rail"s evidence said that it had not delivered the 2012-13 targets for LSE due to the effect of the prolonged and occasionally severe weather effects and its wider impact on infrastructure. It said that the infrastructure had also had some relatively isolated (in terms of location) reliability issues, although infrastructure incidents continued to reduce to record low levels, although it added that the benefits were offset to some extent by the rise in delay pre incident.

49. Network Rail also provided a waterfall chart in their full year review, see Chart 3. The chart showed that, unlike Long Distance where the weather effect had the largest negative impact on PPM by a relatively large margin, there was no outstanding cause for the variance to target and in fact „other" and PPM-delay general were the largest two causes (-0.3%).

Chart 3: London and South East waterfall for 2012-13 PPM performance



Weather and performance

50. The full year review we received from Network Rail highlighted some key areas that Network Rail needed to focus on to improve performance during extreme weather. Short and long term strategies to target weather mitigation were just beginning to emerge but further action and detail was required to identify the core areas that had been impacted and the lessons learned, particularly from the recent changes in weather and weather events. Further work also needed to be conducted to better understand the cause:effect relationship between the weather events and performance. Successful planning and implementation of these strategies, utilising the available analysis and funding resources, should help Network Rail mitigate against the effects of weather events from 2013-14 onwards.

51. National weather delay minutes[10] for 2012-13 totalled over 1 million, the highest number of minutes attributed to weather during CP4. In 2009-10 and 2010-11 the country experienced „extreme" weather conditions, largely due to extreme cold and snowfall. The weather delay minutes in those years totalled approximately 914,000 and 915,000 respectively. Comparison to the total weather delay minutes for 2012-13, showed an 11% and 10% (respectively) increase against these years. Weather delay minutes for 2011-12 were substantially less at just over 429,000.

[10] Based on weather incident categories 110A (severe weather-beyond design capability of infrastructure) and 110B (other weather-impact on infrastructure or network operations)

52. Analysis of JPIP targets for severe weather, autumn and structures indicate a downward trend in the target during each year of CP4 (as a proportion of the annual delay minutes target). In 2009-10 severe weather and autumn structures accounted for 15% of the total delay minutes target but this had reduced to 10% in 2012-13.

53. Similarly, the Network Rail internal targets for weather incident codes 110A and 110B, had also declined, moving from 10% in 2009-10 to 8% in 2012-13 (as a proportion of the annual internal Network Rail delay minutes targets).

54. Analysis of London and South East sector average precipitation levels over the four years of CP4, indicate that precipitation had been highest during 2012-13 (Chart 4). A quarterly breakdown of precipitation levels in each year of CP4 (Chart 5) showed that only quarters 1 and 2 in 2012-13 had the greatest average precipitation and higher average levels of precipitation were seen in 2009-10 for quarters 3 and 4

Chart 4: London and South East sector annual average precipitation levels

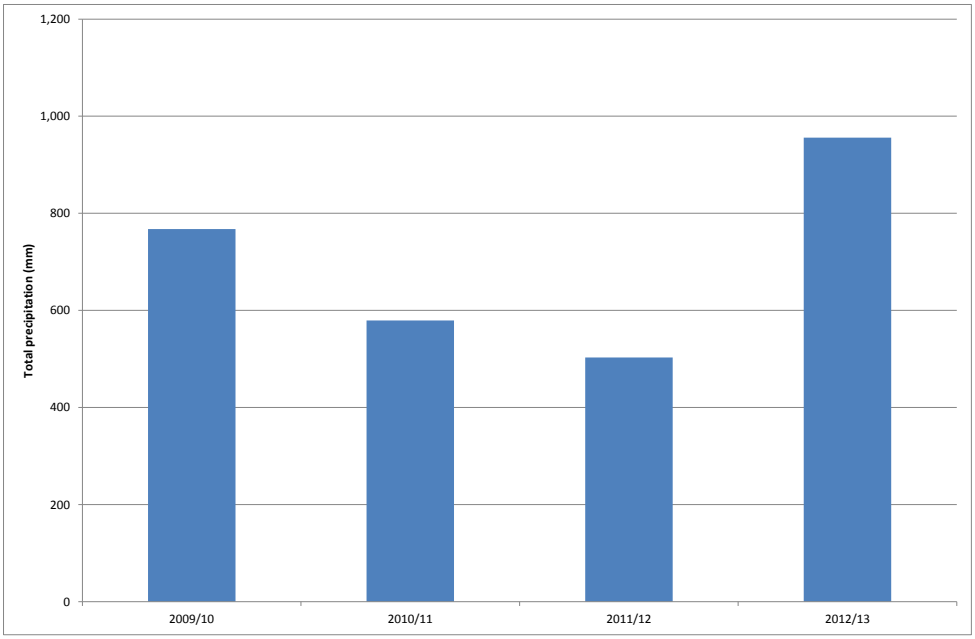
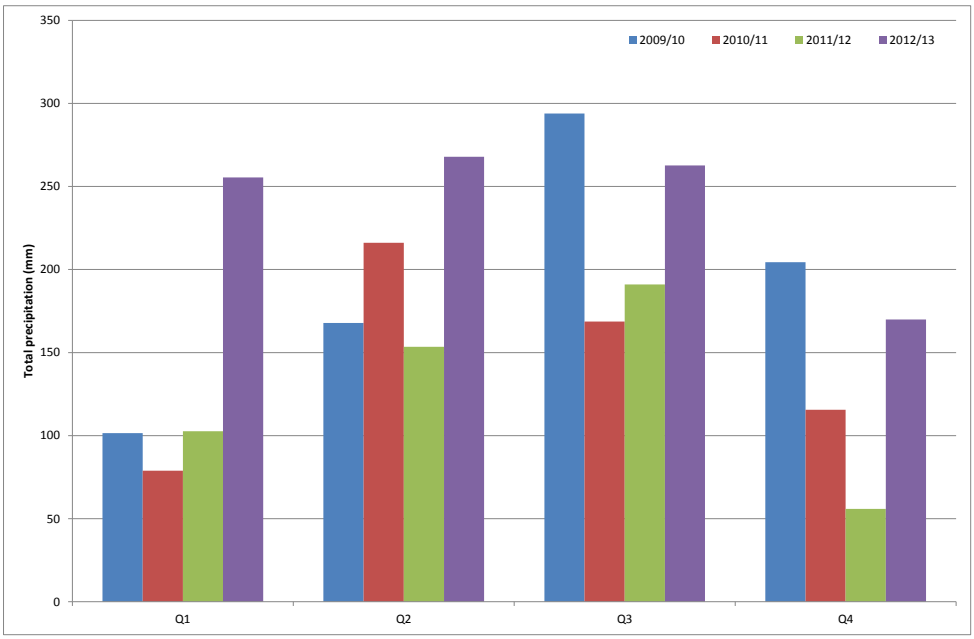


Chart 5: London and South East sector quarterly breakdown of average precipitation levels



55. A student t-test statistical test was used to identify if the amount of precipitation in 2012-13 was significantly more than any previous year in CP4. The results showed that the mean level of precipitation in 2012-13 was statistically significantly more than compared to 2009-10, 2010-11 and 2011-12.

56. Short, heavy bursts of precipitation typically lead to flooding and have more of an impact on the rail industry compared to sustained daily levels of precipitation. Table 5 identifies the number of „extreme" days adjusted in each quarter of 2012-13 as part of our weather analysis, compared to the number of amber or red weather warnings issued by the Met Office for rainfall or snow in England and Wales (E&W) in 2012-13[11].

[11] Met Office amber and red rainfall and snow weather warnings
http://www.metoffice.gov.uk/guide/weather/warnings#learn-about-warnings

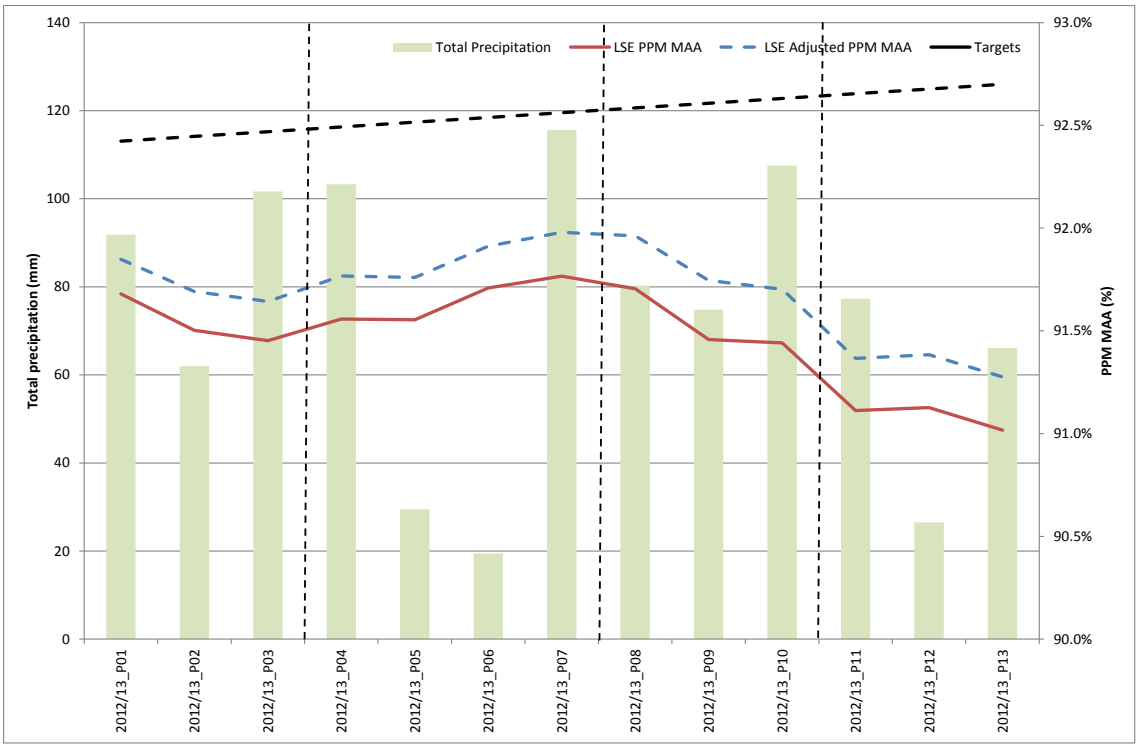
Table 5: Number of adjusted „extreme" days for London and South East sector against the number of amber or red weather warnings issued by the Met Office.

Quarter	Number of adjusted „extreme" days	Number of amber or red weather warnings issued in 2012-13 for E&W
2012-13 Q1	7	4
2012-13 Q2	3	15
2012-13 Q3	10	8
2012-13 Q4	0	13

57. In quarter 4 of 2012-13 the Met Office issued 13 amber and red weather warnings for snow and rainfall in England and Wales but no adjustments were made to the London and South East PPM data in this quarter. This may be due to lower London and South East sector performance in Q4, resulting in no days exceeding the 95th percentile and being adjusted. Furthermore, when compared to other quarters in 2012-13, quarter 4 had the lowest average precipitation for the London and South East sector. The lack of adjustments in quarter 4 could also be due to a time lag in the weather event occurring and the subsequent impact on performance (therefore impacting results may be seen in 2013-14 Q1).

58. It was difficult to identify the impact of weather (precipitation levels) on performance in 2012-13 (Chart 6).

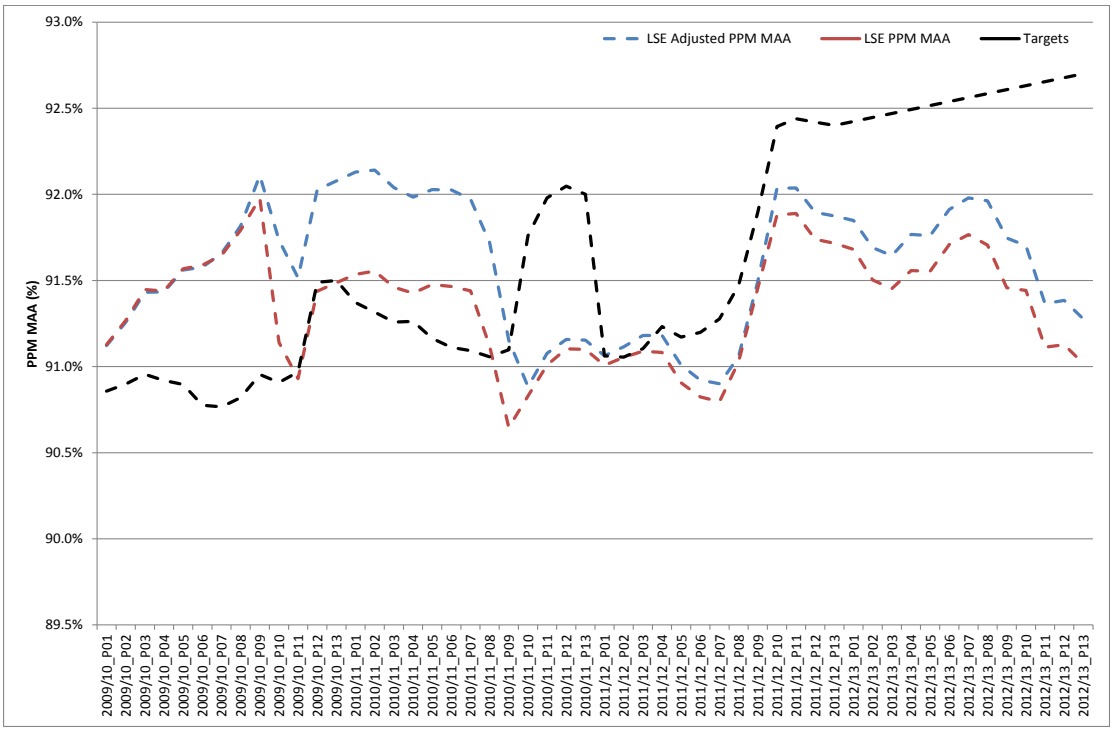
Chart 6: Impact of weather on 2012-13 London and South East sector performance



59. Based on „extreme" precipitation levels (above the 95th percentile) adjustment of the LSE PPM values led to a slight improvement in performance (largely in 2009-10 and 2010-11) but overall performance remained worse than target, ending 2012-13 with a PPM MAA of 91.3% (0.3pp better than actual), 1.4pp worse than the 2012-13 CP4 target and 1.0pp worse than the JPIP target (Chart 7).

60. As part of the weather analysis we looked at the impact of „extreme" weather on National delay minutes. Alongside looking at specific weather delay minutes the analysis also considered delay minutes that may be attributed to track and non-track assets on „extreme" weather days and that the weather impact may materialise 1 or 2 days after the weather event. Where these categories may have been impacted, the minutes were adjusted. However, overall performance still typically remained worse than periodic targets and worse than annual targets. This suggested there may be other areas, outside of weather, that may have also impacted performance.

Chart 7: London and South East PPM MAA adjusted for „extreme" weather days



Weather mitigation

61. Through our review of daily incident logs and our engagement with TOCs, we identified areas where we felt Network Rail did not effectively manage seasonal preparation and therefore caused weather delays to be worse than they would have been if proper mitigation had been put in place.

62. Many TOCs lacked confidence that Network Rail adequately managed drainage assets and told us that a lack of knowledge on the condition of drainage capability over the routes had directly contributed to flooding delays being worse than they would have normally expected. We also observed examples of blocked culverts which contributed to flooding events as well as failures or non-availability of water pumps meaning the time to restore normal train running was longer than necessary.

63. Winter preparation was considered inadequate, especially on the LSE sector and many TOCs have informed ORR that they were dissatisfied with Network Rail in this area.

64. Conductor rail heating was making good progress when Network Rail chose to cease using the Eltherm equipment and replace it with LCS equipment. The LCS equipment performance was then poor and subsequently decisions were made to replace the equipment with the original Eltherm equipment. This was both completely inefficient and left parts of the network with operating vulnerabilities. Specific examples include:

Wednesday 5th December

- Woking and Clapham delivery units suffered con-rail icing causing two separate incidents 18,073 minutes and 13,359 minutes. At this point Wessex had only commissioned 1 out of 10 conductor rail heating strips.

Monday 21st January

- Owing to iced rail conditions across the Sussex route, Key Route Strategy and the associated contingency plans were invoked. It was reported by the crew on the de-icing train that the generator had failed on the train which consequently affected de-icing operations.

65. We were also concerned that points heaters were not being properly maintained causing unnecessary delays in cold conditions, which was also identified when we engaged with the TOCs. A Specific example includes:

- Friday 18th January - 3 sets of points at Reading West Junction failed with no reverse. Staff attended and reported that the points heaters were not switched on and a build-up of snow had prevented the points from moving to the reverse position.

66. Considering the impact of weather on the network, we expected to see Network Rail develop more weather mitigation plans in the LSEP. While we acknowledge that the Base plans for each JPIP will feature some weather mitigation actions on a route level, we did not see any national steer as yet. Network Rail had set up the Weather Steering Group (although no tangible benefits have been claimed to date) but it will not start to add quantifiable benefits until their Strategic Plan has been implemented.

67. One TOC stated that they challenged the wisdom of maintaining a renewals possession on the Brighton Mainline the face of the weather forecast and need to run winter mitigation on Sunday January 20th as part of the standard EWAT process. NR considered the challenge and implemented an amended plan that curtailed the work and gave, theoretically, sufficient time in advance of the passenger service to run winter treatment trains. On the day, the possession overran beyond the promised new time but did give up with a very small window to operate de-icing units on a single mainline run which NR tried to do. This reduced winter mitigation was then wholly ineffective because of a separate failure of equipment on the treatment train. Furthermore, the work content achieved in the block was less than the amended plan.

The Weather Resilience and Climate Change Steering Group - The findings from the independent reporter's field-test.

68. Network Rail identified the actions being devised by the Group as „key mitigations to the impact of weather as Network Rail seeks to bridge the gap between planned and actual PPM performance.

69. The Group was established with the stated overall purpose of „establishing and delivering a strategy to manage the risk of weather and climate change impact to rail performance.

70. Network Rail told us that prior to January 2013 this Group was largely ineffective and added little value due to a lack of vision and seniority. However, since the appointment of the new Chair in January 2013, the Group has been through a period of transformation.

71. The NTF directed the Group to focus on asset improvements to improve resilience, operational response and long term planning to improve resilience of the network to the impact of weather and climate change (targeting benefits in CP6 and CP7).

72. To date, the refreshed Group has not delivered any tangible benefits to the business, as it is focused on developing the new Weather Resilience & Climate Change Strategy. It is expected by Network Rail that once this strategy is developed and realised there is significant scope for the Group to deliver benefit to the industry.

73. The Group is now well structured and governed and the Strategy that the Group is developing appeared to be formed along the right lines, and is planned to be finalised in August 2013.

74. Although some good work has been done in assessing risks and introducing innovative means of enhancing the asset to increase weather resilience, much work is still required to bring about real changes on the ground. The Group however faces a challenge in this regard – the Group can develop innovations and improvements however it cannot mandate or direct the routes to implement them. The Group therefore needs to develop an approach whereby if recommended best practice is identified, senior support or sponsorship is obtained to ensure that as many routes as possible take up the initiative.

75. Based on the limitations outlined above it is conceivable that going forward the Group could have a larger role in: ensuring that all routes are sufficiently prepared for seasonal events; ensuring that routes‟ actions are closed out in response to seasonal and weather event reviews; and working with the business to transform the way that Network Rail plans for and responds to „adverse‟ weather.

Infrastructure overall

76. Network Rail told us that recent analysis indicates that the weather does not simply lead to weather related delays and that historically cold temperatures had resulted in an increase in track faults such as broken rails and therefore it was unsurprising the Track category had seen a spike in delay in quarter 4. It added that early indications from the analysis were that some asset failures were more than double what they normally were as a result of certain weather effects. Network Rail also told us that the sector was affected by the dewirements on the West Coast and Midland main lines, a significant power failure in Sussex and by possession overruns in the Wessex and Anglia routes.

Maintenance Organisation

77. There is still a question over the quantity and quality of the maintenance resources. It appeared that during the re-organisation of 2011, when a significant number of experienced staff were made redundant, that a degree of corporate knowledge was lost. In a meeting with Robin Gisby in June 2012, Network Rail admitted that „2BC might have cut too far". A particular concern at the time was also about delivery units focusing on bidding for capital works schemes, which may have distracted attention from maintaining the railway (e.g. Reading area failing on maintenance because the units were doing small schemes for the project). Further to this, although Dave Ward had made an impact in Sussex for example, this had been achieved through additional resources, which supports the evidence that resourcing levels were insufficient.

78. Table 6 below shows Network Rail"s declared progress up to Period 13 of 2012-13 in the key asset management areas that inform the Asset Stewardship Indicator. These elements were a mixture of directly measured conditions (either on a periodic or annual basis), normalised metrics and for key asset groups a count of incidents that had affected services above a specific threshold. These were reported by route and had some sector breakdown for the Track and Civils elements, but do not directly align to the LDRP and LSEP boundaries. For the purpose of this analysis LSE was considered to cover the Primary and Secondary routes on Kent, Sussex, Wessex & Anglia.

79. In terms of what this told us for the LSEP:

- Track geometry was a mixed picture;
    - For primary routes, both Anglia & Wessex were ahead of targets for track quality whilst Kent & Sussex were failing to meet their intended targets;
    - For secondary routes, all routes were meeting their targets on track quality; and
    - There were also issues with serious rail defects/breaks on both primary and secondary routes which were generally well behind.
- Additional structure inspections were broadly on target for primary routes and lagging behind target for secondary routes in Anglia and Kent;
- Signalling incidents were broadly in line with targets;
- Traction Power Failures were a mixed picture with Anglia well ahead of target, Kent was on target, however both Sussex and Wessex were significantly lagging behind their respective targets; and
- Telecoms failures were failing to meet their intended targets.

Table 6: Infrastructure Conditions Report (ICR)

Period 13 - 2012/13
Asset Stewardship Indicator
Description: A CP4 composite of measures to reflect overall asset stewardship.
Targets: Set during Business Planning process
Source: Various by Corporate & Regulatory Reporting Team
Notes: The per Route values of KPIs contributing to ASI are shown for current period and at year start.
Not all data splits are available at a route level. Some are small and have potential to distort arithmetic*

Route split of ASI components

KPI		Scotland		Wales		LNW		East Midlands		LNE		Anglia		Kent		Sussex		Wessex		Western		England		National		
		current	year start	current	year start	current	year start	current	year start	current	year start	current	year start	current	year start	current	year start	current	year start	current	year start	current	year start	current	year start	year earlier
238a	Track - Primary and Key L&SE																									
	*Good Track Geometry	139.4%	139.5%	153.9%	154.3%	144.5%	143.0%	137.3%	135.1%	136.7%	137.3%	134.2%	126.1%	128.2%	125.1%	129.7%	127.6%	133.6%	130.9%	143.1%	142.2%	138.5%	136.6%	139.5%	137.2%	137.2%
	Poor Track Geometry	1.64%	1.74%	0.71%	0.83%	1.25%	1.27%	2.18%	2.21%	2.59%	2.55%	2.72%	3.85%	3.71%	3.96%	4.54%	4.74%	3.42%	3.97%	1.78%	2.02%	2.31%	2.52%	2.22%	2.43%	2.43%
	Intervention/Immediate action geometry faults per 100Km	17.5	20.5	19.2	25.2	17.0	18.6	15.5	16.3	25.5	24.5	34.3	41.9	53.1	47.6	82.1	69.7	49.2	55.4	21.5	24.6	29.2	31.1	28.2	30.3	29.2
	*Rail breaks & serious rail defects per 100Km	2.67	5.09	3.78	1.16	5.10	4.99	4.25	4.14	4.37	3.91	4.92	3.53	5.45	5.16	10.20	9.39	5.55	8.85	6.03	3.95	5.30	4.99	5.10	4.85	5.74
238b	Track - Secondary, Other L&SE and Freight Trunk																									
	*Good Track Geometry	140.8%	142.0%	147.1%	147.3%	141.8%	140.2%	132.6%	129.1%	138.6%	139.4%	142.7%	137.1%	126.2%	122.3%	126.6%	122.7%	142.6%	141.1%	142.7%	143.8%	138.9%	137.2%	140.1%	139.3%	139.8%
	Poor Track Geometry	2.20%	2.16%	1.39%	1.36%	2.31%	2.27%	2.18%	2.68%	2.01%	2.61%	2.58%	3.39%	3.51%	4.25%	5.19%	5.44%	2.36%	2.72%	2.24%	1.78%	2.67%	2.78%	2.43%	2.51%	2.44%
	Intervention/Immediate action geometry faults per 100Km	39.7	41.2	24.6	24.4	42.2	42.9	32.8	38.2	48.6	45.7	49.8	54.0	45.7	42.3	61.5	58.9	45.3	40.7	44.6	39.5	45.3	44.5	42.2	41.9	40.4
	*Rail breaks & serious rail defects per 100Km	2.49	2.65	1.69	1.97	4.05	3.67	3.20	3.34	4.44	5.82	3.36	2.04	3.45	2.98	2.26	0.75	3.14	0.85	2.92	2.69	3.72	3.52	3.30	3.21	3.55
238c	Track - Rural & Freight Only																									
	Poor Track Geometry	4.02%	3.75%	2.13%	2.70%	2.57%	3.83%	3.32%	4.24%	2.17%	2.89%	2.48%	3.08%	1.71%	1.54%	5.47%	8.49%	3.73%	5.58%	5.67%	5.61%	2.62%	3.71%	2.95%	3.56%	2.95%
	Immediate action geometry faults per 100Km	4.6	5.4	4.6	4.3	3.7	3.7	3.4	3.2	2.6	2.8	3.3	2.2	2.0	1.5	3.5	5.4	2.7	4.9	7.8	7.2	3.6	3.5	3.9	4.0	3.8
	*Rail breaks & serious rail defects per 100Km	12.15	3.82	2.03	2.71	1.58	1.58	0.00	3.17	2.39	2.95	2.79	1.11	3.42	1.71	0.96	0.00	0.00	1.03	3.76	4.78	2.10	2.32	4.05	2.57	3.75
243	Structures - Additional Inspections																									
	Primary and Key L&SE	14	15	8	7	46	39	12	12	39	29	10	10	38	41	12	15	30	31	87	91	274	268	296	290	283
	Secondary,Other L&SE and Freight Trunk 32	116	118	36	35	83	89	5	3	64	62	6	5	15	13	15	15	21	24	30	28	239	239	381	392	408
	Rural & Freight Only 35	15	13	26	25	20	19	1	1	21	16	4	3	0	0	2	2	5	6	20	22	73	69	114	107	119
241	Operational Property 44																									
	Station Stewardship Measure (M17)																							2.55	2.38	2.41
	Light Maintenance Depot Stewardship M 45																							2.38	2.43	2.52
239	Signalling 47																									
	Signalling Asset Condition (M10) 48																							2.37	2.38	2.41
	*Signalling Failures >10 mins (M9) 49	1,435	1,591	778	897	3,543	3,830	667	666	2,858	2,764	1,252	1,352	1,107	1,109	718	709	1,099	1,109	1,541	1,618	12,785	13,157	15,018	15,645	16,507
240	Electrification & Plant																									
	Condition - AC Traction Feeder Station/ Tck Sect Pt (M13)			n/a	n/a													n/a	n/a					2.26	2.57	2.56
	Condition -DC Traction Substation (M14)	n/a	n/a	n/a	n/a			n/a	n/a											n/a	n/a			2.36	2.45	2.36
	Condition - AC Traction Contact System (M15)			n/a	n/a													n/a	n/a					1.4	1.62	1.6
	Condition - DC Traction Contact System (M16)	n/a	n/a	n/a	n/a			n/a	n/a											n/a	n/a			1.99	1.96	1.95
	*Traction Power Failures >10 mins	32	41	0	0	176	147	37	41	117	126	269	254	34	38	72	44	90	59	9	2	744	711	776	752	812
242	Telecomms																									
	*Telecom Condition																							0.97	0.95	0.94
	*Telecom-related Failures >10min	93	116	78	60	92	66	22	39	142	145	111	85	38	36	50	35	37	30	57	33	549	469	720	645	689

Equal to or better than Comparator	E
Worse than Comparator, but within tolerance	A
Worse than Comparator and beyond tolerance	R
Not applicable/available	N/A
Tolerance multiplier	5%

Comparator = End of Previous year/year start
* Increases represent betterment (the opposite to most measures)
^ Cummulative measure based on last 13 periods (all others are "snapshots")
Route split currently not available
n/a Not applicable

* Kent - Rural & Freight only track is principally 58 Km Ashford to Hastings
* Western - Only 120 Km, Paddington to Heathrow electrification
Note: breaks & serious defects are normalised throughout by current Route sizes

Asset renewals

80. In 2012-13 the volumes of renewals delivered by Network Rail were below its plan in most areas, although the expenditure was close to budget. The overall shortfall is in the region of 20%, creating a significant backlog. Some areas where there appears to be a significant shortfall include:

- Track - while switching's and crossings were close to the planned number, plain track renewal was 18% below planned;
- Civils - overall delivery was about 21% less than planned. Delivery exceeded the plan by 31% for overbridges, but this was more than offset by significant shortfalls in other areas including a 24% shortfall for underbridges, 37% for footbridges, 21% for earthworks, and 96% for coastal/estuary defences;
- Signalling - 51 level crossing renewals were delivered, significantly more than the 22 delivered in 2011-12, but still 35% below plan due to slippage on the National Operations Strategy project; and
- Electrification - OLE re-wiring and campaign changes were close to plan overall, but only 7% of conductor rail volume was delivered. Only about 30% of the work planned for DC systems was delivered.

81. The main aim of the renewals programme is to replace worn-out, degraded or life-expired assets, in order to bring asset performance back to as-new. As a result of slippage in the renewals

programme, assets in poor condition will have been retained in operation for longer than planned, which is likely to have had a direct adverse effect on performance.

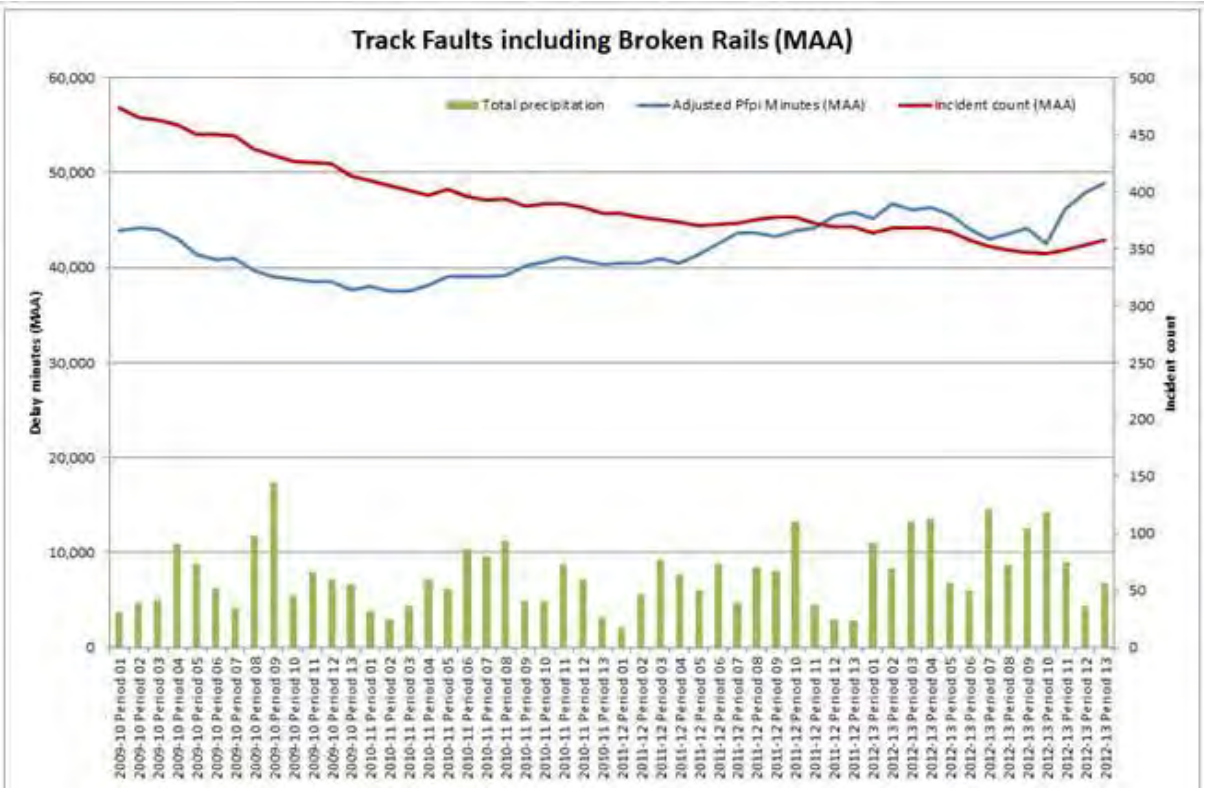
82. Several TOC and Network Rail people we spoke to stressed the need for urgent renewals work, particularly on the routes that constitute the LSE sector. This is possibly supported by the variances to the plan in the track assets category grouping. There were suggestions from our engagement meetings that the routes were unable to take renewals possessions as National Delivery Service resource was already allocated for major projects such as Thameslink. It was also stated that the Network Rail track criticality measures does not prioritise low-speed and low tonnage approaches to major London terminals on the south side of the LSE sector and as such Kent, Sussex and Wessex routes had significant numbers of delay minutes in the track assets category.

Track Faults and Temporary Speed Restrictions (TSRs)

83. Chart 8 shows that although the number of track fault incidents had been steadily falling over time, the delay minutes associated with them had been steadily increasing since the end of 2009-10. The delay minutes continued to rise in 2010-11 and 2011-12 relative to 2009-10 and the beginning of 2012-13, despite there being less rainfall.

84. Incidents continued to trend downwards until period 9 2012-13, when both incidents and delay minutes started to increase. One of the underlying problems facing Network Rail is the condition of the ballast, which can only be tamped to improve geometry so many times. Once the dust (fines) has accumulated to a point where the track drainage is ineffective, localised flooding can occur, which leads to other problems such as signalling and traction power issues for example. The sharp rise in delay minutes at the end of 2012-13 after several periods of rain could be an indication that tamping is no longer as effective and Network Rail should be focused on more ballast cleaning. In our discussions with the Sussex route, it told us ballast cleaning is a key area for its track programme in CP5.

Chart 8: National track faults including broken rails (MAA)



85. The national target for speed restrictions is 200 by 31st March 2014. The total number of speed restrictions nationally as of 2nd March 2013 (end period 12) stood at 328, which had risen from 253 in period 1 2012-13. On the 13th March Network Rail presented a paper to the NTF detailing the upward trend in TSRs. Both planned and unplanned TSRs had risen in the latter half of 2012-13. As a consequence, delay minutes, including reaction to P-Coded or planned TSRs had increased. A concerning trend was the increase of track renewal TSRs, which demonstrated the impact of less than planned volumes of track being renewed. Earthworks TSRs had also increased, while condition of track TSRs can be applied for many reasons, although wet track beds and drainage issues were a predominant factor in the number of speed restrictions. To help reduce the number of speed restrictions across the network, each route had action plans underway. However, LNW south and LNE had also developed local initiatives to reduce the impact of speed restrictions and potential for speed restrictions being applied, which involved a weekly route review of action plans for all speed restrictions imposed with focus on short and medium term actions to remove. It was recommended at NTF that other routes and TOCs established such a dialogue.

Signalling and Power Supply

86. These assets were responsible for over a third of total infrastructure delays. Signalling and power supply failure delay minutes increased by 2.5% since 2011-12, „other non-track assets" (which includes traction power supply) increased by 15% and axle counter failures increased by 16%. The key message was that the initiatives did not appear to have made a significant difference.

Overhead Line Electrification (OLE)

87. Initial indications for overall year performance indicate that Network Rail met its intended target for the number of incidents >10 minutes relating to OLE performance, however, it exceeded its intended target for the number of incidents >300 minutes, with significant incidents over target in Periods 1, 2, 6, 11 and 12.

88. If the total number of incidents is compared to previous years, Network Rail achieved approximately the same number of incidents (>300) in 2012-13 as 2009-10 and 2011-12. However, whilst the total minutes for 2009-10 and 2011-12 were broadly comparable, the delays associated with 2012/13 were significantly more. This was driven by a number of factors including location and timing of incidents, increased system utilisation but also in the length of time taken by Network Rail to rectify the damage in a number of these incidents.

89. A subjective review utilising the National Control Logs and other information sources of the OLE incidents that made it into the periodic top 50 incidents for 2012-13 indicates that, of the OLE incidents that were attributable to Network Rail, the following breakdown of base cause applied:

- 25% could probably have been prevented by the appropriate application of inspection and maintenance;
- 6% were component failures that maintenance could not have detected;
- 19% were due to historic design decisions (some of which could potentially be negated through enhancements to the system);
- 12% were due to poor quality construction/installation; and
- 38% were unknown due to lack of available information within the ORR to determine a root cause

90. We will be closely monitoring OLE incidents during 2013-14 to provide us with a greater understanding of the incidents occurring to determine whether Network Rail has undertaken reasonable measures to minimise the occurrence of incidents within its control and has taken steps to improve its response to incidents to minimise their impact.

Implementation of New Technology

91. This has remained an area of concern throughout previous performance investigations and some TOCs also raised concerns about the introduction of new equipment. We were aware of conductor rail heating problems on the Sussex and Wessex routes, which meant that winter preparations for 2012-13 was not complete. There had also been issues with digital track circuits, amongst a number of other infrastructure components.

Intelligent Infrastructure - Remote Condition Monitoring (RCM) - The findings from the independent reporter's field-test.

92. In the Q4 report, Network Rail noted that the benefit from RCM for the last three periods was estimated at 50,137 of avoided delay minutes as a result of the installation and use of RCM nationwide. It was also noted that the delay associated with the rollout of RCM phase 3 in LNW (Sandwell, Dudley and Euston) resulted in a loss of over 3,000 delay minutes on LSE. These schemes were in the top 30 schemes delivering benefit to LSE.

93. Until around 12 months ago the Intelligent Infrastructure programme team did not have an effective business change management function. This was reported to have limited the level of successful take-up of RCM across Network Rail. It was noted by Sussex Route that the early stages of implementation were problematic as Control Rooms were flagging alarms almost constantly with no screening of which alarms were real and which were „false". This was reportedly because Control Room staff were not sufficiently capable in screening the alarms and numerous false alarms were being raised due to technical, IT and asset calibration factors.

94. Phase 2 of the Programme was now around 80% complete, and Phase 3 was around 40% complete. Overall the RCM programme nationally was around 3 months behind plan due to material availability and a lack of delivery resources.

95. The original business case benefits baseline was set in 2009-10 following the completion of a pilot. In May 2012, the central programme reforecast and reduced the benefits baseline by 11% for 2011-12 to reflect errors identified in the baseline data, better assumptions, the time lag between installing RCM and the realisation of full benefits, and lessons learnt.

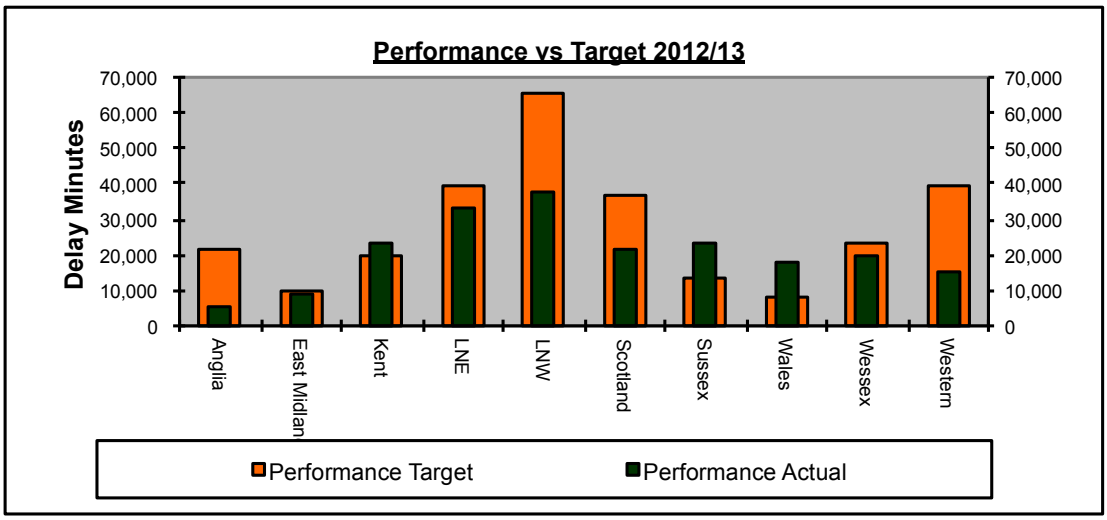
96. At the end of 2011-12 national benefits performance was 24.5% under the *revised* target. The programme planned to close the gap through improved business change management. In 2012-13, nationally the Programme had once again under performed by around 25% from a performance benefits perspective. The target vs. actual performance for the whole of Network Rail in 2012-13 is set out below. The programme team does not routinely capture or report on performance by Long Distance or LSE, but does so by individual NR route.

2012/13 Target	**2012/13 Actual**	**Variance to Target**
Minutes Performance	**Minutes Performance**	**Minutes Performance**
275,690	205,556	-70,134

97. As can be seen from the graph below (Chart 9), Kent, Sussex and Wessex were achieving substantial benefits from the implementation and use of RCM and generally achieved their performance targets in 2012-13. The exceptions to this were Anglia and LNW where performance was very significantly below target - 75% and 42% under target respectively. LNW was particularly concerning as

the under-performance impacts both Long Distance and LSE routes and a number of the delayed installations were in the top 30 schemes identified as providing benefit to Long Distance and LSE. Sussex was noted as performing particularly well and was embracing and extracting significant value from RCM.

Chart 9: Comparison of Nationwide Target vs Actual Delay Minute performance for RCM in 2012/13

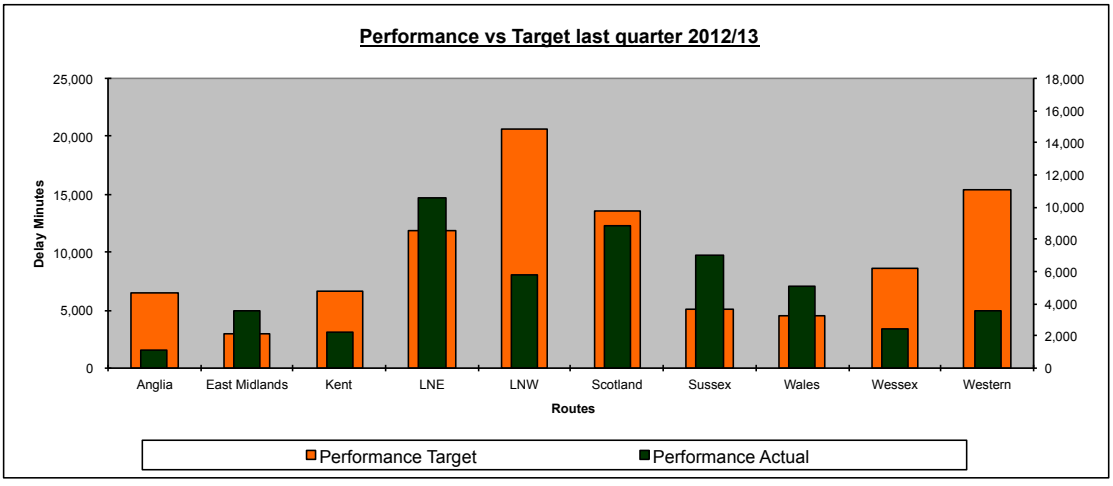


98. In Q4, Network Rail claimed that RCM had led to 50,137 of avoided delay minutes nationwide. This was obviously a good result however when this is contrasted against planned performance the result is disappointing, as this was 45,521 minutes below target. Q4 performance is set out below.

Q4 Target	Q4 Actual	Variance to Target
Minutes Performance	Minutes Performance	Minutes Performance
95,658	50,137	-45,521

99. As can be seen from the graph below (Chart 10), in Q4 Kent, Wessex, Anglia and LNW all under performed against their targets. This was attributed to delays due to winter weather and material supply issues.

Chart 10: Comparison of Nationwide Target vs Actual Delay Minute performance for RCM in Q4



100. Whilst the programme was delivering considerable benefits, particularly in LSE, the original overall planned benefits appeared to have been overly optimistic and were reported to contain calculation errors and incorrect assumptions. The programme tried to address the identified shortcomings through re-baselining. However performance nationwide since the benefits baseline had been re-set had repeatedly missed the target, and by significant amounts. Kent, Sussex and Wessex were an exception to this rule and were generally achieving significant benefits, largely in line with original expectations. However, Anglia and LNW were performing very significantly below expected performance from an RCM perspective.

101. The central programme team has been successful in achieving a change in culture and behaviours in Control and the routes to the point where much of the organisation is bought-in to the value and importance of RCM. In reviewing how Sussex route had used RCM it was noted that whilst the on-going support from the central programme team was now reported to be excellent and adding significant value, in the early phases of implementation and operation the route had to develop its own training and supporting processes to enable effective implementation and take-up.

102. The central programme team also estimated that there were considerably more delay minutes (possibly as many as 180,000 nationwide) that could have been saved by the routes but that these had been missed due to poor calibration and lack of capability of staff. As above, it is expected that similar missed opportunities will be avoided in the future as the RCM capability of the organisation improves. The programme is introducing a central quality control function to oversee the performance of all routes and to mentor and support them in improving their capability. It would seem prudent to continue this function into business as usual following the completion of the programme.

103. It was noted that the formula the programme team uses to calculate the benefits from RCM led to a conservative level of benefit being claimed. It was also noted that the programme and the Routes quantify the benefits of RCM differently. The RCM Programme team are only able to calculate the benefits based on the average delay previously attributed to a certain asset. The Routes may take other factors into account such as time of day or avoiding a failure based on the specific location. Therefore it is possible to calculate a different benefit figure for a given situation. Furthermore, not all Routes quantify benefits on the same basis. Accordingly, it is very difficult to build up a true like-for-like comparison for each Route against the national picture.

104. It was noted that the programme is relatively conservative in claiming benefits attributable to RCM, given the current benefit performance of the programme that could be to their detriment. For example, the programme only counts benefits where the asset has failed before previously and a further failure is prevented. For the interventions included, there is an assumption that 100% of them would have gone on to cause a delaying incident.

105. In the Phase 3 material procurement and supply chain some routes had a surplus of equipment and others had none. This was reported to have delayed the programme by three months on some

routes, although as the matter is not yet under control, further delay could be expected. It was noted that in general the LSE routes were well organised in planning for RCM installation and therefore materials delivery, however LNW had been particularly impacted by these supply chain issues where a 10 period delay in realising the benefits from RCM had been reported in a number of key schemes.

106. If this breakdown in the supply chain had occurred in the first or second phases of the work, it could perhaps have been more understandable. However given that it occurred in the third phase, it would appear that there had been either a significant management or system failure. Network Rail should seek to understand and learn lessons from this.

Train planning

107. Over the past year or so the Train Planning function of Network Rail faced a series of challenges. In particular:

- Completion of centralisation of the activity at Milton Keynes and closure of the Leeds office;
- Moving the office from the original building at Milton Keynes into the Quadrant;
- The Olympics, which required an unusual focus of activity on validation of schedules and creation of special schedules in a particular part of the network; and
- The major spoil heap slip at Hatfield Colliery, near Doncaster, has forced the alteration of up to a quarter of the UK"s freight trains to/from Immingham. This continues to be a major un-planned burden.

108. The overall management environment had been under some stress, with the creation of new relationships with devolved routes and staff changes at senior level. Most obviously Dyan Crowther moved from Director, Operational Services to be Route Managing Director for LNW at Birmingham and various other staff were stepped up temporarily in the meantime.

109. Following the enforcement action taken in respect of the implementation of the Integrated Train Planning System (ITPS) in 2010 we had taken a relatively light touch approach to the train planning activity until the enforcement action in respect of Long Distance. The importance of timetabling was evident and appeared in the LSEP, both in detailed JPIP/Base plans (56 schemes) and the Base+ scheme of „Timetable for Performance". Various discussions were held with Network Rail train planning staff during evaluation of the plan.

110. It is clear that performance analysis has identified a large number of trains (both in the Long Distance sector and more widely) that regularly lose time on particular sections. Subject to checking that other factors (such as long-running speed restrictions) were not the reason, it was frequently found that minor errors in timetabling parameters (such as sectional running times) or unresolved conflicts were to blame. It is generally possible to correct these in conjunction with the train operators but the nature of timetabling means that it is often only possible at the May and December timetable change

dates if publicly advertised times at stations are affected. Experience in Scotland (where the first timetable for the re-opened Airdrie-Bathgate line had significant weaknesses that have now been solved) shows that this approach can make a major difference to PPM.

111. Unfortunately the functionality of ITPS does not yet extend to either automatic sectional running time calculations or automatic conflict detection. Further upgrades to resolve these capability issues are in development, however the supplier being small is unable to progress these as quickly as Network Rail would have hoped.

112. In general terms the timetable modelling tools available to Network Rail are weak. They are cumbersome to set up and produce results in formats that do not relate directly to normal performance measures such as PPM. Relatively few staff are trained in their use. There are no tools suitable for modelling recovery from major incidents (as opposed to relatively minor perturbations). Hence many revised timetables are introduced without any modelling. Even where modelling is undertaken it may indicate that a new proposed timetable is likely to be better or worse than the existing one but the actual extent of the change is subject to a wide range of uncertainty. Although the benefits of reduced numbers of minor failures can also be simulated the magnitude of the benefits is again relatively uncertain. Other timetable changes, such as variations in differentials between public and working timetables, can also be assessed, but again experience has shown that the benefits can be either under or over-estimated. The relationships between delay minutes, lateness and PPM frequently seem to vary from what has been expected.

113. The train planning activity at Milton Keynes was now relatively stable and staffing had been increased by 22 posts over the original final plan. Most of the additional resource had been committed to validation, particularly of short-term planning (mainly engineering works and changes to freight traffic flows). However, delays attributed directly to train planning remained high and had shown no overall improvement between 2011-12 and 2012-13.

TOC issues including fleet and driver shortages

114. The review of delivery in 2012-13 showed TOC on Self delay minutes due to issues with fleet were 11,000 minutes worse than target overall for LSE in 2012-13, however they had improved significantly since 2011-12 (by 38,000 minutes). Fleet accounted for the greatest proportion of TOC on self delay minutes in 2012-13 at 16% (see table 2). Network Rail said that while some operators did not achieve the JPIP improvements planned, there had generally been stable delivery across the year. TOC on Self delay due to traincrew had missed target by 36,000 minutes and was significantly worse than 2011-12 (37,000 minutes). In 2012-13 traincrew delay minutes accounted for 7% of the total minutes for the year (see table 2). Network Rail said that it was focussed on a small number of operators, in particular London Midland, highlighting the challenge of providing traincrew for all industry requirements. Improvement initiatives were expected to be developed in 2013-14 to help deal with the issue.

Network Rail capability – TOCs view

115. Some more general thoughts from the Train Operating Companies about Network Rail"s capability include;

- There was a very strong feeling amongst the TOC community that Network Rail has some good people who work hard to deliver performance for passengers and build good local relationships, however the leaders of the organisation themselves let the TOCs and its own people down by often re-organising teams for no apparent purpose, or moving people who were doing well in one role into another to „fight-fires". One TOC MD in an LSE sector TOC said that "Network Rail needs stability in senior jobs."

- Devolution had been well received and TOCs felt that it was causing the right behaviours to influence performance. There was some criticism levelled at Network Rail"s HQ which was perceived as interfering and self-important rather than being a supportive function.

Conclusion

116. In conclusion, the evidence showed there were many reasons why Network Rail failed to achieve the forecast it originally set out in the LSEP.

117. When analysing the effect weather had on performance in 2012-13, we concluded that statistically the mean level of precipitation in 2012-13 was significantly more than compared to 2009-10, 2010-11 and 2011-12. However, whilst the weather almost certainly had an impact, our analysis showed that even if the „extreme" weather days were removed, PPM MAA would have remained 1.4pp worse than CP4 target. When the analysis was expanded to include minutes attributed to track and non-track assets, taking into account the time lag impact weather can have on asset failures, the results showed little improvement and the National delay minutes would still have missed the end of year CP4 target. Furthermore, through our review of daily incident logs and our engagement with TOCs, we identified areas where we felt Network Rail did not effectively manage seasonal preparation. The number of initiatives relating to weather mitigation in the Base plan also seemed low given the impact weather had in 2012-13.

118. Progress setting up the Weather Resilience and Climate Change Steering Group had also been slow, despite it being identified as a key component to bridging the gap between planned and actual PPM performance. To date, the refreshed Group had not delivered any tangible benefits to the business, as it was focused on developing the new Weather Resilience & Climate Change Strategy.

119. There was also evidence to support the view that Network Rail was not doing everything it could have to maintain the network on a day to day basis. For example, the infrastructure conditions report

identified several areas where routes within the LSE sector were behind target. Additionally, in 2012-13 the volumes of renewals delivered by Network Rail were below plan in most areas, although the expenditure was close to budget. The overall shortfall was in the region of 20%, creating a significant backlog. As a result of slippage in the 2012-13 renewals programme, assets in poor condition will have been retained in operation for longer than planned, which is likely to have had a direct adverse effect on performance. Several TOC and Network Rail people we spoke to stressed the need for urgent renewals work, although it was particularly on the routes that constitute the LSE sector.

120. The sharp rise in track fault delay minutes at the end of 2012-13 after several periods of rain could also be an indication that tamping is no longer effective and Network Rail should be focused on other methods of maintenance such as ballast cleaning instead. Planned and unplanned TSRs had also risen in the latter half of 2012-13, for a number of reasons, and were having a negative impact on performance. However LNW south and LNE had developed local initiatives to reduce the impact of speed restrictions and potential for speed restrictions being applied, which had started to have an impact and their approach was being held up as an example to follow.

121. Furthermore, despite OLE incidents in 2012-13 being broadly comparable to 2011-12, the delays were associated with 2012-13 were significantly more. This was driven by a number of factors, including the length of time taken by Network Rail to rectify the damage in a number of these incidents. A review of the OLE incidents attributable to Network Rail that made it into the periodic top 50 incidents for 2012-13 also indicated that 25% could probably have been prevented by the appropriate application of inspection and maintenance.

122. The independent reporter"s field test on the implementation of the national RCM programme also identified some issues, however overall the picture for LSE was more positive than on Long Distance. Whilst overall the Intelligent Infrastructure programme delivered considerable benefits, particularly in LSE, it appeared that the originally planned benefits were overly optimistic and contained calculation errors and incorrect assumptions. The programme tried to address the identified shortcomings through re-baselining. However, performance since the benefits baseline was re-set repeatedly missed the target, and by significant amounts, but Kent, Sussex and Wessex were the exception to this rule and were generally achieving significant benefits, largely in line with original expectations. Phase 3 had material procurement and supply chain issues where some routes had a surplus of equipment and others had none. This was reported to have delayed the programme by 3 months on some routes.

123. Over the past year or so the Train Planning function of Network Rail has also faced a series of challenges. The importance of timetabling was evident and appeared in the LSEP and Network Rail did make some progress in 2012-13, for example the train planning activity at Milton Keynes is now relatively stable and staffing had been increased by 22 posts over the original final plan. However most

of the additional resource has been committed to validation and delays attributed directly to train planning remained high and showed no overall improvement between 2011-12 and 2012-13.

124. At the end of 2012-13 LSE TOC on Self delay minutes were 53,000 minutes worse than target and 16,000 minutes higher than last year. The largest variance against target was for traincrew issues and improvement plans are expected in 2013-14 to address the issues. Fleet also remained significantly worse than target despite a great improvement from last year.

5e) what is the new forecast?

125. Network Rail provided an update of their 2013-14 PPM MAA forecast. The new forecast for 2013-14 PPM MAA was 91.7%, which was 1.1pp behind what it forecast in the LSEP (table 7). This new forecast only reflected part of the LSE asset management programme, as there were still 18 schemes left to quantify which had not yet been entered into iPAT. It also included the ongoing risk around London Midland driver shortages as the impact is likely to be felt until at least period 6.

Table 7: forecasts for the end of 2013-14 which we have received throughout the year.

2013-14 P13	**PPM MAA**	**Variance to CP4 target**
LSEP*	92.8%	-0.2pp
Q3 report	91.9%	-1.1pp
Q4 report	91.7%	-1.3pp

Forecasts based on 90% confidence level

*Based on Base, Base+ and Base++ (combined) forecast in the Q3 report.

126. Network Rail told us that there were a number of new risks to performance identified in quarter 4 , namely the gap (resulting from the „prolonged impact of worse than average weather"), the distraction of more pressing matters (such as weather mitigation and the Franchise change programme) and safety issues in response to the failed earthworks improvement notice for Scotland.

127. Network Rail also told us that several risks had been cited in previous reports and since been realised. These were: the weather impact (identified in Q3), 2013-14 JPIPs, which are less than the plan estimated at the end of 2011-12 (identified in Q4), the public timetable differentials particularly affecting Virgin and East Coast (identified in Q2&3) and „trying to do too much at once".

2013-14 period 1 and 2 performance

128. Performance in the LSE sector was at the same level at the end of 2013-14 Period 1 as it was at the end of 2012-13. At the end of 2013-14 Period 1 LSE PPM MAA was 91.0%, 1.7pp worse than the profiled CP4 target. PPM MAA also fell below the 92.8% forecast in the LSEP. CaSL MAA stood at 2.5%, 0.5pp adrift of the CP4 target. Period 2 figures showed a marginal improvement in the LSE sector with a PPM MAA of 91.1%, 1.6pp adrift of the profiled CP4 target and 1.9pp adrift of the end of

CP4 target, whilst CaSL MAA remained at 2.5%, 0.5pp adrift of both the profiled CP4 target and end of CP4 target.

Conclusion

129. In conclusion, once again the PPM MAA forecast for the end of CP4 has been reduced and is now 1.3pp below the CP4 target, although we recognise that this new forecast does not include part of the LSE asset management programme.

5f) what else is being done?

130. In their full year review, Network Rail told us that following some difficult autumn and winter conditions, the LSE programme had been extended to include the delivery of new treatment trains to provide a service for autumn and winter railhead treatment for 2013-14. However in a paper Network Rail presented at the NTF meeting on the 8th May 2013, it was stated that the extra trains would not arrive until November (i.e. after the autumn season). There was also a discussion at NTF concerning the very recent tender for drivers to support the autumn programme, which would give the winning bidder virtually no time to mobilise.

131. In its Q4 progress report, Network Rail told us that many other actions had been taken to improve performance within Network Rail and cross-industry, stating there are „too many to discuss in this quarterly report". It therefore only gave us details of the LSE Asset Management Programme.

132. In summary, Network Rail said that the LSE Asset Management programme was based principally around asset reliability improvements, established by Dave Ward, RMD LSE. A £30m fund was also allocated to enable the delivery of the programme within the LSE sector before the end of CP4. The programme's primary focus is to deliver projects that mitigate the effects of seasonal influences on the Network. It told us that the funding is now virtually allocated and work on delivery of schemes has commenced.

133. The appointment of Dave Ward as RMD LSE and the creation of the subsequent LSE Asset Management Programme has generally been well received by the operating community, in part due to the reputation of Dave ward, who is seen as someone who will „get the basics right". We are however concerned that a good proportion of the £30m has been spent on autumn railhead treatment. The general consensus of opinion is that it was winter that had the greater impact and therefore we question if the money would have been better spent on winterisation. However there were positive signs in that since the LSE Asset Management programme was established, the number of TSRs in Sussex had reduced from 20 to three indicating that performance was being taken seriously on this route. Furthermore the Anglia route had made good steps forward, especially in areas of overhead wires, where there was a legacy of good pre-Olympic fault rectification and also External delays which had benefited from the appointment of a Route Crime Manager and associated projects.

134. On June 7th 2013, Network Rail wrote to us to tell us that it had recently been able to establish funding of £50m for further performance improvement[12]. This was in addition to the £79m already established for performance improvement in 2012. It said some of it was planned to be used to fund national, more strategic initiatives, including the Performance Planning Reform Programme, but the majority was being made available for the routes to target the areas it believes will deliver the biggest performance benefit in CP4, with lasting effects into CP5. Network Rail committed to updating us on the use of all performance funding as part of Quarterly Reporting and assured us that it will remain focused on delivery of these improvement schemes to maximise the performance benefit.

135. On 20th June, Network Rail wrote to us to tell us that it had agreed with GOVIA to establish a Joint Performance Board[13]. The board membership will consist of the CEOs, the three GOVIA TOC managing directors, their respective Network Rail route managing directors and other appropriate senior managers. Network Rail told us that the Board"s purpose will be to ensure a consistent, high level focus on performance across the organisations.

6) Other related issues

Operational planning over Christmas

136. We initially wrote to Network Rail on 3rd January asking for its views on operational performance over the Christmas period 2012. This included the possession overruns and planning errors that occurred, where basic errors in planning caused unnecessary disruption. The four failures, one of which was in the LSE sector, we identified were:

- ***Balham*** **(LSE)** – Schedule errors relating to a speed restriction that accompanied engineering work caused significant delays;
- ***LNW(S)*** **(LD) –** An electrical isolation at Cheddington when electric trains were timetabled to run requiring that section of track;
- ***LNW (LD) – Birmingham*** – A reduction is station capacity for engineering access for the gateway project was combined with some issues regarding knowledge of platform length to cause major delays; and.
- ***TransPennine Express (LD)*** – A contingency timetable was not fit for purpose following a landslip.

137. Our view was that in all of these examples more thorough planning and validation of the amended plan could have prevented this disruption. There was also no evidence that local operational personnel had been engaged in the process until it was too late. After receiving Network Rail"s view on operation performance in P10, we wrote again on 22nd February specifically requesting further information on why the operational planning issues occurred over the Christmas

[12] See Annex e.
[13] See Annex f.

and New Year period and what measures were being taken to ensure they didn't happen again. After their response, we wrote again on the 26th March to say we would take its response into account when we were reviewing its performance for 2012-13.

7) Annexes

Annex A – Independent reporter's assessment

Annex B – Analysis of extreme weather methodology

Analysis of underlying train performance (delay minutes and PPM) in 2012-13 P1-13

Objective

1) Analyse underlying performance taking into account the impact of 'extreme' weather.

Analysis to focus on

i) National (delay minutes and PPM)
ii) London and South East (PPM only)
iii) Long Distance (PPM only)

Key results

Precipitation

- National total average precipitation was highest in 2012-13 – 29% greater than the next highest total average precipitation, seen in 2009-10.

- When compared to previous years of CP4, three quarters in 2012-13 had the highest total average precipitation. Quarter 4 in 2009-10 had a higher level of precipitation than 2012-13.

- London and South East and long distance sectors show a slightly different picture with 2012-13 having the highest precipitation in quarters 1 and 2 only.

- A student t-test statistical test was used to identify if the amount of precipitation in 2012-13 was significantly more than any previous year in CP4. The results showed that the mean level of precipitation in 2012-13 was significantly more than in each of the other three years.

Delay minutes

- When compared to previous years of CP4, 2012-13 weather delay minutes were the highest in every quarter, except quarter 3.

- A total of 26 days were adjusted but National Network Rail caused delay minutes remain worse than period and annual targets.

PPM

- For the National data, a total of 44 days were adjusted but PPM MAA remains worse than the 2012-13 end of year CP4 target.

- For the London and South East data, a total of 54 days were adjusted but PPM MAA remains worse than the 2012-13 end of year CP4 target.

- For the long distance data, a total of 54 days were adjusted but PPM MAA remains worse than the 2012-13 end of year CP4 target.

Data sources (from Network Rail)

Weather data

This analysis used daily MeteoGroup weather data from 01/04/2009 to 31/03/2013 based on a selection of weather stations across the country. These weather stations were mapped to a route. For analysis of the National level data, all of the weather stations were included but for the London and South East and long distance sector analysis, a selection of weather stations were used (based on their location/route), as shown in table 1 below.

A map of the weather station locations was also produced – see Appendix 1.

Table 1: Weather stations

Weather station	Route	Sector
Andrewsfield	Anglia	
Nottingham, Watnall	East Midlands	
East Malling	Kent	LSE
Herstmonceux, West End	Kent	LSE
Durham	LNE	LD
Waddington	LNE	
Coventry, Coundon	LNW	
Keswick	LNW	LD
Bedford	East Midlands	LD
Dalwhinnie	Scotland	
Edinburgh, Gogarbank	Scotland	
Glasgow/Bishopton	Scotland	
Charlwood	Sussex	LSE
St Athan	Wales	
Hurn	Wessex	LSE
Wisley	Wessex	LSE
Cardinham, Bodmin	Western	LD
Heathrow	Western	
Lyneham	Western	LD

Table 2 below highlights the weather data used as part of the analysis

Table 2: Weather data used in the analysis

Weather metric	Data	Reasoning
Precipitation	24 hour precipitation	Average precipitation each day, capturing rainfall and snow
Cumulative precipitation	Moving 28 day total based on total 24 hour precipitation	Attempt to capture ground saturation
Minimum temperature	Minimum temperature	'Extreme'/cold weather leads to asset failures
Minimum temperature range	Variance in minimum temperature compared to the previous day	Rapid changes in weather lead to asset failures

As part of this analysis only precipitation and cumulative precipitation data were used to identify days to adjust. The minimum temperature and minimum temperature range metrics identified an excessive number of days to

adjust and insufficient time was not available to identify an alternative method to incorporate/utilise this data within the analysis.

Met Office weather warnings data was also used as part of this analysis.

Performance data

Delay minutes

- Daily delay minutes from 01/04/2009 to 31/03/2013, by all JPIP categories.
- Daily delay minutes from 01/04/2009 to 31/03/2013 for two weather codes – 110A (Severe weather (beyond design capability of infrastructure) and 110B (Other weather (impact on infrastructure or network operations).
- Christmas day was excluded from all datasets as no trains run on this day.
- The latest delay minutes data may still be subject to change due to dispute resolutions.

PPM

- Daily PPM data from 01/04/2009 to 31/03/2013, for National, long distance, London and South East, Regional and Scotland.
- Christmas day was excluded from all datasets as no trains run on this day
- Boxing day was also excluded from the long distance sector analysis as no long distance trains run on this day
- All daily PPM data should be treated as provisional

Methodology

Overview of methodology

- Calculate the 95th percentile value for each period in the specified weather time series. This 95th percentile is based on the overall data and not each period.
- Any values that exceed the 95th percentile value to be classed as 'extreme' weather days
- Calculate the 5th percentile for the performance data for each period.
- Plot the different weather metrics data against the daily weather delay minutes and PPM values to identify where performance may have been impacted by the weather. This to be reviewed alongside the 5th percentile value for each period, identifying days where performance is below this value.
- Calculate percentage change between each performance data point and the period MAA
- Using this percentage variance between each day and the period MAA, calculate the average percentage variance for each day. For example, the average percentage variance of 1st April against the period would be calculated by taking an average of all of the 1st April percentage variances between 2009/10 and 2012/13
- Where performance is considered to be worse than the average and impacted by the weather, daily value to be adjusted by the average percentage change value for that day
- Where adjusted value falls below the actual value, day was not adjusted.
- PPM MAA values to be recalculated for the adjusted time series based on daily trains planned data

- Adjusted data to be re-plotted and performance assessed against the relevant targets

Caveats/Assumptions

Weather data

- The 24 hour precipitation data is based on an average for the day (from hourly readings) and the total precipitation data presented is based on the sum of these average daily values. Therefore, the total precipitation values should be used for indicative purposes.
- A cumulative precipitation metric was developed as a means of understanding/identifying ground saturation. This metric is based on a 28 day moving total of the 24 hour precipitation data.
- It has been identified that cold weather and extreme changes in temperature cause asset failures. A 'minimum temperature range' metric was developed to attempt to capture this, based on the difference in minimum temperature to the previous day. However, initial analysis quickly identified that the temperature metrics were not as reliable as the precipitation metric, highlighting a very large number of days to adjust. Insufficient time meant the use of the minimum temperature and minimum temperature change metrics could not be developed further for use in this analysis.
- The weather data should be used for indicative purposes only. The British climate is constantly changing and the 4 years of data analysed here is not sufficient to draw firm conclusions about the British weather and the impact on train performance.

Analysis

- Where adjustments to the daily delay minutes or PPM led to a lower value than the actual value, the adjustment did not take place.
- Quarterly data presented in this analysis is based on the periods stated in each Network Rail quarterly report.
- Please be aware that there can be a time lag between weather events occurring and the impact this has on performance.

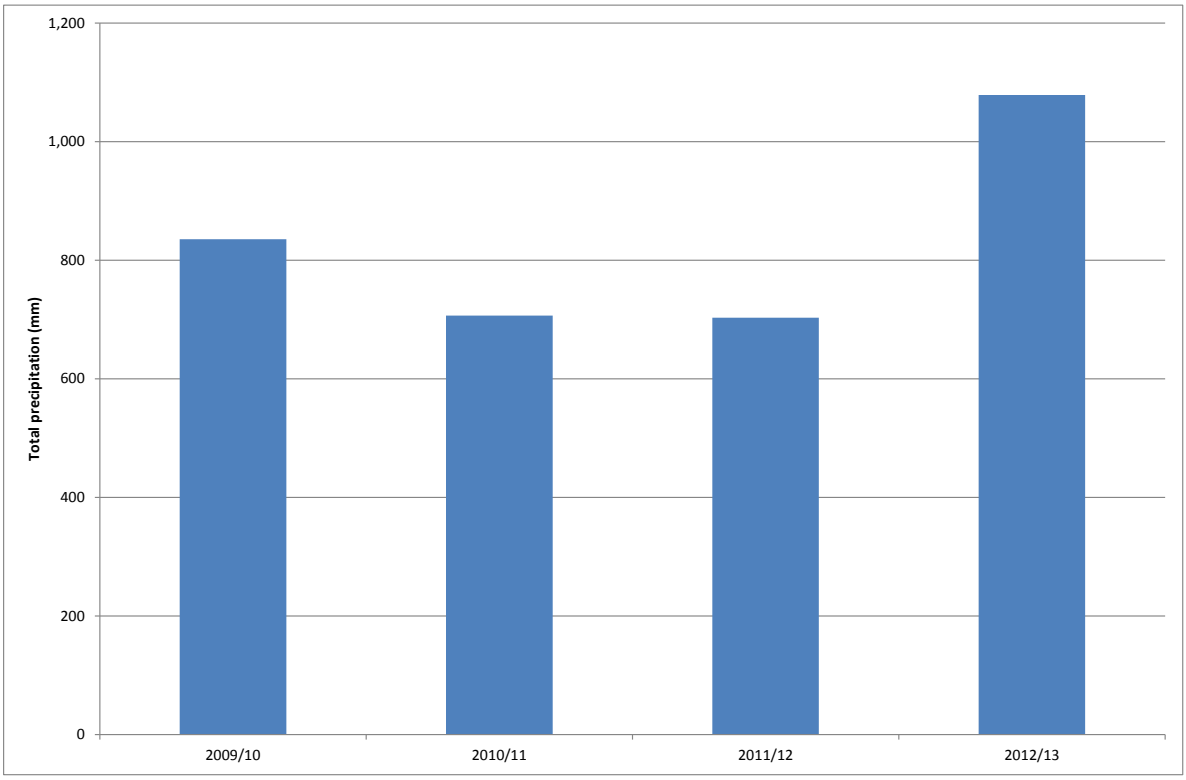
Analysis

Precipitation levels[14]

As Chart 1 shows, the highest level of total average precipitation was seen in 2013/12. This is 29% greater than the total average precipitation 2009/10.

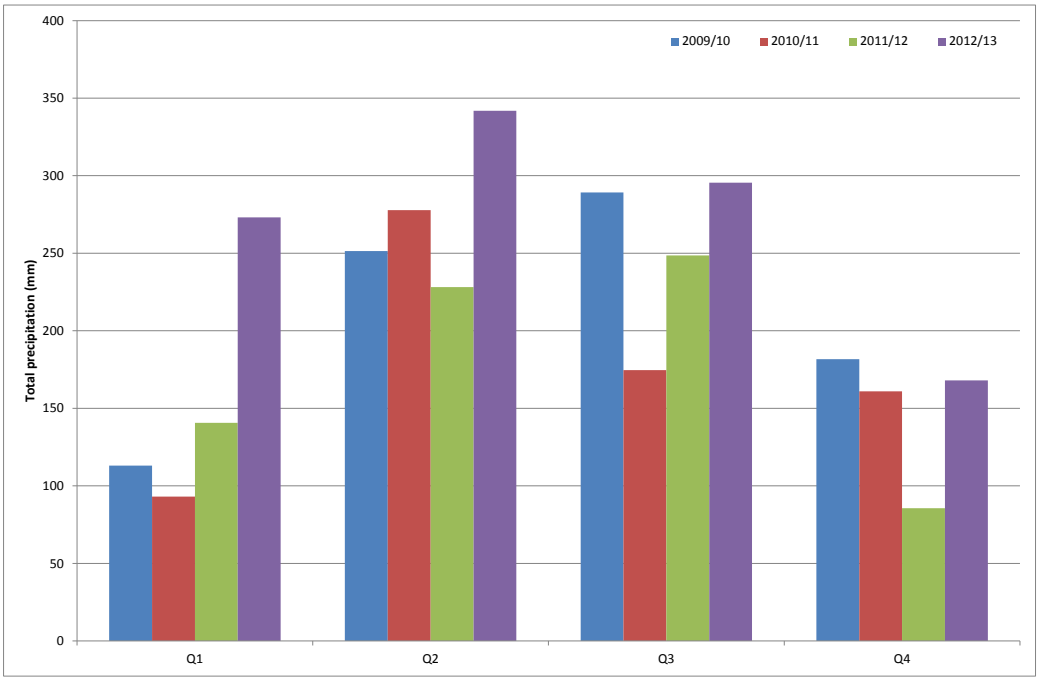
[14] Total precipitation is calculated by summing the 24 hour precipitation weather. The daily 24 hour precipitation weather readings are based on an average of hourly readings for a given day. Therefore, the precipitation data should only be used for indicative purposes.

Chart 1: National total average precipitation by year



Analysis of National total average precipitation by quarter shows that quarterly precipitation has been the highest in 2012/13, except in Q4, when precipitation in 2009/10 was 8% higher.

Chart 2: National total average precipitation by quarter and year



For London and South East sector, a slightly different picture is seen. Total average precipitation in 2012/13 was highest in Q1 and Q2 but Q3 and Q4 experienced greater precipitation in 2009/10 (Chart 3).

The long distance sector shows a similar pattern (Chart 4) to the London and South East sector but total average precipitation in Q4 was greatest in 2010/11, closely followed by 2009/10 and then 2012/13

Chart 3: London and South East total average precipitation by quarter and year

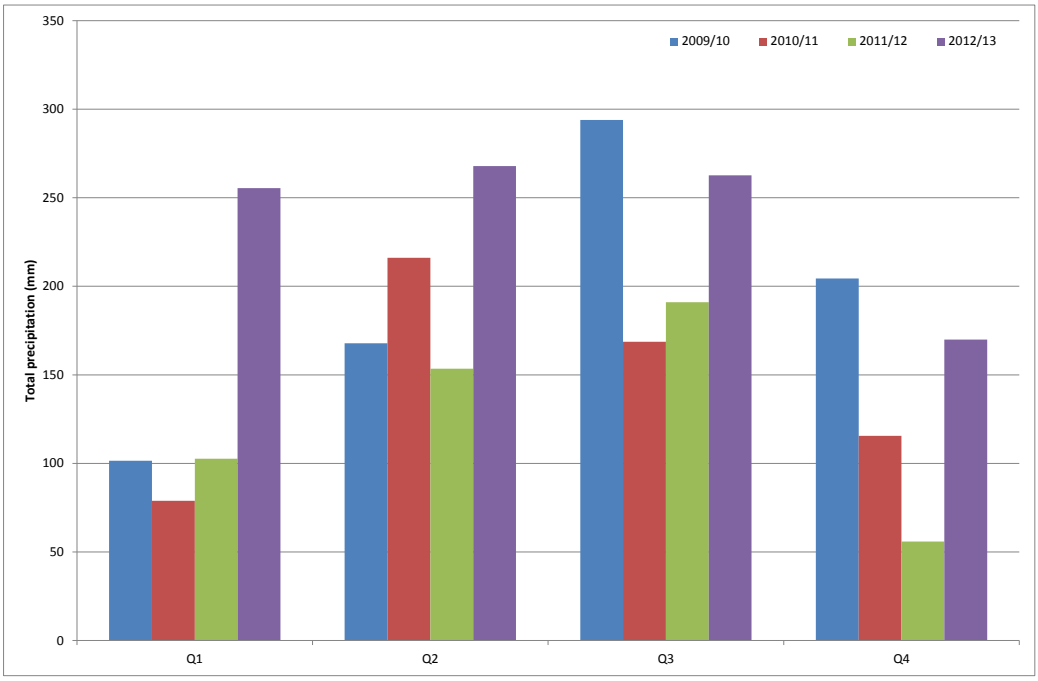
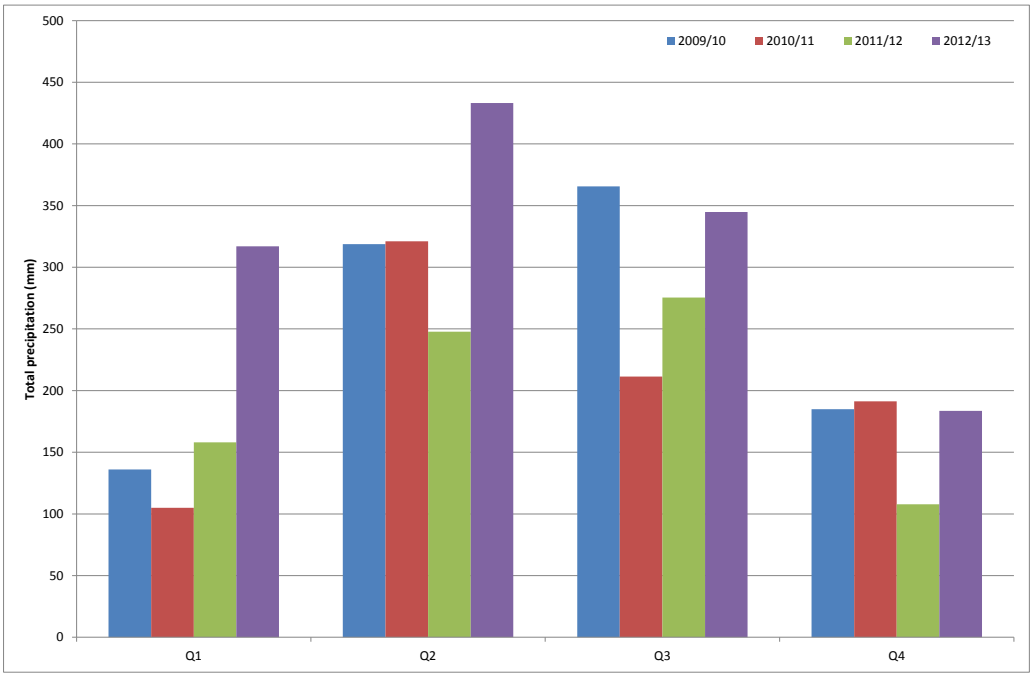


Chart 4: Long distance total average precipitation by quarter and year



Is the level of precipitation in 2012/13 statistically significant to previous years?

A student t-test statistical test was used to identify if the amount of precipitation in 2012-13 was significantly more than any previous year in CP4. The results showed that the mean level of precipitation in 2012-13 was significantly more than in each of the other three years (table 1).

The student t-test calculates a test statistic based on comparing the means for each of the two years being tested. If the test statistic is greater than the critical value, this means that there is a statistically significant difference. In each of these tests, the critical value was 1.962.

Table 1: Student t-test results for precipitation levels

	T statistic (critical value = 1.962)		
Year	**National**	**LSE**	**LD**
2009/10 and 2012/13	7.939	3.561	5.042
2010/11 and 2012/13	7.903	7.130	8.607
2011/12 and 2012/13	8.136	8.989	9.638

Short, heavy bursts of precipitation typically lead to flooding and have more of an impact on the rail industry compared to sustained daily levels of precipitation. To help understand this I analysed the 2012/13 London and South East and long distance PPM data.

Tables 2 and 3 identify the number of 'extreme' days adjusted in each quarter of 2012/13 as part of the weather analysis, compared to the number of Met Office weather warnings issued in 2012/13.

The Met Office weather warnings are based on the number of amber or red warnings[15] for rainfall or snow issued for a given day in England and Wales.

Table 2: Number of 'extreme' days adjusted (LSE PPM data) and Met Office weather warnings in 2012/13

Quarter	Number of adjusted 'extreme' days	Number of Met Office amber or red warnings
2012-13 Q1	7	4
2012-13 Q2	3	15
2012-13 Q3	10	8
2012-13 Q4	0	13

[15] Met Office amber and red rainfall and snow weather warnings http://www.metoffice.gov.uk/guide/weather/warnings#learn-about-warnings

Table 3: Number of 'extreme' days adjusted (LD PPM data) and Met Office weather warnings in 2012/13

Quarter	Number of adjusted 'extreme' days	Number of Met Office amber or red warnings
2012-13 Q1	0	4
2012-13 Q2	7	15
2012-13 Q3	17	8
2012-13 Q4	1	13

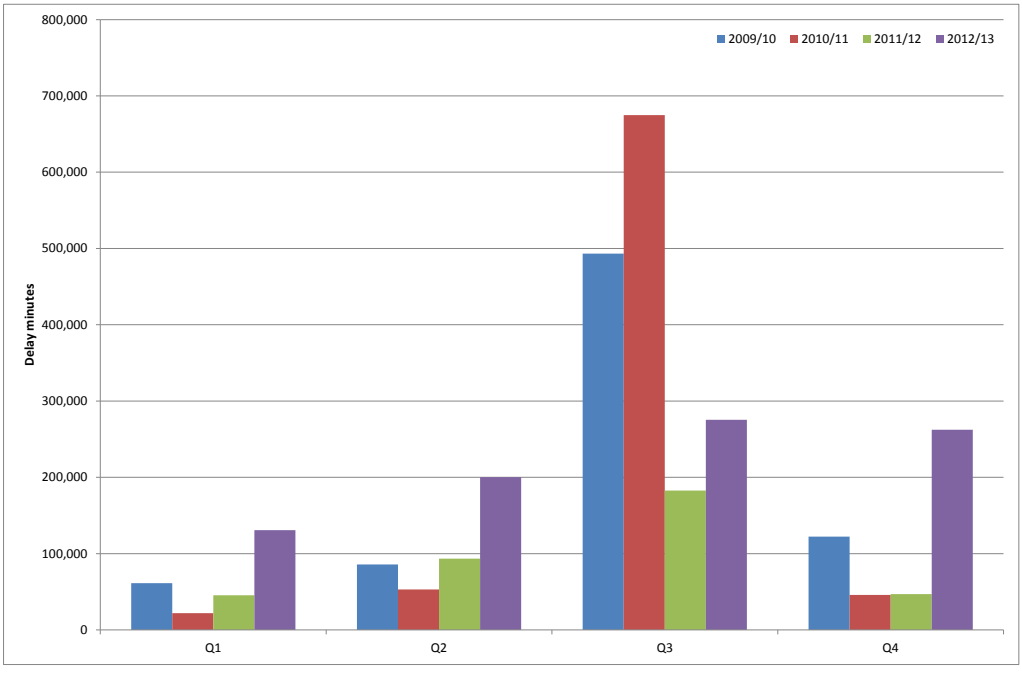
In quarter 4 the Met Office issued 13 red and amber warnings for snow and rainfall but no adjustments were made to the London and South East PPM data and only 1 adjustment to long distance data in this quarter. This may be due to lower sector performance in Q4, resulting in no days exceeding the 95th percentile and being adjusted. Furthermore, when compared to other quarters in 2012-13, quarter 4 had the lowest average precipitation for both the London and South East and long distance sectors. The lack/small number of adjustments in quarter 4 could also be due to a time lag in the weather event occurring and the subsequent impact on performance (therefore impacting results may be seen in 2013-14 Q1).

National delay minutes

Chart 5 shows that when compared to previous years of CP4, 2012/13 weather delay minutes were the highest in every quarter, except quarter 3, when it was exceeded by 2010/11. Total weather delay minutes in quarters 3 and 4 of 2012/13 were relatively similar, with only a 5% difference between the two quarters.

Looking back at the National total average precipitation levels, the highest levels in 2012/13 were seen in Q2, followed by Q3, Q1 and Q4.

Chart 5: National weather delay minutes by quarter and year



Based on the analysis, a total of 26 days were adjusted. However, as Charts 6 and 7 show, National delay minutes would still typically be worse than the periodic and end of year targets.

As part of the weather analysis I looked at the impact of 'extreme' weather on National delay minutes. Alongside looking at specific weather delay minutes the analysis also considered delay minutes that may be attributed to track and non-track assets on 'extreme' weather days and that the weather impact may impact performance 1 or 2 days after the weather event. Where these categories may have been impacted, the minutes were adjusted. However, overall performance still typically remained worse than periodic targets and worse than annual targets.

Chart 6: Actual and adjusted National delay minutes by period, against target

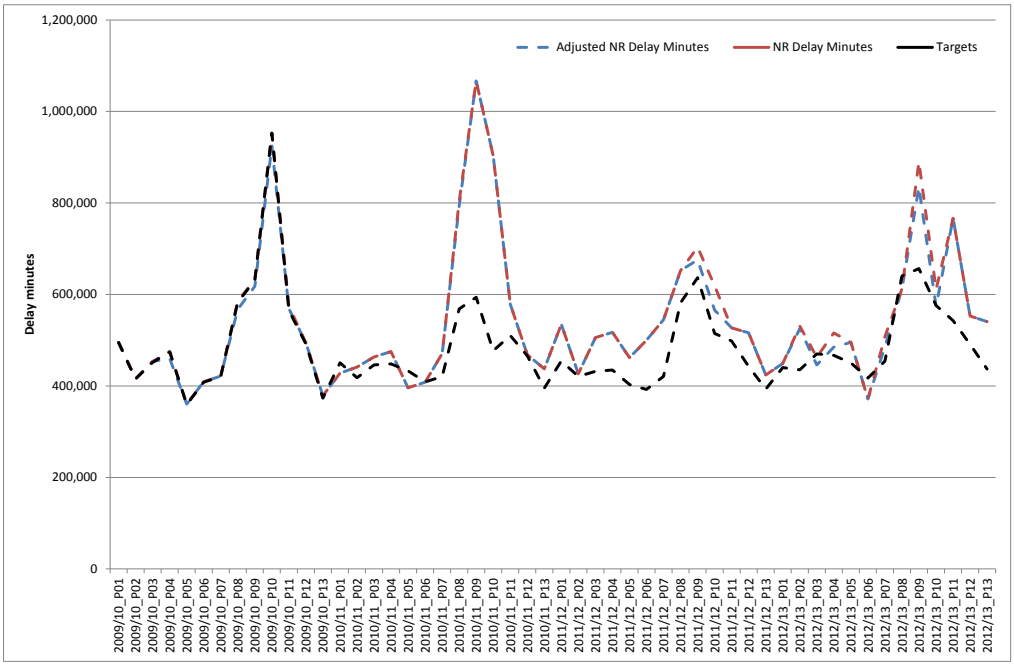
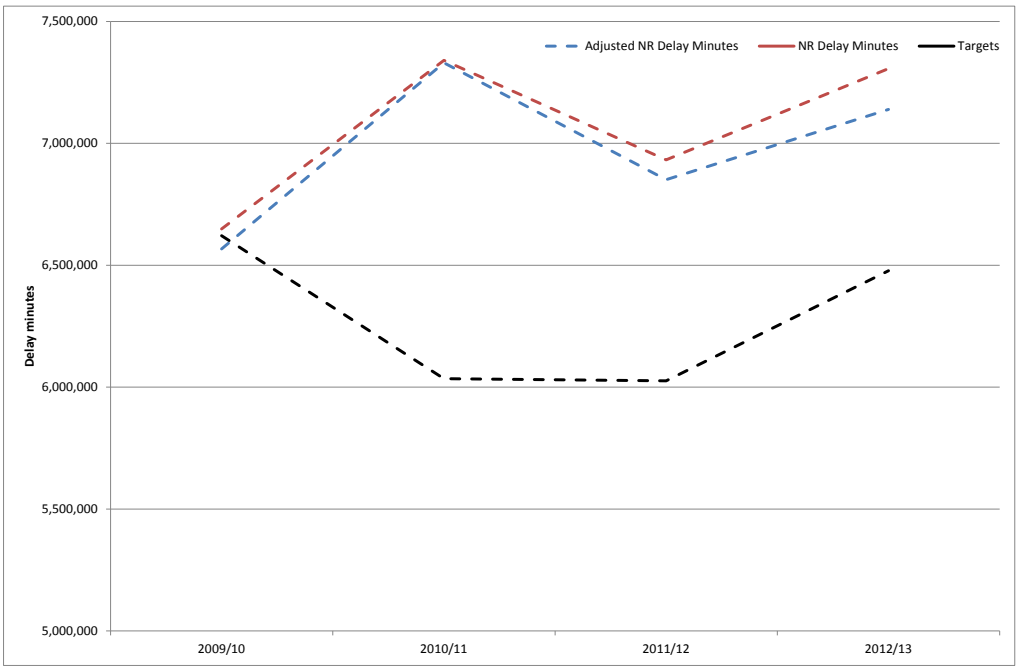


Chart 7: Actual and adjusted National delay minutes by year, against target

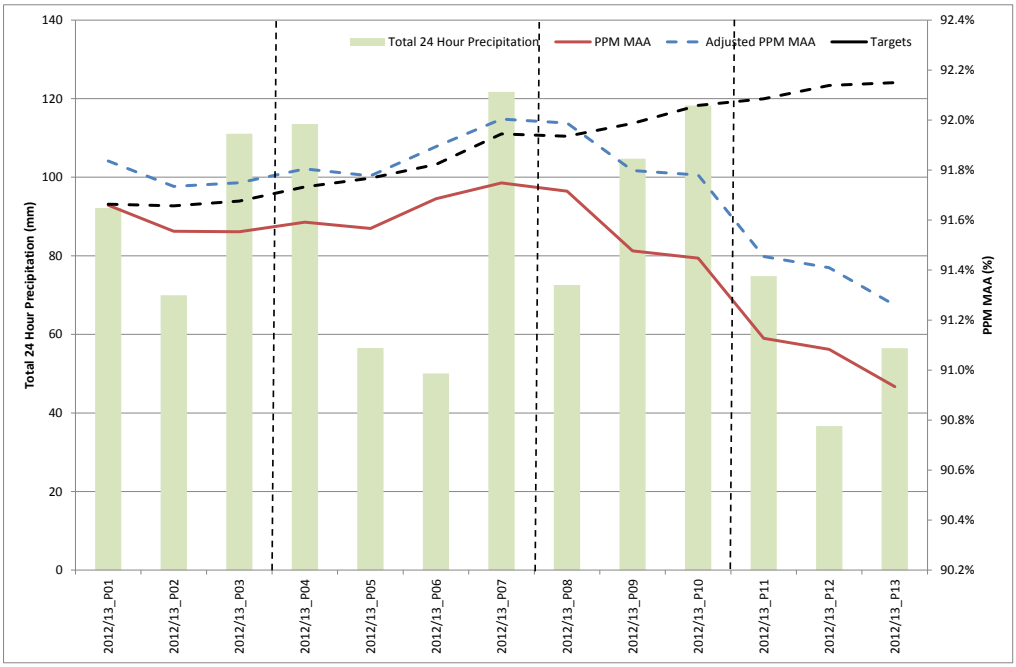


National PPM

A total of 44 days were adjusted.

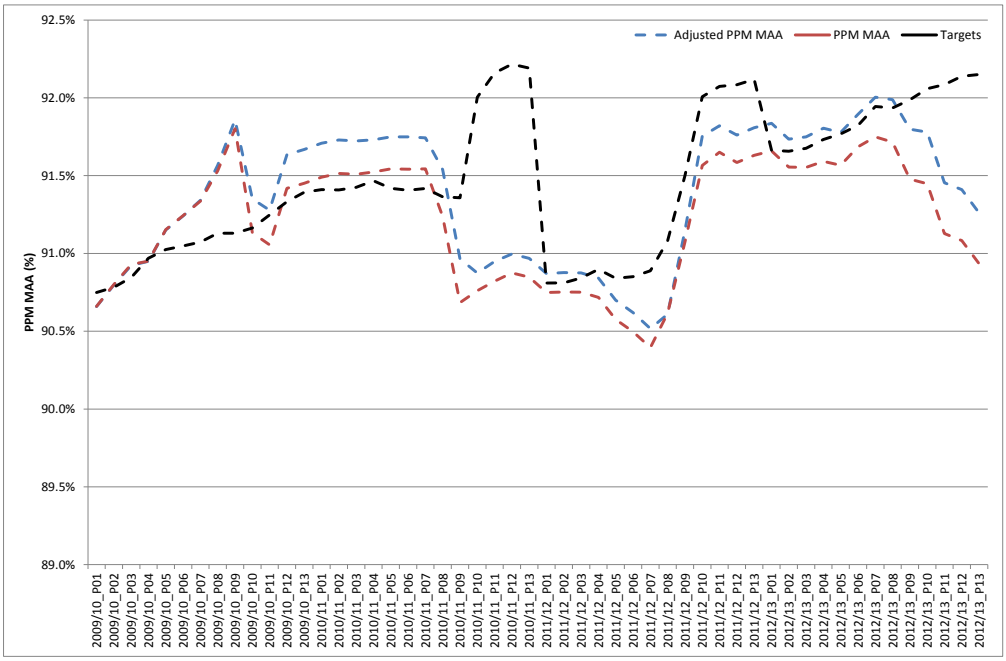
Analysis of precipitation levels and National PPM MAA in 2012/13 are inconclusive (Chart 8), with no clear inferences being drawn regarding the relationship between these two factors.

Chart 8: Total average precipitation levels and actual and adjusted National PPM MAA in 2012/13 by period



The adjustments increased National PPM MAA by 0.4 percentage points to 91.3%. As Charts 9 shows National performance still typically remains worse than period and end of year targets.

Chart 9: Actual and adjusted National PPM MAA by period, against target

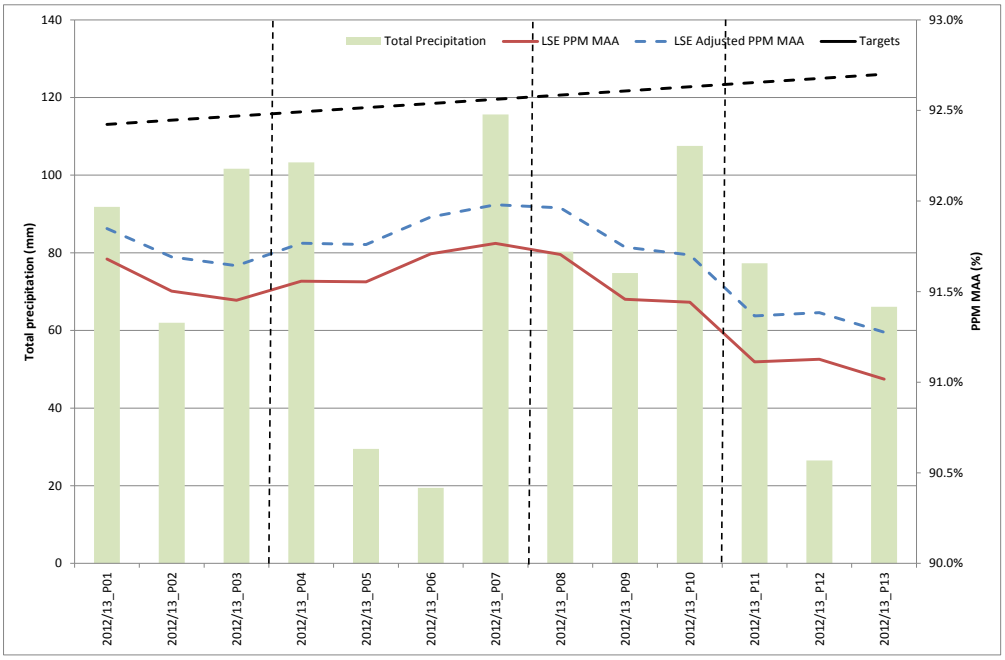


London and South East PPM

A total of 54 days were adjusted.

Analysis of precipitation levels and LSE PPM MAA in 2012/13 are somewhat inconclusive (Chart 10), with no clear inferences being drawn regarding the relationship between these two factors.

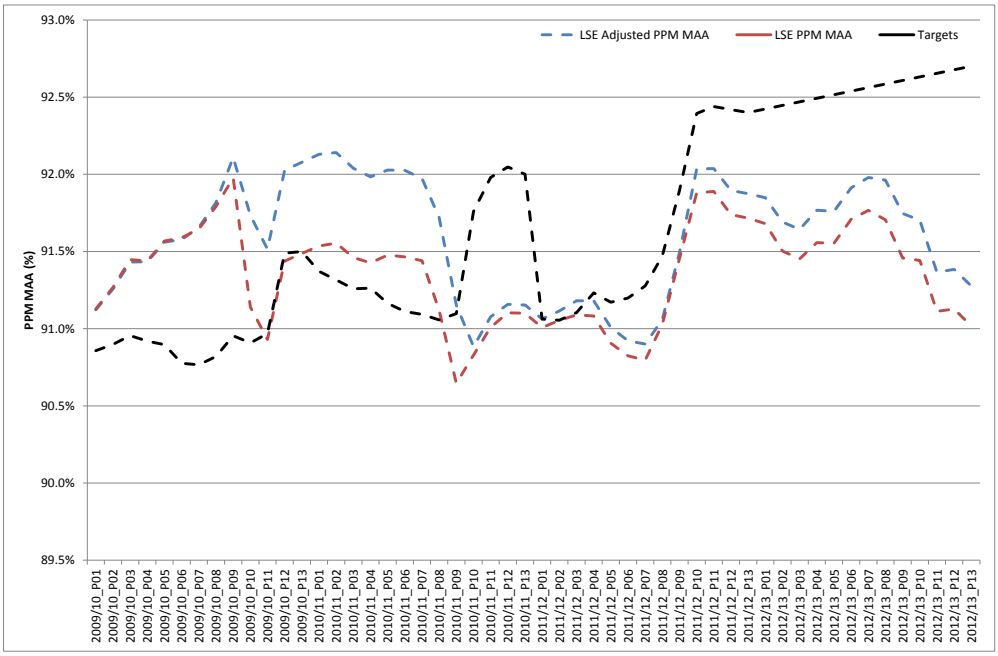
Chart 10: Total average precipitation levels and actual and adjusted LSE PPM MAA in 2012/13 by period



As Chart 11 shows LSE performance typically remains worse than period and end of year targets.

Based on the adjustments, the London and South East sector would have ended 2012/13 with a PPM MAA of 91.3% (0.3% better than actual), 1.4 percentage points worse than the 2012/13 CP4 target and 1.0 percentage point worse than the JPIP target.

Chart 11: Actual and adjusted LSE PPM MAA by period, against target

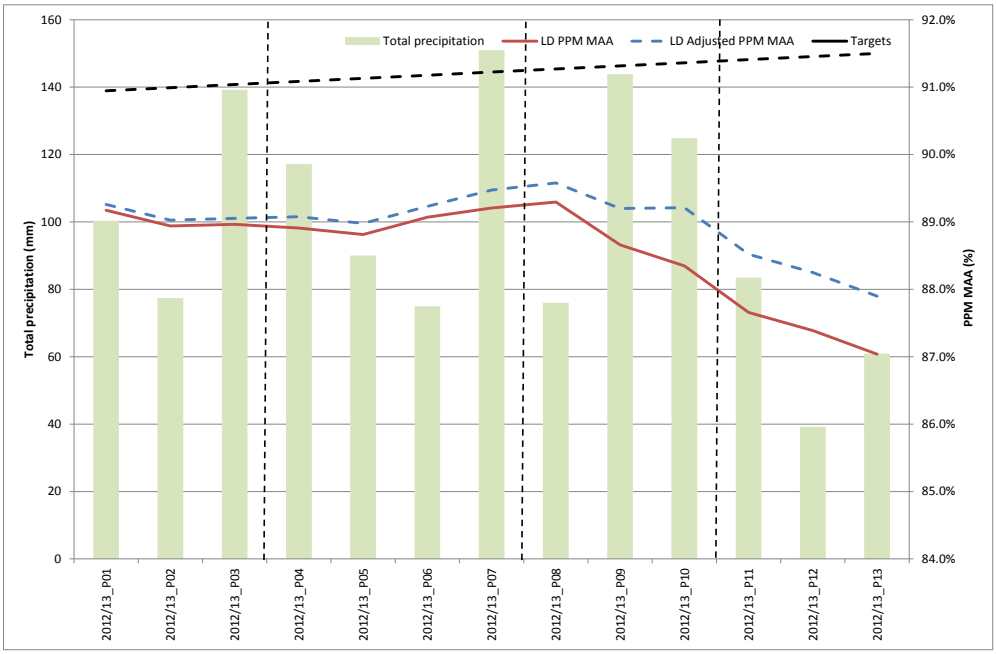


Long distance PPM

A total of 55 days were adjusted.

Analysis of precipitation levels and LD PPM MAA in 2012/13 are somewhat inconclusive (Chart 12), with no clear inferences being drawn regarding the relationship between these two factors.

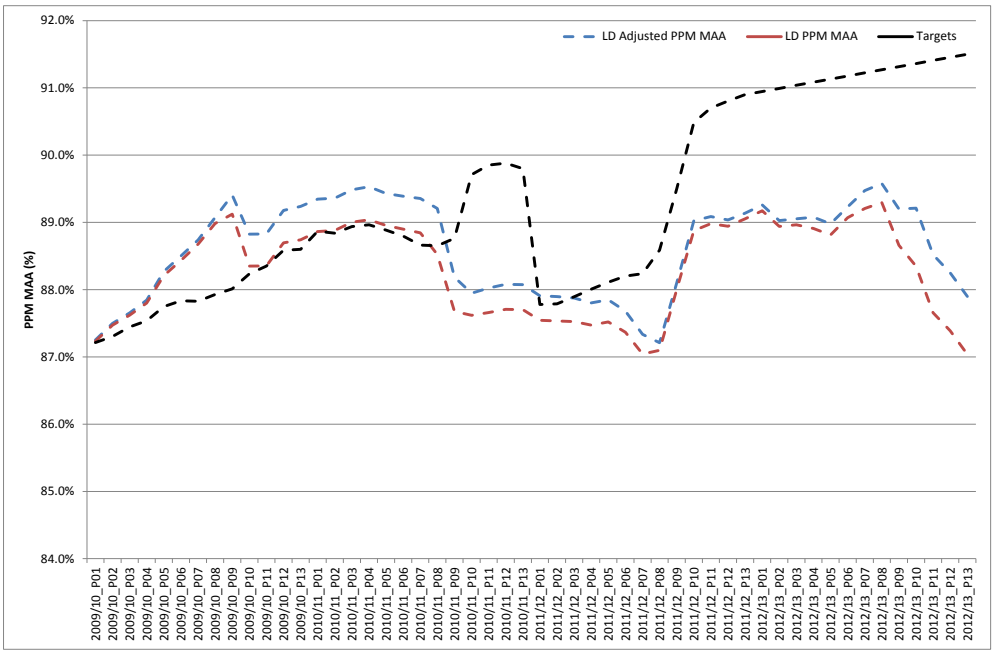
Chart 12: Total average precipitation levels and actual and adjusted LD PPM MAA by period in 2012/13



As Charts 13 shows LD performance typically remains worse than period and end of year targets.

Based on the adjustments, the long distance sector would have ended 2012/13 with a PPM MAA of 87.9% (0.9% better than actual), 3.6 percentage points worse than the 2012/13 CP4 target and 1.8 percentage points worse than the end of year JPIP target.

Chart 13: Actual and adjusted long distance PPM MAA by period, against target



Limitations of the analysis

A selection of weather stations was used for the National analysis and judgement was used to identify the weather stations which fell within each sector. However, these weather stations may not be totally representative of the weather for the country or sectors.

The main weather metric used in the analysis was precipitation levels. As previously mentioned in this paper, this is based on a daily average rather than daily total.

Short, intense periods of precipitation can have more of an impact than sustained daily levels of precipitation and the daily average total precipitation and cumulative precipitation weather metrics may not capture the impact of shorter periods of precipitation on train performance.

A separate metric for snow would have been useful as rainfall and snow impact the railway in different ways.

Cold weather and large changes in temperature can impact the functioning of assets and ultimately lead to asset failures. Although data for minimum temperature and changes in minimum temperature were initially included, this data highlighted a very large number of days to be adjusted. This is an important weather metric and further analysis would be needed to understand the impact on assets/performance and the days to be adjusted.

This analysis tries to takes to consideration the time lag between weather events occurring and the impact on performance. However, as this is difficult to quantify and the time period may vary for different assets/incidents, it may not be fully reflected in the analysis.

Conclusion

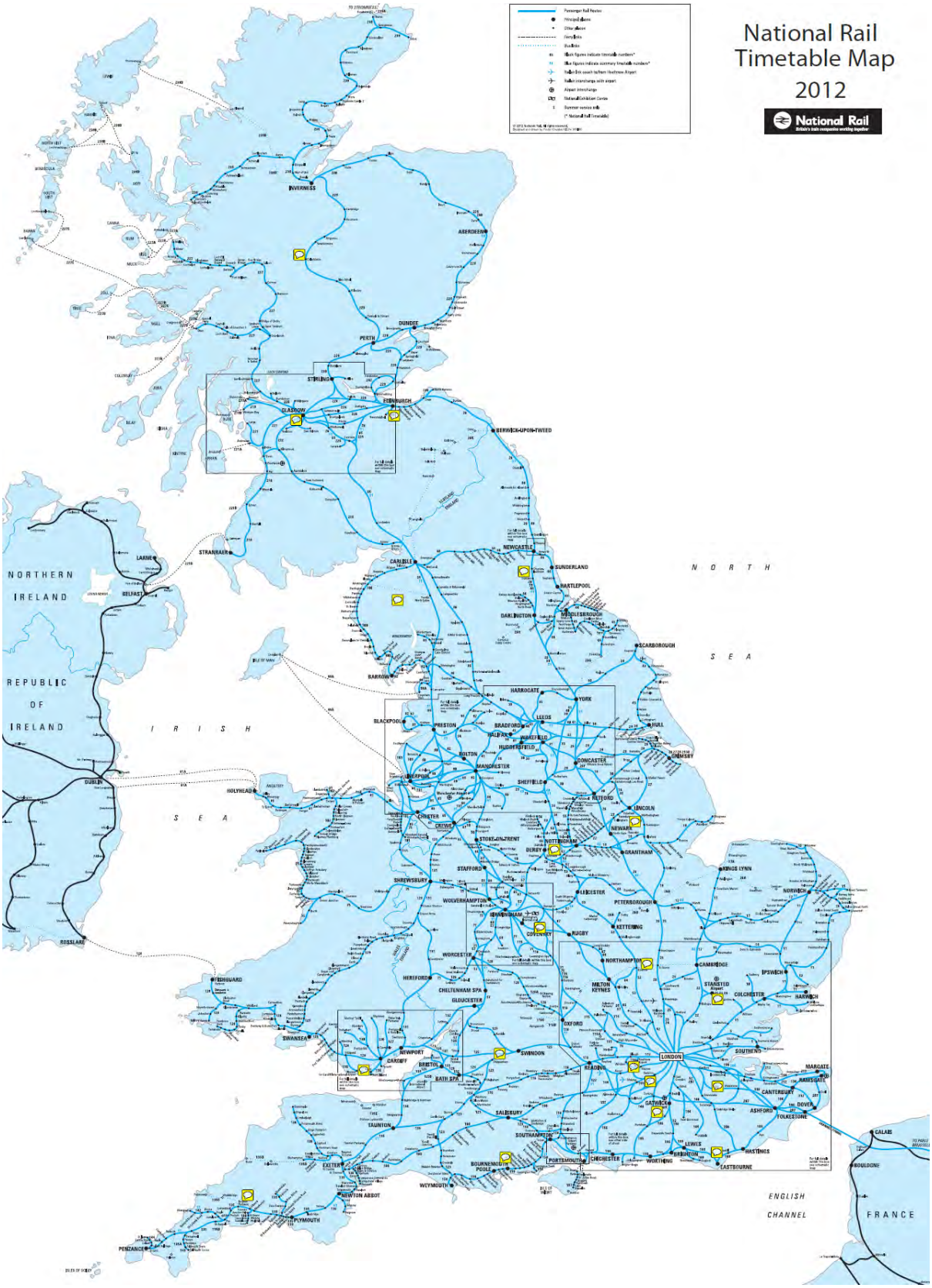
The analysis suggests that the overall precipitation levels in 2012/13 were greater than previous years and the amount of precipitation 2012/13 was statistically significant compared to other years in CP4.

However, analysis of the precipitation levels and delay minutes and PPM MAA data is inconclusive, making it difficult to draw conclusions regarding the relationship between precipitation levels and PPM MAA.

Adjustment of the delay minutes data and PPM data by sector highlights that performance would typically still be worse than periodic and end of year targets, particularly for the London and South East and long distance sectors, suggesting other factors outside of weather, may have also impacted performance, such as ineffective management of seasonal preparation.

Appendix 1

Map of weather stations



Annex C – TOC engagement paper

TOC Engagement Summary

Network Rail in general

There is a very strong feeling amongst the TOC community is that Network Rail have some good people who work hard to deliver performance for passengers and build good local relationships, however the leaders of the organisation themselves let the TOCs and their own people down by often re-organising teams for no apparent purpose, or moving people who are doing well in on role into another to 'fight-fires'. One TOC MD in an LSE sector TOC said that "Network Rail needs stability in senior jobs."

Devolution has been well received and TOCs feel that this is causing the right behaviours to influence performance. There was some criticism levelled at Network Rail's HQ which is perceived as interfering and self-important rather than being a supportive function.

There is a clear lack in confidence in NDS. One Operations Director said "NDS are not in a position to understand and deliver on the routes resource requests."

Vegetation management was viewed negatively across the industry, with many TOCs saying that Network Rail do not have clear vegetation strategies. One TOC MD noted that "Vegetation management was more of an afterthought of what Network Rail could do with any left over money." The general consensus was that works needed to be identified, funded, delivered and then re-visited at a later date when vegetation was more manageable (due to the benefit of the previous work) rather than some works being done and then left to become unwieldy again without follow up intervention.

There was an overwhelming feeling that Network Rail had contributed to the impact of weather by failing to maintain drainage, points heaters and conductor rail heating. One TOC performance manager said "Network Rail spent plenty of CapEx to get these culverts designed and installed, but they didn't have the OpEx or the physical resource to maintain them – therefore when they became blocked the railway flooded." One TOC Ops Director also said they were "sceptical that Network Rail failed to achieve targets as it had to divert resources to deal with severe weather."

The central Train Planning function was identified as a weakness, with many TOC people saying that they felt there had been an on-going resource shortage since re-location to Milton Keynes while other people felt there was a capability weakness with the calibre of people within the team not being as good as it once was historically. One TOC stated that with train planning paying a low salary (£22,000) many people join Network Rail in this role and move on quickly, causing vacancy gaps and a lack of knowledge.

Many people said that they felt the recent downward trend in performance was less about weather and more about getting the basics right, especially in terms of asset maintenance. Some people said they felt the LDRP and LSEP were a distraction to Network Rail who needed to just focus on basic operation of the network. "They did this [plan] but forgot to do the day job" was the comment from one Head of Performance. One TOC MD said that "Had Network Rail got the basics right, there wouldn't be any need for a recovery plan" before going onto say that "I do not think the plan has distracted Network Rail because they should have a capability to deliver the day to day and the improvement plan." Other TOCs supported the view that as the recovery plan is led by different people to day-to-day operation there should be no argument that Network Rail are distracted.

LSEP SPECIFIC

The general consensus of the LSE sector TOCs is that with Dave Ward as Sector RMD the LSEP has a good chance of being delivered, although the sense of the recovery plan being a distraction from the day to day operation of the railway was more prevalent in this sector.

Many TOC people do not think they have been able to see evidence of the Base+ and Base ++ initiatives being delivered and many do not see that these schemes will have the same success as just having a detailed approach to every day management of the railway.

Annex D – operational planning over Christmas and New Year letters

OFFICE OF RAIL REGULATION

Alan Price
Director, Railway Planning and Performance
Telephone 020 7282 2073
E-mail alan.price@orr.gsi.gov.uk

3 January 2013

Robin Gisby
Managing Director, Network Operations
Network Rail
Kings Place, 90 York Way
London
N1 0AG

Dear Robin

Operational performance over the Christmas period

I am writing to seek your assessment of operational issues that occurred over the Christmas and New Year period.

In terms of operational performance, period 10 has clearly been poor, with England and Wales being affected by flooding, electrical issues and possession overruns. I would like to receive your assessment of whether Network Rail did everything reasonably practical to meet its performance obligations in period 10 and the lessons that you have learnt from these issues.

There are four broad issues that we need to consider:

1. P10 performance and the extent to which it was influenced by weather related issues and asset failures. Please can you provide an update on the P9 report we discussed with Norman Baker which included your commitment to significant extra drainage works. In terms of delivery, can I suggest the information is made available such that we can review it, prior to also sharing it at 16 Jan NTF meeting.
2. The possession overruns and planning errors that occurred. I have separately spoken with Simon Kirby regarding these and will be working with him to ensure that all lessons learnt are fully embedded. For example, we expect to review the lessons learnt from the Acton possession over-run at the Western PDG on 16 Jan.
3. The information given to passengers during the disruption that occurred over this period. I am currently seeking the views of operators and Passenger Focus.

Head Office: One Kemble Street, London WC2B 4AN T: 020 7282 2000 F: 020 7282 2040 www.rail-reg.gov.uk

4. The derailment at Barrow-on-Soar. Initially this will be treated as a safety issue and we await the outcome of the RAIB investigation. The embankment failure does, however, raise asset management issues. I am particularly concerned that given the flooding that was taking place adjacent to the site that no precursor indicators were picked up by the maintenance inspection regime and I will be working with our safety team to consider what assurance we will require that the lessons from this are being taken forward.

In the context of these issues I would also be grateful for your views on whether the current JPIPs and performance recovery plans remain fit for purpose and whether they properly reflect the underlying asset condition issues as well as the current programme of renewals and enhancements.

I would expect your views to also be reflected in the next quarterly reports on progress against the Long Distance and LSE performance recovery plans, due for submission to us on 1 February. From a passenger point of view I am also keen to understand given the flooding impact to what extent you ran the service for capacity rather than performance.

Yours sincerely

Alan Price

cc: Paul Plummer, Network Rail

Paul Rodgers, Department for Transport

Chris Burchell, Southern Railway

Gary Cooper, National Task Force

Alan Price
Director, Railway Planning and Performance
One Kemble Street
London
WC2B 4AN

14 January 2013

Robin Gisby
Managing Director, Network Operations

Kings Place, 90 York Way, London, N1 9AG

T 020 3356 9170
F 020 3356 9113
E robin.gisby@networkrail.co.uk

Dear

Re: Operational Performance over the Christmas period

Following receipt of your letter regarding operational issues that occurred over the Christmas and New Year period I have undertaken an extensive review of the key issues that you referred to, and have set out below a summary of the position. I have provided an assessment of whether Network Rail did everything reasonably practical to meet its performance obligations in Period 10, and lessons learnt from these issues.

Weather related issues

Our P9 report has been updated to reflect the full P10 events together with improved assessment of overall impact and is attached to this letter, with this letter forming the basis for the discussion at the NTF meeting on 16 January. In the meantime I can confirm that we have continued to experience issues with both the extreme levels of rainfall as well as the impact of the underlying ground saturation levels that we face. There is little doubt that the exceptional rainfall levels in the UK since April, and the wettest year in England since records began, has presented a significant challenge in terms of operational performance. The current and extraordinary levels of saturation leave us exposed to ongoing issues potentially triggered by much lower levels of rainfall than we normally have to worry about.

Network Rail operated the railway safely as the situation deteriorated. In our role to lead and monitor such conditions, we took pre-emptive and preparatory action, sometimes closing the railway based on the weather forecast and our experience of our assets before deterioration commenced.

The flooding, and its impact, was much more widespread than usual:

- The rainfall and flooding was more geographically dispersed.

- Once again flooding on multiple parts of the rail network and on the surrounding road network made it difficult to access the railway to assess and address faults in order to resume services for passengers and freight or provide alternative road transport.
- Some routes were closed due to the level and speed of flood water under our bridges, and due to the thresholds we impose to manage that risk being
exceeded. Where this happened it often took several days for the water levels to recede and slow down sufficiently for us to deploy our divers to inspect the integrity of each structure.
- There was significant land slippage and track flooding, which takes longer to clear and repair.
- In some cases, ongoing poor weather conditions during repairs caused further damage and again destroyed the repair work carried out just 24 hours earlier.

Response by the industry has continued to be exemplary. For Network Rail response teams, many people have been working in arduous conditions, often outside of normal hours, to pre-empt or deal with events, and return services wherever it was practicable to do so. Other works have been deferred to provide additional resource to help the repair effort. This level of focus has been repeated with many train operators working to provide the best service to customers in often changing conditions of network availability. In some areas, response and repair had to be prioritised due to availability of inspection and design resource, this affected the time it has taken to return full service levels after the weather has subsided. In some areas where flooding re-occurred the impact was less as flooding resilience had been built into earlier repairs and new innovative equipment used to limit the spread and impact of the flooding (especially at Cowley Bridge to the north of Exeter).

It is recognised that there are plans for significant investment in structures and earthworks in CP5, but there are also big strategic funding and planning decisions to be made as an industry in terms of responding to the changing weather and environmental conditions.

It should also be noted that the current saturation levels across much of the UK suggest that even small amounts of rainfall may create a disproportionate impact on the network, and we will monitor the recognised risk sites accordingly; initial assessment is that even with normal levels of rainfall, this risk is likely to extend into the new financial year.

Asset Failures

With regard to asset failures, Period 10 was actually unexceptional in terms of underlying asset reliability (expressed as number of incidents) although there were some high impact failures. Incidents for points, train detection, track and signalling systems & power supply were either in line or better than the 13 period average.

Telecoms incidents causing >10 minutes delay has risen again, resulting from the rapid increase in the number of telecom assets on the network with the entry into service of GSM-R and the associated FTN transmission across the midlands and the south of England.

With regard to the high profile incidents, Neil Henry wrote to Fazilat Dar at ORR on

28/12/2012 providing initial details of a number of specific incidents across the network, which I have included in Appendix One to this letter. These larger incidents will typically be subject to Incident Reviews, and the lessons learnt will be identified and shared within and across the Routes.

Possession overruns and planning errors

I will address the planning errors (Operational Planning) first. Over Period 10 as a whole the delays associated with the timetable were 35k minutes against a target of 25k. The majority of this variance was caused by four specific planning issues:

- On Sussex Route (Balham) the traffic remarks relating to a safety speed restriction on the adjacent line were misinterpreted. Although extra time was included in schedules to take account of this, the time was allocated to the wrong location causing significant delay. Simply put, this is human error, which though relatively rare will continue to be a risk until we are able to develop even further intelligence and automation into the timetable planning tools.
- On LNW Route an isolation planning error led to delays of 4k minutes of delay. The Incident Review will detail what specifically occurred but at a high level the isolation that was taken on the day could not have supported the amended plan. There will be lessons to be learnt from this for both the engineering and Operational Planning teams.
- A large incident at Birmingham New Street was caused by a local amendment after the agreed deadline for the train planning without advice to the Operational Planning team. Again the reason this was done is still under investigation, but the result was that the possession taken and the agreed amended train plan were not compatible with each other.
- Finally a large incident was caused by a TransPennine Express Day A for B timetable bid that was uploaded on Christmas Eve to mitigate a land slip between Manchester and Liverpool, but without time to fully validate the plan against other services. This is likely to have ultimately reduced delays but it certainly switched them from a structures / civil engineering code to appear as an issue with the timetable.

Its important to remember that Day A for Day B timetables uploaded in response to infrastructure issues such as the last event carry higher levels of performance risk owing to the limited validation time available. The industry is much better equipped to support Day A for Day B now, and the ITPS system fully supports this capability. It should be noted that this issue is to some extent simply reflective of the inherent challenge of creating high quality timetables in changing circumstances.

With regard to the possession overruns I note that you have been in separate conversation with Simon Kirby on this matter, and will be working with him on the lessons learnt from the Infrastructure Projects possessions. In overall terms though, the number of possessions over the second half of Period 10 (23/12/2012 - 05/01/2013) was in line with the equivalent timeframe in previous years, with a total of 1140 possessions, of which 428 were from Infrastructure Projects, which was more than double the amount we undertook during the same period last year. Nevertheless delay minutes associated with all possessions were the highest since 2006/07, with more cancellations than we have previously experienced. The analysis from Infrastructure Projects at this stage does not indicate any abnormal level of

delays or cancellations, and we are continuing to fully investigate the situation with Maintenance related possessions. I will confirm the conclusions of this work before the end of Period 11.

However, over the Christmas period this year our biggest ever portfolio of projects work was undertaken and so it is appropriate this context is considered when comparing this year with previous years. The chart below details overall performance relating to Infrastructure Projects delivered possessions over the last three years:

INFRASTRUCTURE PROJECTS	2010/11	2011/12	2012/13
Total Possessions	240	189	428
Total Overruns	14	14	11
% of possessions that overran	5.8%	7.4%	2.6%
Total delay minutes	6660	4737	8254
Total train cancelations	220	236	277
Delay mins per overrun	476	338	750
Train cancelations per overrun	16	17	25
Delay minutes per possession	28	25	19
Train cancelations per possession	0.9	1.2	0.6
% possessions handed back on time	94.2%	92.6%	97.4%

Clearly though despite a very productive and generally successful Christmas and New Year period which included 300,000 man hours worked on 851 separate worksites delivering £80m of improvements, we did have some high impact overruns. These included those listed in Appendix One for Acton, Stockley and Cuxton Road. The underlying causes of these possession overruns continue to be investigated in order to identify lessons for the future.

Passenger Information During Disruption

Network Rail are acutely aware of the important role we play in keeping passengers informed when there is disruption, including issues resulting from possession overruns.

We have consulted Passenger Focus in relation to the passenger information aspects highlighted in your letter; this being in addition to the regular meetings held with them to gain their input into improving Passenger Information. Whilst they had no strong adverse comments to make, they have asked us to specifically assess our contribution to Passenger Information in relation to incidents on the Western Route. A full consultation with the Route teams overseeing the key incidents in Period 10 (including Western Route) has been completed, with each confirming that there had been no adverse feedback from the TOCs in relation to Network Rail"s role in the end-to-end processes associated with Passenger Information.

Each Route Passenger Information Champion has confirmed that each of these incidents will be subject to a review, which will give the TOCs an opportunity to formally raise any issues from Period 10 and work with us to understand any future improvements that can be made in this area.

To build on the work we have been running to improve Passenger Information, we have recently agreed with Graham Richard"s team to continue with the successful

Periodic meeting held with ORR over the course of last year. This will allow us to gain further useful input to feed into our Programme of works.

Derailment at Barrow-on-Soar

At approximately 0504 on 27 December 2012 there was an embankment slip on the up slow line where the loss of material caused a twist fault with the track and the subsequent derailment of 6L73 Peak Forest to Ely which was carrying 20 x 100 tonnes wagons loaded with road stone. The previous service had passed over the line at 0315 without incident.

Whilst we cannot pre-judge the outcome of ongoing investigations and acknowledge the standing water on the slow-line side of the railway where it was not expected, our current understanding of the failure mechanism suggests that there was nothing to indicate the water was affecting the embankment prior to its failure. During December 2012 a rough-ride was reported at the site of the landslip and remedial works were undertaken; there was nothing about these works to indicate anything other than minor track movement had occurred (ballast shoulder still intact and no fresh ballast required on site). Following this manual correction work undertaken to lift and pack the track, the up slow line was cab-ridden by the Track Maintenance Engineer who found the track quality satisfactory. Subsequent basic visual inspection and supervisory inspections during December 2012 identified no actionable defects and a rear camera still from an East Midlands Trains service dated 24th December 2012 shows the track in good order with a complete ballast shoulder and no sign of movement on the crest of the embankment slope.

Our earthworks examination records show the slope as marginal with no requirements for additional examinations or cause for concern and the site is not on the track maintenance engineer"s list of weak embankments. The recent New Measurement Train runs, whilst showing a slight deterioration in track quality and in one instance an intervention limit fault requiring action to be taken, do not give rise to concern requiring action over and above that detailed above. Pending the outcome of the formal investigations underway the route team have worked with the central asset management team to put mitigating actions in place until we have a full understanding of the root cause and trigger mechanisms relating to this failure.

As you state in your letter this is subject to an RAIB investigation, and obviously our team will fully support the investigation and work with RAIB. If there are lessons to be learnt and opportunities to define precursor indicators to reduce these risks then appropriate action will be taken.

You will also appreciate that over the period referenced in this letter the industry consciously ran the service for capacity rather than performance. Some operators (Long Distance), when given the choice of amended Day A for Day B timetables wisely chose to run the full timetable more slowly, given the volume of reservations and other key considerations at this time of year particularly. With a lot of passengers to move, holiday bookings and other critical factors to consider our (joint) Route Controls did decide to move people with PPM and Delay Minutes lower priorities. CaSL was still higher than target but could have been even worse and the nature of the large events such as the overrun at Acton left no alternative except cancellation on the day.

General Comments

It should be noted that Network Rail caused delay for P10 was only 1% (7k minutes) worse than target, yet PPM for England & Wales was 2.05% worse than JPIP target with CaSL nearly 0.9% worse than target. Delay per incident was higher than in recent periods, probably resulting from the major incidents described above and in other exchanges. The are relatively large differences in the balance of delay compared to target and PPM / CaSL which our initial analysis suggests often occur during times when major weather impacts are visible, but we also consider that, whilst missing target these results are no small achievement given the adverse conditions.

It is also worth drawing attention to Delay per Incident (DPI), which has suffered a significant worsenment over the last two periods.

Summa
ry

You asked whether the current JPIP and performance recovery plans remain fit for purpose, and whether they reflect the underlying asset condition. I believe it is fair to state that the JPIP, and associated recovery plans, are going to have to run to catch up for a little while yet. Having said this, the extraordinary saturation levels that are in place across many parts of the network have resulted in additional risks that need to be factored into the JPIP planning assumptions. The full impact of this is being determined locally with the Routes based on their specific circumstances. The Recovery Plan Quarterly Report, due to you on 1st February, will make reference to this position. We recognise that meeting the regulatory targets for CP4 remain challenging and whilst there is no reason to assume that the same extreme weather will be experienced in the last year of CP4 it is clear that there is a real need to understand more about the risks from what is now confirmed to be changing weather patterns and consider what more reasonably practicable steps we can take to reduce
the impact on services. We have of course already started this
work.

It should also be noted that our year end forecast for national PPM has reduced by
0.3% since P8. With the MAA figure for PPM being 0.6% worse than JPIP target at the end of P10 it is very unlikely that we will recover the situation for 2012/13, though again it is worth noting that the daily average since the new year has been over 93% indicating that with stable weather, underlying performance remains strong. We do recognise that the saturation levels present a greater level of risk for some time to come, but as soon as the flood situation eased the railway recovered to good levels of performance. Having said this, our current forecasts indicate that for all the England & Wales indicators (except LSE CaSL) our year end position this year is likely to be worse than both target and the year end position for 2011/12. The latest forecast numbers are included in Appendix Two.

I hope this letter provides the confidence you are seeking that Network Rail did all that was reasonably practical to provide services to our customers over this exceptional period. We recognise that the issue of dealing with an increasingly wet environment is something that has to be fully addressed through significant investment for the UK as a whole, but I do believe that we operated a credible service over the worst of the flooding period. Despite some significant overruns, we believe that we have improved the quality of our planning and delivery of possessions, though again recognise that there are opportunities to further improve as the events at Haymarket and Acton demonstrated all too well. With regard to the derailment at Barrow-on-Soar we will await the outcome of the RAIB investigation and will also increase our own

understanding as to whether there are any possible precursor indicators that can be identified to reduce this risk in the future.

I am copying this letter to Paul Plummer, Paul Rodgers, Chris Burchell and Gary Cooper.

Yours sincerely

Robin Gisby
Managing Director, Network Operations

Appendix One – update on high profile incidents sent to ORR 28/12/2012
From: Henry Neil **Sent:** 28 December 2012 17:17 **To: [Names redacted]**; Thompson John (IPRM);
Subject: RE: Briefing required on key infrastructure failures around the Xmas period

[Name redacted],
Here"s some detail on the specifics you mention and some other issues. Hope it"s helpful, shout if you need anymore.

Sussex Route Fire at Preston Park. - 21st December

Around 0015 early on the morning of Fri 21st (so night of Thurs 20th), multiple and fierce lineside fires reported and loss of all track circuits and points in Brighton area * Cause is under investigation, but is believed to be a traction power cable overheating, melting and then transferring power to the lower capacity domestic power cable in some route, which then led to destruction of lineside signalling, traction power and telecoms equipment. Fire service attended what was a major fire of the electrical equipment. * With support from neighbouring routes and round the clock working in dreadful weather all the key infrastructure was restored by early morning on Christmas Eve. We also restored the damaged Brighton - Lewes signalling by 1022 on the first day * Excellent teamwork with the support from TOCs: agreement very soon after the incident started on 21st Dec on train plan. FCC started / terminated at Haywards Heath, whilst Southern provided Brighton to Three Bridges / Gatwick half-hourly all stations shuttle. We were not being over-ambitious with the train service and by the afternoon of the first day, the TBW and shuttle train service was running well

Western Route, General Flooding in the West Country from night of 21st December

The significant rainfall event that spread up through Devon and Cornwall into Somerset and beyond overnight on Friday 21 December and the morning of Saturday 22 December caused disruption to services with flooding at the following locations:
Plympton (just east of Plymouth)
Wivelscombe (between St Germans and Saltash)
Rattery (near Totnes)
Athelney (between Castle Cary and Taunton)
Flax Bourton (south Bristol)
Chipping Sodbury (between Bristol Parkway and Swindon)
Wickwar (Bristol Parkway to Cheltenham)
Patchway (Bristol Parkway to Newport)
There was a landslip at Parson Tunnel (sea cliffs near Teignmouth) which caused a line closure and subsequently SLW until close of service on Christmas Eve. The route here fully re-opened on 27 December with 50 EROS on down and 20 EROS on up and watchman in place.
Newquay branch reopened Christmas Eve after repairing a washout site

LNW Route - Glazebrook - 21st Dec

Landslip reported by driver of Northern Trains unit
Exam found the Up line ballast shoulder had fallen away, damaging cabling route in process

Described as a rotational failure of earthworks caused by excessive water / flooding
Amended service using down line only on 22/12/12 and 24 hr possession agreed for 23/12/12

Up line repairs made on 23/12, but down line deteriorated and engineers assessed that full regrade of embankment required.
Resources obtained and plan agreed to retain possession of line with a view to re-opening on 28/12/12
Line re-opened as planned this morning with ESR on both lines

Wales, Power Failure Cardiff - 22nd Dec

Cardiff power failure appears to have been caused by floodwater entering the system - probably through a cable and earthed. Approximately 30 additional technical staff drafted in to help. Saturday, saw problems on Cambrian route where we closed near Machynlleth and Borth due to floods We were closed at 14 places at the height on Saturday 22ND Dec.

Scotland, Flooding Between Dundee and Aberdeen – 23rd Dec

Sunday 23rd the Dundee - Aberdeen route was blocked by multiple flooding events/minor landslips, caused by extreme rainfall (as widely reported, places like Stonehaven were severely flooded). The recovery was very effective though and enabled services to run again the following day - Christmas Eve.

East Midlands, Derailment of freight train at Barrow on Soar (near Loughborough) – 27th Dec.

At approximately 0504 there was an embankment slip on the up slow line where the loss of material caused a twist fault with the track and the subsequent derailment of 6L73 Peak Forest to Ely which was carrying 20 x 100 tonnes wagons loaded with road stone. The previous service had passed over the line at 0315 without incident.

Scour on a bridge at Lympstone on the Exmouth branch initially led to a 5 EROS with watchman before Christmas, and then a line closure which we hope to reopen with an EROS this afternoon

Looe branch suffered a number of washouts, currently expecting to reopen next Thursday 3rd Jan

Barnstaple branch, 22 separate wash out sites identified between Crediton and Barnstaple – likely to be another week before reopens

And finally, Cowley Bridge where we employed temporary inflatable dams to try to stem the flow of flood water – these were not able to prevent a significant wash out on Saturday such was the force of the water, but the line has reopened this afternoon with fully operational signalling. When a similar event happened on 21 November it took nearly three weeks to fully reinstate the signalling after a number of location cabinets, a relay room, and numerous point machines and cables spent a few days under water – so the dams have done their job in protecting the electronics and signalling kit and allowed us to reopen the line significantly quicker than the previous incident just a month earlier.

- **LNW Route - Glazebrook - 21st Dec**

Landslip reported by driver of Northern Trains unit
Exam found the Up line ballast shoulder had fallen away, damaging cabling route in process
Described as a rotational failure of earthworks caused by excessive water / flooding
Amended service using down line only on 22/12/12 and 24 hr possession agreed for 23/12/12
Up line repairs made on 23/12, but down line deteriorated and engineers assessed that full regrade of embankment required.
Resources obtained and plan agreed to retain possession of line with a view to re-opening on 28/12/12
Line re-opened as planned this morning with ESR on both lines

- **Wales, Power Failure Cardiff - 22nd Dec**

Cardiff power failure appears to have been caused by floodwater entering the system - probably through a cable and earthed. Approximately 30 additional technical staff drafted in to help.

Saturday, saw problems on Cambrian route where we closed near Machynlleth and Borth due to floods

We were closed at 14 places at the height on Saturday 22ND Dec.

- **Scotland, Flooding Between Dundee and Aberdeen – 23rd Dec**

Sunday 23rd the Dundee - Aberdeen route was blocked by multiple flooding events/minor landslips, caused by extreme rainfall (as widely reported, places like Stonehaven were severely flooded). The recovery was very effective though and enabled services to run again the following day – Christmas Eve.

- **East Midlands, Derailment of freight train at Barrow on Soar (near Loughborough) – 27th Dec.**

At approximately 0504 there was an embankment slip on the up slow line where the loss of material caused a twist fault with the track and the subsequent derailment of 6L73 Peak Forest to Ely which
was carrying 20 x 100 tonnes wagons loaded with road stone. The previous service had passed over the line at 0315 without incident.

The engine and first 10 wagons remained on the track 2 derailed and 7 parted from the train and fell/were leaning at 45 degrees away from the adjacent line. The down slow and both fast lines were not affected. Albeit the down slow remains blocked whilst recovery works are underway

Recovery of the derailed vehicles starts tonight with all lines blocked at night only for the next 4 nights as agreed with the TOCs

Following the removal of the wagons earth work stabilisation will commence to the banking with completion of all works anticipated to be 6th January and hence the slow lines will remain blocked until then.

From the information currently available it would appear that there was standing water at the foot of the embankment on both sides effectively retaining water from the adjacent River Soar and flood plain and this had been the case for some days prior to the incident. It is believed this has at least exacerbated if not been the cause of the problem.

Embankment failures in this way are quite uncommon, and thus we have issued advice to other routes pending further investigation.

- **Scotland, Disruption around Edinburgh - 27th Dec**

Disruption caused by a combination of factors involving renewal works in Princes Street Gardens. These were - minor overruns of the work (which had three staged handbacks during the course of the
day to allow services to run); axle counter failures at Haymarket (which it seems were related to disconnections necessary for the renewal); then compounding the impact of the above an extremely
tight train plan at Haymarket station, where many services turned, which due to complex crew/unit diagramming made it very difficult to implement effective service recovery. This was compounded by the failure of the train planners to provide a robust plan for the altered workings at either Haymarket or Waverley, leaving the signallers to use best endeavours on the platform plan for the day which should have enabled them to signal trains around the possession issues. An extensive review is to be undertaken.

- **LNW Route - Birmingham Signalling failure - 27th Dec**

Signalling system (TDM) lost for Birmingham International interlocking area controlled by New St PSB. Therefore Signallers unable to control signalling in the area
Coventry – New St route blocked to traffic pending emergency method of working being agreed and introduced
TDM had been renewed over Xmas break. Installers team were on site and investigated with NR maintenance team
A blown power fuse was discovered at Birmingham New St. This was replaced and equipment restored at 1620hrs
Further investigations into cause of ruptured fuse are ongoing with our installation contractors and maintenance team

- **Western Route Possession Overrun – 27th December**

This possession was to facilitate Crossrail works. The main lines were due to be handed back at

0415hrs on 27th December following the completion of Crossrail surface work to the east of Hayes. The main lines were actually handed back at 1044hrs, a 6 hour 29 minute over-run. The relief lines were still being worked on as part of Crossrail surface work at Acton and hence all traffic from the west of West Drayton was blocked until trains started moving again at 1100hrs.

In the week prior to Christmas a major electrical fault on the main lines in the Acton and Stockley areas closed the main lines for over 24 hours. Crossrail project signalling resources assisted Maintenance in identifying and resolving the faults. During the possession, on the night of the 26th, similar electrical faults were encountered that prevented the commencement of the signal testing process required to bring the mains into service. This delay and the subsequent discovery of some installation faults during testing, resulted in the signal testing not being complete until after 1000hrs on the 27th.

Kent Route Cuxton Road Underbridge Renewal. Possession Overrun – 28th Dec

Cuxton Road Underbridge is a single span bridge located between Sole Street and Rochester which carries the Up / Down Victoria to Ramsgate lines. The work is a complete replacement of the bridge deck and is Project Managed by our Infrastructure Projects team.

Possession details; 2330 Mon 24/12/12 to 0400 Fri 28/12/12. Also 12hr on 30/12/12.
Our risk assessment prior to the work indicated confidence was 90% for finishing at 21:30hrs on 27/12/12

The Project Contingency Plan in the event of a possession overrun:- TOC will implement a diversionary route as detailed in their contingency plan C1. Trains will be diverted via Dartford with passengers continuing to be bussed between Swanley, Sole Street and Rochester.
Reasons for delay resulting in the possession overrun:-

1. Breaking out of abutments – material was a lot stronger than expected, leading to delays.

Drilling of dowel holes (due to flints in the concrete / backfill) and locating the new bridge on top of these was slower than anticipated.

Confined location - Position of buildings, bridge skew and scaffold bridge (that carries cables) has lead to slower than anticipated move and installation of new bridge. The ALE unit is difficult to adjust to small amounts

Setting out – Discrepancy between Permanent Way and Civils details.

Waterproofing membrane was attached to cill beam and lead to protection and sighting difficulties.

Possession expected to be handed back now at 0030 tonight. A lessons learnt will be held by the Route and Infrastructure Projects in the New Year.
Possession now anticipated to be handed back at 0400 Saturday 29th Dec

Neil.

Neil Henry
Head of Operations & Performance
Network Rail

Appendix Two – Latest Forecasts at P10 2012/13 Year end forecast						JPIP		CP4
Period 8	Period 9	Period 10	P10 - P8	target		P10 var	target	P10 var
PPM								
L&SE	91.7%	91.5%	91.5%	-0.2%	92.3%	-0.8%	92.7%	-1.2%
LD	89.0%	88.4%	88.1%	-0.9%	89.7%	-1.6%	91.5%	-3.4%
Regional	92.0%	91.7%	91.5%	-0.5%	92.8%	-1.3%	91.9%	-0.4%
Scotland	93.2%	93.1%	93.1%	-0.1%	91.5%	1.6%	91.9%	1.2%
National	91.7%	91.5%	91.4%	-0.3%	92.2%	-0.8%	n/a	n/a
Delay mins (passenger)								
E&W	6318	6587	6632	-314	6014	-618	5190	-1442
Scotland	363	379	381	-18	400	19	386	5

OFFICE OF **RAIL REGULATION**

Alan Price
Director, Railway Planning and Performance
Telephone 020 7282 2073
E-mail alan.price@orr.gsi.gov.uk

22 February 2013

Robin Gisby
Managing Director, Network Operations
Network Rail
Kings Place, 90 York Way
London
N1 0AG

Dear Robin

Operational performance over the Christmas period

Thank you for your letter of 14 January 2013 concerning the issues that arose over the Christmas period. I am grateful for the detailed nature of your response and acknowledge the significant efforts made by both Network Rail and your contractors' front line staff, to keep services running over this period.

However, I remain concerned that Network Rail may not have done all that was reasonably practicable to meet your customer and funders' reasonable requirements, as required by condition one of your licence. You will understand that ORR will wish to carefully consider such matters, particularly given our on-going concerns in relation to Long Distance and London and South East performance. Whilst you may be able to demonstrate that Network Rail has carried out the activities listed in the recovery plans, additional avoidable delays have clearly been caused by your own process failures.

I am particularly concerned that a number of the operational planning issues that occurred over this period, such as the Cheddington isolation, seem to have been caused solely by human error and to have had a serious effect on the running of the network. Given the volume of activity proposed in the CP5 plan this phenomenon is clearly capable of having a serious effect on performance across the network in the future. I would therefore be grateful for your views on:

- The reasons for the operational planning issues that occurred over the Christmas and new year period and;

Head Office: One Kemble Street, London WC2B 4AN T: 020 7282 2000 F: 020 7282 2040 www.rail-reg.gov.uk

- the measures you are taking to ensure that your systems and processes are sufficiently robust to prevent such failures from occurring again in the future.

Please ensure this information reaches me by 8 March 2013.

At the end of this control period ORR will have to determine whether Network Rail has complied with its licence obligations in relation to performance. We will also have to determine, at that stage, whether Network Rail has complied with the order made by ORR in May 2012 in relation to long distance performance targets. The extent to which Network Rail learns lessons from recent events and implements measures to prevent their recurrence will clearly be relevant to that decision.

I look forward to hearing from you shortly.

Yours sincerely,

Alan Price

OFFICE OF **RAIL REGULATION**

Alan Price
Director, Rail Planning and Performance
Telephone 020 7282 2073
E-mail Alan.Price@orr.gsi.gov.uk

26th March 2013

Robin Gisby
Managing Director, Network Operations
Network Rail
Kings Place
90 York Way
London
N1 9AG

Dear Robin,

Operational performance over the Christmas period

Thank you for your detailed letter of 11th March in response to the concerns I had previously raised about operational issues over the Christmas and New Year period.

I have noted your comments regarding the causes of the incidents identified and will take your response into account at the end of the current industry year, when we come to review Network Rail's performance for 2012-13 and assess whether it has done everything reasonably practicable to achieve its regulated outputs.

I will also be looking closely at how the industry performs over the Easter period in light of the actions you have put in place.

Yours Sincerely

A Price

Alan Price

Annex E - Letter from Network Rail to ORR on performance recovery funding

National Performance Team
Network Rail Infrastructure Limited
The Quadrant:MK
Elder Gate
Milton Keynes
MK9 1EN

June 7, 2013

Nigel Fisher
Head of Performance, Information and Analysis
Office of Rail Regulation
One Kemble Street
London
WC2B 4AN

Dear Nigel,

Performance Recovery Funding

As described in the Quarter 4 Progress Report submitted to ORR in relation to the Long Distance Recovery Plan (LDRP) and London and South East Plan (LSEP), Network Rail are currently forecasting to miss the end of Control Period 4 (CP4) Public Performance Measure (PPM) and Cancellations and Significant Lateness (CaSL) Moving Annual Average (MAA) Targets for both Sectors at the end of 2013/14. This is a situation we are not complacent about and we remain committed to doing everything reasonably practicable to recover train performance.

We have previously discussed the 'Performance Fund' used to finance performance improvement schemes throughout CP4. Use of this fund has progressed well with material benefits being seen in many areas including major investment mitigating weather effects. In 2012, Network Rail recognised the need for further investment in performance improvement and created an additional £79m fund: the 'Performance Recovery Fund'. This has been used to fund schemes that will deliver performance benefit to these under-performing Sectors with specific emphasis on:

- £30m funding for LSE Sector asset reliability improvements, including aerial inspections of overhead line and 3rd Rail equipment leading to significant incidents being avoided on a weekly basis;
- £10m funding for the West Coast South Reliability Programme which is leading the implementation of the recommendations made by Chris Gibb, Chief Operating Officer, Virgin Trains;
- wider funding of national Base+ / ++ schemes; and
- £10m awarded to the Freight business to support the aims of the Freight Reform Programme.

Given further challenges to performance delivery and the rationale for positively preparing for CP5, Network Rail has recently been able to establish funding of £50m for further performance improvement. Some of this is planned to be used to fund national, more strategic programmes including the Performance Planning Reform Programme but with the majority being made available for the Routes to target the areas they believe will deliver the

biggest performance benefit in CP4, with lasting effects into CP5. We believe this provides further evidence of Network Rail's commitment do doing all that it can to improve the forecast for the end of CP4, and we wanted you to be aware of the initiative.

Network Rail will continue to update ORR on the use of all performance funding as part of Quarterly Reporting and remain focused on delivery of these improvement schemes to maximise the performance benefit.

Yours sincerely

John Thompson
Industry Performance Relationship Manager
Network Rail

Cc: Neil Henry, Richard Fisher

Annex F - Letter from Network Rail to ORR on GOVIA Joint Performance Board

Richard Price
Chief Executive
Office of Rail Regulation
One Kemble Street
London WC2B 4AN

20 June 2013

Dear Richard,

GOVIA TOC PERFORMANCE REVIEW

You will recall that we wrote to you on 7 May regarding our intention to carry out an external review of train performance across the three Govia TOCs – Southern, Southeastern and London Midland. Commissioned by Govia, the review was undertaken in collaboration with Network Rail.

The review is now complete and there are two main conclusions: Govia and Network Rail should seek to collaborate more closely and each of the TOCs' Performance Management System should be strengthened.

In the light of these conclusions, Govia and Network Rail have agreed to establish a Joint Performance Board. The Board's membership will include the CEOs (David Brown and David Higgins), the three Govia TOC Managing Directors, their respective Network Rail Route Managing Directors and appropriate senior managers. The Board's purpose will be to ensure consistent, high-level focus on performance across our organisations.

Govia will also strengthen its internal processes by implementing a more formal, rigorous performance management system in each TOC.

The review acknowledged that, despite the challenge of running intense operations on congested routes such as the Brighton Main Line and the West Coast Main Line, there are ample examples of good practice in the Govia TOCs which we can build upon. In particular, the review recognised that Govia's fleet organisations are performing well and are already above industry averages. Govia will ensure this is both maintained and improved. Since the review was undertaken, performance across the three TOCs has shown some positive signs, but we believe there is more to be done.

The review received input from across the industry, and we are grateful to colleagues who participated and provided feedback.

We would be happy to brief you on the findings of the review and how we are implementing its recommendations.

Yours sincerely,

Sir David Higgins
Chief Executive
Network Rail

David Brown
Group Chief Executive
Govia

Annex G – Glossary

BTP	British Transport Police
CaSL	Cancellations and Significant Lateness
ICR	Infrastructure conditions report
iPAT	Improved performance action tracker (the system which captures performance improvements and the benefits of those)
ITPS	Integrated Train Planning System
JPIP	Joint performance improvement plan
LD	Long Distance (sector)
LDRP	Long Distance Recovery Plan
LNE	London North East (route)
LNW	London North West (route)
LSE	London and South East (sector)
LSEP	London and South East Plan
MAA	Moving annual average
NTF	National Task Force
OLE	Overhead line electrification
PP	percentage points
PPM	Public performance measure
RCM	Remote condition monitoring
SDS	Seasonal Delivery Specialist
TOC	Train Operating Company
TSRs	Temporary speed restrictions