Annex C- Network Rail's Long Distance Sector improvement plan: Evidence report following ORR's investigation

Office of Rail Regulation – May 2012

Network Rail's Long Distance Sector improvement plan:
Evidence report following ORR's investigation

This evidence pack contains the supporting evidence behind our recommendation to the 22 May board.

It consists of the following sections:

Introduction

Background

1. Network Rail was funded in the 2008 periodic review to deliver a number of performance targets at national and sector level. It was required to disaggregate these targets to develop its commitments to individual train operators.

2. Network Rail has missed a number of its performance targets in 2009-10 and 2010-11. In both cases we accepted that the severe winter conditions experienced in those years were a contributing factor that Network Rail could not have foreseen and that Network Rail would probably have just achieved its targets given more normal conditions. In May 2011, therefore, we found that it was not in breach of its licence. However, we told the company that we were concerned about the emerging trends showing that performance was not improving as fast as it should, particularly in the long distance sector, and asked it to tell us what it was doing to rectify this.

3. In October we wrote to Network Rail formally setting out our concerns about deteriorating operational performance in the long distance sector and saying we thought that this might indicate that Network Rail was, or was likely in future to be, in breach of its network licence. We received Network Rail's written response on 22 November and met Robin Gisby and colleagues to discuss it on 28 November. Network Rail sent further written information on 12th December.

4. In December we found that Network Rail was likely to commit a breach of its licence in terms of its performance in the LD sector in 2011-12 and 2012-13. We issued an enforcement order on Network Rail requiring it to deliver a plan for improving performance in this sector in 2012-13 to the levels specified in the final determination for CP4. Its order required this plan to be delivered to us by 29 February 2012 but, following representations from Network Rail, we agreed that the date be revised to 30 March 2012 to allow time for appropriate industry engagement and to align with its established industry planning process of agreeing Joint Performance Improvement Plans (JPIPs) with passenger operators.

5. At the same time the board concluded that Network Rail had breached its licence in terms of freight performance and it required Network Rail to set up a performance recovery board, led by the industry. It also concluded that Network Rail had not breached its licence in respect of its performance in Scotland as it had produced a recovery plan that it judged to be robust.

6. Network Rail submitted its plan on 30 March, with an additional supporting document on 25 April. We met with Network Rail during April to discuss the plan. We also held a meeting with Network Rail, long distance operators and other industry parties on 27 April to gather their views on the plan.

Context

7. Network Rail is required by condition 1 of its licence to secure:

(a) the operation and maintenance of the network;

(b) the renewal and replacement of the network; and

(c) the improvement, enhancement and development of the network,

in each case in accordance with best practice and in a timely, efficient and economical manner so as to satisfy the reasonable requirements of persons providing services relating to railways and funders, including potential providers or potential funders, in respect of:

(i) the quality and capability of the network; and

(ii) the facilitation of railway service performance in respect of services for the carriage of passengers and goods by railway operating on the network.

8. It must do this to the greatest extent reasonably practicable having regard to all relevant circumstances including the ability of the licence holder to finance its licensed activities.

9. In this case, the reasonable requirements of persons providing services relating to railways and funders are the long distance sector targets for the public performance measure (PPM) set out in Table 4.1 of ORR's Periodic Review 2008: Determination of Network Rail's output and funding for 2009-14[1]. These are:

(PR08 Determination Table 4.1) PPM annual average for passenger operators

	2008-09 (%)	2009-10 (%)	2010-11 (%)	2011-12 (%)	2012-13 (%)	2013-14 (%)
Long Distance Sector	87.6	88.6	89.9	90.9	91.5	92.0

10. The 19 January Enforcement Order required Network Rail to produce and deliver to ORR by **30 March 2012** a plan setting out the steps it will take in the remainder of 2011-12 and for 2012-13 to deliver the outputs to the greatest extent reasonably practicable, through operating and maintaining the network in a timely, efficient and economical manner and in accordance with best practice. The Plan was required to include:

(a) a clear explanation of the factors causing the current under performance;

(b) a clear assessment of external factors expected to influence future performance including risks and opportunities;

(c) details of actions proposed to improve performance; and

(d) fully quantified and substantiated forecasts including the impact of the above factors.

11. ORR and Network Rail appointed the independent reporter (Nichols/ AECOM) to carry out an evaluation of Network Rail's planning process and to assist in the assessment of the Long distance sector recovery plan.

[1] ORR's Periodic Review 2008: Determination of Network Rail's output and funding for 2009-14[1], October 2008, can be found at http://www.rail-reg.gov.uk/upload/pdf/383.pdf

2011-12 Performance

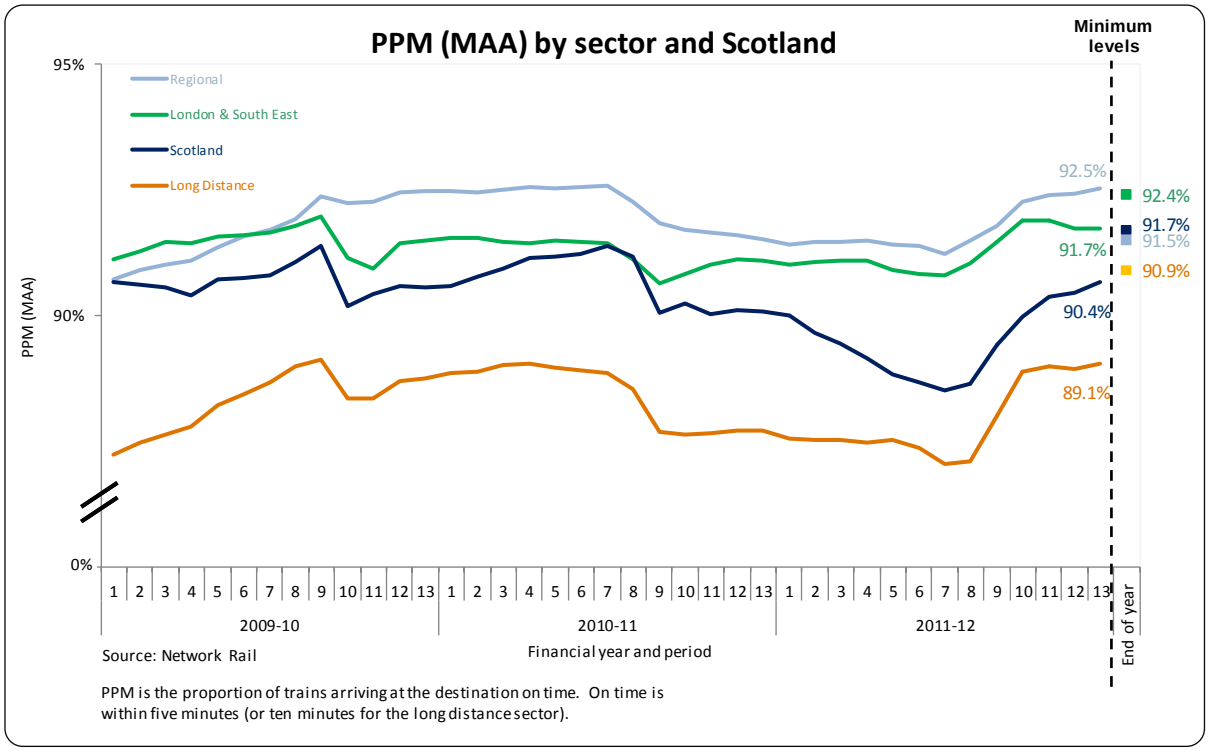
12. Network Rail failed to achieve a number of its regulated targets in 2011-12. The table below indicates the position at the end of period 13.

Table 1

	Against baseline			Against CP4 target	
PPM - MAA	2011-12 P13	2010-11 P13	% variance	**2011-12 P13 target**	% variance to 13 target
England & Wales	91.7%	90.9%	0.8%	92.0%	0.3%
First ScotRail	90.7%	90.1%	0.6%	91.7%	1.0%
L/SE All Day	91.7%	91.1%	0.6%	92.4%	0.7%
Long Distance	89.1%	87.7%	1.3%	90.9%	1.8%
Regional Operators	92.5%	91.5%	1.0%	91.5%	1.0%
CaSL - MAA	2011-12 P13	2010-11 P13	% variance	**2011-12 P13 target**	% variance to 13 target
L/SE All Day	2.4%	2.6%	0.2%	2.1%	0.3%
Long Distance	4.0%	5.0%	1.0%	4.2%	0.2%
Regional Operators	2.0%	2.4%	0.5%	2.4%	0.4%
Network Rail passenger delays (year to date)	2011-12 P13	2010-11 P13	% variance	**2011-12 P13 target**	% variance to 13 target
England & Wales	6,509,688	6,883,453	5.4%	5,430,000	19.9%
Scotland	473,057	540,537	12.5%	391,000	21.0%
Network Rail delays to freight MAA (DP100TKM)	2011-12 P13	2010-11 P13	% variance	**2011-12 P13 target**	% variance to 13 target
Freight	3.53	4.28	17.5%	3.18	11.2%
PDI - Passenger and Freight MAA	2011-12 P13	2010-11 P13	% variance	**2011-12 target**	% variance to year end target
PDI-P (one period behind)	0.53	0.58	8.6%	0.83	36.1%
PDI-F	0.85	0.89	5.2%	1.00	15.2%

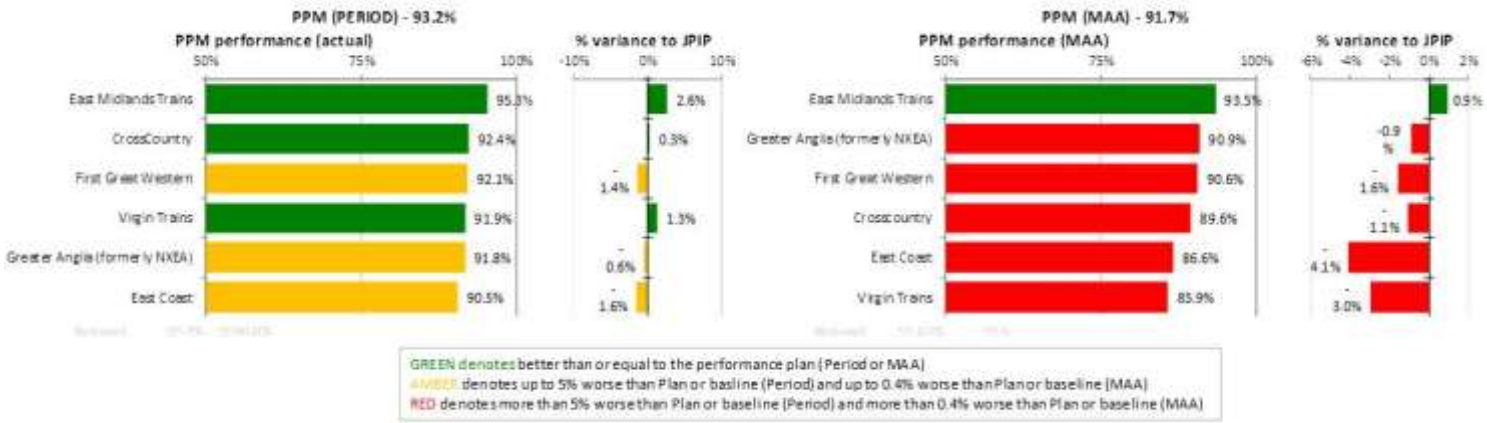
13. The LD sector missed its PPM target by 1.8 percentage points. London and South East sector and Scotland also missed their PPM targets. We are commencing a separate investigation into London and Southeast performance. Scotland ended the year on a positive trajectory, bettering its delay minutes targets for the last 3 periods of the year.

Chart 1



14. The Long distance TOCs outturned the year as below:

Chart 2



15. End of year figures show England and Wales missed the delay minutes target by 19.9%, however both Network Rail delay minutes and TOC-on-Self delay minutes are lower than 2010-11 (by 5.7% and 9.2% respectively), with TOC-on-TOC delay minutes being 0.3% worse than last year. Performance in 2010-11 was affected by severe winter weather.

16. Both LD and regional operators achieved their CaSL targets, however, London and South East missed its CaSL targets by 0.3 percentage points.

17. Although First ScotRail missed its P13 PPM (MAA) target of 91.7% by 1 percentage point it achieved its periodic target for the last 5 periods of the year and is also showing strong delay minutes performance. On the basis of this and the fact that Network Rail and First ScotRail have signed a JPIP committing to the end of CP4 regulated PPM target the

industry delivery review group has agreed that this issue should be removed from the regulatory escalator. We have written to Network Rail advising them of this.

18. All routes are missed their end of year delay minute targets, except for East Midlands, as indicated in the table below. Worst performing routes against target include Wessex (50.5% worse), Wales (28.8% worse) and Western (28.1% worse).

Table 2

Total Network Rail delays to all operators

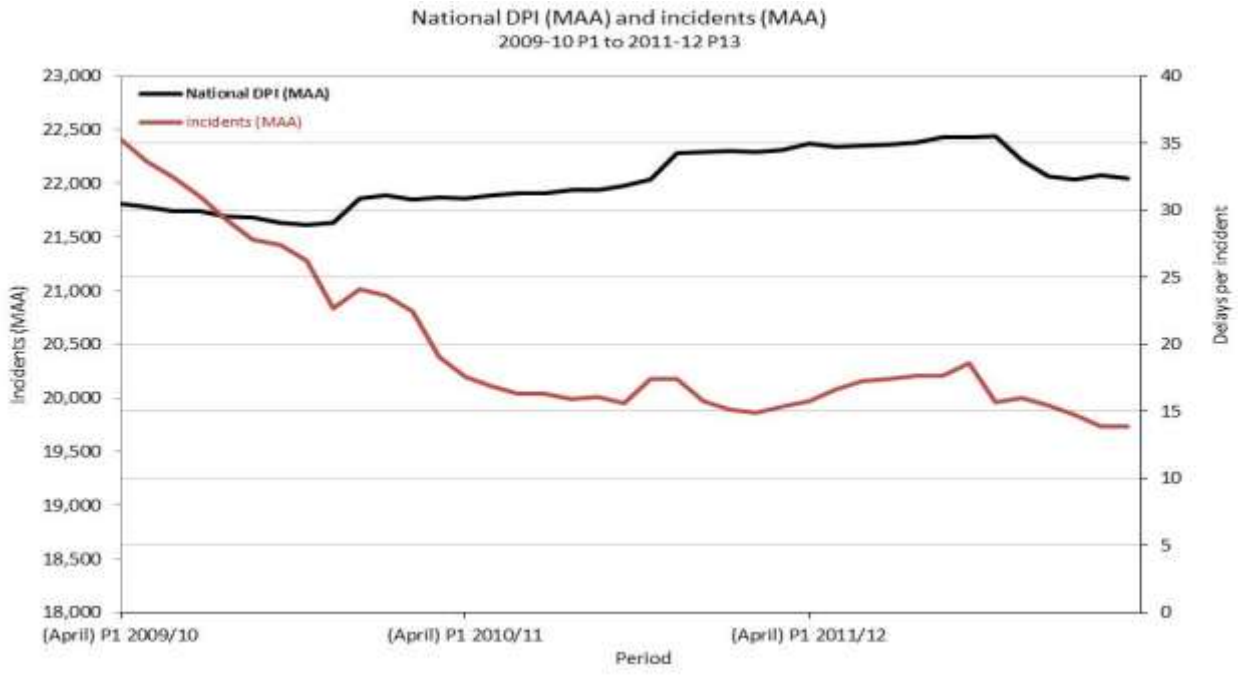
Year-to-date	P13 2011-12	Last Year	% to target
Anglia	931,167	969,805	8.0%
East Midlands	305,831	358,166	1.3%
Kent	530,531	661,378	7.1%
London North East	1,494,291	1,700,068	19.0%
London North West	1,934,227	1,992,470	13.9%
Scotland	611,661	712,755	24.8%
Sussex	627,061	664,542	23.7%
Wales (new from P8)	341,299	0	28.8%
Wessex	718,024	577,775	50.5%
Western	819,727	1,300,129	28.1%
Network Total	**8,313,819**	**8,937,087**	18.8%

19. Freight missed its end of year CP4 target by 11.2%.

20. Passenger disruption index – for both passenger and freight are better than target at the end of P13 2011-12.

21. DPI (MAA) is at 32 delays per incident at P13 2011-12, down from 35 delays per incident at P13 2010-11. National DPI (MAA) peaked in P8 2011-12 but with the weather affected periods dropping out of the MAA, the DPI has fallen.

Chart 3



Comparison of Network Rail and ToC caused delay minutes

22. The table below shows, for the Long Distance ToCs, the absolute number of Network Rail caused delay minutes and ToC on self caused delay minutes for 2011-12 and the variance to their JPIP targets.

Network Rail on TOC and TOC-on-self caused delay minutes

Table 3

LD TOC	NR-on-TOC YTD (up to P13)	% variance to P13 JPIP target	TOC-on-self YTD (up to P13)	% variance to P13 JPIP target
Transpennine Express	237,002	5.8%	41,387	-43.1%
Greater Anglia	582,643	14.2%	280,248	15.3%
First Great Western	653,234	41.1%	332,141	-2.3%
Cross Country	460,909	16.1%	68,329	-25.7%
East Midlands	233,921	-8.3%	72,169	-36.5%
East Coast	235,045	27.1%	70,659	7.2%
Virgin Trains	413,686	21.7%	94,779	5.3%

23. It shows that, with the exception of Greater Anglia (which only has a small proportion of its services in the LD sector), Network Rail caused delay was proportionality higher than ToC caused delay for all operators in the sector.

Factors affecting underperformance in the LD sector

24. In part, the acceptance that the targets are likely to be missed is a result of the entry trajectory to 2012-13. Network Rail has underperformed in this sector for most of CP4. We concluded that it had not breached its target in 2010-11 because of the impact of the severe winter weather. Performance in 2011-12 was poor while the weather was generally benign. We believe that this poor performance may be explained by a number of factors, which are set out in these following paragraphs.

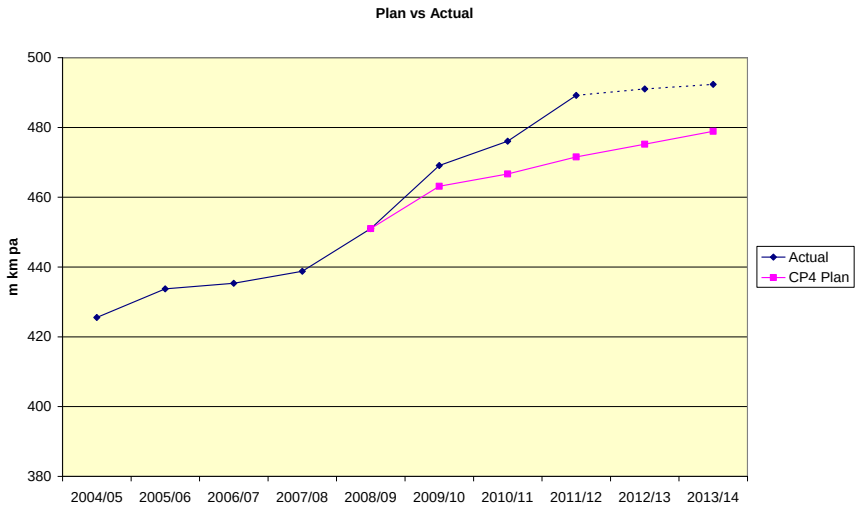
25. These factors are not simply additive i.e. each factor does not separately explain an independent portion of the variance against LD targets. The relationship between factors is inter-related and complex.

26. The factors that have had an impact on LD performance include:

a) Traffic growth
b) Delay per incident
c) The relationship between delay minutes and PPM
d) Externals
e) Maintenance restructuring
f) Track quality
g) Severe weather in 2009/10 and 2010/11
h) Timetabling and ITPS
i) Delay in key projects
j) TOC PPM failures

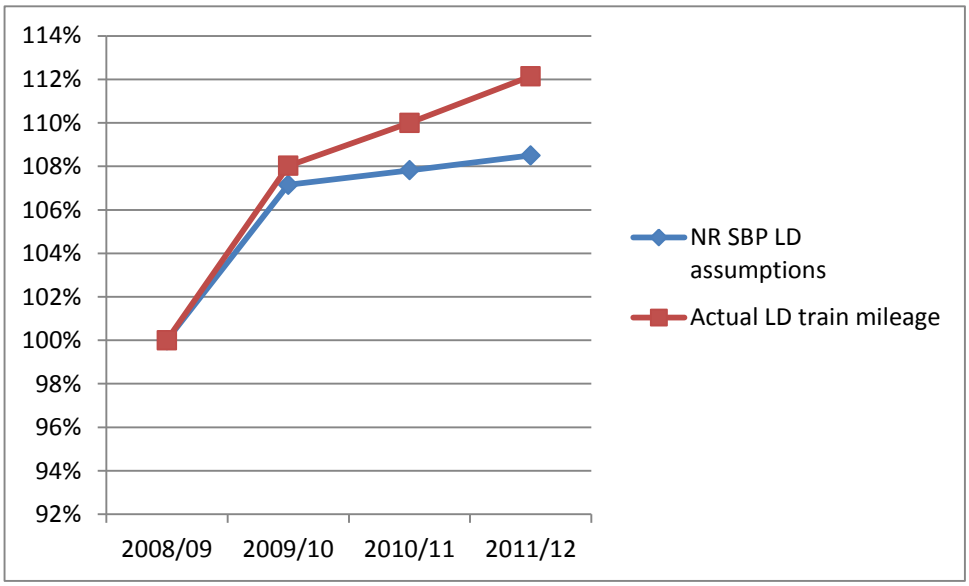
27. Traffic growth beyond the levels planned when the outputs were set. Network Rail states that this is a significant factor. As part of their evidence to ORR (*Passenger Train Performance in Context* presentation), Network Rail suggested that the Long Term Performance Plans (LTPPs) did not adequately cover several factors that now affect performance, with growth in the number of trains and passengers claimed as being greater than “CP4 plan” (chart 4).

Chart 4. Train km per year of CP4 - actual vs CP4 plan (source: NR)



28. Using the data behind the Strategic Business Plan (SBP) assumptions, we made our own assessment of mileage increase in the LD sector. It is clear that actual LD train mileage was in excess of the planned SBP assumptions (Chart 5).

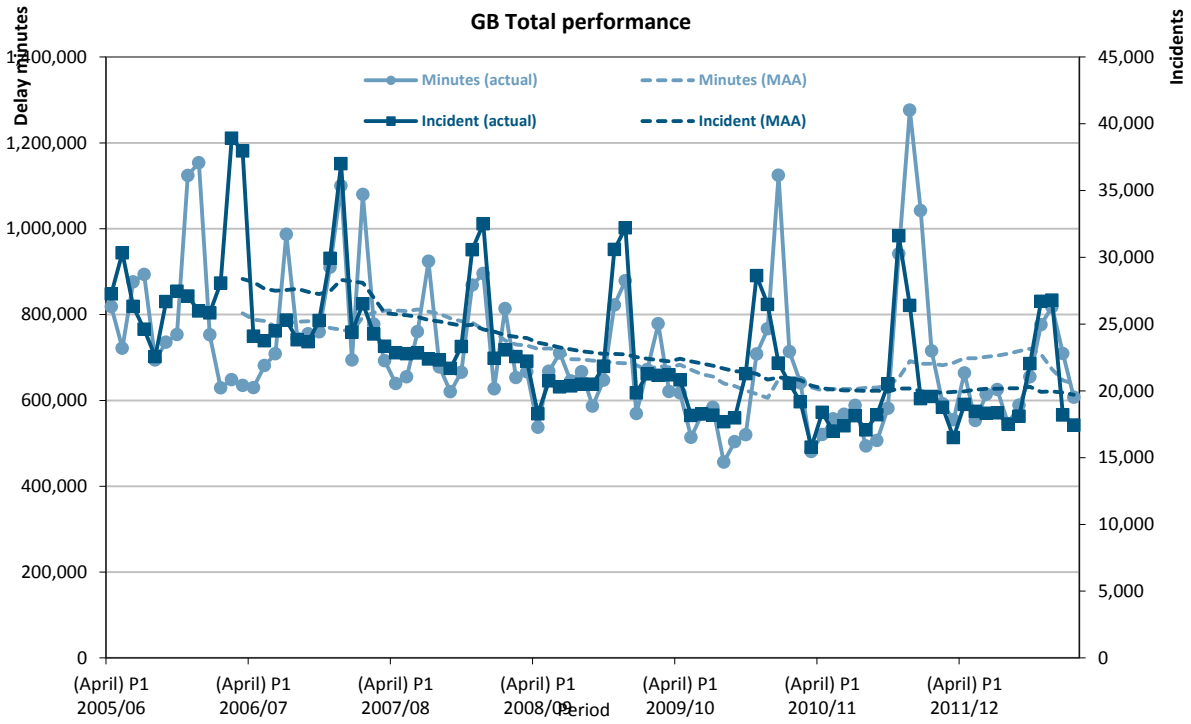
Chart 5 NR SBP assumptions for train mileage vs actual. 2008/09 indexed as 100% (source: ORR data)



29. We also note that in its SBP submission for PR08 Network Rail stated; "*We also believe that, should growth be significantly higher than these forecasts, our strategy will still be robust. The interventions that we propose either create the potential to accommodate growth beyond the HLOS forecasts, or are at least consistent with what would need to be done should growth exceed the forecasts*".

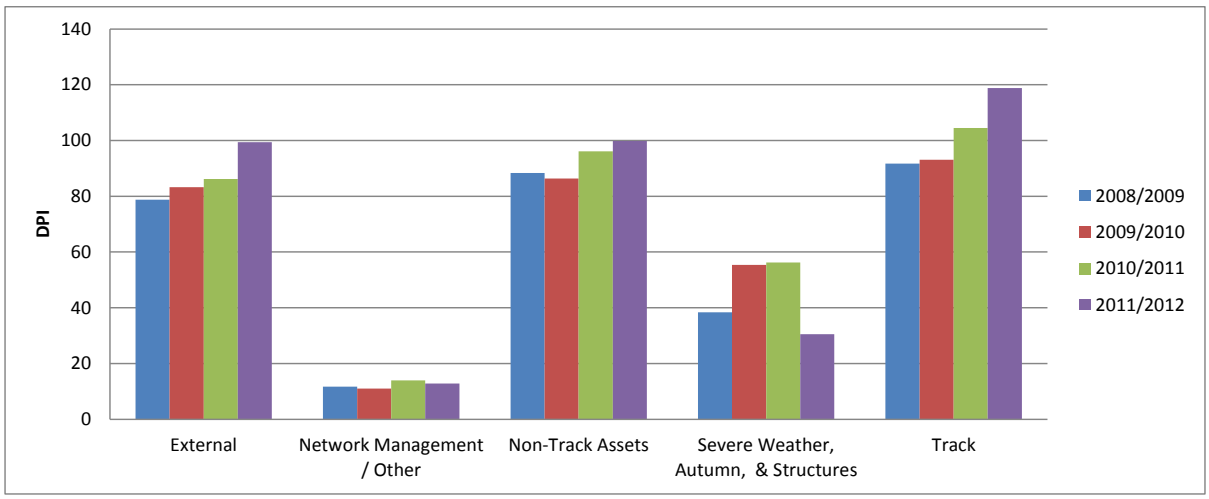
30. The failure to predict that the rise in delay per incident (DPI) seen in 2010-11 would continue in to 2011-12 is likely to be a factor in the poorer performance observed in the LD sector this year. Delay minutes and incidents tracked each other reasonably closely until 2009/10. National DPI increased steadily from the end of 2009/10, the MAA peaking in 2011/12

Chart 6



31. Asset (track and non-track) DPI and externals DPI are substantially higher than overall DPI, and the increase (compared to last year) in these categories is marked compared to the marginal decrease overall (Chart 6). Though the figures shown are for all sectors, it is likely that the DPI trend in the LD sector reflects the wider increases seen across the industry.

Chart 7 NR-on-TOC DPI by NR-attributed cause group, all routes

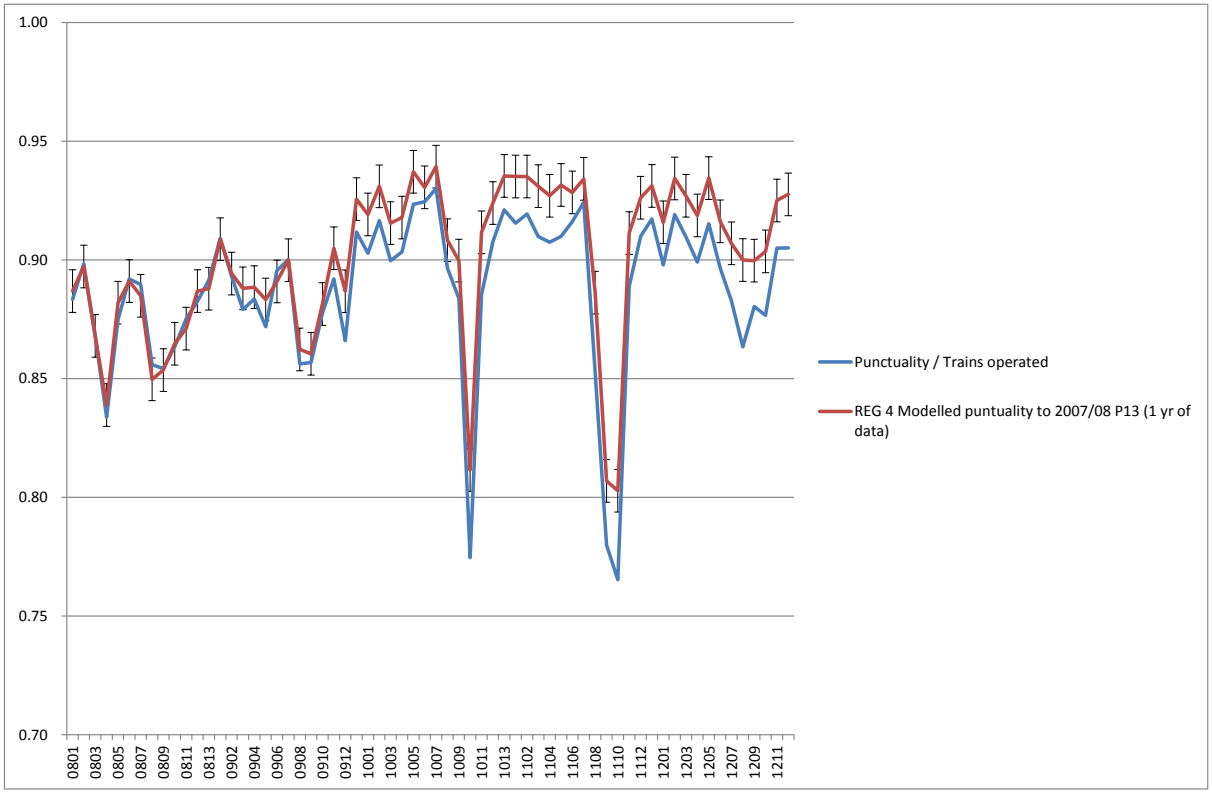


32. The change in the nature of the delay minute (DM) to PPM relationship is another factor that helps to explain recent poor performance against LD targets. PPM forecasts are calculated using a statistical model that is based on delay minutes (since schemes in PAT are currently quantified using delay minutes). Chart 8 shows how the assumed relationship between punctuality and delay in the early part of CP4 changed over time.

33. In the latter part of the control period, delay minutes in the model fail to generate a good match to actual delay minutes, with observed values of punctuality/PPM falling outside the bounds of error (the 95% confidence intervals shown on the chart). The change in the

model means that delay minutes now produce a lower PPM than might be expected using the historical relationship, typically 2.3 percentage points lower for the LD sector. NR explain the reasons for the changes (see paragraph 488) as due to Virgin and East Coast timetable changes, and a decrease in timetable differentials.

Chart 8 LD Punctuality over time (blue line), against modelled punctuality (red line) using actual delay minutes and model as at the beginning of CP4



34. At the end of P12, national performance in external factors (excluding weather) accounted for almost a quarter of all delay minutes (1.8 million against a total of 7.8 million). For Long distance (LD) external factors again accounted for almost a quarter of all delay (0.4 million against a total of 1.7 million). However for LD, external factors were 4.1% better than baseline, whereas nationally external factors were 9.3% worse.

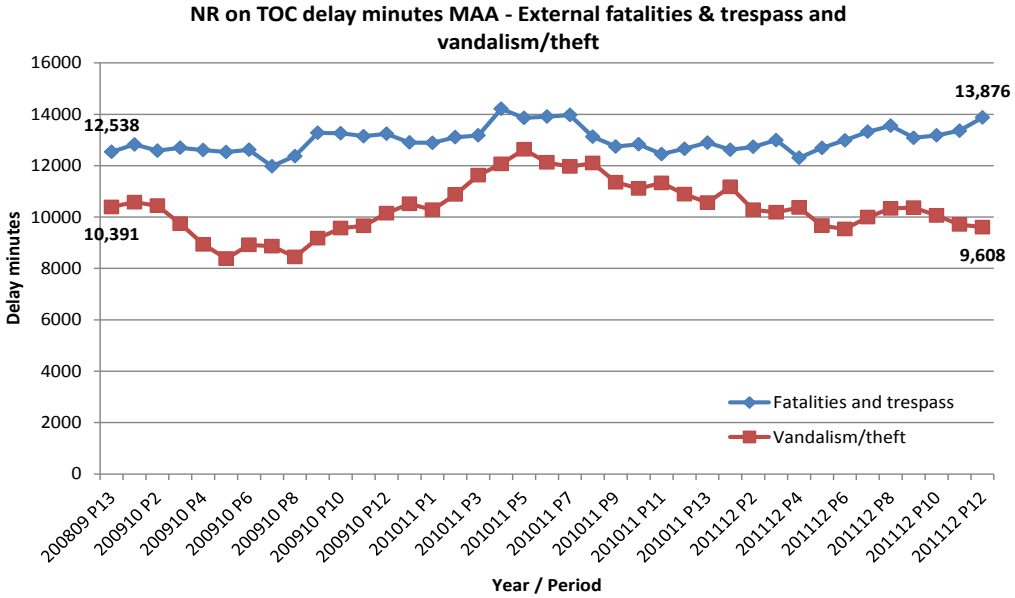
Table 4 Delay minutes by external KPIs for LD

	PERIOD			YTD		
Long distance: NR on TOC delay minutes for External KPIs	P12 2011-12	P12 2010-11	% variance to baseline	P12 2011-12 result	P12 2010-11 result	% variance to baseline
Bridge strikes	1,283	2,837	54.8%	28,685	35,481	19.2%
External fatalities and trespass	19,059	12,384	53.9%	166,922	154,227	8.2%
External fires	1,228	2,360	48.0%	8,648	14,412	40.0%
External infrastructure damage - Vandalism/Theft	5,142	6,460	20.4%	116,881	129,286	9.6%
External level crossing/road incidents (not bridges)	1,270	3,084	58.8%	17,140	20,328	15.7%
External other	2,108	5,603	62.4%	55,250	53,867	2.6%
External police on line/security alerts	277	330	16.1%	2,364	2,663	11.2%
Fires starting on Network Rail Infrastructure	0	11	100.0%	3,103	5,688	45.4%
TOTAL	**30,367**	**33,069**	8.2%	**398,993**	**415,951**	4.1%

35. The largest cause of delay in the external category for LD in P12 2011-12 was fatalities and trespass (167,000 delay minutes YTD), which was 8.2% worse than baseline.

Vandalism and theft was the second largest (117,000 delay minutes YTD) yet this was 9.6% better than baseline.

Chart 9 Long distance NR on TOC delay minutes MAA for fatalities & trespass and vandalism/theft – 2008-09P13 to 2011-12 P12



36. Chart 9 shows a longer time series and illustrates a similar trend as the baseline, i.e. that over the last three years fatalities and trespass have risen (by about 10%), but that vandalism and theft has fallen (by about 8%).

37. External delay per incident across all sectors has increased steadily, with the largest increases seen in DPI due to fatalities and cable theft. It is recognised that LD DPI is more likely to be due to discrete events such as externals, and recent overall increases in DPI are likely to be reflected in the LD sector as well.

38. It is clear that whilst delays due to cable theft have fluctuated across the control period, they were lower in 2011-12 than they were in 2010-11(in delay minutes terms). Delays due to fatalities have worsened across the control period, and are worse than baseline (and therefore assumptions). Planned assumptions around the expected number of cable theft incidents and fatality incidents were not provided by NR.

39. NR suggests that reduced productivity benefits in maintenance may also have led to underperformance (*Passenger train performance in context*, slide 13).

40. For some time we have been concerned about a shortfall in NR's maintenance capability. This was the subject of letters from ORR to Robin Gisby in November 2011 and to Peter Henderson in January 2012.

41. Furthermore the independent reporter's (AMCL) updated view of NR's asset management maturity showed "Maintenance planning, OPEX and Evaluation" to be considerably behind the trajectories agreed by the joint boards.

42. NR also cited track quality as a reason for the shortfall against target (*Passenger train performance in context*, slide 13). Charts 10 &11 show planned and unplanned temporary speed restrictions (TSRs) due to track quality on LNE and LNW. An increase in the both the number and proportion of unplanned track TSRs can be seen across both routes in the latter half of 2011/12.

Chart 10 Planned and unplanned track TSRs on LNE

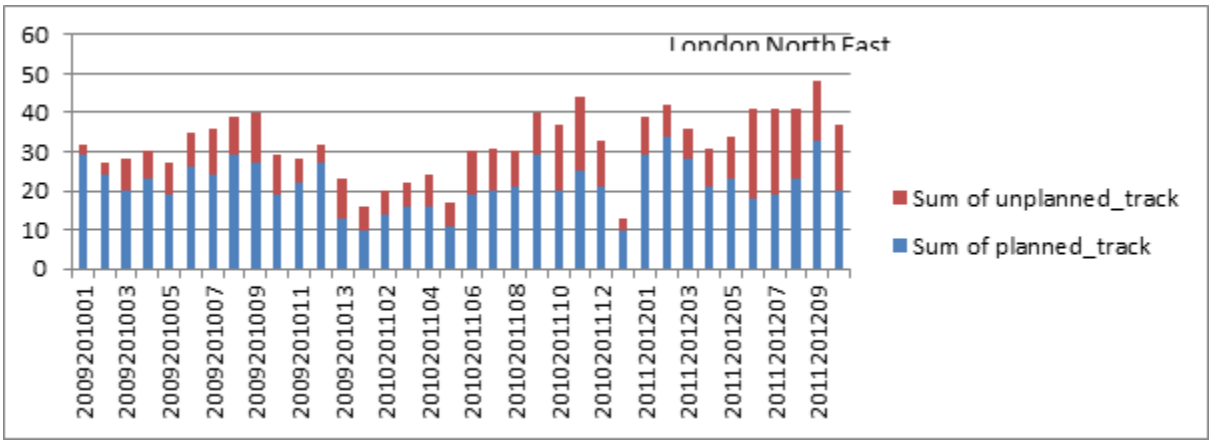
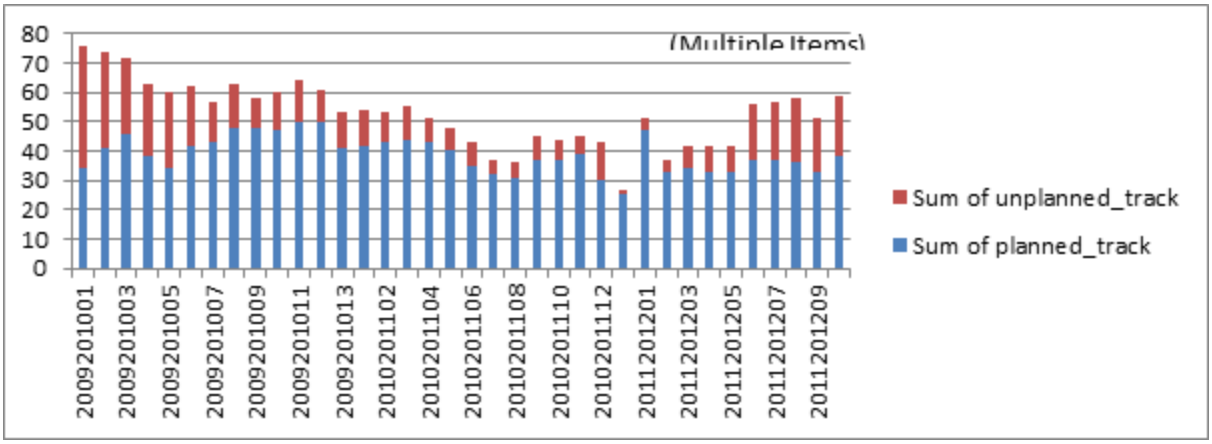
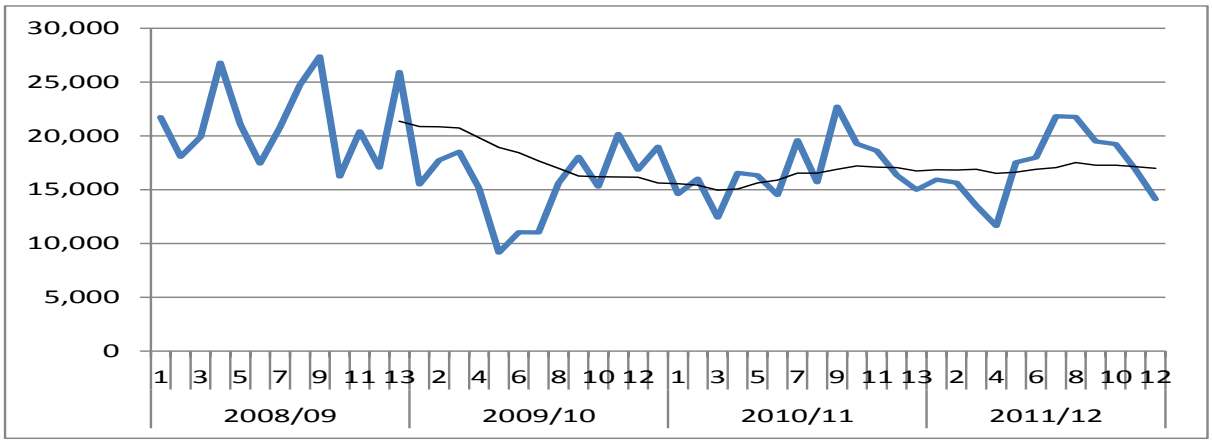


Chart 11 Planned and unplanned track TSRs on LNW



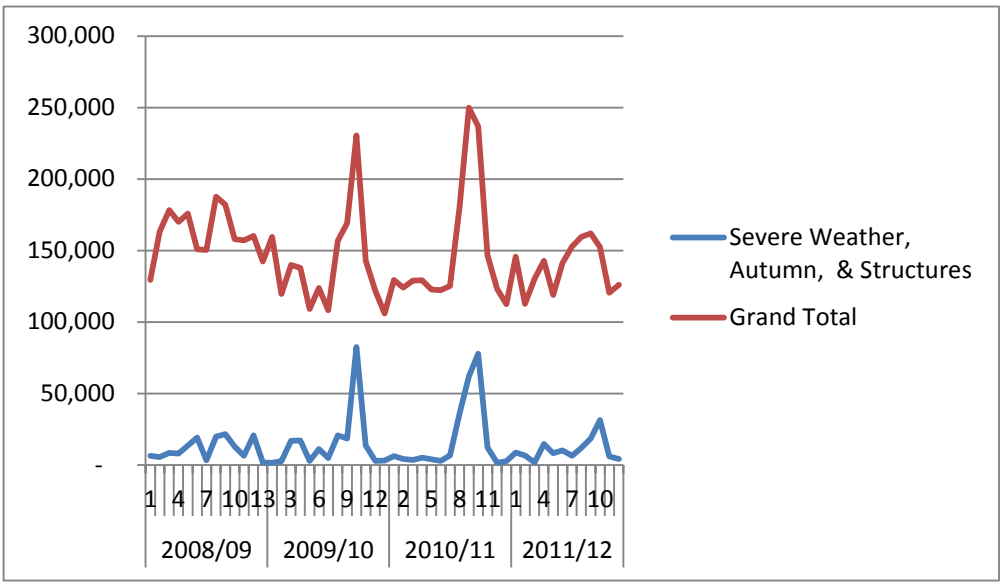
43. 12 shows track delays to the LD sector over CP4, demonstrating a gradual decrease in the early part of CP4, with a steady but slight increase beginning in the middle of 2010/11.

Chart 12 LD track delays over CP4



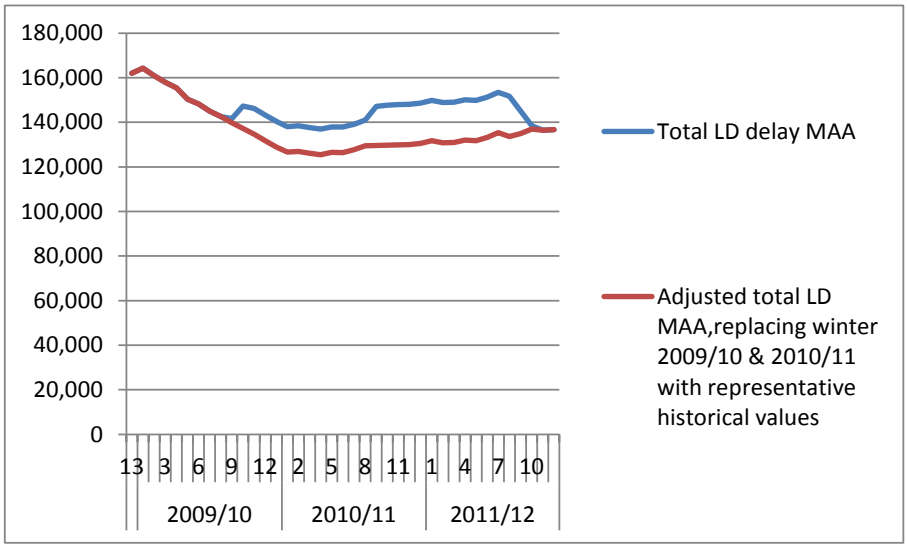
44. The severe weather experienced across the country in the previous two years' autumn and winter may have masked underlying under-performance trends in the LD sector. Chart 13 shows how delay due to severe weather in 2009/10 and 2010/11 was exceptional.

Chart 13 Periodic LD delay minutes: LD severe weather and total LD delay over CP4



45. Adjusting[2] the LD delay in those two winters to be more representative of historical patterns (i.e. non-exceptional weather) results in a much clearer picture of the steadily worsening trend in the LD sector (Chart 14).

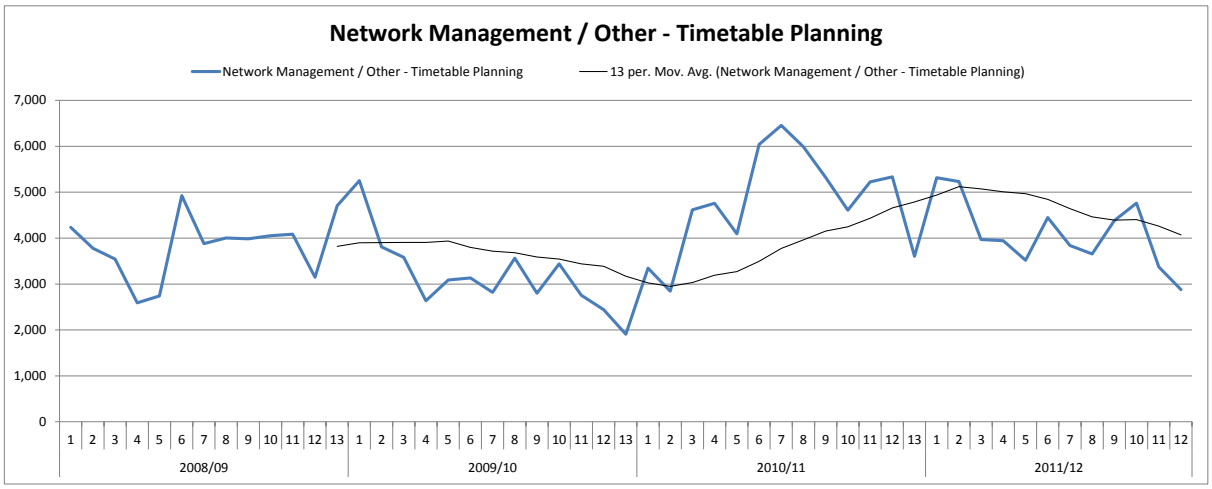
Chart 14 LD delay: observed MAA vs adjusted series



46. The on-going impact of the introduction of its integrated train planning system (ITPS**)** for which ORR previously concluded that NR breached its licence, may still be factor in underperformance. Chart 15 shows how delays due to timetable planning increased before the severe weather hit in 2010/11, peaking in early 2011/12 before steadily decreasing over the year.

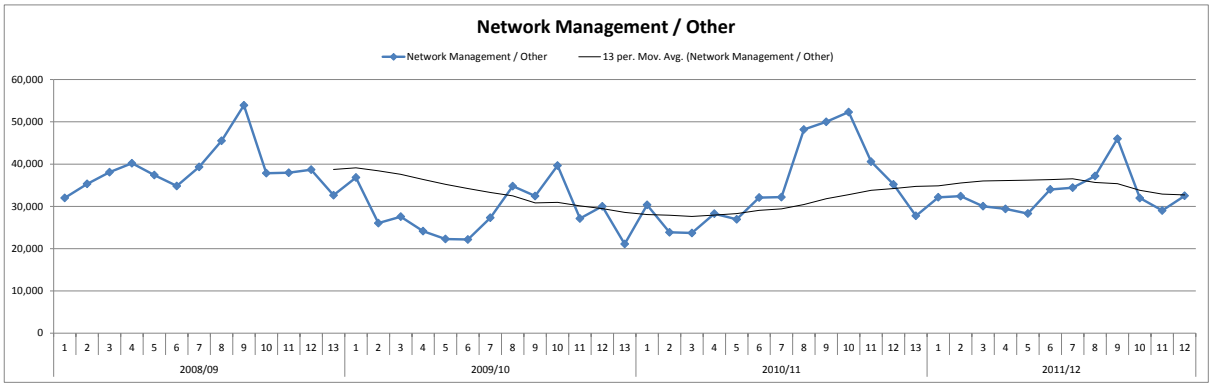
[2] Adjustment was done as follows: seasonal fluctuations around the yearly average were calculated for each period in 2008/09. These fluctuations, or indices, were multiplied by the average delay minutes in 2009/10 and 2010/11, excluding P9, 10 & 11. A moving annual average was then computed from the adjusted series.

Chart 15 LD delay due to timetable planning



47. Delays resulting from ITPS may have manifested in other delay cause categories as well. Chart 15 shows the CP4 trend for all LD network management delay, which follows a broadly similar pattern.

Chart 16 LD delay due to all network management causes



48. NR have suggested that a key cause of the changes in the delay: PPM relationship was the Virgin December 2008 timetable change (*Passenger train performance in context, slide 16*), leading to a 1.3 percentage point impact on LD PPM. NR have suggested other timetabling reasons that may have affected the PPM: delay relationship including:

(a) Changes in the differentials between the working timetable and the public timetable (various operators)

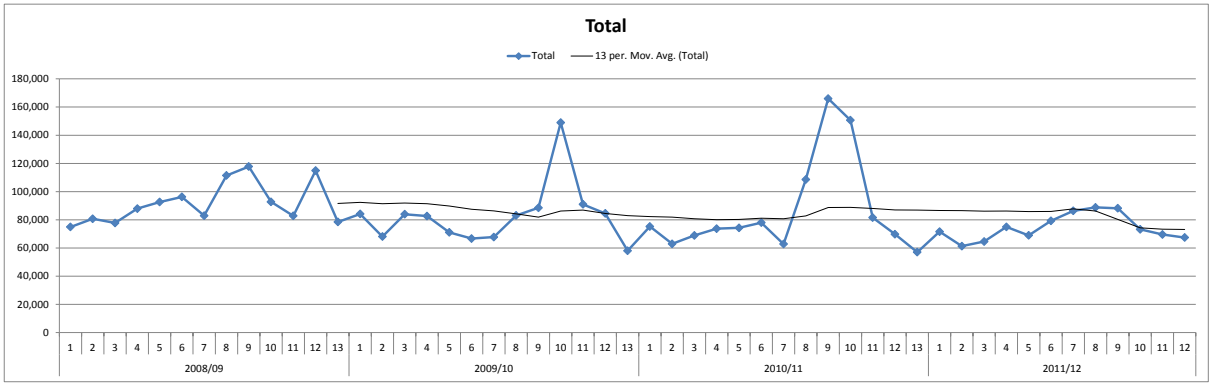
(b) East Coast timetable changes in May 2011

(c) An increase in the average miles per train (longer distance services on average have a lower PPM)

49. The delay in roll out of some key projects, for example remote condition monitoring (RCM), may also have contributed to LD PPM underperformance. The remote condition monitoring work has not proved fully successful and is reliant on a few skilled individuals who can set-up and calibrate the systems accurately. This knowledge is gradually being disseminated to the routes. Although further roll-out would take some time to bed-in, it is essential that longer term plans are put in place concurrently, in order to move away from the reactive "find and fix" approach to one of "predict and prevent".

50. It should be noted that 20% of PPM failures in the LD sector are due to technical (fleet) and non-technical (fleet) delay. In general, however, TOCs have offset Network Rail under-delivery, with improving trends in TOC delay minutes (Chart 17).

Chart 17 TOC-on-self and TOC-on_TOC LD delay minutes

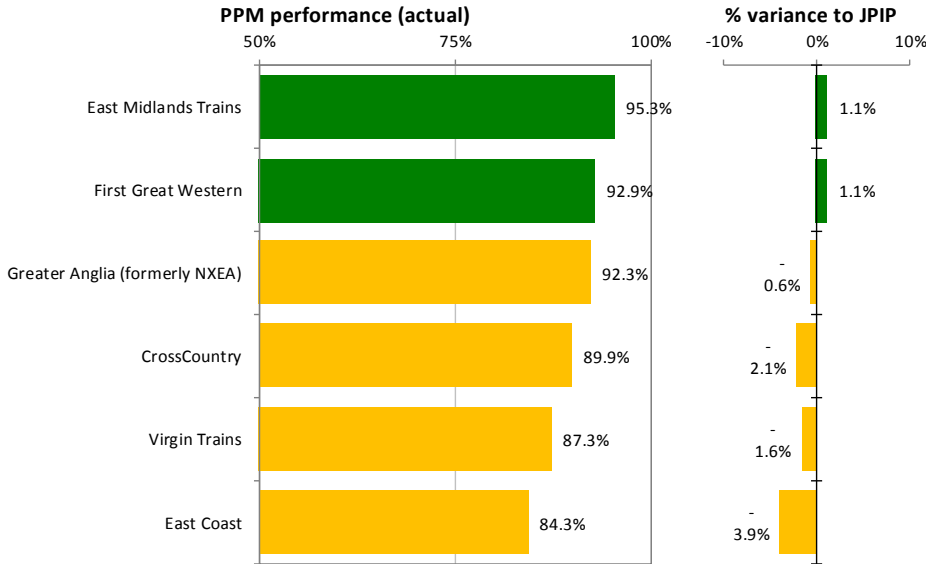


Performance in P1 of 2012-13 (provisional data used)

51. The LD sector achieved a P1 PPM of 90.4%, 0.4 percentage points worse than target. However, this is 1.6 percentage points better than P1 last year (88.8% PPM).

LD TOCs' PPM in P1 is shown below.

Chart 18



52. LD beat its P1 CaSL figure by 0.16 percentage points.

53. National PPM in P1 was 93.3%, this is equal to target. London and South East and England and Wales also missed their P1 targets by 0.7 percentage points and 0.3 percentage points respectively. Regional and Scotland beat their P1 target by 0.6 percentage points and 2.1 percentage points respectively.

54. Network Rail was 2.4% better than its national P1 delay minutes target. Scotland was 25.7% better than target.

Review of the plan

55. This section details the results our investigations into the process for production of the plan and its content, together with the 5 specific areas for further analysis that we identified. The overall assessment reflects the views of the independent reporter's (Nichols/AECOM) assessment of the plan.

Overall assessment

56. This section reviews the process for production of the plan and is based on the assessment of the Independent reporter (Jon Wiseman of AECOM). He has reviewed both the original 30 March submission (and the 9 April update) and the management plan submitted on 25 April.

57. The reporter concludes that the Plan, defined as the Long Distance Recovery Plan (LDRP) (submitted by NR on 9 April) and the Management Plan (submitted on 25 April) is close to being 'fit for purpose' and with one further round of editorial improvements can easily become so.

58. There are many aspects of the Plan which are good and need no further improvement. These include:

(a) the pages of introductory text in the Management Plan;

(b) the governance proposals in the LDRP;

(c) the risk assessment section of the Management Plan;

(d) the existence of an appropriate number of "game changing" initiatives;

(e) the supporting analysis generally;

(f) the structure of incremental outcomes adopted (Base, Base+ and Base++); and,

(g) the use of confidence limits in the forecast outcomes.

59. Also, there can be no doubt that NR has made a serious attempt to provide a Plan in accordance with the Order, albeit late, and after one or two false starts.

60. The main criticisms of the Plan are that:

(a) the strategic assessment of the LD sector in general, and the routes in particular, could be more comprehensive;

(b) the explanation of the strategic approach to the resolution of known network wide issues (such as asset reliability, timetabling errors, external threats, freight issues, incident response, contingency planning, restrictive rules, loss of focus on right time railway and sub-threshold delay, etc.) could be more comprehensive;

(c) the consistency and quality of presentation of the major initiative "one-pagers" could be better;

(d) there could be more tabulations to demonstrate that the arithmetic that connects the initiatives to the estimated delay minute savings to the forecast PPM outcomes is reasonably robust (albeit within the limitations created by the acknowledged difficulty of estimating delay minute savings); and,

(e) there could be greater consistency in the final tabulations of 2012-13 and 2013-14 forecast PPM outcomes.

61. The issues addressed by the Plan are undeniably highly complex and NR has on many occasions eloquently articulated the conflicting pressures brought about by demands for cost reduction, capacity improvement, and journey time reduction and performance improvement. However, given that the initiatives in the Plan must all be understood by stakeholders and delivered by teams of front-line managers, this complexity cannot be an excuse for a lack of basic clarity in the statement of the initiatives to be implemented.

Asset Management

Explanation of the factors causing the current under performance

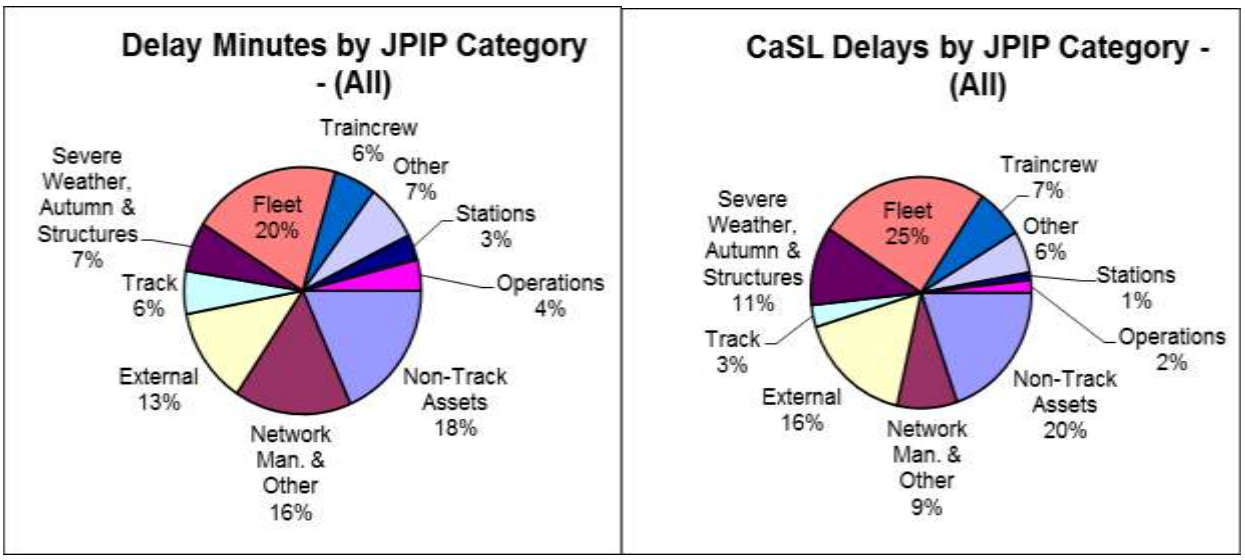
62. The split of asset management related delays is shown in the table below and illustrated in chart 19 with non-track assets contributing to the highest percentage of delay minutes followed by fleet problems, network management and externals. Taken together the track and non-track assets account for some 25% of the overall delays.

Table 5 Network Rail attributed delays (CaSL, PPM and Delay Minutes)

Split of NR attributed CaSL, PPM and Delay Minutes				
MAA analysis as at 2011/12_P12	(All) CaSL	(All) PPM	(All) Delay	
MAA	%	%	%	Ratio PPM / Delay share
Non-Track Assets	21.5%	19.5%	19.1%	1.02
Network Management & Other	8.6%	13.7%	16.0%	0.86
External	19.1%	13.4%	13.5%	1.00
Track	3.4%	5.3%	6.2%	0.85
Severe Weather, Autumn & Structures	7.6%	5.3%	4.6%	1.17
Fleet	24.5%	21.8%	19.8%	1.10
Traincrew	7.3%	6.8%	5.8%	1.16
Other	5.1%	7.3%	7.0%	1.03
Stations	0.9%	2.9%	3.5%	0.83
Operations	2.0%	3.9%	4.5%	0.88
Total	100.0%	100.0%	100.0%	1.00

Source: Network Rail

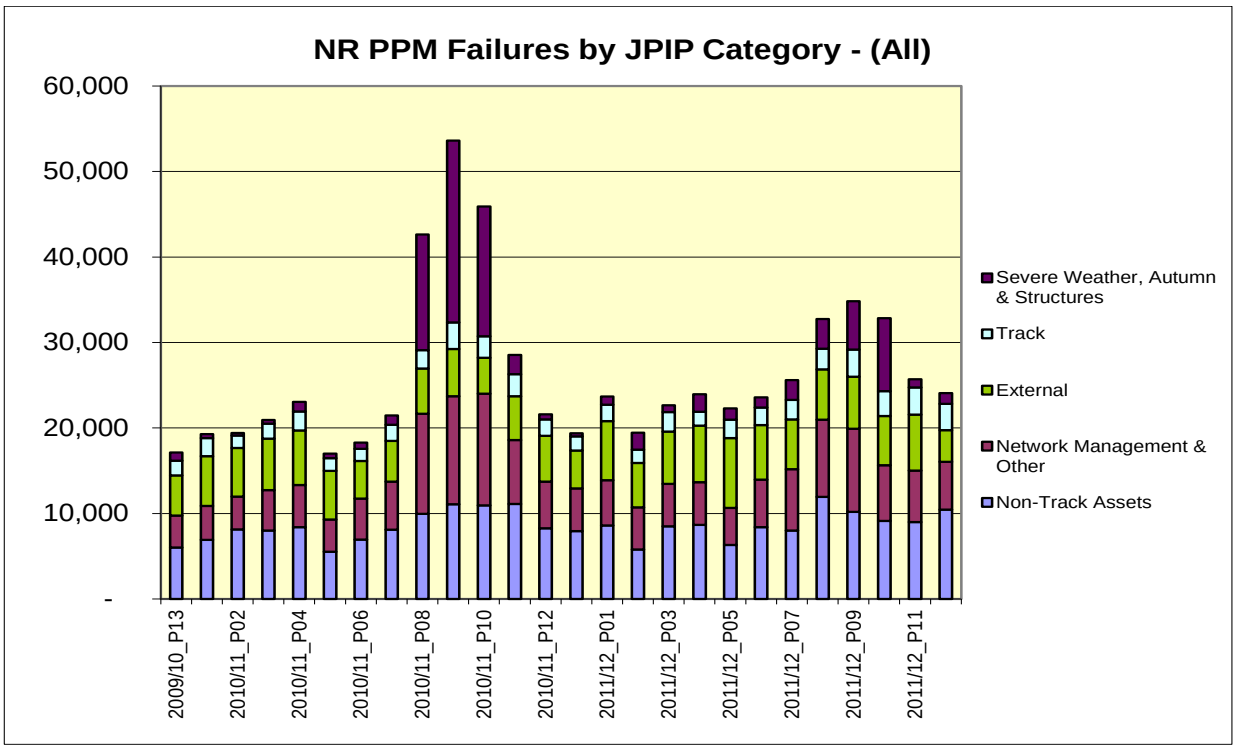
Chart 19 Proportion of delays for track and non-track assets



Source: Network Rail

63. Chart 20 shows a split of the PPM delays which have been attributed to Network Rail over the last two years. The 2010-11 period 8-10 increase is largely down to the severe weather, but preceding that we can see track and non-track delays were relatively low. For 2011-12 period 8-10 the relatively mild winter has caused fewer delays. Compared to the previous year there is an increasing trend in track and non-track delay incidents.

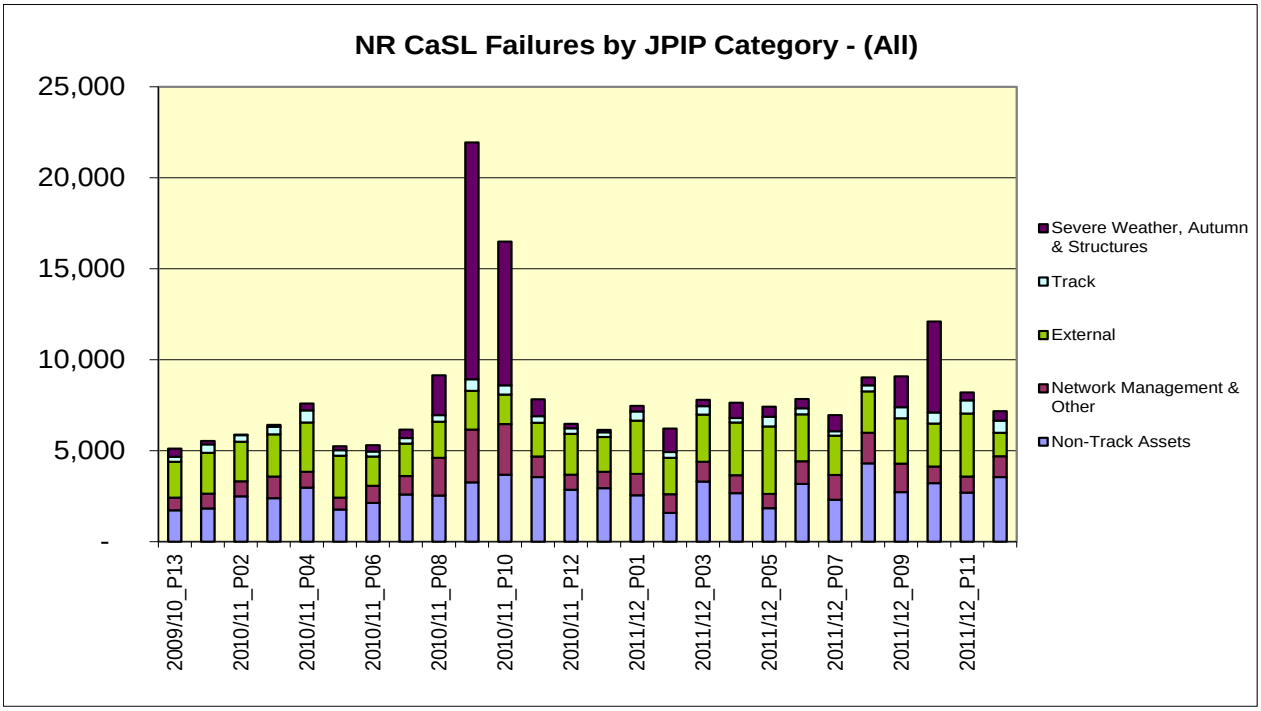
Chart 21 – Network Rail PPM Delay Incidents by JPIP Category



Source: Network Rail

64. Cancellations and significant delays (CaSL) in chart 21 have also been increasing over the last year for track and non-track assets. Although the rise does not appear to be great, the fact that there is more traffic on the network means that even when small incidents occur they can have significant knock-on effects.

Chart 21 – Network Rail CaSL Delay Incidents by JPIP Category

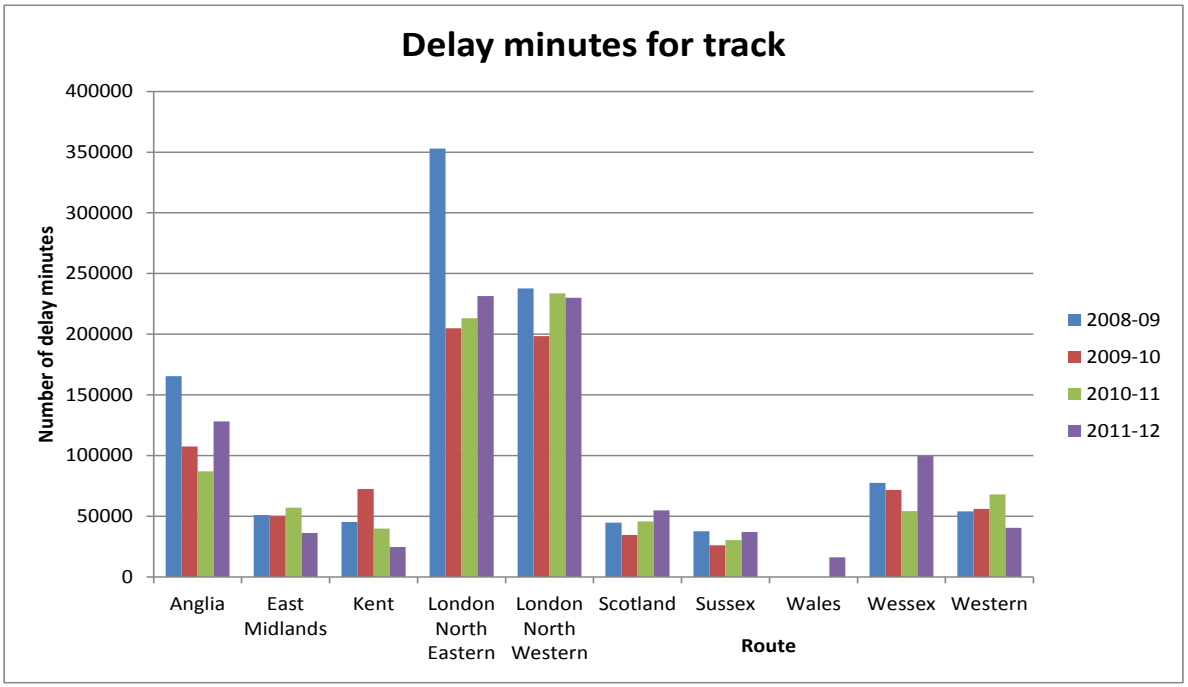


Source: Network Rail

65. In terms of delay minutes for track, we can see in chart 4 that LNE and LNW account for the greatest share of delay minutes which are both up over the last two years compared

to the 2009-10. Track delays have also been increasing for Anglia, Scotland, Sussex and Wessex.

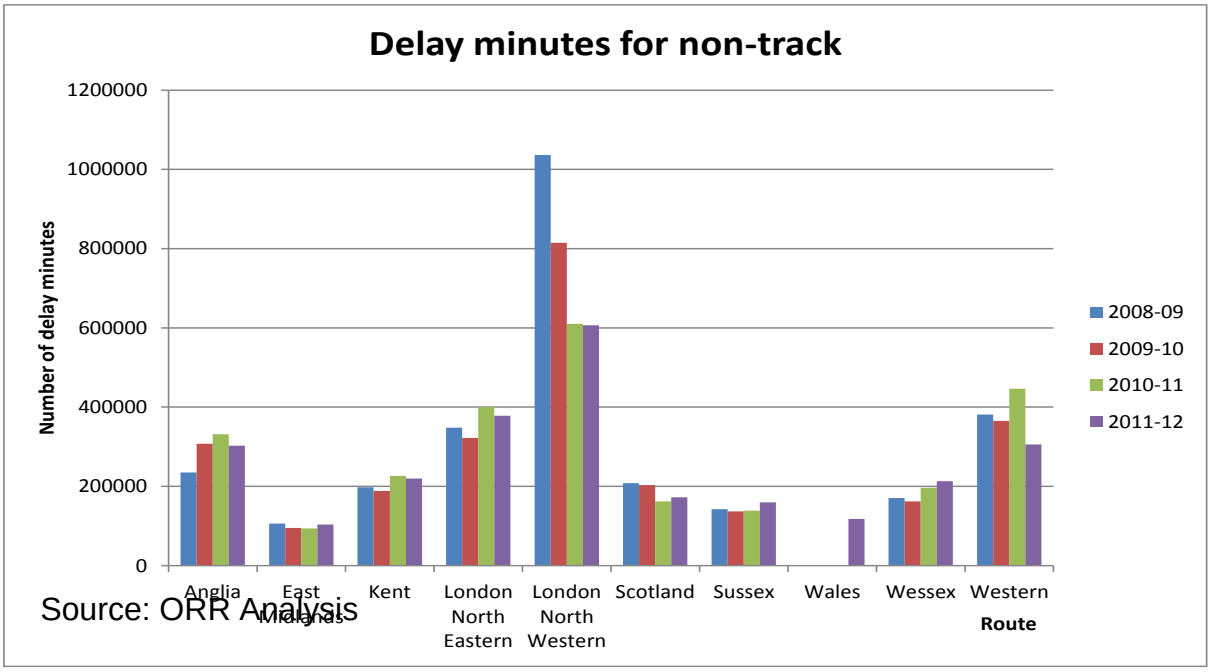
Chart 22 - Track Assets Delay Minutes



Source: ORR analysis

66. Non-track asset delays have come down for LNW compared to 2008-09 and 2009-10 levels, but it still accounts for the greatest number of delays in this category. Although LNE has around a third less delay minutes than LNW, its delays are still relatively up compared to previous levels. Apart from LNW, only Western appears to have made significant progress in reducing non-track delay minutes.

Chart 23 - Non-Track Assets Delay Minutes



Source: ORR Analysis

67. The presentation section of the LDRP plan sets out reasons for the delays where Network Rail cites a number of asset management specific factors including:

(a) slow deployment of RCM;

(b) traffic growth in excess of planned levels;

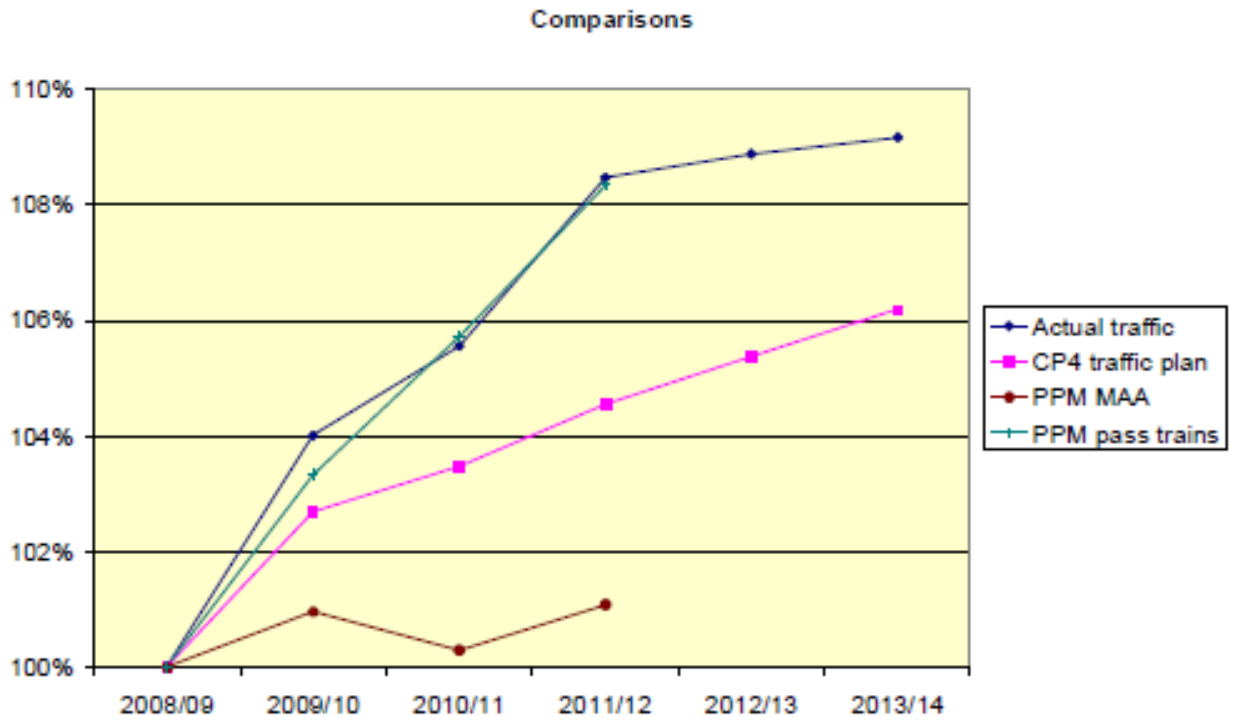
(c) productivity levels of maintenance; and

(d) declining track quality.

68. Remote condition monitoring is one of the main asset management areas that Network is seeking to gain further benefits as part of base and to a lesser extent the base+ plans. By installing more RCM on non-track items including points and track circuits, Network Rail is hoping to identify faults sooner. Network Rail has already rolled out remote condition monitoring (RCM) to cover 25% of the 20,000 points across the UK. Network Rail is intending to increase this by another 4000 or so. To some extent there will be diminishing benefits from further roll-out because the most critical points have already been covered. RCM is expected to contribute 0.134% PPM of total benefits by the end of CP4. They could roll it out faster with more resources.

69. Page 8 of the LDRP plan shows that the traffic levels have increased beyond what was planned for in CP4. From an asset management perspective, increases in traffic tonnage and speed would act to increase degradation of assets and require more renewals and maintenance activity.

Chart 24 – Traffic Growth



Source: Network Rail's LDRP Submission 30th March 2012

70. Network Rail has conducted various studies to try to establish a causal link to at least some of its maintenance and performance problems with limited success. There is an unresolved issue regarding whether the increase in DPI is being caused by reductions in maintenance resourcing and/or shortfalls in maintenance capability

71. One of the base++ options is to “baby-sit” the assets which would require dedicated staff at certain locations to provide a rapid response. This would result in the need for an increased number of resources to accommodate this change and this is discussed further in the base++ section. This is a vague initiative at this stage, it will only be a pilot with limited benefit for CP4 and is not a long-term solution.

72. Incident Response – This has been classed as a base++ initiative with benefits of 0.01% noted. The real issue here is productivity and what benefits could be achieved through increasing this further and faster.

Scope – a brief summary of the activities covered. Are they in base, + or ++?

73. The plan addresses a number of asset management improvement initiatives including points reliability, track improvements, overhead line equipment and signalling failures.

Base

74. Page 36 of the plan describes the benefits of the three options with a corresponding confidence grading for each of the plans. The schemes supporting the base plan are those which have largely been agreed with the TOCs as part of the JPIP workstreams.

75. We had a separate meeting with Barny Daley on the 18th April, 2012 to analyse the JPIP schemes in greater detail and he shared with us a summary document of the Performance Action Tracker (PAT – **see appendix A**). The plan shows the top 93 schemes delivering 53% of the benefits. This equates to 0.874% PPM over 2012-13 and 2013-14 for the top schemes (including asset management schemes). The benefits in the PAT plan amounts to 1.14 for 2012-13 and a further 0.43% for 2012-14 giving an overall total of 1.57%.

76. The schemes cover a range of areas including drainage, GSMR fitment, OHLE improvements, points schemes, track circuit initiatives, signalling upgrades, power supply work, track quality and faults work and remote condition monitoring. RCM in particular makes up 0.134% in terms of PPM although it should be noted that Network Rail has not derived the benefits to date that it was expecting so they need to improve the reliability and accuracy before further roll-out.

77. It should be noted that the benefits outlined in the PAT plan are heavily weighted towards LNW which accounts for over half of the improvement work. We would have expected that LNE for example, would have had a greater proportion of the initiatives.

78. It is difficult to assess what these improvements will actually deliver physically on the ground. However, we were informed by Barny Daley that there are more initiatives in the plan than the target PPM in order to compensate for contingency risks. It should also be noted that the bulk of the improvements are scheduled to be implemented over 2012-13 with 0.633% PPM expected. The remaining 0.24% will be delivered in 2013-14.

Base +

79. There are eight workstreams identified in the base + plan. The main item that relates to asset management is the remote condition monitoring (RCM) although the plan states on page 41 that the bulk of phases 1 and 2 have been included in the JPIPs and therefore, it is already in the base plan. RCM phase 3 estimates a further small saving of 0.04%.

80. There are a few other items such as GSMR but, this is logged as a safety/performance improvement and “Incident response times”. The purpose of this work is to review the location and number of response teams to incidents, identify response times and look at prioritising the busy commuter routes. The eight point plan is detailed in appendix 1 of the plan but only provides timescales not PPM% impacts.

81. The remaining item relates to modelling. In the JPIP progress report (March 2012) it states that "*the ability to adequately model the impact of changes to rail system to the system prior to implementation decisions. This is a broader issue than just performance and affects all areas of industry business from infrastructure project design through timetable reliability, performance and capacity*". It is difficult to comprehend why these tools which have been in place for other utilities for many years now, have only just come to light. Even so, in appendix 1 of the plan, it states that "*it is unlikely that modelling will deliver real benefits for CP4 but enable benefits for CP5*".

82. The base+ plan is quoted as providing a 90.4% PPM at 90% confidence or 90.8% with a 75% confidence. No separate benefit scores are provided for the eight point plan but, we note from the totals that it is expected to deliver around 0.4% of the benefits with only a small part attributed to asset management.

Base ++

83. The only item which relates to asset management is mentioned on page 44 listed as "long term baby-sitting of key assets". This relates to the red-route work and states that "…*staff will be located within 10 miles based on the criticality of assets and not used for other work*". This is likely to require additional maintenance resources to supplement the existing maintenance workforce. The value of this benefit is quoted as 0.1% PPM.

Is the benefit clearly defined? Are the benefits claimed credible? Is there a clear link to PPM?

Base

84. Network Rail provided a summary of the top 53% of the PAT initiatives (**see appendix A**) which shows the expected delay minute benefits with a conversion into the expected PPM benefits which are explicitly stated. The PAT initiatives are an extract of the JPIP deliverables which largely makes up the base plan. Areas which are being considered include: autumn mitigation, drainage, OHLE improvements, other points schemes, track circuit improvements, points and signalling upgrades and replacement, power supply, track quality improvement and remote condition monitoring.

85. The benefits claimed under the base plan for the 53% of the initiatives identified look credible at first glance however, they are focused mainly on LNW which accounts for over half of the initiatives. It is difficult to assess the exact benefits that these schemes will provide on the ground. We were informed by Barny Daley that the initiatives exceed the PPM targets in order to compensate for the risks mentioned in the plan. The bulk of the improvements have been scheduled for 2012-13. The London North West route is expected to deliver the bulk of the improvements accounting for over half of the expected benefits.

86. We can see from the affecting factors section that the track and non-track delays are still an issue for LNE for example. Track faults on Anglia have also been increasing, so we would have expected to see more in the plan to cover routes other than LNW.

87. The schemes in the summary PAT deliver 1.14% PPM for 2012-13 and 0.43% for 2013-14 giving a total of 1.57%. The starting point that Network Rail has used is 88.9% at the end of 2011-12, the final number for P12 is 89.1%PPM.

Table 5 – Ranges of PPM Forecasts

Source: Network Rail

NR plan	12-13 PPM P75	13-14PPM P75	Required PPM	Potential Benefits			Notes
				12/13	13/14	Total	
Base plan	89.7%	90.4%	**1.3%**	1.14%	0.42%	**1.57%**	High probability, these are JPIP schemes.
Base+	89.8%	90.8%	**0.4%**	0.1%	0.74%	**0.84%**	High probability, few asset management initiatives
Base++	89.8%	91.2%	**0.4%**	-	0.55	**0.55%**	Difficult to implement, few asset management initiatives
		Total	**2.1%**		Total	**2.96%**	There is a ratio of 3:2 potential to required benefits.

Base+ & Base++

88. There is very little in the base+ and base++ plans from an asset management perspective, most if not all of the benefits have already been included within the base plan.

Review of the specific actions in the plan. Do they represent "all that is reasonably practical"?

89. Our assessment of the plan is that it appears to be reasonably comprehensive and aims to address the immediate performance needs. However, in addition to the short terms plans it would have been good to have included some longer term plans such as reliability centred maintenance and preparedness in order to better understand the root causes, increase resilience and ensure that parts and manpower are appropriately located.

90. The remote condition monitoring work has not proved fully successful and is reliant on a few skilled individuals who can set-up and calibrate the systems accurately, this knowledge is gradually being disseminated to the routes. Although further roll-out would take some time to bed-in, it is essential that longer term plans are put in place concurrently, in order to move away from the reactive "find and fix" approach to one of "predict and prevent". RCM is only worth 0.134% in total split roughly 50:50 across the two years. NR could probably roll it out faster with more resources.

91. Additionally, although Network Rail has put its hand up to a lack of modelling capability, this is an area that needs greater urgency and focus. It is critical to be able to model for example: power headroom, changes in traffic patterns, contingency and emergency planning providing a greater degree of certainty that initiatives will be effective. This would also help to reduce "teething problems" by gaining a better understanding of the critical issues beforehand.

92. Network Rail needs to improve its asset data to enable better decision making about faults, condition, reliability etc. The ORBIS programme should help in this regard but, this will take a number of years to deliver significant benefits on the ground. The broader work that NR is doing to improve its asset management capability (of which ORBIS is only a part) should translate into significant bottom line benefits but, this has not been made explicit in the LDRP. The asset management improvement programme has not even been mentioned in the plan. This work is meant to help Network Rail achieve excellence by the end of CP4. The areas that should help Network Rail in this area are asset knowledge, better opex planning and competence.

Are there likely to be any negative consequences of the activities planned?

93. We would not expect many negative consequences, if the improvements are delivered. The JPIP initiatives have been mostly agreed and committed now. On the RCM front at least 25% of the S&Cs have already been fitted with sensors so, it could be argued that the bulk of the benefits have already been realised, the additional roll-out provides diminishing returns.

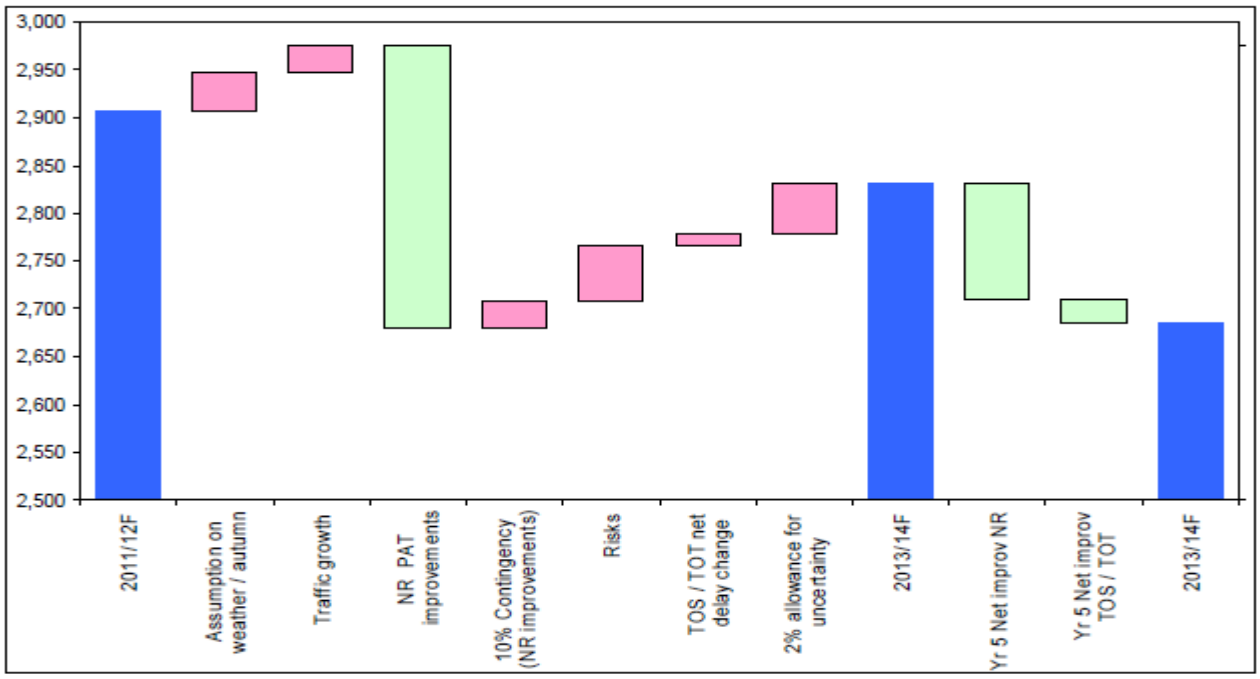
94. If the RCM sensors are not calibrated properly this could have negative consequences for controllers by either triggering more false alarms or else missing pre-cursor indicators which either way will result in greater delay minutes in the short term. Additionally, RCM could give the routes a false sense of security by taking the eye off root cause analysis (reliability centred maintenance) and greater reliance on alarms.

95. If more possessions are needed to carry out more maintenance and renewals work, then this could result in more disruption and negative publicity, but this is not expected at this stage. Network Rail needs to improve its management of possessions from planning to implementation.

Are there any other risks to delivery?

96. A degree of risk assessment has been carried out in that the three plans have been split out in terms of deliverability and cost. There is a risk analysis included on page 29 of the LDRP which provides contingency for weather, traffic growth, contingency general risks and uncertainty.

Chart 25 – Summary of Initiatives and risks



Source: Network Rail LDRP

97. A more comprehensive risk assessment is provided in the appendix of the Management Plan (emailed 25th April 2012) which covers most of the key issues including:

(a) Traffic growth exceeds forecasts

(b) Changes to timetable without specific mitigation

(c) Timetable changes makes PPM worse

(d) Cable theft and fatalities rise

(e) Weather delays exceed average levels

(f) Pressure groups divert resources to non-critical issues

(g) TOCs switch focus to internal objectives

(h) Contracts and negotiations slows delivery of initiatives

98. It remains unclear to what extent risks such as overheating of the supply chain and scarce resources (e.g. for electrification work) have been evaluated. A Monte Carlo simulation has been carried out to predict the chances of achieving the various PPM levels.

99. As far as opportunities are concerned there appears to be little in the plan about new technology or what the effects of devolution and alliances with TOCs will bring for example. Changes to possessions planning have been discussed with more mid-week work to be implemented in CP4. Better possessions planning, logistics co-ordination (ensuring materials arrive to site on time etc to eliminate waste and repeat visits) is essential. Most TOCs would agree that it is about getting the basics right.

100. Deriving benefits from better information from handhelds and tablet computers via the ORBIS programme has not been mentioned. More use of ground radar to identify sites where underlying issues are contributing to track faults and TSRs could also be used.

Conclusion - Do we believe that this bit of the plan demonstrates that NR is doing everything reasonably practical to achieve the LD sector PPM target?

101. It is not possible to evaluate the effect that individual schemes will have on the ground without a more detailed review. For example, exactly why and how many track circuits are failing and what impact the new initiatives will have over and above business as usual would be difficult to quantify. However, the plans have largely been agreed with the TOCs as part of the JPIP agreements. Overall, we can see that there are sufficient potential PPM benefits to cover the proposed plans with some risk contingency built-in.

102. There is a question of whether the deferred renewals work as mentioned in our 2010-11 efficiency review might have improved the current PPM score and by how much? We need to be certain that the efficiencies which were declared were real considering the current performance problems. It would be useful for Network Rail to examine the impact of those deferred renewals in PPM terms.

103. The PAT plan (JPIP schemes) focuses mainly on LNW with over half of the schemes targeted here but, what about the other routes? Considering that some £9bn was spent on upgrading WCML, the plan seems to be inconsistent in this respect.

104. The **base plan** requires 0.6%PPM of benefits to reach 89.7% for 2012-13 against potential benefits of at least 1.14% PPM (these are agreed in the JPIPs or PAT plan). This seems to be on the conservative side considering that Network Rail has signed up to deliver the JPIPs. There is a further 0.4% PPM in the plan to enable Network Rail to reach 90.4% PPM by 2013-14 at the 75% probability level.

105. The **base+ plan** is expected to add only a further 0.1% PPM in 2012-13 reaching 89.8%. Bearing in mind that there is still a potential 0.44% remaining from the base plan, this seems to be quite a conservative target. The bulk of the benefits from the base+ plan is expected to materialise in 2013-14 when a further 0.74%PPM is potentially available to reach 90.8% PPM.

106. The **base++ plan** will not deliver any benefits in 2012/13 but, it could add a further 0.55% over 2013-14. These schemes are considered “difficult to implement” so the probability of success is much smaller at least for CP4. If implemented, this would enable Network Rail to reach between 90.8% and 91.2% PPM by the end of 2013-14 but NR would need to increase the pace of delivery.

107. In summary, starting from a baseline of 89.1% PPM if we consider just the base and base+ plans alone, then Network Rail will have potential benefits of 2.4% PPM to achieve benefits of 1.7% PPM or in other words the **potential to required benefits** ratio is 1.4 to 1.

108. Given the information that we have been provided there should be sufficient benefits available to reach at least 90.4% by 2012-13 and at least 90.6 - 90.8% PPM by 2013-14. If 100% of the benefits could be realised, then Network Rail could reach 92.1% but the chances of achieving this level is only 10%. The level of confidence could be improved if the Base++ benefits could be accelerated.

Train planning

Explanation of the factors causing the current under performance

109. Timetables on many LD routes have become very tight in terms of sheer congestion and reduction or removal of some historic allowances such as arrival time differentials.

110. Although not expanded on in the Plan, there are still significant issues around short term planning (STP) alterations to schedules for engineering works or the sharing of routes with freight trains timed under very short notice 'VSTP'. These are more prone to error or simple lack of validation than the permanent plan. Most of the narrative relates to the robustness of the permanent plan rather than capability to revise schedules for engineering works, etc.

Scope – a brief summary of the activities covered. Are they in base, + or ++?

Base

111. There is mention of 186 schemes (once a smaller number of actual initiatives are spread across multiple JPIPs) covering a range of improvements.

112. Presumably included within the 186 is an initiative commonly referred to as "improving the worst performing train in each peer set". This is essentially a (line of) route-based approach, apparently split across 107 peer sets. Timetable tweaks are seen as a major contributor (although presumably other factors such as TOC resource diagramming will also be an issue). The benefits of this are assessed as 0.11% PPM.

Base+

113. Under the general banner of "Timetabling for Performance" (one of the threads of the Eight Point Plan endorsed by NTF) a lot of work has been done to extract data for all LD trains in order to understand which services and locations see the biggest drop-off in performance. (These are commonly referred to as "washing line charts" (for individual trains) and "block diagrams" (for groups of services on the same route). These are good at identifying systemic problems, such as actual schedule clashes, regular exceedence of station dwell times or incorrect sectional running times. Other causes of delay, such as fleet and infrastructure failures or external incidents tend to occur on a far more random basis.

114. Whilst there is no longer any problem with the data, doing something useful with it is much harder. Timetable development takes place on an annual cycle and the most obvious solution (such as extending station dwell times to reflect growing number of passengers) may well prove unworkable further down the line when a train misses its current slot at a critical junction. A great deal of dialogue with all operators (not just LD) is needed and it is unlikely to be possible to address all locations simultaneously.

115. Timetabling for Performance appears to be wider application of the "peer set" approach, spreading it to multiple poor runners rather than just the worst.

116. The potential of timetable modelling, especially when major changes or new services are being developed, is recognised. It can give an early indication of where problems might arise. Unfortunately recent experience on the WCML, ECML, Brighton Line and for the Airdrie-Bathgate line in Scotland has demonstrated that it is often done too late to allow any

meaningful re-iteration of the actual timetable; it is not done over a wide enough area; and the imperative of introducing a new service overrides the performance risks.

117. It remains a challenge that modelling cannot be meaningfully applied to major incidents, which form a large part of the challenge for LD services.

118. It is planned to have more realistic emergency timetables, validated and integrated across all operators ready for implementation in the event of continuing severe weather. At present each operator bids against different assumptions, such as electric trains needing to run at 80mph during gales but diesel trains on the same track assumed to continue to operate at 125mph.

119. There are plans for better spread of engineering recovery time within the timetable as a whole (assessed as offering 0.1% LD PPM). Closer examination suggests that this may be associated with more arrival differentials in some cases.

Base++

120. It would be possible to improve the PPM of regularly poor-performing trains by giving them extended journey times such that PPM was achieved on a minimum percentage of occasions but this clearly has downsides in terms of journey times, revenue, franchise compliance and a general feeling of 'cheating'.

Is the benefit clearly defined? Are the benefits claimed credible? Is there a clear link to PPM?

121. Most of the quantification seems to be based on the calculation that 'fixing' one train per day is equivalent to 0.06% LD PPM. This is a relatively transparent and simple, if somewhat arbitrary approach. In practice it is not possible to guarantee that every day will see the same reduction in PPM failures.

Base

122. The 186 schemes are quantified in terms of delay minutes (10,907 in 2012-13 and 13,033 overall) but not PPM. This indicates that the savings are already fairly front-end loaded.

Base+

123. The recovery time initiative is worth 0.1% LD PPM

Base++

124. Adjusting schedules to make sure that all trains meet a minimum PPM threshold is assessed by NR as offering as much as 0.6% LD PPM.

Review of the specific actions in the plan. Do they represent "all that is reasonably practical"?

125. Without going into more detail on the 186 initiatives it is hard to conclude that they represent "everything…". An in-depth visit to the train planning centre cannot be arranged before 18 June 2012. However, train planning has continued to be an area where Network

Rail has struggled, even since the ORR enforcement action in relation to deficiencies in the way that the current ITPS platform was implemented in 2009-10. The activity remains split between Milton Keynes and a residual freight planning centre in Leeds. Various changes have been to the way that different aspects of timetable are managed (long term, short-term, geographic, passenger, freight, etc.) and the positioning of timetabling within the Network Rail overall Operations function (as a central service provided to the routes) but overall momentum has always appeared slow.

Are there likely to be any negative consequences of the activities planned?

126. It is likely that the timetable changes will lead to slightly extended journey times for a significant number of trains in the LD and other sectors. There is also likely to be an increase in trains with non-standard schedules ('off-pattern'), which passengers and staff tend to find confusing.

Are there any other risks to delivery?

127. The plans in this area do not generally require major funding or have IR implications. Investment in more modelling or development of a new suite of sophisticated modelling tools would require expenditure but this should not be unaffordable in relation to Schedule 8 payments or potential penalties. The biggest risk is likely to be reputational in terms of being seen to be 'padding' timetables or 'admitting defeat' on ambitious headline journey times.

Conclusion - Do we believe that this bit of the plan demonstrates that NR is doing everything reasonably practical to achieve the LD sector PPM target?

128. The spread of actions is all that could be expected. It remains to be seen if there is actually sufficient resource to review and amend very large numbers of train paths simultaneously. This area feels that more could be achieved with a more dynamic management approach although it must be conceded that many aspects of timetabling require a high degree of staff experience, which cannot be developed in haste.

Operations and management control

Explanation of the factors causing the current under performance

129. Unlike asset issues or external incidents, where particular factors such as an increase in failures or number of cable thefts may be causing more delays and PPM failures, the narrative for Operations is very much about the fact that it has become hard to improve performance further in line with an ambitious trajectory. For example, the higher scheduled speeds and longer signalling sections commonly associated with LD services mean that the effect of routine operational responses, such as talking by a signal and proceeding cautiously through a section, tend to have a greater effect.

Scope – a brief summary of the activities covered. Are they in base, + or ++?

Base

130. The centrepiece is a trial of a different train regulation approach on LNE route, essentially the East Coast Main Line (Note that this includes virtually all East Coast services, many First TransPennine and Arriva Cross Country services, and also open access First Hull Trains and Grand Central services). Whereas the traditional, national, philosophy has been to 'regulate for PPM' for all trains the trial approach is to try and keep LD services as close as possible to right time at all conflict points (unless they are already over 30' late). Thus whilst a regulating decision at Newcastle that sent a southbound EC service and a Northern local service forwards at 9' and 4' late respectively would previously have been regarded as a success the aim will be to prioritise the East Coast service with a view to keeping it in its booked order at subsequent locations such as York, Doncaster, Peterborough and Hitchin.

131. This work draws heavily of the 'washing line' and 'block diagram' work undertaken as part of the Train Planning thread.

132. To support the initiative there will also be a drive on right time despatch from origin and a review of Automatic Route Setting (ARS) algorithms (that are currently structured about minimising overall delay and not related to PPM or prioritising Long Distance services at all).

133. Although the LNE trial is already under way some of the benefit is claimed under Base+, presumably because evaluation and refinement of the trial, followed by roll-out to other routes will take longer.

134. One of the highest profile initiatives in the Operations and Management Control category is Red Routes. A further discussion was held with Network Rail in order to gain a full understanding of what the term really implies. The start point, that certain stretches of route such as Euston to Rugby, Doncaster to York or Paddington to Didcot are critical in terms of the number of LD trains that use them and their ability to spread disruption around the system, is perfectly sound. The initiative itself involves assessing these routes from a wide range of perspectives. There are 16 short-term, 11 medium term and seven long-term actions that would be applied to Red Routes. However, all of these initiatives are included in other categories – dealing with External incidents, train regulation, RCM, etc. and there is no quantified incremental output.

Base+

135. One of the key elements in this area is the Rules workstream (under the eight-point plan that effectively constitutes Base+). The workstream largely comprises changes to degraded working procedures, when normal signalling is not available, with the aim of getting trains back on the move more quickly. For example facing points that cannot be 'proved' to be in the correct position by the signalling system have to be negotiated at 15mph and there is plan to have trials at 40mph. Another example is less-restrictive provisions for setting back after a station overrun. In all cases there would be trials on a specific route, followed by a review at RSSB committees to ensure no compromise on safety.

136. Another workstream in this area covers the use of remote monitoring, probably using CCTV, at sites on LD routes that are prone to regular disruptive incidents such as bridge strikes or flooding. It might be possible to reduce the need for cautioning if it could be established by other means that the line was un obstructed.

Base++

137. Further changes in train regulation policy to favour LD services are included in Base++. There is also mention of changing some train classifications. At present some relatively slow or short distance services operate under Class 1 'Express' classification and this makes it harder for signallers at key junctions to identify the 'most important' trains.

Is the benefit clearly defined? Are the benefits claimed credible? Is there a clear link to PPM?

Base

138. The very first initiative in the plan is to have a dedicated LD controller in NR's National Operations Centre (NOC) at Milton Keynes. This post would be well placed to take a view on cross-route trains. These form a large slice of the LD portfolio. The benefit is assessed as 0.3% PPM (no phasing mentioned), equivalent to five additional PPM successes per day. Given that there is no detail on how this post would actually work or interact with the train running controllers in route control offices (and there will be presumably be no direct link with signallers) it is hard to form a view on the chances of success.

139. Further benefit is expected from a particular focus on LD trains after 19:00 in the evening. This is assessed at 0.04% PPM, equivalent to two additional PPM successes every three days. It is hard to see how this sort of focus can really be additional to the benefits of other control and regulation initiatives.

Base+ & Base++

140. Headcode reclassification is assessed as worth 0.02% PPM, equivalent to one additional PPM success every three days. There is mention of increased 'enforcement' of Network Code obligations on operators, for example to have better service recovery arrangements under the Railway Operational Code (ROC) but this is not quantified. Although there may be some cases when delay attribution in relation to major incidents might reasonably be split to place some delay and cancellations with the TOC for 'failure to recover' this does not, of course, improve PPM. It merely changes financial flows under the performance regime.

Review of the specific actions in the plan. Do they represent "all that is reasonably practical"?

141. Given the known difficulties of introducing rules changes it is probably not reasonable to expect more in this area within the timescales of the plan.

142. On train classification, discussion has taken place with NR and it seems that they have not used existing provisions under the Network Code and Timetable Planning Rules to 'de-classify' stopping services to the Class 2 'Ordinary' category. Nor is it clear that this will be done during the current process of preparing the December 2012 timetable. This is disappointing.

Are there likely to be any negative consequences of the activities planned?

143. Operational policies designed to favour LD services have a significant risk of producing an adverse performance outcome for other passenger and freight trains. However, it must be acknowledged that keeping LD services on time (not just within ten minutes) may have a positive outcome in terms of reducing the transmission of disruption around the network.

144. Any changes to rules would have to be fully risk assessed in order to ensure that safety is not compromised

Are there any other risks to delivery?

145. Changes to operating rules in particular tend to be very slow and difficult to introduce. Quite apart from understandable reluctance to approve changes that might increase safety risk, for example of a collision during degraded working, there are more general issues such as the fact that changes to the rule book can only be made on defined dates (so that briefing and staff training can be properly organised for a batch of changes concurrently).

146. Rules changes do not have a high direct cost but there are nevertheless indirect costs (for both NR and operators) in terms of staff training and briefing, possible need to use simulators, site visits, etc.

Conclusion - Do we believe that this bit of the plan demonstrates that NR is doing everything reasonably practical to achieve the LD sector PPM target?

147. This whole section is relatively weak, at least in terms of quantification. Many of the initiatives seem to overlap (for example, train regulation controllers at both HQ and in the routes). The Red Routes concept seems to be more a case of validating that routes are actually using the full range of initiatives across all categories. A lot of the rules workstream seems to be very uncertain/'high risk' and will take time to roll out across all routes even if pilot schemes are successful. This area of activity probably cannot be expanded and it would probably be unwise to press for undue haste.

Externals

Explanation of the factors causing the current under performance

148. At the end of P12[3], national performance in external factors (excluding weather) accounted for almost a quarter of all delay minutes (1.8 million against a total of 7.8 million). For Long distance (LD) external factors again accounted for almost a quarter of all delay (0.4 million against a total of 1.7 million). However for LD, external factors were 4.1% better than baseline, whereas for national external factors were 9.3% worse.

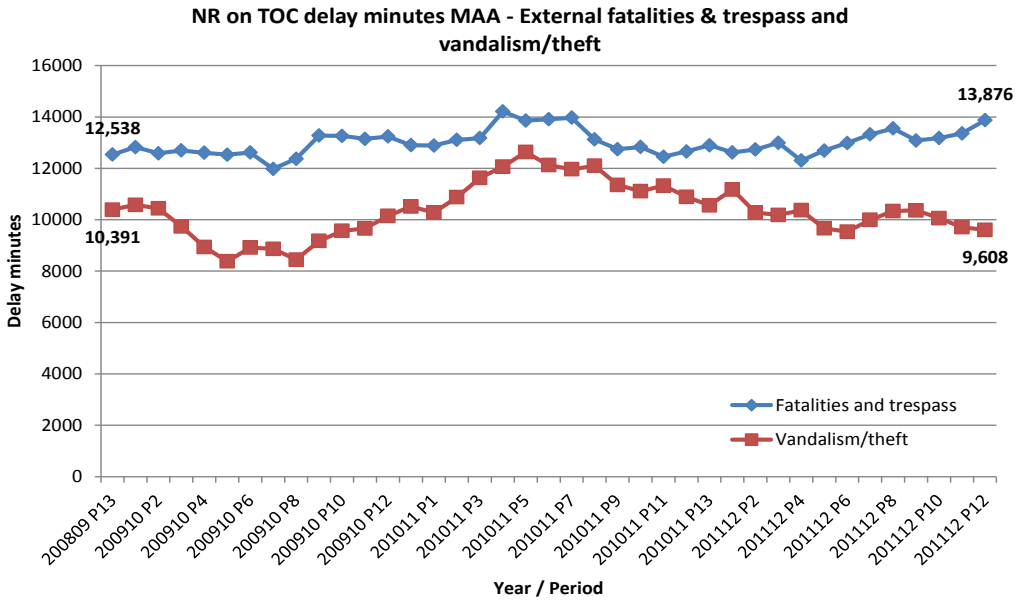
Table 6: Delay minutes by external KPIs for LD

	PERIOD			YTD		
Long distance: NR on TOC delay minutes for External KPIs	P12 2011-12	P12 2010-11	% variance to baseline	P12 2011-12 result	P12 2010-11 result	% variance to baseline
Bridge strikes	1,283	2,837	54.8%	28,685	35,481	19.2%
External fatalities and trespass	19,059	12,384	53.9%	166,922	154,227	8.2%
External fires	1,228	2,360	48.0%	8,648	14,412	40.0%
External infrastructure damage - Vandalism/Theft	5,142	6,460	20.4%	116,881	129,286	9.6%
External level crossing/road incidents (not bridges)	1,270	3,084	58.8%	17,140	20,328	15.7%
External other	2,108	5,603	62.4%	55,250	53,867	2.6%
External police on line/security alerts	277	330	16.1%	2,364	2,663	11.2%
Fires starting on Network Rail Infrastructure	0	11	100.0%	3,103	5,688	45.4%
TOTAL	**30,367**	**33,069**	8.2%	**398,993**	**415,951**	4.1%

149. The largest cause of delay in the external category for LD in P12 2011-12 was fatalities and trespass (167,000 delay minutes YTD), which was 8.2% worse than baseline. Vandalism and theft was the second largest (117,000 delay minutes YTD) yet this was 9.6% better than baseline.

[3] P12 data used to ensure consistency as we do not have the further breakdowns for P13 yet.

Chart 26: Long distance NR on TOC delay minutes MAA for fatalities & trespass and vandalism/theft – 2008-09P13 to 2011-12 P12



150. Chart 26 shows a longer time series and illustrates a similar trend as the baseline, i.e. that over the last three years fatalities and trespass have risen (by about 10%), but that vandalism and theft has fallen (by about 8%).

151. External delay per incident across all sectors has increased steadily, with the largest increases seen in DPI due to fatalities and cable theft. It is recognised that LD DPI is more likely to be due to discrete events such as externals, and recent overall increases in DPI are likely to be reflected in the LD sector as well.

Scope – a brief summary of the activities covered. Are they in base, + or ++?

152. The plan addresses the two largest causes of delay in the external category, fatalities and trespass and vandalism/theft.

Base

153. Page 26 and 27[4] of the Long distance plan sets out some specific schemes to tackle external damage including cable theft and fatalities & trespass. For the former, security staff /track patrols, CCTV, target hardening (making theft more difficult by physical means) and legislation change with heightened media coverage are quoted as the big initiatives in place to tackle this issue for the remainder of the control period. It was harder to understand what the main schemes are for fatalities from the plan as it mentions there are 171 schemes in total including barriers / fencing improvements, security guards and other schemes.

154. At the further evidence session on 13th April, NR gave some more details for these two areas. On cable theft it said that the key strategy was to minimise the impact cable theft has and keep trains moving as its very unlikely that you will eliminate it (the same is true for suicides). Some tangible evidence of this (not included in the plan) is that it funds an analyst in the British Transport Police (BTP) to try and pre-empt an attack. It has also set up

[4] P26 & 27 of the revised Long distance plan submitted to ORR on 9th April 2012. All further references to the plan refer to this version.

steering and working groups which will help share best practice amongst routes and assess the value for money of different schemes.

155. At the further evidence session NR also spoke about fatalities. It told us that there have been at least 25 interventions by industry staff in the last year alone and that the key initiative is training staff to prevent them happening where possible (not highlighted in the main plan). It also said that 200 stations have been targeted (as it is impossible to cover them all) and they will be visiting with the relevant TOCs to assess how they can work on the issue locally. Additionally it has involved BTP in the JPIP process (which has worked well) and have been trying to convince them to include similar output based objectives in their performance agreements (with some success) so they are also accountable for how quickly incidents are cleared. However it also told us that the predicted savings did feel optimistic since there will always be displacement – for example if it successfully stops people jumping from a platform by fencing it off then they will often move to somewhere else like a crossing. Like with cable theft they have monthly working group meetings to share good practice.

Base +

156. There are eight workstreams identified in the Base + plan. The only one with a tangible impact on externals, as far as ORR can determine, is 'incident response improved'. The plan says that this workstream '*aims to review the location and number of the response staff to incidents for busy commuter lines including TOC, FOC and BTP resources. It will develop a methodology and recommendations that will then be developed and implemented for each route*.'

157. On page 44 and 45, the plan goes in more detail to describe these[5]. There appears to be three initiatives which could be linked to improving performance for external incidents;

(a) External best practice sharing once benefits are proven at route level – red route;

(b) Increase visual inspection for external incidents[6] – rules; and

(c) Creation of long distance red routes (not expected to deliver any direct savings)

158. We know from the further evidence session on 13th April, that they have begun to do a) by setting up steering and working groups.

Base ++

159. According the chart on page 38, cable theft and fatality issues have no planned benefits coming from the Base ++ plan. However it could be argued that 'incident response based on staff location management' may have some effect in terms of managing external incidents.

[5] We are presuming these are Base + initiatives since they seem to match up and the plan does not say that explicitly.

[6] This refers to CCTV surveillance to assess bridge strikes and/or flooding.

Is the benefit clearly defined? Are the benefits claimed credible? Is there a clear link to PPM?

Base

160. This year some detailed guidance was sent out for JPIP planning purposes (p60). For cable theft and fatalities the assumption was a baseline of the annual average based on the last 26 periods. However it was recognised that for suicides in particular local variation could be appropriate and the steep increase over the last year in south/southwest London was highlighted as an example of where this might be the case. This seems a sensible approach, although we have no way of knowing how many of the JPIPs used this baseline assumption from the details we have been given. Page 26 and 27 quantifies how many delay minutes will be saved for each of the Base initiatives.

161. For external infrastructure damage / cable theft (which is how we think they've described the vandalism and theft in the plan) it has estimated that the biggest initiatives will save 23,872 minutes, which will be saved by the end of 2013-14. It's not clear how many of these will be saved in 2012-13 as it doesn't specify which year the savings will occur for one of the initiatives (legislation change), however if you presume none of those will be saved this year and that's why they haven't specified, then 9,200 of those will be realised in 2012-13. Given that from what we understand these minutes have simply been calculated by adding up the individual PAT initiatives from each of the JPIPs, we have to assume that the basic calculations are robust. However for the four top level initiatives under these categories we have the following comments:

(a) Security staff/track patrols: we presume that all of these schemes are estimate to be complete by the end of 2012-13 and that is why it predicts all 6818 minutes will be saved in the first year. That seems credible as it is fairly quick to implement, but as best practice becomes more apparent you would assume this would be shared more widely and some further schemes implemented for 2013-14, possibly saving more minutes than predicted.

(b) Legislation change: these schemes do not say how many delay minutes will be saved each year or give much detail on how this initiative will work and therefore it is difficult to say with any certainty whether these benefits are credible.

162. For external fatalities and trespass, for the schemes mentioned, they have predicted a saving of 20,217 delay minutes by the end of 2013-14. They have not specified how many of these delay minutes will be saved in 2012-13 for the 'other schemes' so it is impossible to say how many delay minutes they are predicting will be saved in 2012-13, however for the ones they have quantified, they predict 7,386 will be saved in the first year. As above we have to presume that the basic calculations are robust. However they mention that there are 171 schemes in total and yet only predict savings of 20,217 minutes i.e. a saving of 118 minutes on average for each initiative. This does not seem credible to ORR.

163. Supplementary evidence was provided by NR, which included a 'table of the top 93 schemes delivering 53% of minutes benefits (12-13 – 13-14)' for the LD sector savings which are held in PAT (i.e. the base plan)[7]. This shows that the top 53% of initiatives are saving 62% of the predicted savings in the main plan for cable theft and 33% for fatalities and trespass.

164. Closer scrutiny of the JPIPs, shows there are schemes that are saving very low numbers of delay minutes. For example, in the Virgin JPIP one PAT initiative '*LAC - Vandalism Mitigations at Structures in the Carlisle Area'* is forecasting to save 9 minutes in 2012-13. The wider question is whether this type of scheme should try and quantify minutes

[7] This was presented by Nigel Salmon at the meeting on asset management on 18th April 2012.

saved when they are this small or whether they should simply put them in the JPIP as actions.

165. On the table broken down by TOC on page 27, NR is predicting delay minute savings of 20,957 for cable theft and 19,820 for fatality management. This seems to match up with the above, as presumably some of the missing minutes may be picked up in the other categories such as incident management.

166. On request, NR sent us the complete list of PAT initiatives and the savings forecast for 2012-13 and 2013-14. This spreadsheet did show a link from delay minutes to PPM, although not how it was quantified. They did highlight the following caveat however: 'as noted previously the change in overall PPM cannot be directly identified just as the sum of the improvement schemes, as the overall target projections include allowances for risks, negatives (such as project works), allowance for a return to assumed weather conditions, traffic growth, PPM-specific improvements etc and are developed through the lead-TOC JPIP process.' By its own admission, it also told us at that the predicted savings for externals (excluding weather) did feel optimistic since there will always be displacement. So in conclusion we think most of what it has done is credible, however there are areas for concern which would need further clarification than it has given us.

Base +

167. Page 49 sets out how NR has calculated the benefits of the Base + plan for the two base + initiatives with direct links to externals – Best practice sharing and increase use of visual inspection. The benefits predicted are 0.08% or 0.07% for PPM (depending on which table you use, see p45) and 0.03% PPM respectively.

168. For best practice sharing, it is unfortunate that NR has presented two different figures for the same initiative. Even though the difference is probably due to rounding, this does not instil confidence in the figure. The table on p49 says that it has assumed an underestimation in JPIPs of 2% of incidents and 2% of delay resulting from incidents. We are not clear what this means or how this subjective assessment has been made. ORR are therefore not confident that the benefits claimed are credible, although that's not to say that they are not.

169. For increased use of visual inspection it predicts reducing delay by 17% or 5 large incidents a year. We do believe this is scheme has credible potential however how much delay is actually saved remains to be seen.

Review of the specific actions in the plan. Do they represent "all that is reasonably practical"?

170. It does seem like there are a lot of good things being done in this area, however most of it we have heard before and like with the rest of the plan (and as defined by the independent reporter) the descriptions of the major initiatives could be far better defined and more succinctly presented with greater clarity around deliverables, timescales, benefits and management arrangements. Additionally it is very hard to understand what impact any of these initiatives will have on the number of cable theft or fatalities as is could be trending upwards for example and the actions taken by NR and TOCs might have successfully stopped them from being as high as they might have been. However the cable theft summit on 23 April reassured us that NR appears to be doing everything reasonably practical, including learning from other industries, in this area. For fatalities, it is a difficult area to come to a conclusion and we are hoping to attend a summit similar to the one on cable theft in May to give us more confidence that everything practicable is being done.

Are there likely to be any negative consequences of the activities planned?

171. Given the activities it has outlined to reduce the impact external factors has on delay minutes, we do not believe there are any negative consequences per se. You could argue that heightened media coverage of cable theft could damage the reputation of the railway, but we doubt this is the case and in fact it will probably have a more positive outcome as the public will be more aware of everything NR are trying to do in this area.

Are there any other risks to delivery?

172. Network Rail (NR) has said that external issues, in particular cable theft and fatalities, are a core risk in relation to delivering Long distance PPM in 2013/14. As mentioned in paragraph 157 they also told us that the predicted savings did feel optimistic since there will always be displacement.

173. The main risk to this category isn't the delivery of the initiatives, but that the trend for these areas can be volatile and therefore the benefits will be hard to quantify as there is no way of knowing how much the change is due to initiatives in place and how much is due to a change in the trend.

Conclusion - Do we believe that this bit of the plan demonstrates that NR is doing everything reasonably practical to achieve the LD sector PPM target?

174. In conclusion, it seems like Network rail are doing everything reasonably practical in this area in terms of the current initiatives, however it is not clear whether this will deliver the savings they have predicted or whether this will ensure that the impact of external incidents will reduce due to the volatile nature and changing trends. Furthermore we would hope that the best practice steering and working groups will identify further initiatives that have not been thought of or tried before to bring some fresh perspective to this difficult area to manage and that these would have been included in the Base++ plan.

175. For 2013-14, although the ideas generally appear good ones, we are not completely confident with how they have come up with their figures (see paragraph 167) and would need further detail to satisfy ourselves that they are realistic.

Fleet & other schemes

Current performance

176. As at P12 2011/12, 19.3% of LD delay and 21.3% of LD PPM failures were due to fleet, the largest share of which was due to technical fleet delays.

Table 7 Share of LD cancellations, LD PPM failures, and LD delay, by cause

Split of NR attributed CaSL, PPM and Delay Minutes					
MAA analysis as at 2011/12_P12		LD CaSL	LD PPM	LD Delay	
MAA		%	%	%	Ratio PPM / Delay share
Non-Track Assets		22.1%	23.3%	21.1%	1.10
Network Management & Other		9.3%	11.7%	15.9%	0.74
External		23.5%	17.4%	15.0%	1.16
Track		5.2%	7.8%	8.5%	0.92
Severe Weather, Autumn & Structures		7.1%	5.2%	4.6%	1.13
Fleet		22.4%	21.3%	19.3%	1.11
Traincrew		4.1%	4.2%	4.2%	0.99
Other		3.1%	5.0%	6.0%	0.84
Stations		0.4%	1.4%	2.2%	0.62
Operations		2.7%	2.8%	3.3%	0.84
Total		100.0%	100.0%	100.0%	1.00

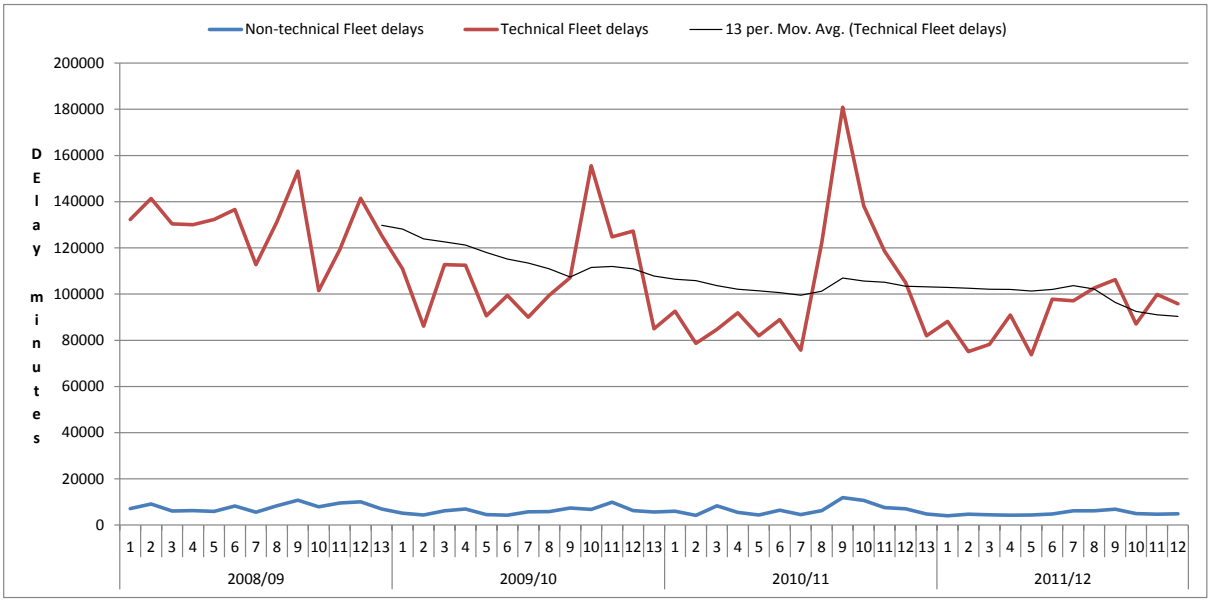
177. Nearly 90% of fleet delay is due to technical reasons:

Table 8 Delay minutes by Fleet delays for LD

	P12			P12 YTD		
	P12 2011/12	P12 2010/11	% variance to baseline	2011/12	2010/11	% variance to baseline
Non-technical Fleet delays	2,969	2,461	20.7%	34,213	44,633	-23.3%
Technical Fleet delays	38,793	37,399	3.7%	477,482	578,927	-17.5%
All fleet delays	41,762	39,859	4.8%	511,696	623,560	-17.9%

178. Chart 27 shows how, barring severe weather, fleet delays have been decreasing since the beginning of the control period.

Chart 27 Periodic fleet delay minutes in LD over time



179. NR has suggested that part of the problems facing the LD sector may be due to a cutback in TOC resources (*Passenger Train Performance in Context* presentation, NR, 30 March 2010). But, as this chart highlights, it appears that TOCs have offset NR under-delivery.

180. A significant proportion of train services are run using HST rolling stock – one of the oldest rolling stock fleets. The effect of any operator-focused initiatives may be lessened due to franchise replacements. In addition, the level of delay minutes savings are less for TOC focussed schemes than NR schemes. This may be different for PPM.

Scope

181. In the PAT files provided, there are very few schemes relating to fleet-specific initiatives. Discussion with Network Rail suggests that there might be TOC-specific fleet initiatives in the JPIP process that do not appear in PAT (and hence not in Base plan). Reviewing the planned section on the Fleet workstream, we concluded that most of the fleet improvement is in Base + (i.e. to identify fleet schemes in performance fund and push them through), so in 2012/13 there is likely to be little (quantified) fleet improvement, with uncertain PPM / delay benefits likely from the Fleet work in 2013-14.

182. The recovery plan also refers to initiatives designed to improve punctuality directly rather than affecting delay minutes.

(a) There are some fleet schemes in the TOC part of Base. They are described in the LDRP (but not in the single sheets in the Base appendix of the LDMP), and are included in the TOC on Self delay trajectories and consequently PPM trajectories with delivery partly in 12/13 and partly in 2013-14;

(b) There are other fleet schemes not yet sufficiently progressed to be incorporated into the JPIPs per se which are in principle Base+. These schemes are unlikely to render benefits before 2013-14; and,

(c) These schemes taken together and with other fleet related work are the contents of the "Fleet Challenge" programme which have an objective of delivering 0.5% improvement in PPM by the end of CP4 (such objective signed off at NTF).

183. The benefits assessment (s.6) calculates the benefits of the workstream to ensure that Fleet Challenge schemes make it through the performance fund as being 0.13%. NR state in the 13th April presentation that there are 43 TOC schemes funded for LD TOCs, with some benefit from non LD schemes.

184. During the face-to-face presentation of the plan (13 April) Network Rail provided a table detailing the various activities covered by the operator focussed schemes (discussed below).

185. P21 (original plan) shows a table summarising themes in the JPIPS, the Base plan. Fleet improvements are marked for East Coast, EMT, FGW, FTPE, and Greater Anglia, with no explicit fleet schemes marked for Cross Country or Virgin. When challenged on this, NR explained that this was due to franchise renegotiation before the end of CP4.

186. The original plan also discusses "operator specific schemes" (p25). These list some specific schemes for EC, FGW, and FTPE. Delay minutes estimates are only provided for EC (8000 total) and FGW (12580), not FTPE. It is not clear if these are integral to the JPIP or not, making it difficult to assess them – a theme repeated throughout this evaluation.

187. The fleet programme has two elements: Fleet Challenge and Fleet Reliability Focus Group (ReFocus). The 8 point plan, which forms the bulk of the Base + plan, contains the workstream on Fleet Reliability.

188. Fleet challenge is a workstream that focuses on improvements to fleet reliability by identifying fleet improvement schemes, securing funding through , and delivering through JPIP process.

189. Fleet challenge is forecast to deliver 0.13% PPM by end of CP4 (p41 old plan). Based on 21% of PPM failures due to fleet, 82% are TOS or LD to LD. They identified relevant schemes in performance fund discussions (46k minutes), assumed half of this would materialise in JPIP so about 23k minutes which translates to about 0.1% PPM using the relationship on p36 (old plan), (not too far from 0.13% shown).

190. At the 13 April meeting, NR provided a list of Fleet schemes in PAT, with attached delay minutes savings per annum. It is not clear if these delay minutes are LD specific.

191. Fleet reliability focus involves the sharing of knowledge and best practice through a 20 pt plan (not provided).

Are the benefits credible?

192. With fleet responsible for about 20% of PPM failures there is clear PPM benefit to be realised from Fleet-specific improvement initiatives, and the TOC schemes referred to in the 13 April meeting handout all appear to be measures that can improve the management of the rolling stock. There is a split between traditional engineering measures to improve reliability, and enhanced provision of data in the form of condition monitoring, remote access to OTMR data, and provision of CCTV.

193. Four schemes stand out as being expected to deliver very large benefits. It is questionable whether these estimated benefits are realistic, and the bases for the estimates are not provided. They are:

(a) **Cross Country** – Forward facing CCTV. 65,000 delay minutes per annum saved. This level of benefit appears anomalous in respect of what is likely to be a reactive provision of data.

(b) **FGW** – High Speed Train modification package. 27,000 delay minutes per annum saved.The HST fleet is a mature asset. It would be surprising if such a major improvement can be made to an already well-understood fleet.

(c) **Virgin** – New tyre turning facility at Wembley. 22,428 delay minutes per annum saved. Improved management of wheel profile; no specific detail on how this will reduce delay is provided, nor any assumptions or caveats provided. It is also not clear how work on Virgin sits with the table on p21 that states no fleet improvements were planned for Virgin.

(d) **FGW** – Remote download of High Speed Train on-train maintenance recorder. 18,250 delay minutes per annum saved. This level of benefit appears anomalous in respect of what is likely to be a reactive provision of data. Is the HST OTMR data of sufficient quality to allow meaningful identification of developing issues?

194. In addition to these there are many schemes that do not apply to the long distance fleets, but to shorter distance commuter rolling stock such as Class 150, 16X and 317. There is no justification provided for their inclusion.

Risks

195. A risk attached to these is the potential for inappropriate schemes to divert funding from the improvement of long distance services. From comments made at the meeting on 13 April, it may be that the TOCs who are skilled at making business cases are securing funding that would objectively be better applied to schemes providing more immediate benefit to the long distance fleets but who's owning TOCs are less effective at influencing the funding process.

196. There is little consideration of the role of the rolling stock leasing companies (ROSCOs) in developing improvements for the fleets. The ROSCOs are able to take a long term view of the management of the rolling stock asset, whereas the TOC planning horizon is limited by the length of the franchise.

197. Material was provided at the 13 April meeting in respect of the Freight Reform Programme. There does not appear to be a rolling stock element to this work. Coupler failure, resulting in the division of trains on the main line, is not uncommon and would appear to have the potential to be managed more effectively than at present. It was also acknowledged that the Freight Operating Companies do not cooperate well, potentially extending the time required to deal with an incident.

198. Another risk to fleet (identified by NR on p27 of the original plan) is fleet reliability for EC, EMT, and FGW. NO detail on what this might mean, or any detail on any specific schemes, was provided.

Conclusion

199. There appear to be, on the face of it, many sensible fleet-focused schemes that have the potential to deliver benefits in performance terms for the LD sector. With little or no detail behind many of the schemes, it is difficult to make an assessment as to whether all that is reasonably practical is being done.

200. Despite this, it is reasonable to assume that these schemes, if delivered to time and scope, might well impact positively on LD delay. However, given the uncertainties described here, previous concerns around NR's forecasting abilities and uncertainties around the new methodology for assessing confidence used by RPMs to assess feasibility of Base, +, and ++ schemes there is little to grasp that would provide confidence in the achievability of the precise PPM numbers attached to the fleet component of the plan.

201. It is clear that though there are good things being done on Fleet, and it is believed that these can deliver positive benefits to LD PPM, the uncertainties around NRs forecasting and the lack of detail behind many of the schemes means that the achievability of the claimed PPM benefits is uncertain.

Summary and conclusions

202. The plan itself, and planning process; The Plan, defined as the LDRP (submitted by NR on 9 April) and the Management Plan (submitted on 25 April) is close to being 'fit for purpose' and with one further round of editorial improvements can easily become so.

203. The main areas where the Plan needs to be improved are in the strategic assessment of the LD routes in general, the explanation of proposals to address known network wide problems, the clarity and care with which the major initiatives are presented, the tabulations of supporting arithmetic which demonstrate the logic being the forecast PPM outcomes and the consistency with which the 2012-13 and 2013-14 forecast PPM outcomes are stated.

204. Despite the criticisms above there are many redeeming features in the Plan amongst which are the existence of some "game changing" initiatives, the governance proposals, the risk section and the clarity of the Base, Base+ and Base++ structure of the Plan.

205. In analysing the plan we have purposely dealt in functional areas, rather than looking at the "base", "base+" and "base++". Each of the functional reviews therefore covers the initiatives from the three plans that impact on these areas.

206. The conclusions we have drawn from the analysis of Network Rail's plan can be summarised as follows:

(a) Asset management. We concluded that its approach is sound but can't assess what PPM the initiatives will actually deliver, we can see that there are sufficient benefits in the plan to deliver the targets. Risk of delivery due to resources and issues with productivity and pace;

(i) It is not possible to evaluate the effect that individual schemes will be on the ground without a more detailed review. For example, exactly why and how many track circuits are failing and what the impact of the new initiatives will have over and above business as usual would be difficult to quantify. However, the plans have been agreed with the TOCs as part of the JPIPs, so the base plan is already agreed.

(ii) The PAT plan is focused mainly on LNW but, what about the other routes? Network Rail has explained that the summary PAT plan does not contain all of the lower order schemes, a further analysis still shows that LNW accounts for over 50% of the PAT plan. An arithmetic analysis shows that there are sufficient PAT initiatives to achieve at least 90% PPM for 2012/13.

(iii) This leaves the remaining schemes in the PAT plus the base+ initiatives in order to achieve between 90.4 and 90.8% PPM in 2013/14. The eight point plan (which largely makes up the base+ plan) requires more work before the benefits can be quantified with any degree of certainty. The base+ plan is required to provide a further 0.4-0.8% PPM of benefit.

(iv) The only additional asset management initiative beyond the base+ plan is the red route work which includes "baby sitting of key assets" and which would only add a further 0.1% to the PPM. The other initiatives are classed as "costly to implement" and includes prioritisation of long distance operators and timetable changes.

(v) Our assessment of the plan is that it appears to be reasonably comprehensive and aims to address the immediate performance needs. However, in addition to the short term plans it would have been good to have included some longer term planning such as reliability centred maintenance and preparedness in order to better understand the root causes, increase resilience and ensure that parts and manpower are appropriately located. Some work is being done in this area, but this should have been analysed as part of the 2bc restructuring.

(vi) The remote condition monitoring work has not proved fully successful and is reliant on a few skilled individuals who can set-up and calibrate the systems accurately, this knowledge is gradually being disseminated to the routes. Although further roll-out would take some time to bed-in, it is essential that longer term plans are put in place concurrently, in order to move away from the reactive "find and fix" approach to one of "predict and prevent". RCM is worth 0.134%in PPM terms in total split roughly 50:50 across the two years. NR could probably roll it out faster with more resources.

(vii) Incident Response has been classed as a base++ initiative with benefits of 0.01% noted. The real issue here is productivity and what benefits could be achieved through increasing this further and faster.

(viii) Although Network Rail has put its hand up to a lack of modelling capability, this is an area that needs greater urgency and focus. It is critical to be able to model for example: power headroom, changes in traffic patterns, contingency and emergency planning in order to provide a greater degree of certainty that initiatives will be effective. This would also help to reduce "teething problems" by gaining a better understanding of the critical issues before roll-out.

(ix) There is a question of whether the deferred renewals work as mentioned in our 2010-11 efficiency review might have improved the current PPM score and by how much? We need to be certain that the efficiencies which were declared were real considering the current performance problems. It would be useful for Network Rail to examine the impact of those deferred renewals in PPM terms.

(b) Train planning. It recognises there is a problem but light in detail (186 schemes) so there is a risk to delivery. The spread of actions is all that could be expected. It remains to be seen if there is actually sufficient resource to review and amend very large numbers of train paths simultaneously.

(c) Operations and management control. This is treating the symptom not the cure but should give a quick win. The principals around red routes are perfectly sound - the initiative itself involves assessing these routes from a wide range of perspectives. There are 16 short-term, 11 medium term and seven long-term actions that would be applied to Red Routes. However, all of these initiatives are included in other categories – dealing with External incidents, train regulation, RCM, etc. and there is no quantified incremental output.

(d) This whole section is relatively weak, at least in terms of quantification. Many of the initiatives seem to overlap (for example, train regulation controllers at both HQ and in the routes). The Red Routes concept seems to be more a case of validating that routes are actually using the full range of initiatives across all categories. A lot of the proposed rules changes seems to be very uncertain or 'high risk' and will take time to roll out across all routes even if pilot schemes are successful.

(e) Externals. It appears that Network rail is doing everything reasonably practical in this area, however it is not clear whether this will deliver the savings they have predicted or whether this will ensure that the impact of external incidents will reduce due to the volatile nature and changing trends. Furthermore we would hope that the best practice steering and working groups will identify further new initiatives or initiatives where existing best practise could be more quickly introduced on other routes. Discussion at NTF on May 9 highlighted scope to spread best practice on fatality. For 2013-14, although the ideas generally appear good ones, we are not completely confident with how they have come up with their figures (see paragraph 164) and would need further detail to satisfy ourselves that the assumptions are realistic; and,

(f) Fleet and other schemes. The initiatives proposed seem sensible but there is not much detail behind the high-level assumptions and they may be optimistic. It is clear that though there are good things being done on Fleet, and it is believed that these can deliver positive

benefits to LD PPM, the uncertainties around NRs forecasting and the lack of detail behind many of the schemes means that the achievability of the claimed PPM benefits is uncertain.

(g) The initiatives proposed seem sensible but there is not much detail behind the high-level assumptions and they may be optimistic. There appear to be, on the face of it, many sensible fleet-focused schemes that have the potential to deliver benefits in performance terms for the LD sector. With little or no detail behind many of the schemes, it is difficult to make an assessment as to whether all that is reasonably practical is being done. Despite this, it is reasonable to assume that these schemes, if delivered to time and scope, might well impact positively on LD delay. However, given the uncertainties described here, previous concerns around NRs forecasting abilities and Uncertainties around the new methodology for assessing confidence used by RPMs to assess feasibility of Base, +, and ++ schemes there is little to grasp that would provide confidence in the achievability of the precise PPM numbers attached to the fleet component of the plan.

Overall opinion

207. Overall it is important that we take into account the independent reporter's view of the plan itself (as opposed to analysis of the contents of the plan). He describes the Management plan as being "close to fit for purpose and with one further round of editorial improvements could easily become so". However the plan submitted by the date required by the order fell well short of this level.

208. A key ongoing issue that we have had with Network Rail has been the quality of the plans that it has produced. There is no doubt that the LD sector plan is an improvement on its predecessors.

209. The assessment of the plan has reviewed its three key areas – the base, the base+ and the base++.

210. The base plan has been developed with the operators through the established industry planning processes – the JPIPs and as all but one operator (Cross Country) has committed to 2 year JPIPs we can conclude that the base is sound and should deliver. However it is noted for the asset management elements of the plan that the majority of the benefits or focussed on the LNW route and we believe that there should be some scope for these initiatives to deliver further benefits in other LD routes.

211. The base+ plan consists of a number of initiatives that are being developed nationally and will provide benefits beyond the JPIPs. Network Rail has introduced strong governance around these plans and there is little scope for improving on the benefits claimed in 2012-13. In the second year of the plan, there may be scope for further benefits to be delivered.

212. Our principal concerns are around the base++ plan. There are no initiatives in this plan directly about the management of the assets (although "red routes" and "baby sitting could have some benefit in reducing asset failures or delay per incident). It would have good to have seen some longer term planning such as reliability centred maintenance and preparedness to better understand root causes and to move from a "find and fix" approach to one of "predict and prevent". The plans for externals are thorough but lack any radical new initiatives. We believe that there is scope in a number of areas to increase the pace of delivery or more effectively spread best practise. We have concluded that in many cases in 2013-14 we are not confident about how the benefits have been calculated and we believe that there may be scope for accelerating delivery of the benefits here too.

213. The overall assessment will always be relatively subjective, particularly for the base++ initiatives which are much less well developed and defined, but we are left with a strong feeling that more could be done in terms of the breadth and pace of the initiatives. This is unlikely to realise any significant benefit in 2012-13 but could deliver further benefits in 2013-14 moving Network Rail closer to delivery of its regulated targets.

Appendix A – Summary of PAT Schemes which underpin the JPIPs

LD Sector Perfomance Savings in PAT - top 93 schemes delivering 53% of minutes benefits (12/13-13/14)

											2012/13-13/14		2012/13		2013/14	
Sum of LD 12/13-13/14			Route								Total	PPM	Total	PPM	Total	PPM
Categorisation	Short title	Cat	LNW	Western	Scotland	LNE	Anglia	East Mids	Wessex	Wales	Minutes	Benefit	Minutes	Benefit	Minutes	Benefit
Autumn mitigation	Northern Rail fleet Sander fitment	150	716								716	0.003%	-	0.000%	716	0.00%
Bridge strike mitigations	Performance Improvement Plan for KPI 401	401		574							574	0.003%	-	0.000%	574	0.00%
	WCS - Bridge Strike Mitigations	401	4,276								4,276	0.021%	4,276	0.021%	-	0.00%
Cable theft	WCS - Trent Valley CCTV(Stafford)	402	2,232								2,232	0.010%	860	0.004%	1,372	0.01%
	JPIP 12-14 WSX Cable Theft Eastleigh	402							972		972	0.004%	972	0.004%	-	0.00%
	GN Management of Cable Theft (Mitigations)	402				1,226					1,226	0.006%	506	0.002%	720	0.00%
	national cable theft strategy / legislation	402	1,829								1,829	0.008%	195	0.001%	1,634	0.01%
	Kingsbury enhanced BTP SOT focus to reduce cable theft	402	510								510	0.002%	510	0.002%	-	0.00%
	SmartWater Strategy and BTP Project Solving Plan: Wigan and St.Helens	402	791								791	0.004%	791	0.004%	-	0.00%
	Cable theft security patrols	402					2,515				2,515	0.012%	2,515	0.012%	-	0.00%
		503					579				579	0.003%	579	0.003%	-	0.00%
	Operations Initiative - Cable Theft Mitigation Programmes 2012/13	402				2,121					2,121	0.010%	2,121	0.010%	-	0.00%
Drainage	Bromsgrove drainage infrastructure fault mitigation works	105		3,035							3,035	0.012%	2,794	0.011%	241	0.00%
Forensic investigations	Creation of Forensic Gang	301B		3,010							3,010	0.013%	1,821	0.008%	1,190	0.01%
	TVSC identification and mitigation of failures	302A		1,414							1,414	0.006%	1,414	0.006%	-	0.00%
GSMR	Introduction of GSMR	201						24			24	0.000%	24	0.000%	-	0.00%
		104B						891			891	0.003%	-	0.000%	891	0.00%
		302A						588			588	0.003%	-	0.000%	588	0.00%
OHLE improvements	Borehamwood feeder mitigations (Supergrid)	201						519			519	0.003%	519	0.003%	-	0.00%
	WCS programme of schemes	201	13,118								13,118	0.070%	11,366	0.061%	1,752	0.01%
	CE programme of schemes	201	2,532								2,532	0.014%	1,528	0.008%	1,004	0.01%
	Olympics OLE Resilience / Other minor	201					1,870				1,870	0.010%	1,589	0.009%	281	0.00%
	WM RBS 3 OLE Improvements (+coasting boards)	201	3,766								3,766	0.020%	3,468	0.019%	298	0.00%
	LNE OLE Initiatives	201				651					651	0.003%	433	0.002%	218	0.00%
	LAC - Completion of OLE registration arm checks and any required works	201	1,280								1,280	0.007%	1,280	0.007%	-	0.00%
Other Points schemes	Performance Improvement Plan for KPI 101	101		3,698							3,698	0.016%	-	0.000%	3,698	0.02%
	Packing plan for 125 mph point ends	101		2,339							2,339	0.010%	719	0.003%	1,620	0.01%
	0-12 mile bullet prove reliability work	101		1,046							1,046	0.004%	632	0.003%	414	0.00%
	WCS - High priority KRS points heating (Central)	101	580								580	0.002%	580	0.002%	-	0.00%
	Mtce - Point improvement initiatives	101				1,104					1,104	0.005%	1,104	0.005%	-	0.00%
	WCS - Watford life extension works - KPI 101 (South)	101	694								694	0.003%	694	0.003%	-	0.00%
	Create Master Class for Backdrive adjustment and adjustable stretcher	101		576							576	0.002%	576	0.002%	-	0.00%
Other Track circuits improvements	Performance Improvement Plan for KPI 301B	301B		1,228							1,228	0.005%	-	0.000%	1,228	0.01%
	Improved quality of installations of renewals	301B		745							745	0.003%	745	0.003%	-	0.00%
	Mtce - Track Circuit failures	301B				1,435					1,435	0.006%	1,308	0.006%	127	0.00%
Points & Signalling equipment upgrade / replaceme	Multiple section TCs Somerton area (OZ, UU)	301B		3,058							3,058	0.013%	3,058	0.013%	-	0.00%
	PRP Track circuit leads Didcot to Oxford	301B		2,144							2,144	0.009%	1,975	0.008%	169	0.00%
	WCS - Lichfield Signalling Cabinets(North) 2012	302A	2,110								2,110	0.009%	2,110	0.009%	-	0.00%
	WCS - Purchase of HPSS Data Loggers(North) 2012	101	1,957								1,957	0.008%	1,957	0.008%	-	0.00%
	M63 to HW Conversion Acton and Southall	101		1,695							1,695	0.007%	1,695	0.007%	-	0.00%
	Roll out of LED replacement for SL35 signal lamps	301A	1,183								1,183	0.004%	-	0.000%	1,183	0.00%
	Replacement of 59 priority stretcher bars	101		1,070							1,070	0.005%	1,070	0.005%	-	0.00%
	WCS - Antivibration LDVTs(North) - 2012	101	986								986	0.004%	986	0.004%	-	0.00%
	Renewal of FDM transmission cable - Dunbar South	302A			860						860	0.004%	264	0.001%	596	0.00%
	2012 WCC Ardwick Ladder Split Point Detection	101	564								564	0.002%	564	0.002%	-	0.00%
	Mtce - Signalling System & Power Supply / other signal equipment failures	302A				1,127					1,127	0.005%	1,127	0.005%	-	0.00%
		302B				150					150	0.001%	150	0.001%	-	0.00%
Power supply	WCS - Reconfigurable Kelvatek(Central)	301A	6,300								6,300	0.024%	5,335	0.020%	965	0.00%
	Power cable Renewals	304			1,160						1,160	0.005%	445	0.002%	715	0.00%
	High risk 650 volt cable replacement	304		836							836	0.004%	505	0.002%	331	0.00%
	WCS - Stafford Traction Supply Points(Stafford)	302A	744								744	0.003%	513	0.002%	231	0.00%
	WCS - Kelvatek Training(Stafford)	302A	623								623	0.003%	432	0.002%	191	0.00%
Resignalling work	WCS - Bletchley Resignalling project(Bletchley)	302A	9,098								9,098	0.040%	2,100	0.009%	6,998	0.03%

Signal reliability - upgrades, LED bulbs and inspect	Performance Improvement Plan for KPI 301A	301A		841							841	0.003%	-	0.000%	841	0.00%
	TPWS Red Power modules	301A		562							562	0.002%	562	0.002%	-	0.00%
	Signal Fault Initiatives: Crewe DU	301A	515								515	0.002%	515	0.002%	-	0.00%
	Signal Fault Initiatives: Manchester DU	301A	512								512	0.002%	512	0.002%	-	0.00%
	Mtce - Signal failures	301A				507					507	0.002%	507	0.002%	-	0.00%
SPIR	Hartford Cable Theft SPIR	402	2,064								2,064	0.009%	2,064	0.009%	-	0.00%
	WCS - SPIR - Power failure bletchley(Bletchley)	302A	1,867								1,867	0.008%	1,867	0.008%	-	0.00%
	Loss of Concentrator SPIR Mitigations	303						1,013			1,013	0.004%	1,013	0.004%	-	0.00%
	WN251 Track Circuit mitigations and prevention SPIR	301B	875								875	0.004%	875	0.004%	-	0.00%
	Local lessons learnt from Eckington Loss of Signalling	302A		811							811	0.004%	811	0.004%	-	0.00%
	WCS -SPIR actions - Watford signalling failure(South) - 2012	301A	772								772	0.003%	772	0.003%	-	0.00%
	Actions from SPIR Kingsbury points and Power problems	108	757								757	0.003%	757	0.003%	-	0.00%
	Lessons learnt in TVSC following incident at Reading	501A		703							703	0.002%	703	0.002%	-	0.00%
	SPIR action Area Conference Call if incident likely to last 2 hrs+	301B	512								512	0.002%	512	0.002%	-	0.00%
Track quality / faults	WCS - Track quality improvements	104B	13,456								13,456	0.053%	13,456	0.053%	-	0.00%
	WCS - RCF strategic spares(South) - 2012	104B	2,489								2,489	0.010%	2,489	0.010%	-	0.00%
	WCS -Track Improvements 13/14	104B	3,318								3,318	0.013%	-	0.000%	3,318	0.01%
	Styal line tree clearance, stone drops and tamping	104B	1,630								1,630	0.006%	1,630	0.006%	-	0.00%
	Baggeridge works to remove TSR Wilnecote	104D	1,188								1,188	0.003%	91	0.000%	1,097	0.00%
	Removal of a long term TSR	104A						1,108			1,108	0.004%	945	0.003%	163	0.00%
	Mtce - TSR's Due to condition of track initiatives	104A				3,537					3,537	0.011%	3,537	0.011%	-	0.00%
	Rail Defect Prevention WCML	104B			903						903	0.004%	903	0.004%	-	0.00%
	Dove Holes TSR Removal	104D	846								846	0.002%	846	0.002%	-	0.00%
	Performance Improvement Plan for KPI 104B	104B		695							695	0.003%	-	0.000%	695	0.00%
	WCS - LEC1 Renewals	104B	1,196								1,196	0.005%	1,196	0.005%	-	0.00%
	WM - Reduction in reactionary delay to P-coded TSRs	104D	1,743								1,743	0.004%	1,237	0.003%	506	0.00%
	2012 WCC Repadding of broken rail hotspots Crewe DU	104B	662								662	0.003%	662	0.003%	-	0.00%
	Mtce - Track Faults (including broken rails) initiatives	104B				1,782					1,782	0.007%	1,782	0.007%	-	0.00%
	WCS - Reduction in reactionary delay to P-coded TSRs	104D	5,826								5,826	0.013%	5,826	0.013%	-	0.00%
Weather mitigations	WCS - Summer heat speed prevention(Euston)	110B	4,818								4,818	0.021%	4,818	0.021%	-	0.00%
	Flood prevention works ECML - Drem and Penmanshiel	110A			690						690	0.003%	-	0.000%	690	0.00%
	WCS - Shilton & Welton weather stations(Bletchley)	104B	646								646	0.003%	646	0.003%	-	0.00%
	Point Winterisation initiatives: Manchester DU	110B	554								554	0.002%	-	0.000%	554	0.00%
	LAC - Completion of all required stressing works at Preston Station 20	110B	595								595	0.003%	595	0.003%	-	0.00%
Fatality & trespass management	Performance Improvement Plan for KPI 503	503		1,318							1,318	0.006%	-	0.000%	1,318	0.01%
	WCS - Euston Platform end Barriers(Euston)	503	1,237								1,237	0.005%	1,237	0.005%	-	0.00%
	Platform End Fencing	503	1,145								1,145	0.005%	788	0.003%	358	0.00%
	Further improvements to TV Inner Stations	503		1,136							1,136	0.005%	783	0.003%	353	0.00%
	WCS - Berkhamsted fatality barriers(Euston)	503	639								639	0.003%	639	0.003%	-	0.00%
	WCS -Fatality improvements13/14(Stafford)	503	597								597	0.003%	-	0.000%	597	0.00%
	BTP improvement plans - Trespass prevention	503		560							560	0.002%	560	0.002%	-	0.00%
	Provision of a security guard Thames Valley inner stations 2013/14	503		1,288							1,288	0.006%	-	0.000%	1,288	0.01%
RCM	All schemes - 101	101	11,540	3,841	847	514	167	742	205	1,373	19,230	0.082%	10,616	0.045%	8,614	0.04%
	All schemes - 301B	301B	6,970	45	347	493	20	569	573	527	9,545	0.041%	5,010	0.021%	4,535	0.02%
	All schemes - 302A	302A	-	-	-	-	-	1,652	77	-	1,729	0.008%	1,729	0.008%	-	0.00%
	All schemes - 304	304	47	-	52	-	47	-	-	-	146	0.001%	146	0.001%	-	0.00%
	All schemes - 103	103	-	-	-	-	-	463	-	-	463	0.002%	-	0.000%	463	0.00%
	All schemes - 305	305	7	-	-	-	-	-	-	-	7	0.000%	7	0.000%	-	0.00%
	All schemes - 301C	301C	-	-	-	-	-	-	-	95	95	0.000%	95	0.000%	-	0.00%
	All schemes - 110A	110A	-	-	-	-	-	-	-	145	145	0.001%	73	0.000%	73	0.00%
Train planning	Train Planning Improvements	502A	5,816	3,865	438	461	1,331	861	-	259	13,032	0.027%	10,907	0.023%	2,125	0.00%
Grand Total			130,728	42,132	5,297	15,107	6,529	8,431	1,828	2,399	212,451	0.874%	154,920	0.633%	57,532	0.24%

Note: LNE RCM savings is a notional figure, as the benefits of RCM are not specifically split out in PAT. Benefits of maintenance schemes for points and signalling categories are apportioned across relevant categories above, and are based on a large number of specific workstreams addressing root-causes of failures.

53%