OFFICE OF RAIL REGULATION

Office of Rail Regulation investigation report: Network Rail's performance delivery to Southern and Govia Thameslink Railway in 2014-15

August 2015

Executive Summary

This evidence report sets out the findings of ORR's investigation to establish whether Network Rail (NR) did everything reasonably practicable to meet its licence obligations in relation to its performance obligations to Southern and Govia Thameslink Railway (GTR) in 2014-15.

NR entered 2014-15 at a much lower Public Performance Measure (PPM) and Cancellations and Significant Lateness (CaSL) level in England and Wales than anticipated in our Control Period 5 (CP5) Final Determination. We therefore agreed to adopt an input based approach to monitoring England and Wales PPM and CaSL during the first two years of the Control Period, holding NR to account for delivery of the milestones specified in its Performance Plan.

Performance outputs, defined as PPM MAA and CaSL MAA for each franchised operator specified in the bi-laterally agree Performance Strategies are enforceable as a Customer Reasonable Requirements under the network licence. We will monitor and hold NR to account for delivery of these during years 1 and 2 of the control period. We will investigate if a franchised operator's year-end PPM MAA falls short of target by 2.0 percentage points (pp), or its year-end CaSL MAA exceeds target by 0.2pp,

Southern exited 2014-15 with a PPM MAA of 83.1%, 4.7pp worse than its Performance Strategy target, and a CaSL MAA of 4.8%, 1.9pp worse than its Performance Strategy target.

GTR exited 2014-15 with a PPM MAA of 85.2%, 2.8pp worse than its Performance Strategy target, and a CaSL MAA of 4.3%, 1.3pp worse than its Performance Strategy target.

Our investigation has identified the following issues which had a significant and detrimental impact on Southern and GTR's operational performance:

Performance modelling and timetabling: A key factor we have identified which had a significant and detrimental impact on Southern and GTR's operational performance was the performance modelling which resulted in a new timetable being implemented in December 2014-15 as part of the Thameslink Programme (TLP) works at London Bridge.

Significant weaknesses in the process in terms of data quality: NR has also stated that a number of the assumptions it made in the timetable modelling were incorrect. It identified that data used in the timetable modelling was flawed; the data feeding the performance modelling was used before it had been fully validated and had '*multiple sub-optimal line assignments'*.

Over-optimism in its modelling and impact on performance: NR's performance modelling indicated a 1.06pp impact on Southern's PPM and a 0.92pp impact on GTR's PPM in 2014-15 from the Thameslink Programme. However, both operators believe the impact on PPM was underestimated and we have found evidence that issues were exacerbated by lack of resilience in the timetable and significant reactionary delays.

Weaknesses in operator engagement: At a meeting on 13 May 2015, NR stated that the timetable modelling was based on existing Timetable Planning Rules (TPRs) and that a number of assumptions fed into the timetable modelling were incorrect. Specifically that there were no allowances made for drivers and signallers to become familiar with the new layout, or Southern's Professional Driving Policy (PDP).

The results of the timetable modelling were made available in October 2014, just two months before implementation. This severely restricted the opportunity to make changes.

Risks to performance were underestimated in Performance Strategies: The significant and frequent changes to services from London Bridge suggest significant over-estimation of service reliability and incorrect timetable modelling outputs. GTR has additionally stated that they believe that the assumptions contained in the performance modelling were based on London Bridge operating 'normally' and that they did not see a clear link between the performance modelling and the performance trajectory contained in their 2014-15 Performance Strategy.

Impact on services: The performance modelling problems directly affected services to and from London Bridge, predominantly impacting on Southern services (GTR only run a limited service to and from London Bridge at present). However, the nature of service patterns across the Sussex Area, where services to and from multiple London terminals are closely interwoven, means that delays to one service group quickly spread to others. Therefore, while Southern services to and from London Bridge have been directly impacted by the modelling, other Southern and GTR services have been significantly

delayed through reactionary impact. The latest National Rail Passenger Survey (NRPS) results re-enforce this detrimental impact encountered by Southern and GTR services and its affected passengers. NR has put in place a number of reviews and plans related to the performance problems with South East Route services including the Brighton Main Line Improvement Plan (BMLIP) and the South East Performance Review.

Our findings demonstrate that the underestimation and resulting detrimental impact of performance was likely the result of flawed assumptions and an approach which was construction led rather than operational. Key activities such as timetabling and modelling whether as part of a major project or renewal or maintenance, is part of NR's core function. Our findings suggest a need for more robust quality assurance processes in its timetable modelling and a better understanding of the impact of timetabling on operating services in practice. It is essential that infrastructure improvements are carried out effectively and NR planning, engagement and management of its day to day operational railway needs to be what is expected of a best practice operator.

As with the December 2014 engineering overruns, this is another example of an incident which has resulted in a detrimental impact on passengers and where NR has not demonstrated it is putting passengers at the heart of its planning. Since our February 2015 findings NR has committed to review its processes to address this issue.

Asset management

We have some concerns about the increase in condition of track Temporary Speed Restrictions (TSRs) in NR South East Route, the increase in incidents and delays from non- track asset failures in the Sussex Area, and under-delivery of maintenance and renewal volumes. Whilst these may have had some impact on Sussex Area performance in 2014-15, we are unable to quantify the direct impact to Southern and GTR services in 2014-15.

Newly installed Asset failures

Both Southern and GTR raised concerns about instances of 'early asset life' failures installed as part of the Thameslink Programme. There was however a high incidence of newly installed assets failing or their performance being sub-optimal and NR has acknowledged that there have been 184 failures of these assets since December 2014. NR has also acknowledged these issues and impact to services as a result.

We acknowledge a recent improvement means that NR considers the reliability of new assets 'is now at least comparable to the rest of the network.' We therefore propose to continue to monitor these asset issues through our existing regulatory processes.

We have also considered factors which had a material impact on performance for Southern and GTR during 2014-15 and made appropriate adjustments. We recognise the continued good work by NR on suicide prevention. We also recognise that the impact of these incidents is not entirely within NR's control and that the underlying national level of suicides and attempted suicides is increasing[1] but the proportion of suicides on the railway has remained the same in 2012 and 2013. We also concluded that there was a rise in delay minutes caused by Traincrew issues. Despite these adjustments Southern's PPM and CaSL results were still beyond the thresholds specified. Similarly, GTR's CaSL result remained beyond the threshold.

[1] ONS Suicides in the United Kingdom, 2013 Registrations http://www.ons.gov.uk/ons/rel/subnational-health4/suicides-in-the-united-kingdom/2013-registrations/index.html

1. Introduction

1.1. Background and purpose

1. Network Rail (NR) started 2014-15 at much lower punctuality and reliability levels (defined as Public Performance Measure[2] (PPM) and Cancellations and Significant Lateness[3] (CaSL)) than anticipated in our Control Period 5 (CP5) Final Determination. ORR therefore agreed to adopt an input based approach to monitoring England and Wales performance during the first two years of CP5.

2. It was agreed with NR that delivery of its CP5 Performance Plan, a representative summary of milestones contained within Performance Strategies, would represent the organisation doing everything reasonably practicable to return PPM and CaSL to target in England and Wales by the end of 2015-16. ORR has received quarterly updates on the CP5 Performance Plan from NR in 2014-15

3. PPM and CaSL Moving Annual Average (MAAs) for each franchised operator, as described in Performance Strategies, continue to be monitored and enforced as Customer Reasonable Requirements (CRRs). ORR stated in its Final Determination that if a franchised operator's year-end PPM MAA falls short of its year-end target by 2.0pp, or its year end CaSL MAA exceeds target by 0.2pp, ORR would intervene.

4. In 2014-15 three operators missed their year-end PPM MAA targets by 2.0pp or more whilst eight operators[4] missed their year-end CaSL MAA targets by 0.2pp or more[5].

[2] Public Performance Measure - the percentage of passenger trains that arrive at destination on time. On time is defined as within five minutes for London and South East and regional operators, and within ten minutes for the long distance train operators, If a train service does not arrive on time based on this definition, it is counted as a PPM failure

[3] Cancellations and Significant Lateness - the percentage of passenger trains cancelled or arriving at destination more than 30 minutes late. If a train service is cancelled or significantly late based on this definition, it is counted as a CaSL failure.

[4] Southeastern, First Great Western (FGW), South West Trains (SWT), Virgin Trains West Coast (VTWC), Abellio Greater Anglia (AGA), FTPE, GTR and Southern

[5] The 2.0pp and 0.2pp figures are flex – ORR only investigates where an operator misses target by greater than these allowances

5. National freight performance, as measured by the Freight Delivery Metric (FDM), remains a regulated target throughout all years of CP5. The focus of this particular investigation is on passenger train performance.

1.2. Terms of reference of ORR's investigation

6. On 28 April 2015, we wrote to NR setting out our intention to formally investigate its delivery of regulated performance targets in 2014-15. The full terms of reference for this review are set out in **Annex B**.

7. In summary, this investigation focused on NR's delivery of performance to Southern, Govia Thameslink Railway (GTR) and Scotland (see separate report) and whether there was evidence of any wider systemic issues relating to performance delivery.

8. Our investigation included an analysis of a range of issues affecting performance. They included, but were not limited to:
    - weather;
    - NR's delivery of the CP5 Performance Plan;
    - Impact of major projects, in particular the Thameslink Programme (TLP); and
    - asset performance.

1.3. Context of the investigation

9. In order to conduct our investigation we have considered the following:
    - the CP5 Performance Plan;
    - NR's Quarter 4 Performance Report, received on 5 May 2015;
    - views and further information from operators regarding the factors they believe influenced performance in 2014-15;
    - evidence provided by NR's Internal Audit Team looking at the effectiveness of Performance Strategies on Anglia Route;

- end of year performance data;
- further evidence NR asked us to consider; and
- passenger satisfaction results.

10. As part of our analysis we have focused on delay minutes[6], PPM and CaSL failures to GTR and Southern. We have also looked at the performance of Sussex and London North Eastern (LNE) Routes in the Asset Management section. We have primarily focused our analysis on Train Operating Company (TOC) on Self performance but have highlighted any TOC on TOC performance of note.

11. The analysis in this report reflects the most recent data supplied to the ORR by NR and includes any data refreshes made up to the end of 2015-16 period 1. Any future refreshes/reattribution of the historical data will therefore not be reflected in the numbers quoted in this report.

12. PPM and CaSL failures are key industry performance metrics for CP5 but not every operator had agreed targets for these metrics in their 2014-15 Performance Strategies. Therefore, as part of the analysis undertaken for the investigation, ORR created notional PPM and CaSL targets. These targets may differ to any internal NR/operator targets or Performance Strategy targets. Please refer to **Annex C** for details on the methodology used to develop these targets.

13. Some of the charts included within this report show data for Control Period 4 (CP4). Whilst this investigation focused on NR performance delivery in 2014-15, we have included data prior to 2014-15 where necessary to provide greater analytical context and to show longer term trends.

14. We have primarily focused our analysis on NR caused and TOC on Self performance but have also highlighted any TOC on TOC performance of note. The TOC on TOC analysis in this report reflects only delays as victim (rather than

[6] Delay minutes are the total number of minutes delay (the variance between the times in the timetable and the times trains actually ran to) to the train services of a given TOC.

perpetrator) and includes the impact of delays caused by other TOCs and Freight Operating Companies (FOCs).

15. Due to the differing quantum of delay minutes and PPM and CaSL failures, the scales may vary between the different charts presented in this document.

1.4 Conduct of the investigation

16. We have welcomed the co-operation from NR, the wider industry and passenger groups in providing a range of evidence and assisting us in carrying out our investigation. This includes industry review reports, meetings and data from passenger groups which have formed part of the evidence base for our review.

2 Passenger experience - Customer satisfaction

2.1 Introduction

17. It is important that we take customer satisfaction into account when considering what impact NR's failure to achieve its regulated performance targets has had on its customers.

2.2 Customer Satisfaction

18. An important measure of how performance affects passengers on Southern and GTR is the National Rail Passenger Survey (NRPS). The NRPS results for Spring 2015[7] were published by Transport Focus on 25 June 2015. Summary results for the two TOCs were as follows:

19. Southern scored 72% overall satisfaction, the lowest results of all operators. It was statistically significantly lower than the Spring 2014 survey, down 5 percentage points (pp). This compares with a 78% result for the London and South East sector (of which Southern and GTR are part), which was 2pp lower than the Spring 2014 survey. For punctuality and reliability Southern scored 56%, 9pp lower than the Spring 2014 survey. This compares with a 73% result for the London and South East sector, which was 2pp lower than the Spring 2014 survey.

20. GTR scored 74% overall satisfaction, 3pp lower than the Spring 2014 survey. For punctuality and reliability GTR scored 64%, significantly lower by 9pp than the Spring 2014 survey. At route level, Spring 2015 results were as follows:

[7] Spring 2015 NRPS results are based on journeys between 18 January and 20 March 2015.
Those changes highlighted in red in the table represent a statistically significant decline since Spring 2014.

Table 1: Satisfaction with Southern and GTR services by Route, Spring 2015

Route	Description	Overall Satisfaction (%)	Change from Spring 2014 (pp)	Punctuality / Reliability Satisfaction (%)	Change from Spring 2014 (pp)
Gatwick Express	Gatwick Express services	86	-2	89	-1
Metro	South London suburban services	67	-11	46	-14
Sussex Coast	Other Southern mainline services	76	0	64	-5
All Southern routes		**72**	**-5**	**56**	**-9**
Great Northern	King's Cross/ Moorgate services	80	+3	77	+3
Thameslink Loop	Wimbledon and Sutton services	64	-6	49	-11
Thameslink North	Services to Luton and Bedford	73	-7	58	-14
Thameslink South	Services to Brighton and Kent	70	-10	50	-27
All GTR routes		**74**	**-3**	**64**	**-9**

21. These results reflect poor punctuality performance. At TOC level, both Southern and GTR have poorer results for both overall satisfaction and punctuality and reliability than the sector overall and have seen greater declines than the overall sector. For punctuality and reliability, Transport Focus' methodology indicates a significant decline for both Southern and GTR. At TOC level for overall satisfaction, Southern scored bottom nationally.

22. At route / service group level GTR Thameslink South and Southern Metro services saw significant declines in overall satisfaction; the only route not to record any decline (remaining unchanged) was Southern Sussex Coast. For punctuality and reliability, the majority of routes saw statistically significant declines. The exceptions were GTR Great Northern, which saw a small improvement and Gatwick Express, which witnessed a small decline. GTR Thameslink South showed the largest decrease with a 27% drop. For overall satisfaction, GTR's Thameslink Loop services scored bottom nationally with 49%.

23. On the basis of these results, it is clear that performance on Southern and GTR is adversely affecting passenger satisfaction. Some results are the worst in the country, while others are experiencing very significant declines. It is therefore clear that these results should be considered further.

3 Performance Summary 2014-15

3.1 Introduction

24. This investigation focused on whether NR did everything reasonably practicable to meet its performance obligations to Southern and GTR in 2014-15. In assessing this we considered a range of issues including the impact of factors such as weather, TOC on TOC and TOC on Self delays and other external events on NR's delivery of its performance obligations.

25. We have focused a large part of our investigation on the delay minutes, PPM and CaSL groupings that exhibited the greatest variance to target for both Southern and GTR.

Table 2: Top 6 delay minutes categories selected for analysis for Southern and GTR

Responsible	Category	Southern 2014-15 delay minutes			GTR 2014-15 delay minutes		
		Actual	Target	Variance	Actual	Target	Variance
NR-on-TOC	External	144,841	92,811	52,029	84,712	61,340	23,372
TOC-on-Self	Fleet	112,388	131,650	19,262	70,281	59,795	10,486
NR-on-TOC	Network Management / Other	397,904	266,855	131,049	145,404	100,543	44,860
NR-on-TOC	Non-Track Assets	276,424	192,216	84,208	120,672	104,697	15,975
NR-on-TOC	Track	84,792	51,602	33,189	32,838	34,511	1,672
TOC-on-Self	Traincrew	155,055	110,400	44,655	51,669	27,535	24,135

Table 3: Top 6 PPM failures categories selected for analysis for Southern and GTR

Responsible	Category	Southern 2014-15 PPM failures			GTR 2014-15 PPM failures		
		Actual	Target	Variance	Actual	Target	Variance
NR-on-TOC	External	11,605	6,658	4,947	6,701	3,989	2,712
TOC-on-Self	Fleet	11,383	12,401	1,019	6,927	6,357	570
NR-on-TOC	Network Management / Other	28,937	18,185	10,752	10,305	7,185	3,121
NR-on-TOC	Non-Track Assets	22,534	15,042	7,492	9,132	7,782	1,351
NR-on-TOC	Track	6,306	3,873	2,433	2,386	2,377	10
TOC-on-Self	Traincrew	14,114	9,809	4,305	6,418	2,738	3,680

Table 4: Top 6 CaSL failures categories selected for analysis for Southern and GTR

Responsible	Category	Southern 2014-15 CaSL failures			GTR 2014-15 CaSL failures		
		Actual	Target	Variance	Actual	Target	Variance
NR-on-TOC	External	4,824	3,277	1,547	2,979	1,122	1,858
TOC-on-Self	Fleet	5,105	3,336	1,768	3,227	2,255	972
NR-on-TOC	Network Management / Other	5,513	2,389	3,124	1,990	1,745	245
NR-on-TOC	Non-Track Assets	7,415	3,420	3,995	2,644	2,315	328
NR-on-TOC	Track	1,210	569	641	315	224	92
TOC-on-Self	Traincrew	4,960	1,991	2,969	3,457	1,095	2,362

3.2 Overview of 2014-15 performance

26. At the end of period 13, 2014-15, England and Wales PPM MAA was 89.6%, 1.4pp below (worse than) the CP5 Performance Plan target of 91.0%.

27. England and Wales CaSL MAA ended 2014-15 at 2.9%, 0.5pp above (worse than) the CP5 Performance Plan target of 2.4%.

28. As highlighted in section 1.1, we agreed with NR that we would adopt an input based approach to the regulation of England and Wales performance targets in the first two years of CP5.

29. We therefore monitor NR performance in England and Wales through the inputs specified in the CP5 Performance Plan along with PPM and CaSL and PPM at an operator level. We agreed as part of this approach that we would allow a 2.0pp threshold for PPM and a 0.2pp threshold for CaSL against variance to year-end

Performance Strategy targets (for England and Wales only) before we would intervene at an operator level.

30. At the end of 2014-15, the following operators missed their PPM (MAA) Performance Strategy targets by greater than the 2.0pp threshold and/or their CaSL (MAA) Performance Strategy targets by greater than the 0.2pp threshold:

Table 5: TOCs that missed PPM Performance Strategy Targets by more than 2 percentage points, 2014-15

TOC	Performance Strategy target	Target with flex (-2.0pp)	PPM MAA Actual	Variance to target
Southern	87.8%	85.8%	83.1%	4.7 pp
GTR	88.0%	86.0%	85.2%	2.8 pp
FTPE	91.0%	89.0%	88.6%	2.4 pp

Table 6: TOCs that missed CaSL Performance Strategy Targets by more than 0.2 percentage points, 2014-15

TOC	Performance Strategy target	Target with flex (+0.2pp)	CaSL MAA Actual	Variance to target
Southern	2.9%	3.1%	4.8%	1.9 pp
GTR	3.0%	3.2%	4.3%	1.3 pp
VTWC	4.0%	4.2%	5.0%	1.0 pp
AGA	1.6%	1.8%	2.5%	0.9 pp
FTPE	3.5%	3.7%	4.3%	0.8 pp
SWT	2.1%	2.3%	2.7%	0.6 pp
FGW	2.6%	2.8%	3.0%	0.4 pp
Southeastern	2.5%	2.7%	2.8%	0.3 pp

3.3 Performance outputs - Southern and GTR

31. Southern exited 2014-15 with a PPM MAA of 83.1%, 4.7pp worse than their Performance Strategy target, and a CaSL MAA of 4.8%, 1.9pp above (worse than) their Performance Strategy target. The Network Management / Other and Non-Track Assets Key Performance Indicator (KPI) groups were the two categories with the greatest negative variance target for delay minutes, PPM and CaSL failures.

32. GTR exited 2014-15 with a PPM MAA of 85.2%, 2.8pp below (worse than) their Performance Strategy target, and a CaSL MAA of 4.3%, 1.3pp higher (worse than) their Performance Strategy target. The Traincrew and Network Management /Other Key Performance Indicator (KPI) groups were the two categories with the greatest negative variance to target for delay minutes and PPM failures. The Traincrew and External KPI groups were the two categories with the greatest negative variance to target for CaSL failures.

33. The Brighton Main Line Improvement Plan (BMLIP) was produced jointly by DfT, Southern, GTR and NR in response to Southern and GTR's falling performance levels and was published in February 2015[8].

ORR's Initial review March 2015

34. Whilst our initial review and analysis of performance in 2014-15 raised concerns with NR's performance delivery to a number of operators in England and Wales, we chose to focus on Southern and GTR as they represented the worst performers. In 2014-15, Southern and GTR performance represented roughly a third of the PPM (MAA) shortfall and roughly half of the CaSL (MAA) shortfall in England and Wales. Following the merger of Southern and GTR in July 2015, the combined franchise will represent approximately 18%[9] of England and Wales PPM.

35. We concluded that we should not specifically investigate NR's performance delivery to other operators because:
    - in some cases operator issues contributed to the performance shortfall;
    - our ongoing dialogue with operators indicated that they were broadly satisfied with NR's performance delivery to them; and
    - we were satisfied that NR was making reasonable efforts to address the performance impacting issues.

36. We continue to monitor delivery of operational performance to other operators through our regulatory processes.

[8] http://www.southernrailway.com/your-journey/performance-results/performance-improvement-plan/

[9] Based on trains planned in periods 1-3 of 2015-16

3.4 Performance delivery to Southern and GTR in 2014-15

Southern

37. Southern consists of three service groups, South London Metro, Sussex Coast and Gatwick Express. The operator predominantly runs on the South East Route with some services operating on Wessex and London North West (LNW) Routes.

38. While Gatwick Express' punctuality showed an improvement in the last quarter of 2014-15, it had been gradually declining since the beginning of 2011-12. The PPM MAA at the end of 2014-15 was 82.4%. CaSL MAA showed an increase on the levels experienced in 2013-14 and at the end of 2014-15 stood at 2.7%.

    The performance of Sussex Coast and South London Metro services in 2014-15 exhibited a similar trend. At the end of 2014-15, Sussex Coast PPM MAA was 84.2%; CaSL MAA was 4.4%. South London Metro PPM MAA at the end of 2014-15 was 82.0%; CaSL MAA was 4.4%. The end of year CaSL and PPM MAA for South London Metro services was the worst level recorded in five years.

Figure 1: Southern Service Group PPM MAA, 2010-11 to 2014-15

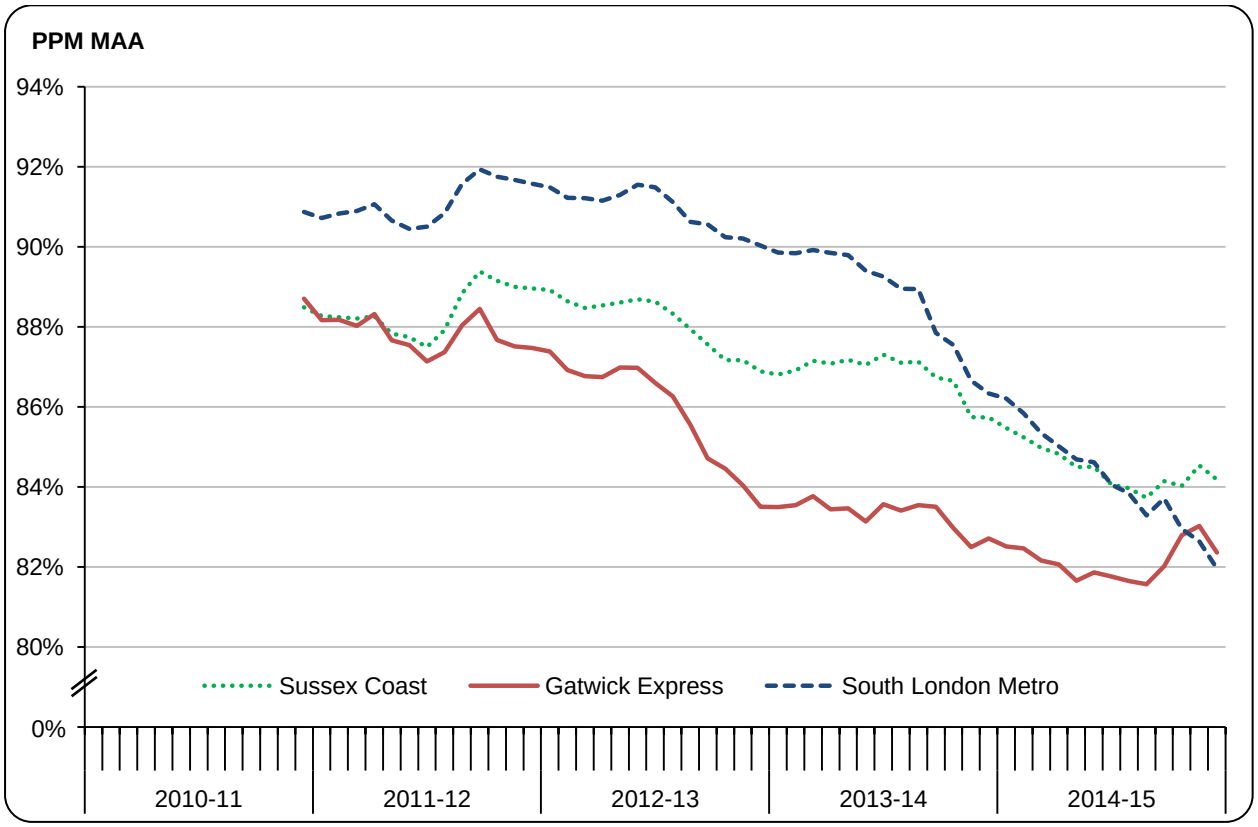
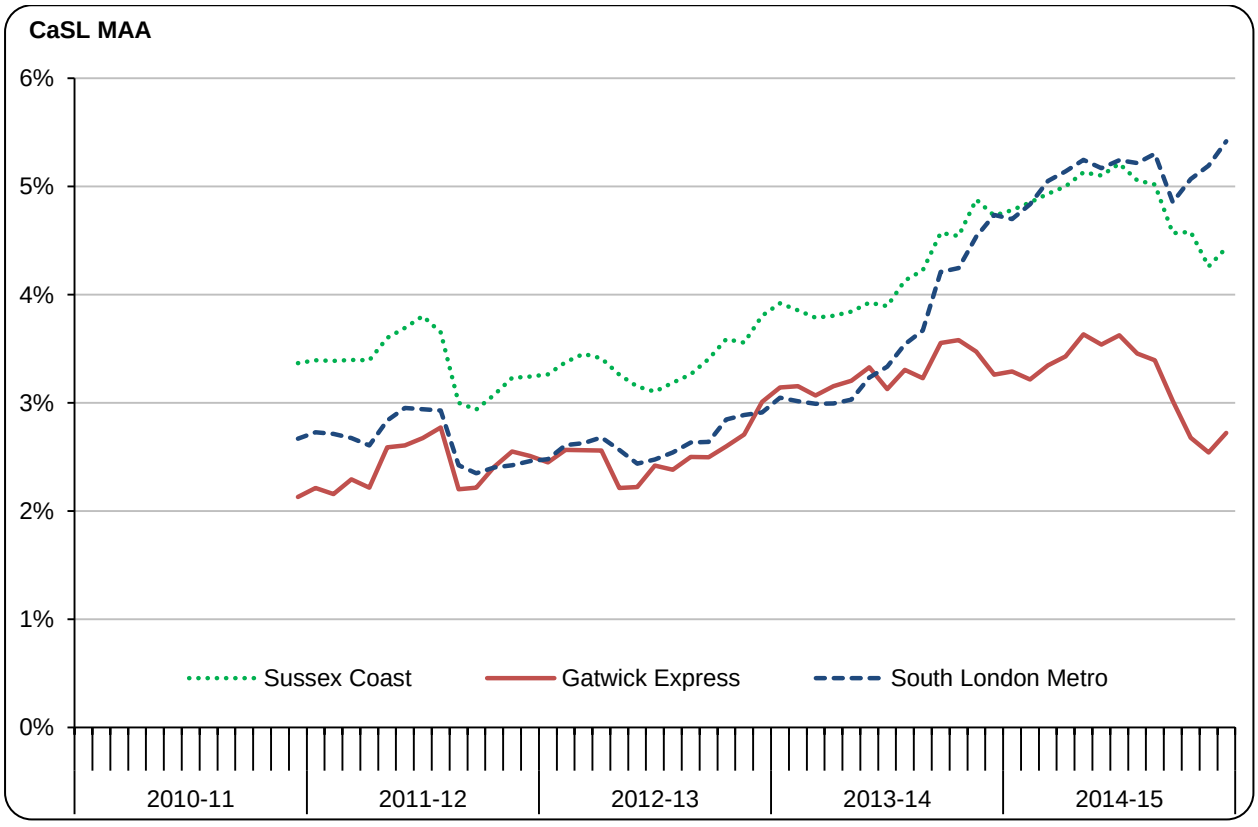


Figure 2: Southern Sub Operator CaSL MAAs, 2010-11 to 2014-15



GTR

39. GTR consists of two service groups, Great Northern and Thameslink, and runs on NR's South East, Anglia and London North East (LNE) Routes.

40. PPM MAA for Great Northern services has increased since period 9 2013-14 and ended 2014-15 at 89.1%. CaSL MAA showed a decrease in 2014-15 and exited the year at 2.6%. Both PPM and CaSL improved for Great Northern services in 2014-15.

41. The trend for Thameslink services however was very different. At the end of 2014-15, PPM MAA was 82.2% whilst CaSL MAA stood at 5.5%. Both of these results were the worst level recorded for Thameslink services in five years.

Figure 3: GTR Sub Operator PPM MAAs, 2010-11 to 2014-15

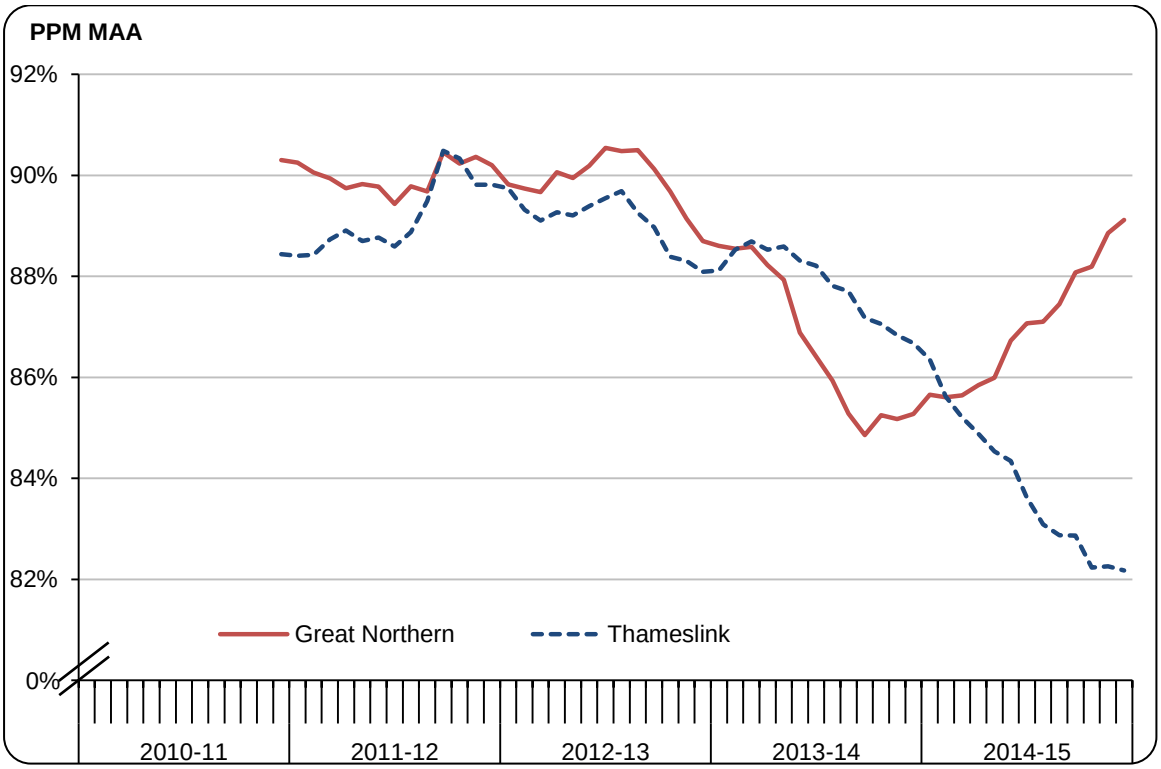
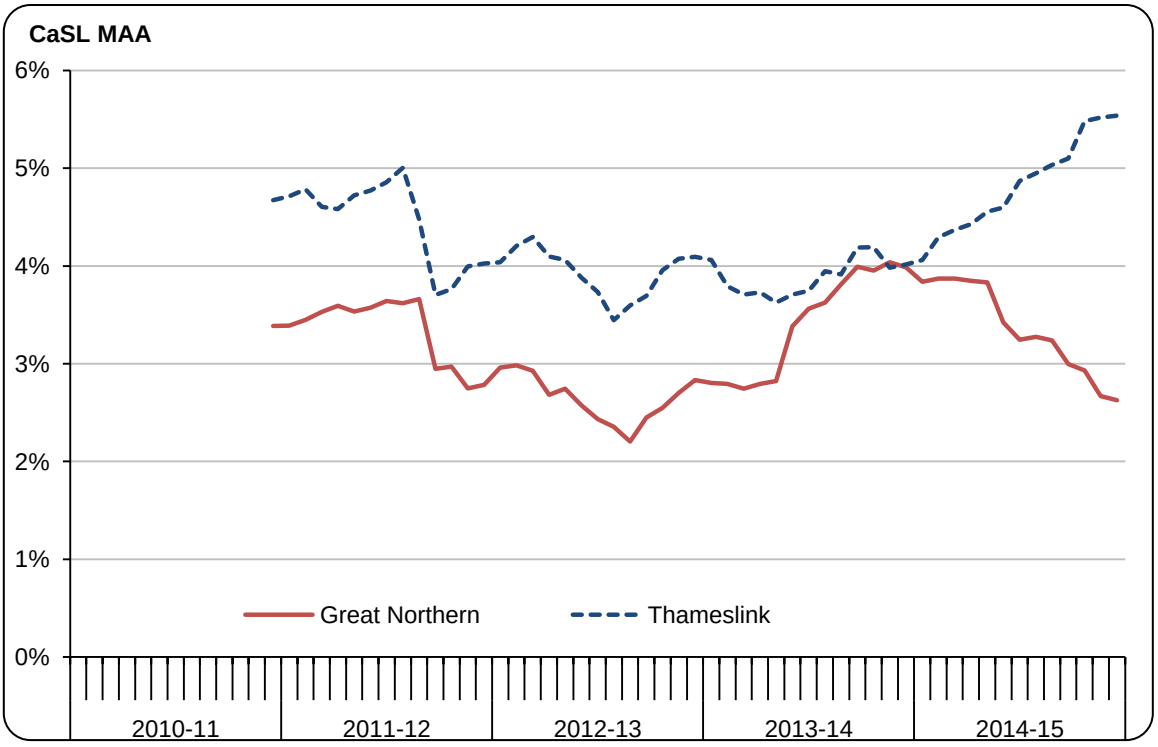


Figure 4: GTR Sub Operator CaSL MAAs, 2010-11 to 2014-15



3.5 Summary of factors considered as adjustments

42. The prevention of fatalities is, to some extent, manageable by NR (and the TOCs). However, a significant proportion of fatalities are not preventable. We have therefore concluded that an adjustment should be applied to both Southern and GTR's 2014-15 PPM and CaSL MAAs for this category.

43. Traincrew delays are not NR's responsibility, although we note that some Traincrew delays were caused by additional training requirements due to the TLP. We have therefore concluded that an adjustment should be applied to both Southern and GTR's 2014-15 PPM and CaSL MAAs for this category.

44. The overall impact of these mitigations are detailed in the below table.

Table 7: Adjusted PPM and CaSL for Southern and GTR 2014-15

TOC	PPM MAA Actual	PPM MAA adjusted	Variance to target
Southern	83.1%	84.6%	3.2pp
GTR	85.2%	87.4%	0.6pp

TOC	CaSL MAA Actual	CaSL MAA adjusted	Variance to target
Southern	4.8%	4.3%	1.4pp
GTR	4.3%	3.9%	0.9pp

Southern's adjusted PPM and CaSL MAAs at the end of 2014-15 were still beyond the 2.0pp (PPM) and 0.2pp (CaSL) thresholds. Similarly GTR's CaSL would have been beyond threshold.

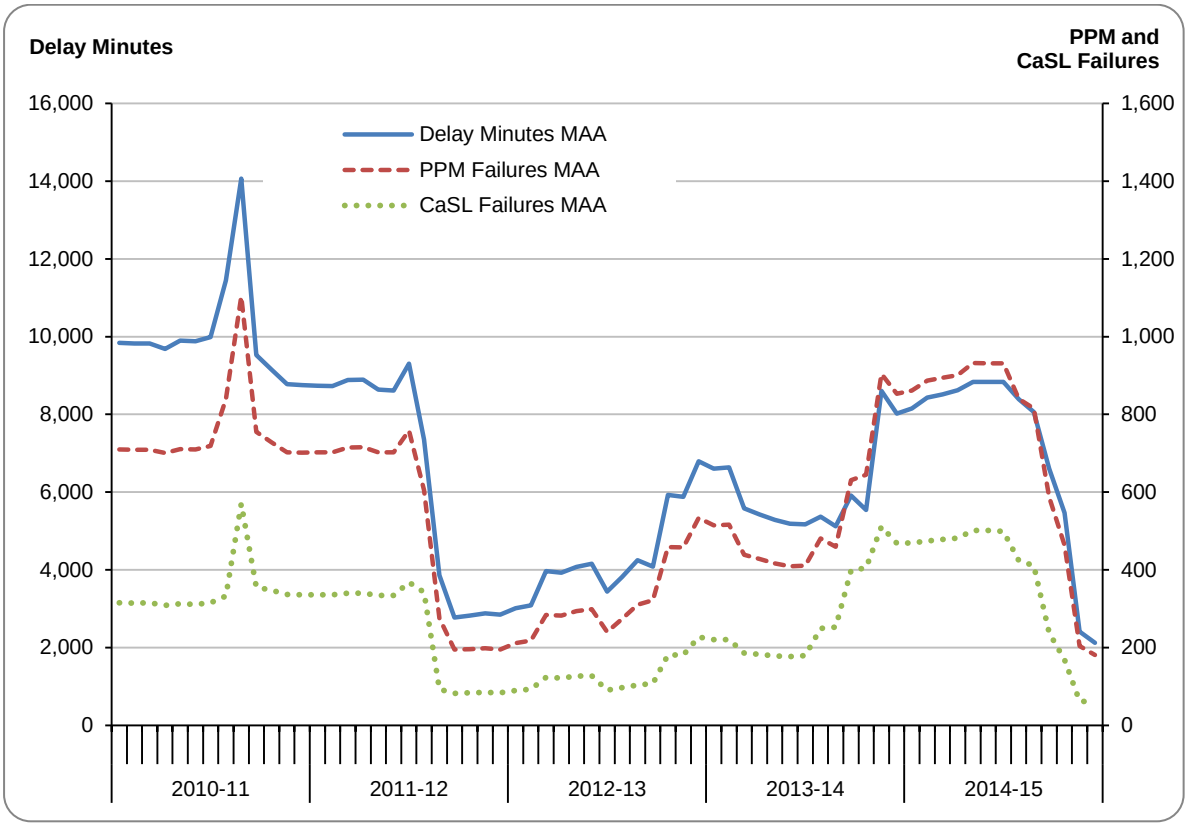
3.6 Impact of Weather

45. Despite the varied weather conditions during 2014-15, the overall weather in England and Wales was relatively benign, especially when compared to previous years. Based on this we have not identified any extreme weather days affecting Southern and GTR performance in 2014-15.

Southern Severe Weather, Autumn and Structures delay minutes MAA

46. At the end of 2014-15 Southern accrued 27,571 delay minutes for Severe Weather, Autumn and Structures. This was 74% lower than the level experienced in 2013-14 and 68% better than target. Southern had a total of 2,348 PPM failures in 2014-15, a 79% decline on 2013-14 total and 74% better than target. CaSL failures were 87% better than 2013-14 and 79% better than target.

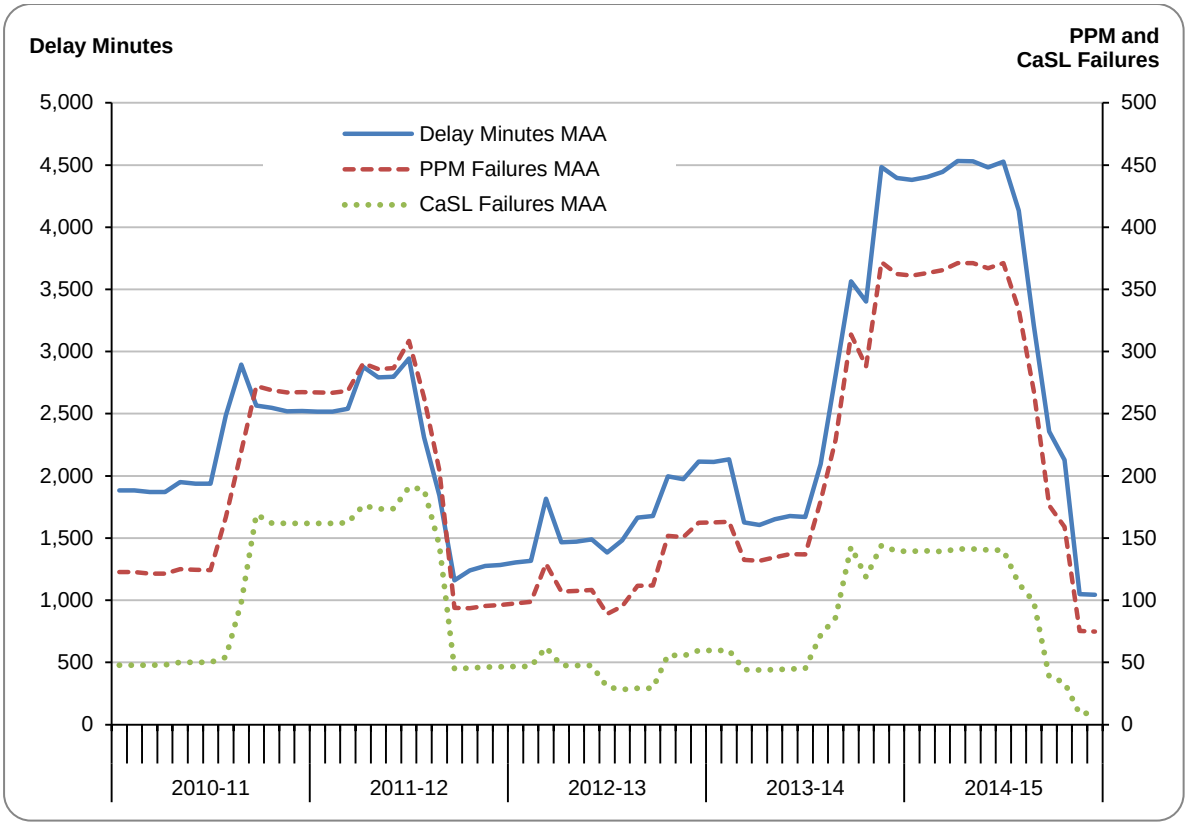
Figure 5: Severe Weather, Autumn and Structures Delay Minutes, PPM Failures and CaSL Failures, Southern, 2010-11 to 2014-15



GTR severe weather, autumn and structures

47. GTR delay minutes for Severe Weather, Autumn and Structures at the end of 2014-15 were 13,585, 76% better than 2013-14 and 70% better than target. A total of 972 PPM failures were caused by Severe Weather, Autumn and Structures in 2014-15, which was 74% better than target. There were 126 GTR CaSL failures due to this category in 2014-15, which was 91% better than the target.

Figure 6: Severe Weather, Autumn and Structures Delay Minutes, PPM Failures and CaSL Failures, GTR, 2010-11 to 2014-15



Analysis/Conclusion

48. Compared to 2013-14 there was an overall reduction in delay minutes, PPM failures and CaSL failures attributed to Severe Weather, Autumn and Structures in 2014-15 for both Southern and GTR. Our assessment is that this was due to the relatively benign levels of weather in 2014-15. We also noted that the delay minutes MAA for both Southern and GTR improved as the effects of severe weather experienced in 2013-14 dropped out of the MAA.

49. Overall, we do not consider that weather in 2014-15 was beyond the levels NR was funded to deal with and therefore 2014-15 performance in this category does not warrant consideration for an adjustment.

3.7 Delays affecting performance – External, Traincrew and Fleet

3.7.1 External

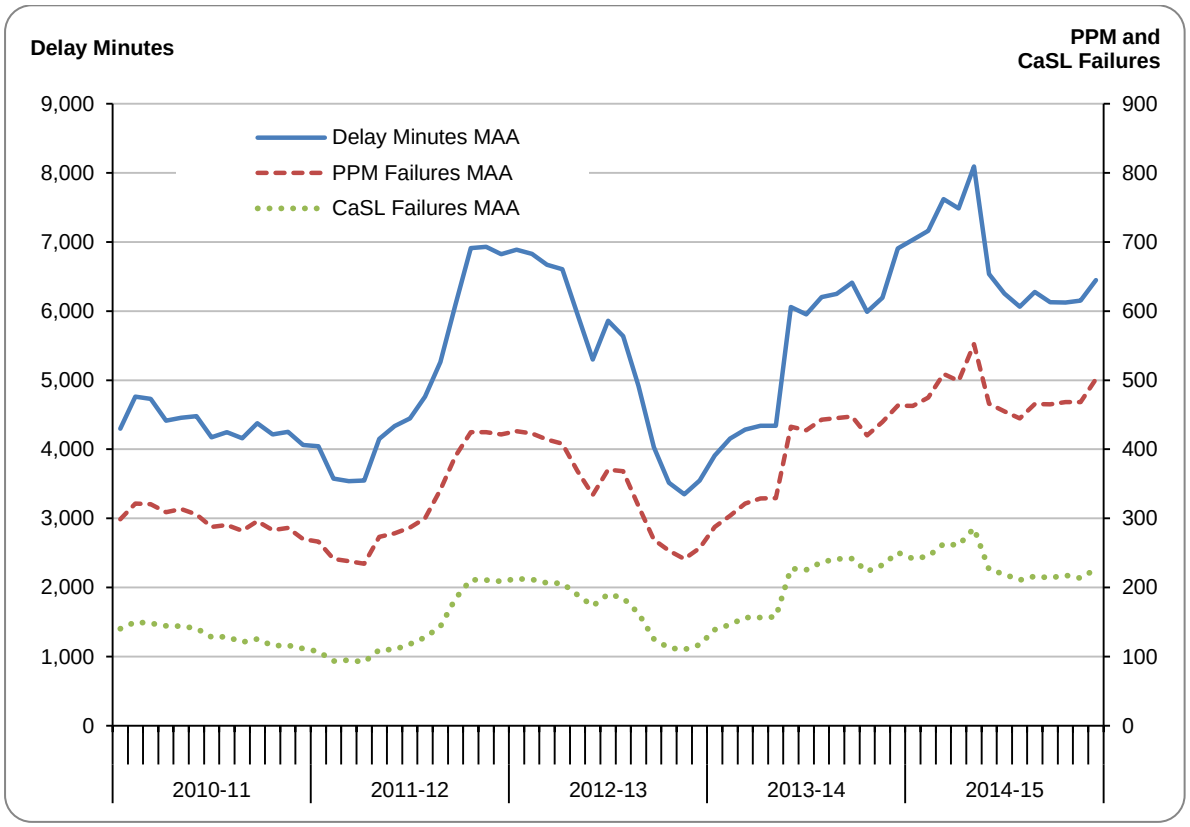
50. The most significant cause of delay in the External category in 2014-15 was Fatalities and Trespass. The percentage of national suicides in the UK that occurred on railway property stayed the same in 2012 and 2013 at 4.5%[10].

Southern Fatality and Trespass

51. At the end of 2014-15 delay minutes due to Fatalities and Trespass for Southern totalled 83,824, 7% lower than 2013-14 but 49% worse than target. During 2014-15 Southern experienced 6,524 PPM failures, an 8% increase on 2013-14 and 73% worse than target. Southern experienced 2,953 CaSL failures in 2014-15 due to Fatalities and Trespass incidents, 9% lower than 2013-14 but 47% worse than target.

[10] Based on ONS national suicides statistics for 2013 http://www.ons.gov.uk/ons/rel/subnational-health4/suicides-in-the-united-kingdom/2013-registrations/index.html
ONS data is based on date of registration whilst railway figures are based on date of death.

Figure 7: Fatalities and Trespass delay minutes MAA, Southern, 2010-11 to 2014-15



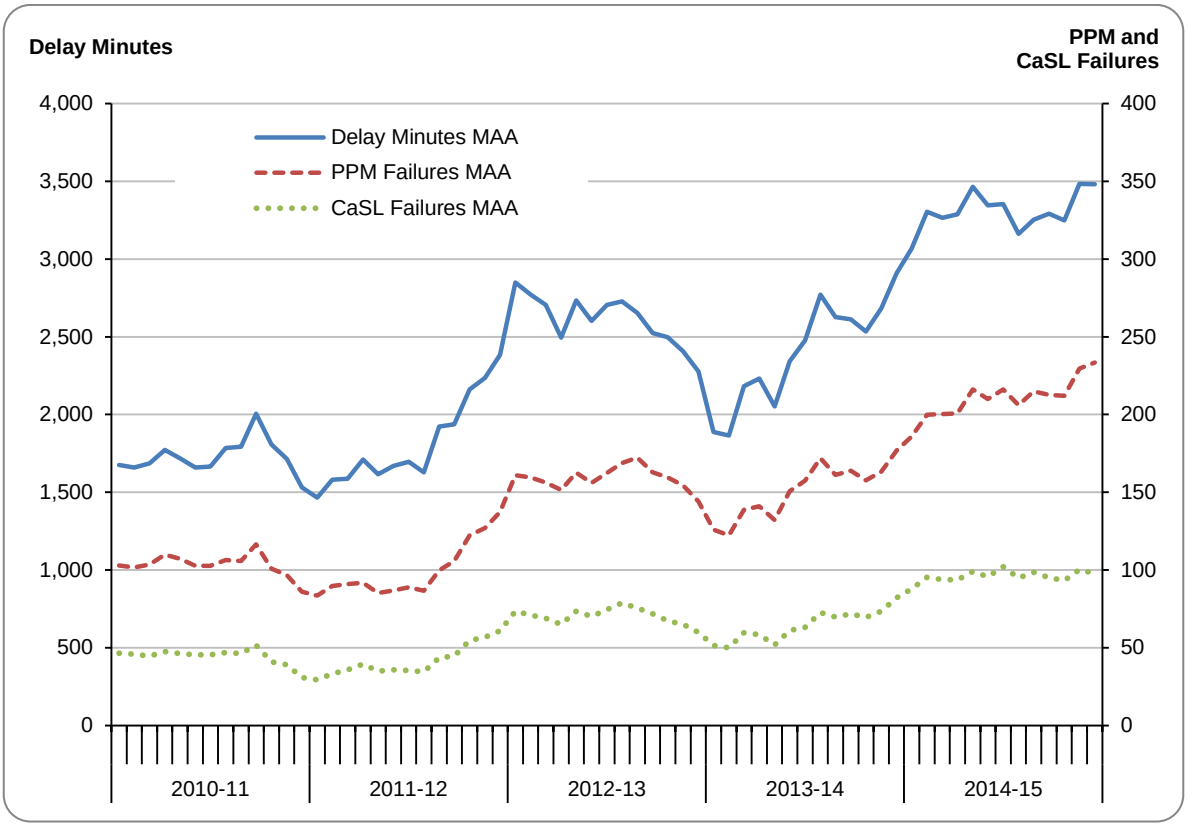
GTR Fatality and Trespass

52. At the end of 2014-15 GTR delay minutes Fatalities and Trespass totalled 45,255 minutes, 20% worse than last year and target. During 2014-15 GTR experienced 3,035 PPM failures, 32% worse than the previous year and target. GTR accrued a total of 1,271 CaSL failures in 2014-15, 19% higher than 2013-14 and 53% worse than target.

53. Both Southern and GTR have stated to us that a significant amount of suicide mitigation work has been undertaken by NR. Sussex and Kent Areas have run Samaritans events at numerous London and South East stations including London Victoria, Brighton and London Charing Cross. There is also evidence of joint working with the National Health Service, encouraging information-sharing about suicide incidents and associated interventions and work with the British Transport Police (BTP) to increase patrols of hotspot locations. These patrols are active through the year and engage a range of NR and TOC staff. NR engagement also continues at a local level on Sussex Area with the Community Pastor scheme at Horley, where

local church volunteers work with Southern to patrol unstaffed stations and engage with the BTP.

Figure 8: Fatalities and Trespass delay minutes MAA, GTR, 2010-11 to 2014-15



GTR External Other

54. GTR raised NR's operational response to the Clerkenwell Tunnel flood in January 2015 as a significant issue of concern during 2014-15. The incident caused approximately 20,000 delay minutes (attributed to the External-Other sub-category) across a number of days. The event received widespread publicity.

Analysis/Conclusion

55. In 2014-15, our analysis estimates that External delay minutes above target reduced Southern's PPM by 0.8pp and increased Southern's CaSL by 0.3pp.

56. In 2014-15, our analysis estimates that External delay minutes above target reduced GTR's PPM by 0.8pp and increased GTR's CaSL by 0.1pp.

57. We recognise that the underlying national level of suicides and attempted suicides is increasing on the network, but the proportion of UK suicides that occur on the railway has remained stable for the last two years. We note that the prevention of fatalities and of trespass incidents is largely outside of NR's control. We also recognise NR's continued good work on suicide prevention. We therefore consider an adjustment should be applied to the External KPI grouping to account for the impact of fatalities and trespass incidents on Southern and GTR.

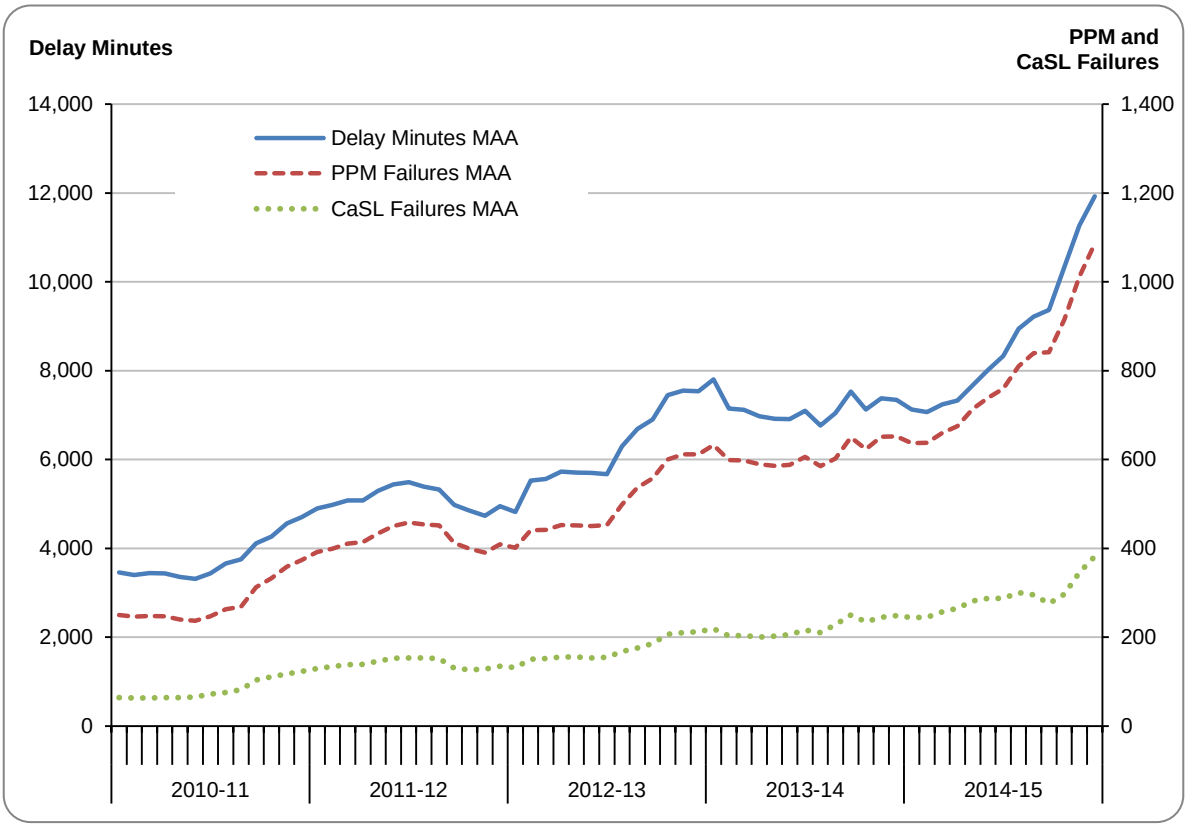
3.7.2 Traincrew

Southern Traincrew

58. Southern experienced a number of issues with Traincrew in 2014-15, including unforeseen high levels of sickness, training requirements for the new layout at London Bridge and drivers declining to work overtime.

59. At the end of 2014-15, Traincrew delay minutes for Southern totalled 155,055. This figure was 63% higher than the previous year and 40% worse than target. During 2014-15 Southern experienced 14,114 PPM failures due to Traincrew, a 67% increase on 2013-14 and 44% worse than target. Southern accrued a total of 4,960 CaSL failures in the year which was 53% higher than 2013-14 and 149% worse than target.

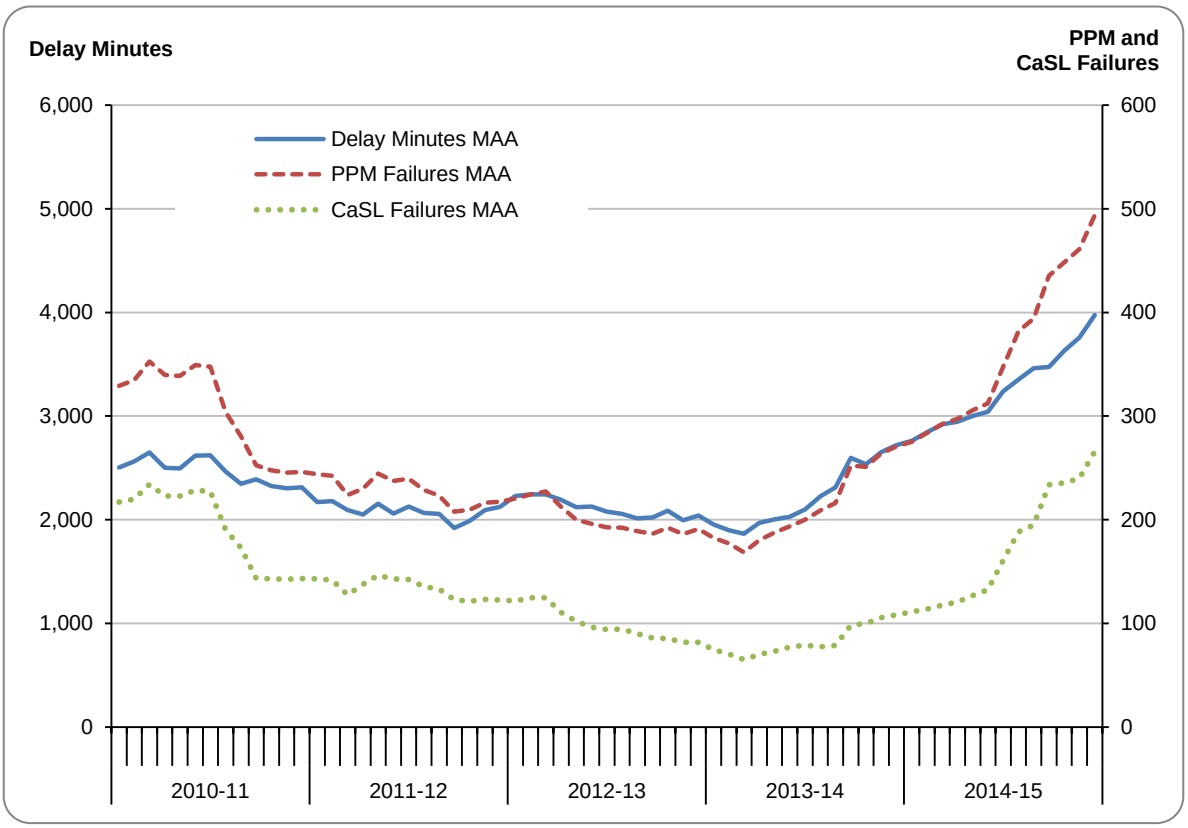
Figure 9: Traincrew Delay Minutes, PPM Failures and CaSL Failures, Southern, 2010-11 to 2014-15



GTR Traincrew

60. At the end of 2014-15 GTR delay minutes for Traincrew stood at 51,669, 46% higher than the previous year and 88% above target. In 2014-15 GTR experienced an 82% rise in Traincrew-caused PPM failures compared to the previous year, leading to the operator ending the year with 6,418 failures and 134% worse than target. When compared to the previous year, CaSL failures in 2014-15 increased by 145% to 3,457, resulting in GTR ending the year 216% worse than target.

Figure 10: Traincrew Delay Minutes, PPM Failures and CaSL Failures, GTR, 2010-11 to 2014-15



Analysis/Conclusion

61. Our analysis estimates that Traincrew delay minutes above target for Southern accounted for approximately 0.6pp of the overall PPM and 0.2pp of the overall CaSL result in 2014-15.

62. Our analysis estimates that Traincrew delay minutes above target for GTR accounted for approximately 1.4pp of GTR's overall PPM and 0.2pp of the overall CaSL result in 2014-15.

63. Given that Traincrew failures are caused by the operator, we consider an adjustment should be applied to the 2014-15 PPM and CaSL results for Southern and GTR.

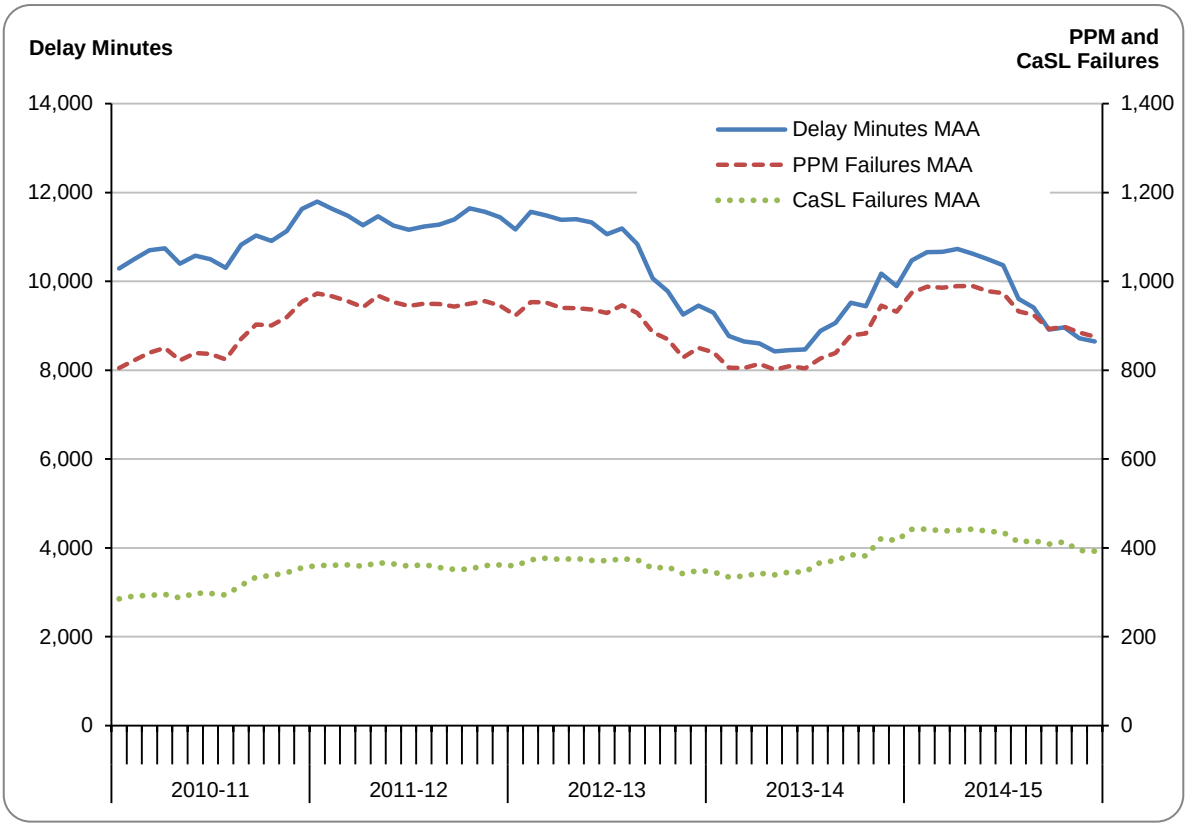
3.7.3 Fleet

Southern Fleet

64. Southern have told us that whilst there were some performance issues with the new Electrostar train fleet, rolling stock in 2014-15 generally performed well.

65. In 2014-15 Southern Fleet delay minutes totalled 112,388, 13% lower than last year and 15% better than target. PPM failures have also decreased, reducing by 6% in 2014-15 compared to the previous year, with Southern ending 2014-15 with 11,383 failures which was 8% better than target. When compared to the previous year, CaSL failures in 2014-15 decreased by 6% to 5,105 but still resulted in Southern ending the year 53% worse than target.

Figure 11: Fleet Delay Minutes, PPM Failures and CaSL Failures, Southern, 2010-11 to 2014-15

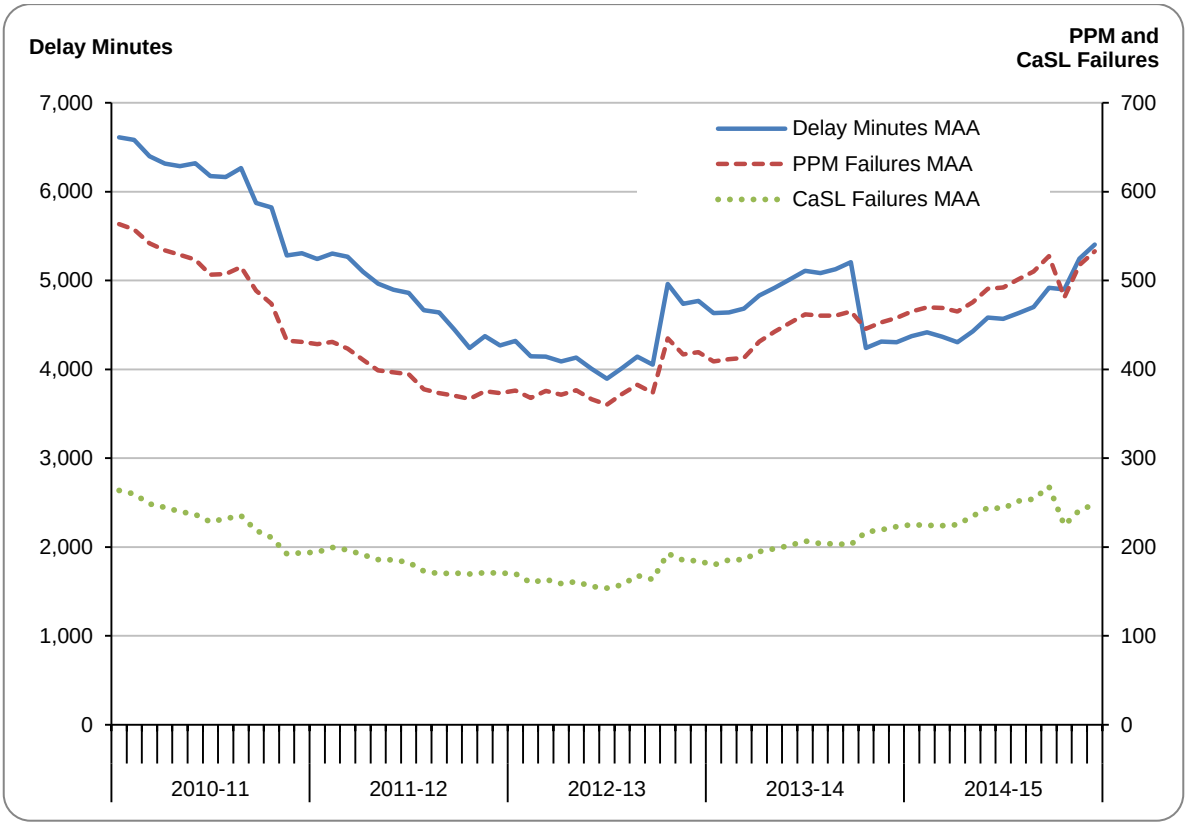


GTR Fleet

66. GTR introduced new rolling stock to the network in 2014-15, primarily Class 387/1s operating between Bedford and Brighton. In general the reliability of these trains has been good and GTR stated to us that Fleet performed above benchmark in 2014-15.

67. At the end of 2014-15 GTR delay minutes for Fleet stood at 70,281, 26% higher than the previous year and 18% worse than the 2014-15 target. In 2014-15 GTR experienced a 16% rise in PPM failures compared to the previous year, leading to the operator ending the year with 6,927 failures and 9% worse than target. When compared to the previous year, CaSL failures in 2014-15 increased by 11% to 3,227, resulting in GTR ending the year 43% worse than target.

Figure 12: Fleet Delay Minutes, PPM Failures and CaSL Failures, GTR, 2010-11 to 2014-15



Analysis/Conclusion

68. We have not identified Fleet as a category for adjustment in 2014-15 for either Southern or GTR. The table below summarises the areas we assessed as part of the investigation as potential adjustments.

Table 8: Summary of adjustments to Southern and GTR PPM and CaSL 2014-15

		Southern		GTR	
Category	**Adjustment recommended**	**PPM impact**	**CaSL impact**	**PPM impact**	**CaSL impact**
Severe Weather, Autumn and Structures	×				
External	✓	0.8pp	0.3pp	0.8pp	0.1pp
Traincrew	✓	0.6pp	0.2pp	1.4pp	0.2pp
Fleet	×				
Passenger Growth	×				

69. Overall we do not consider Weather, Fleet or Passenger Growth were significant factors in 2014-15 and that no adjustment should be made for these categories.

4 NR's performance planning, management and delivery– Southern and GTR

4.1 Introduction

70. NR began 2014-15 at lower punctuality and reliability levels (as measured by PPM and CaSL) than anticipated in our CP5 Final Determination. ORR therefore agreed to adopt an input-based approach to monitoring England and Wales performance during the first two years of CP5.

71. It was agreed with NR that delivery of its CP5 Performance Plan, a representative summary of milestones contained within Performance Strategies, would represent the organisation doing everything reasonably practicable to return PPM and CaSL to target in England and Wales by the end of 2015-16. ORR has received quarterly updates on the CP5 Performance Plan from NR during 2014-15.

72. Southern also had a Performance Strategy in place for 2014-15 which contained details of performance improvement schemes underpinning the 2014-15 PPM and CaSL trajectories. The Performance Strategy was refreshed each quarter and bi-laterally agreed with NR. We note that GTR and NR did not formally agree a Performance Strategy at the beginning of 2014-15 due to the franchise change from First Capital Connect (FCC) in September 2014.

73. In February 2015 the BMLIP was published jointly by DfT, Southern, GTR and NR in response to Southern and GTR's falling performance levels. This sits alongside the existing Performance Strategies for Southern and GTR.

4.2 England and Wales

74. The table below shows the degree of milestone adjustment, slippage and delivery in England and Wales in 2014-15:

Table 9: Degree of Milestone Adjustment, Slippage and Delivery, England and Wales, 2014-15

Status	Q1	Q2	Q3	Q4
On time (Complete)	35	37	82	111
Early (Complete)	-	24	34	50
Late (Complete)	-	8	21	29
On time (Forecast)	151	126	206	149
Late (Forecast)	5	13	25	22
On Hold	1	10	6	2
Abandoned	2	10	25	51
Cumulative Total	**194**	**228**	**399**	**414**

75. At the end of 2014-15, of the 190 milestones completed in England and Wales, 161 were completed on time or early whilst 29 were completed late.

76. Of the 171 milestones yet to be delivered in England and Wales, 149 are due to be delivered on time whilst 22 are due to be delivered late in CP5. 51 milestones have been abandoned whilst two milestones are on hold. Over half of the abandoned milestones were duplicates or were reprogrammed as part of the Timetable Rules Improvement Programme (TRIP).

77. We wrote to NR on 18 December 2014 stating that we had not seen sufficient evidence of the steps being taken by NR to account for the emerging performance shortfall. A further 153 complete or forecast milestones were subsequently added to the plan during Q3 and Q4. We understood this provided evidence of adjustment to an appropriate level.

78. The majority of operators that we engaged with confirmed that, on the whole, milestone delivery by NR was good. Despite this, performance in England and Wales did not improve in line with the planned performance trajectory in 2014-15.

79. In March 2015, NR's senior management team told us that they believed the Route Business Plan submissions did not include a high enough risk provision, resulting in an optimism bias in both the Performance Strategy and CP5 Performance Plan. NR

has subsequently stated that of the completed milestones in 2014-15, approximately 10% of the anticipated benefits were lost.

80. NR now forecasts a shortfall in the regulatory performance targets in England and Wales until the end of 2018-19.

Figure 13: PPM MAA and Targets, England and Wales, 2014-15 to 2018-19

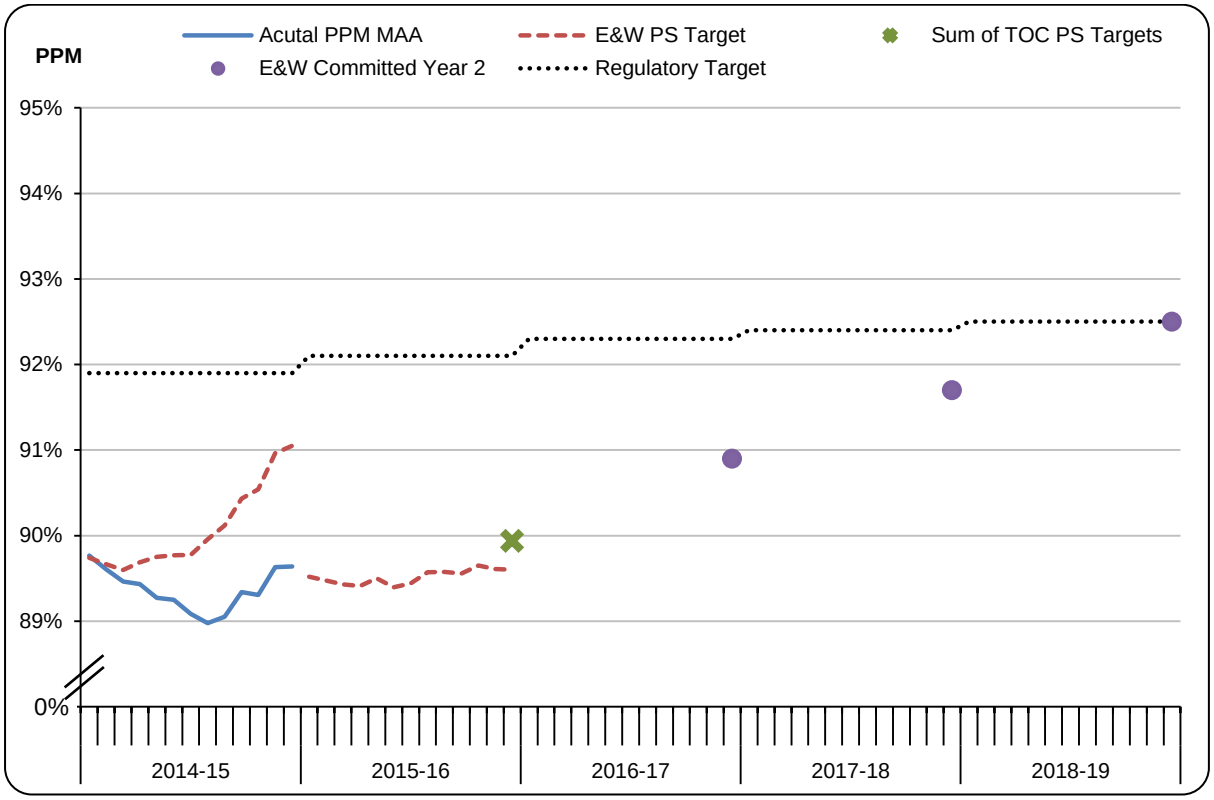
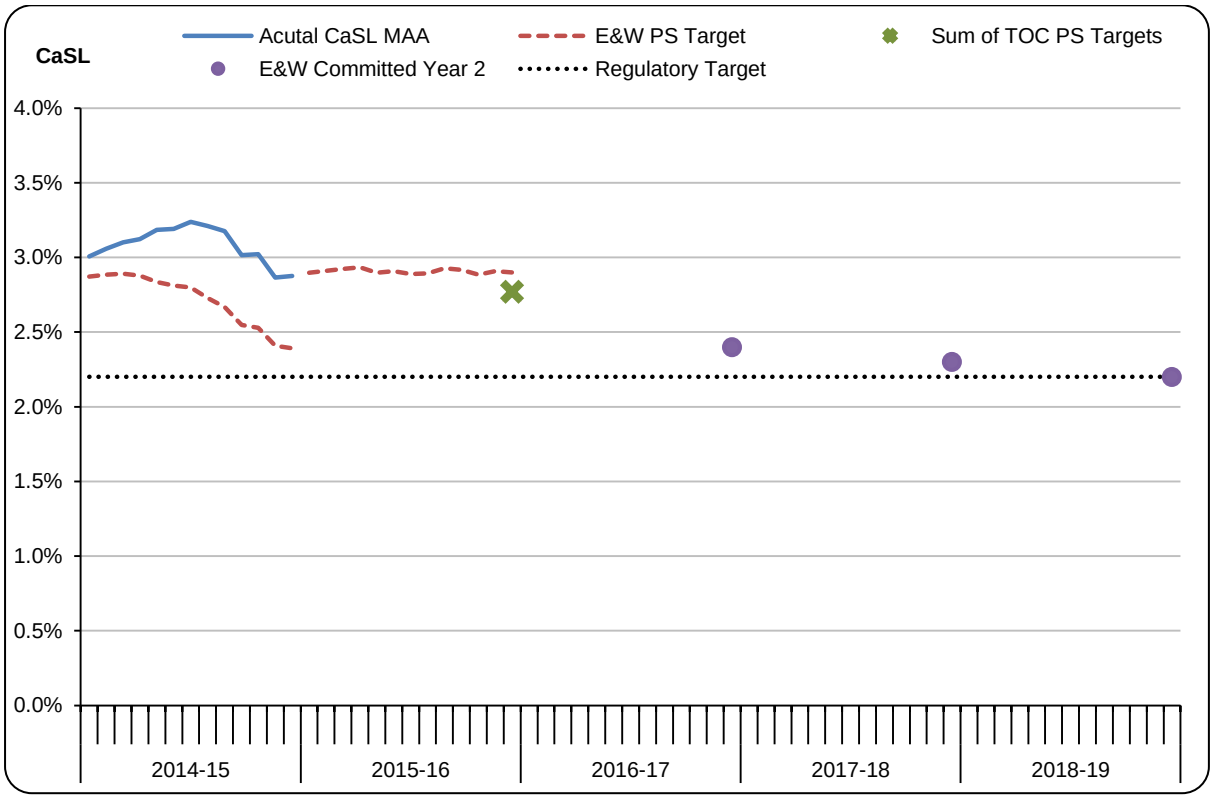


Figure 14: CaSL MAA and Targets, England and Wales, 2014-15 to 2018-19



81. We have evidence to suggest that there was an element of top down performance target setting in 2014-15. South West Trains (SWT) stated for example, that it was '*frustrated when the targets were confirmed but without the necessary funding*'. SWT considers this was a significant contributing factor to it missing its 2014-15 PPM and CaSL targets.

82. A number of other operators have highlighted concerns around the underestimation of risk and optimism bias during the benefit quantification process. First Great Western (FGW) has stated, for example, that whilst NR reported 298 schemes were planned for delivery in 2014-15, 609 were delivered: 311 more than planned. At the end of 2014-15, FGW PPM and CaSL was below Performance Strategy targets suggesting that milestones are *'not effective in delivering performance benefit or that benefits are being double counted across schemes'*. ScotRail also noted that completed milestones did not deliver the benefits anticipated whilst Southeastern has stated that they are '*concerned about NR's risk management profile'*.

83. We have seen evidence that there is a continuing reliance upon the use of delay minutes in some Routes, while Arriva Trains Wales (ATW) has told us that the benefits of milestones are still predominantly calculated in delay minutes. This leads to difficulty in ascertaining whether predicted benefits have materialised.

84. We attended the Abellio Greater Anglia (AGA) Quarter 4 Performance Strategy refresh session as observers where we witnessed NR lead encouraging collaborative, positive discussions around the causes of both PPM and CaSL loss. However, London Midland has indicated that, in some instances, Route Performance Teams remain focused on PPM. Virgin Trains West Coast (VTWC) has additionally stated that it does not believe that the plans developed in 2014-15 were robust enough to deliver the CaSL improvement required.

85. During 2014-15 NR generally promoted the use of PPM and CaSL failures, with the Periodic Operational Performance Report (POPR) moving commentary away from delay minutes to PPM failures. Whilst we welcome a move towards measures that more easily reflect the regulatory framework, we consider that a lack of PPM and CaSL failure targets in 2014-15 limited the effectiveness of their usage. We note that PPM and CaSL targets have been developed by NR and operators for 2015-16 onwards.

86. The Quarter 4 update from NR confirmed that the anticipated PPM benefit for a number of national schemes planned for delivery in later years of CP5 has been reduced. The PPM benefit of the TRIP has been reduced from 0.7% to 0.46% while Traffic Management System (TMS) benefits have reduced from 0.4% to 0.0%. To date, we have not seen evidence of additional milestones being added to the plan to address the corresponding future performance shortfall.

87. In April 2015 NR's Internal Audit Team undertook an Internal Review into Train Performance Delivery, specifically focusing on the Performance Planning process on Anglia Route. The mandate of the work was shared with ORR as were the subsequent findings which highlighted a number of areas where improvements could be made.

88. These included, but were not limited to:

- **Management of risk to performance delivery**. '*Risk management is not embedded into Business As Usual and risks are not* consistently *quantified and tracked'*;
- **Benefits tracking and realisation**. *'Success Criteria are not defined for all benefit schemes';*
- **Management of 'business as usual' operational performance.** *'Activities are recorded in a disparate suite of Route asset management and maintenance plans that do not specify PPM or CaSL impacts';*
- **Performance measures.** *'NR and TOCs have a large number of other locally set targets';*
- **Analysis capability.** *'The Route Performance Analyst Role at present has a bias towards the reporting and reactive analysis';*
- **Analytical tools**. *'The Route is not familiar with the PPRP [Performance Planning and Reform Programme] tools available and the associated benefits of using these tools';*
- **Quarterly Performance Strategy reviews with TOCs.** *'The scope of the quarterly review currently lacks a comprehensive evaluation of the current and emerging risks and benefits, with the opportunity for greater focus on how performance gaps can be addressed'.*

89. We note that the report's findings were shared internally at NR with a view to recommendations being implemented on other Routes as applicable.

Analysis/Conclusion

90. NR's underestimation of risk and the lack of consistent benefit quantification contributed to a shortfall in 2014-15 performance despite the CP5 Performance Plan and Performance Strategies being adjusted. It is clear that a number of operators have concerns around the Performance Planning process.

91. We have evidence that at least two of the national schemes contained in the CP5 Performance Plan have seen a benefit reduction. To date NR has not provided evidence that additional milestones have been added to the plan to address the

shortfall that now exists in the remaining years of CP5. NR has confirmed that the regulatory performance targets for England and Wales are not forecast to be met for the remaining years of CP5. Resultantly our confidence in NR achieving its end of CP5 regulated PPM target has lowered from 45%[11] to approximately 10%[12] based on analysis up to the end of CP5.

92. We recognise that NR worked collaboratively with us during the course of its Internal Review into Train Performance Delivery and that it was transparent in sharing the findings with us. We observe that, whilst the review was limited in scope to Anglia Route, its findings reflect the concerns of operators around the wider Performance Planning process. A number of the observations noted and proposed recommendations will therefore be relevant to Southern and GTR.

4.3 Performance Inputs and Performance Planning – Southern and GTR

93. NR has submitted quarterly updates on the CP5 Performance Plan during 2014-15. The Quarter 4 Report stated that of the 40 milestones in the CP5 Performance Plan for South East Route, 24 milestones have been completed whilst 12 remain open. Four milestones have been abandoned from the CP5 Performance Plan as they will be delivered under the NR Enhancements Programme.

94. Six milestones were added to the plan in Quarter 4, the majority of which relate to the BMLIP.

95. Both Southern and GTR confirmed that their 2014-15 Performance Strategies targeted PPM and CaSL. Additionally they both stated that the majority of milestones planned to be delivered in 2014-15 were completed.

96. Both Southern and GTR have however stated that it is difficult to understand if the benefits of delivered milestones have been realised due to the performance impact

[11] At the time of Final Determination
[12] This is based on expected performance delivery from Network Rail routes and adjustments for weather and TOC caused delay.

of the TLP, notably the works at London Bridge. GTR has additionally questioned the robustness of programme management underpinning the Performance Planning process.

97. Southern and GTR have also indicated that they believe the 2014-15 Performance Strategies were largely developed 'top down' rather than 'bottom up'.

Brighton Main Line Improvement Plan (BMLIP)

98. The BMLIP identified 38 improvement schemes focusing on areas such as infrastructure, fleet, timetable, traincrew, operations and customer experience. A further 53 improvement schemes have been identified, although funding for these schemes is currently not available. Progress updates are published on Southern and GTR's websites on a monthly basis.

99. GTR has stated that whilst they have been disappointed with NR's performance delivery in 2014-15, they '*recognise that there has been significant effort to improve the situation and that slow progress is now being made'* with the BMLIP.

100. We understand however, that even if the 38 funded improvement schemes are delivered, GTR's end of CP5 PPM regulatory target is still unlikely to be met[13]. Based on the data provided by NR, we have identified that NR is forecasting a shortfall of 3.4% for the GTR franchise at the end of 2018-19. Should funding be identified for the 53 additional improvement schemes a shortfall of 0.6pp will remain at the end of 2018-19.

101. We have noted that Southern and GTR's PPM targets have been significantly lowered whilst their CaSL targets were raised as part of the BMLIP process. This has had the impact of making Southern the worst performing franchised operator in absolute terms for the first two periods of 2015-16 but the best performer in terms of variance to target. The lower targets for these two operators have also created a larger challenge at national level. GTR and Southern PPM targets as detailed in the March 2015 and 2014 Delivery Plans are detailed in the table below.

[13] There is a regulated output for each operator to achieve 90% PPM by the end of the control period.

Table 10: BP Targets set in Year 1 and Year 2, Southern and GTR, 2015-16 to 2019-19[14]

Measure	TOC	Delivery Plan Target	2015-16	2016-17	2017-18	2018-19
PPM	Southern	Year 1	87.7%	89.8%	89.9%	90.0%
		Year 2	81.1%	82.4%	83.6%	86.3%
	GTR	Year 1	89.2%	89.7%	89.7%	90.0%
		Year 2	85.2%	87.7%	88.9%	90.0%
CaSL	Southern	Year 1	2.8%	2.5%	2.4%	2.4%
		Year 2	5.0%	2.8%	2.5%	2.4%
	GTR	Year 1	3.4%	3.4%	3.4%	3.3%
		Year 2	3.9%	3.7%	3.5%	3.3%

102. We have noted that an internal South East Performance Review was recently undertaken by South East Route. A South East Performance Improvement Plan has subsequently been developed as an extension of the BMLIP and workstreams have been created to look at operations, asset reliability and governance. A number of the recommendations address key areas considered as part of our investigation.

Analysis/Conclusion

103. Southern has indicated that the benefits of completed Performance Strategy schemes were not realised in 2014-15. Additionally GTR has stated that it was '*difficult to assess whether the benefits have been achieved*' for delivered schemes. Both Southern and GTR have stated that the performance impact of the TLP, in particular the works at London Bridge, was underestimated and not adequately recognised when developing the 2014-15 Performance Strategies targets.

104. In the Final Determination we stated that all franchised operators in England and Wales, with the exception of Virgin Trains East Coast (VTEC), VTWC and FGW high speed services, were to reach 90% PPM by the end of CP5. Based on the data provided by NR, we have identified that NR is forecasting a 3.4% PPM shortfall for

[14] GTR was operating as FCC during Year 1

GTR at the end of CP5. NR has informed us that whilst they are committed to closing this gap, they currently have no detailed plan on how they will do this.

105. We note that GTR has stated that there has been '*significant effort*' from NR to improve current performance levels. We also note that milestones have been included in the CP5 Performance Plan from the BMLIP and that there is a commitment from NR to improve its current performance delivery to Southern and GTR.

4.4 Delivery of projects

106. The portfolio of major projects works taking place in 2014-15 has had an impact on the operational capability of the railway and the ability of Southern and GTR to meet their end of year Performance Strategy targets.

107. Both Southern and GTR have stated that the TLP significantly reduced underlying performance levels in 2014-15, stating that the forecasted PPM impact was underestimated. NR stated in their Quarter 4 Performance Report that the *effects of major projects have been more than forecast* in 2014-15.

108. Southern has expressed concerns around the delivery of major signalling renewal schemes whilst GTR has stated that their operational performance has been impacted by the Midland Main Line (MML) Line Speed Improvement Project (LSIP). NR has stated that between April 2014 and May 2015, approximately £12.76m in schedule 8 costs was incurred by major projects affecting South East Route.

109. A number of other operators in England and Wales have raised concerns around the delivery of both investment and renewal projects which are summarised in **Annex G**.

Thameslink Programme (TLP)

110. London Bridge station and its approaches are part-way through a significant rebuild. There were two significant blockades in August 2014 (nine days) and December 2014 (16 days) to facilitate multiple infrastructure alterations as part of Key Output 2 (KO2). A number of service alterations were correspondingly made to GTR, Southeastern and Southern services. The construction works at London Bridge in

2014-15 predominantly impacted Southern services, with GTR running only a limited service to and from the station.

111. Southern told us the TLP undertook timetable and performance modelling to understand the impact that these infrastructure changes would have and concluded that, following the December 2014 blockade, there would be capacity for 24 trains per hour (tph) through London Bridge. The final published timetable planned for 22tph to operate.

112. Following a period of poor performance in January 2015 a number of alterations were made to Southern's timetable, including the initial removal of some services to and from West Croydon. Further timetable analysis was undertaken by NR following this, which included cab rides and a review of On Train Monitoring Recording (OTMR) data. The analysis found 22tph was achievable in the AM peak whilst 20tph was achievable in the PM peak and a number of additional timetable changes were made. NR has stated that approximately 3,600 changes were made to the January 2015 timetable.

113. For both the AM and PM peak, the timetable relied on the network operating to plan and provided little recovery in times of perturbation. Additionally the nature of service patterns across the Sussex Area, where services to and from multiple London terminals are closely interwoven, meant that delays to one service group spread quickly. In the case of an incident occurring, reactionary delay for both operators increased. In 2014-15 reactionary delay increased for Southern by 22% and GTR by 9%. The graph below shows the increase in reactionary delays for both GTR and Southern since 2010-11.

Figure 15: Primary and Reactionary Delay Minutes MAA, Southern, 2010-11 to 2014-15

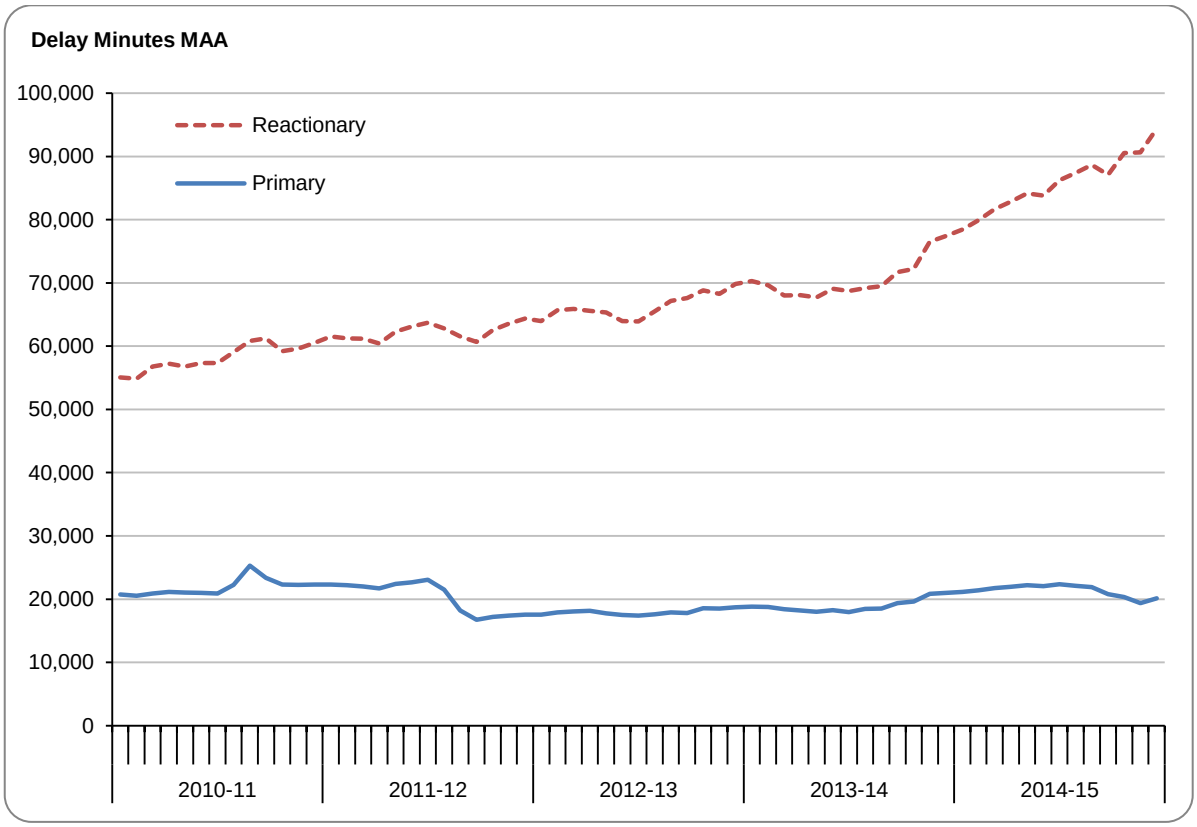
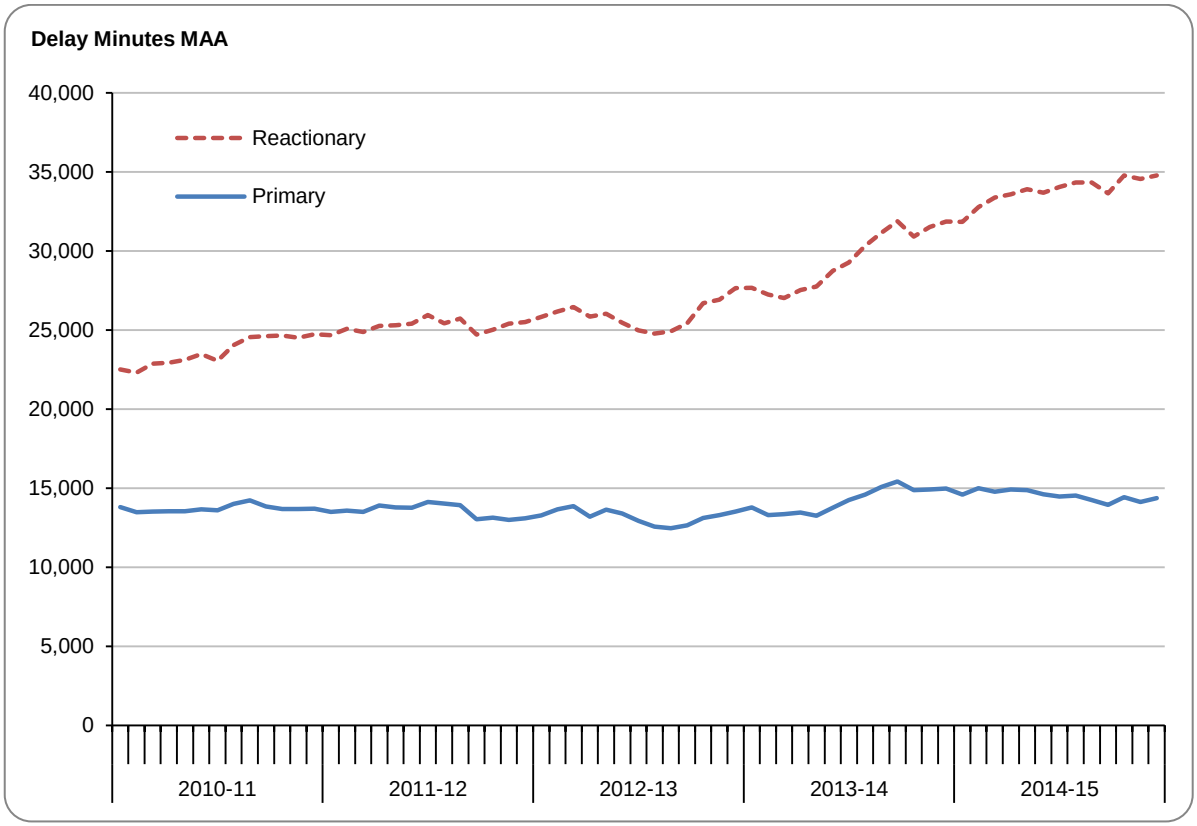
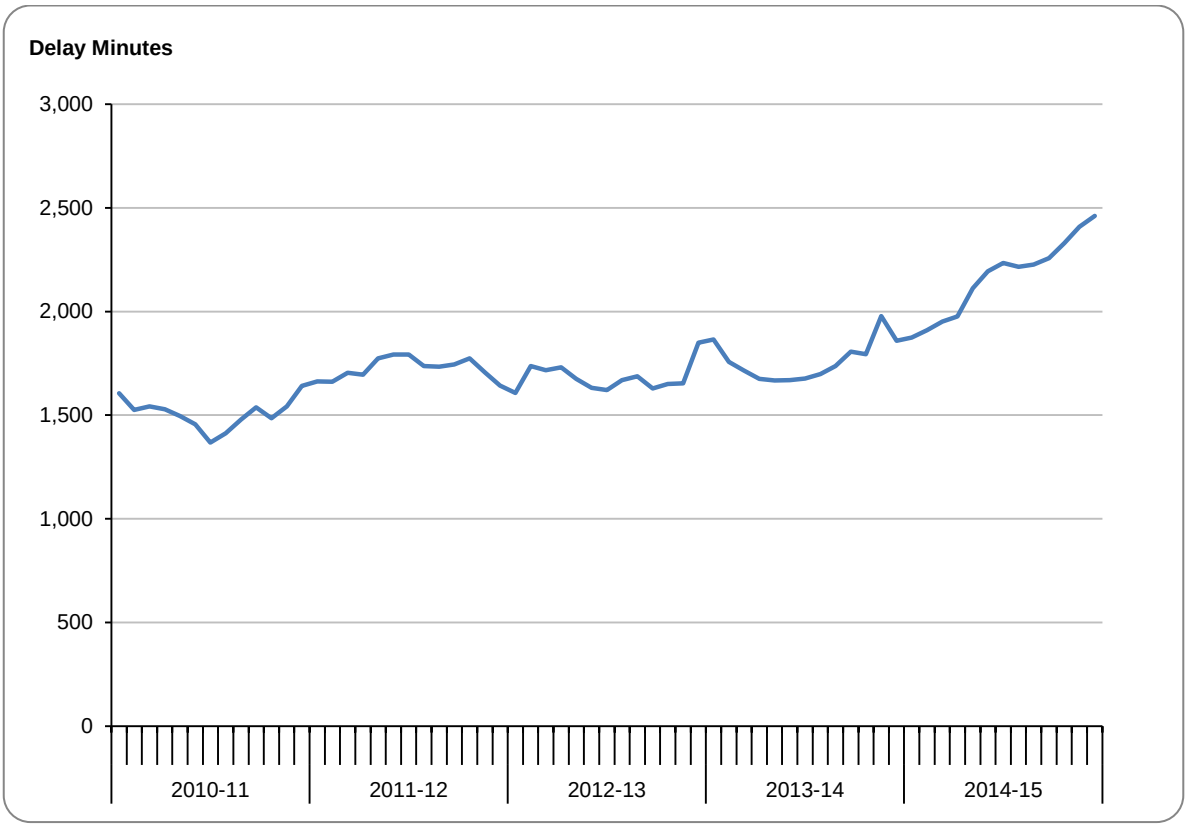


Figure 16: Primary and Reactionary Delay Minutes MAA, GTR, 2010-11 to 2014-15



114. We also note that Southern-caused delay to GTR services increased by 31% in 2014-15.

Figure 17: Delay Minutes Incurred by GTR as a Result of Southern Caused Delays, 2010-11 to 2014-15



115. There is evidence to indicate a number of fundamental issues with the timetable modelling undertaken by TLP. At a meeting on 13 May 2015, NR stated that the timetable modelling was based on existing Timetable Planning Rules (TPRs) and that a number of assumptions fed into the timetable modelling were incorrect. For TLP as a whole there were no allowances made for:

- realistic timeframes for train dispatch during times of disruption;
- drivers and signallers to become familiar with the new layout; or
- Southern's Professional Driving Policy (PDP).

116. The results of the timetable modelling were made available in October 2014, two months before implementation. Southern has stated that they believe the timetable modelling was led by the TLP, rather than the South East Route. NR has stated that

the performance modelling undertaken concluded that there would be '*increased sensitivity to delays on any part of the wider network noting tight paths, tight turnarounds and little opportunity for service recovery'*. However, the data feeding the performance modelling was used before it had been fully validated and had '*multiple sub-optimal line assignments'*. NR has told us that links between operations and modelling teams have subsequently been '*strengthened'*.

117. Although the direct impact on Southern and GTR's performance is difficult to calculate, both Southern and GTR have stated that they believe the project has had a greater than forecast impact on 2014-15 PPM and CaSL. GTR has additionally stated that they believe that the assumptions contained in the performance modelling were based on London Bridge operating 'normally' and that they did not see a clear link between the performance modelling and the performance trajectory contained in their 2014-15 Performance Strategy.

118. We have also noted that performance has been impacted by several instances of infantile asset failures installed as part of the TLP which are discussed further in the Asset Management section.

Midland Main Line (MML): Line Speed Improvement Project

119. The MML LSIP has been raised by GTR as having a significant effect on their performance in 2014-15. In particular they have stated that Temporary Speed Restrictions (TSRs) applied to the MML following Line Speed Improvement works '*have resulted in delays to EMT services and subsequent reactionary delay to GTR services'*.

120. GTR noted that eight Conditional Double Reds (CDRs) have been introduced since the MML LSIP was introduced, although only five of these are for safety reasons.

Signalling Renewal projects

121. Southern has highlighted concerns around the performance impact caused by delays to re-signalling projects, in particular on the Arun Valley, the East Coastway and the Brighton Main Line (BML) signalling upgrade between Balcombe Tunnel and Keymer Junctions.

Analysis/Conclusions

122. Both Southern and GTR have stated that the TLP has had significant implications for performance and has caused an increase in reactionary delay across their networks, with performance modelling overstating the likely performance levels to be expected. The lack of data validation imported significant risk to performance and was not fully acknowledged in the 2014-15 Performance Strategies.

123. The observations that we have made with regards to TLP timetable modelling, particularly the assumptions fed into the model, highlight major weaknesses in the modelling process.

124. Significant and frequent changes have been made to services from London Bridge since December 2014. This points to over-optimistic expectations of service reliability early on, followed by difficulty in quantifying the impact of changes to the service as a whole.

125. The post-implementation impact of the MML LSIP suggests a failure to fully understand, mitigate and allow for temporary restrictions and limitations immediately post-works.

126. Delays to resignalling projects, particularly the Arun Valley and East Coastway resignalling schemes, does not give confidence that more ambitious schemes planned will be delivered without an impact to performance.

127. As part of the investigation we asked for feedback on the delivery of major projects from other operators in England and Wales. Several operators raised concerns around the planning and implementation of projects.

4.5 Network Management and Other

128. Delays attributed to the Network Management / Other KPI group have shown an increase in 2014-15 for both Southern and GTR. At the end of 2014-15, delay minutes attributed to this category were 25.6% worse than in 2013-14 for Southern and 8.6% for GTR.

129. In 2014-15 Southern Network Management /Other PPM failures increased by 34% compared to the previous year ending the year with 28,937 failures, 59% worse than target. When compared to the previous year, CaSL failures in 2014-15 increased by 42% to 5,513, 131% worse than target.

130. In 2014-15 GTR experienced an 8% rise in Network Management/Other PPM failures compared to the previous year, leading to a year-end position of 10,305 failures, 43% worse than target. When compared to the previous year, CaSL failures in 2014-15 decreased by 11% to 1,990 but still led to GTR ending the year 14% worse than target.

Figure 18: Network Management / Other Delay Minutes, PPM Failures and CaSL Failures, Southern, 2010-11 to 2014-15

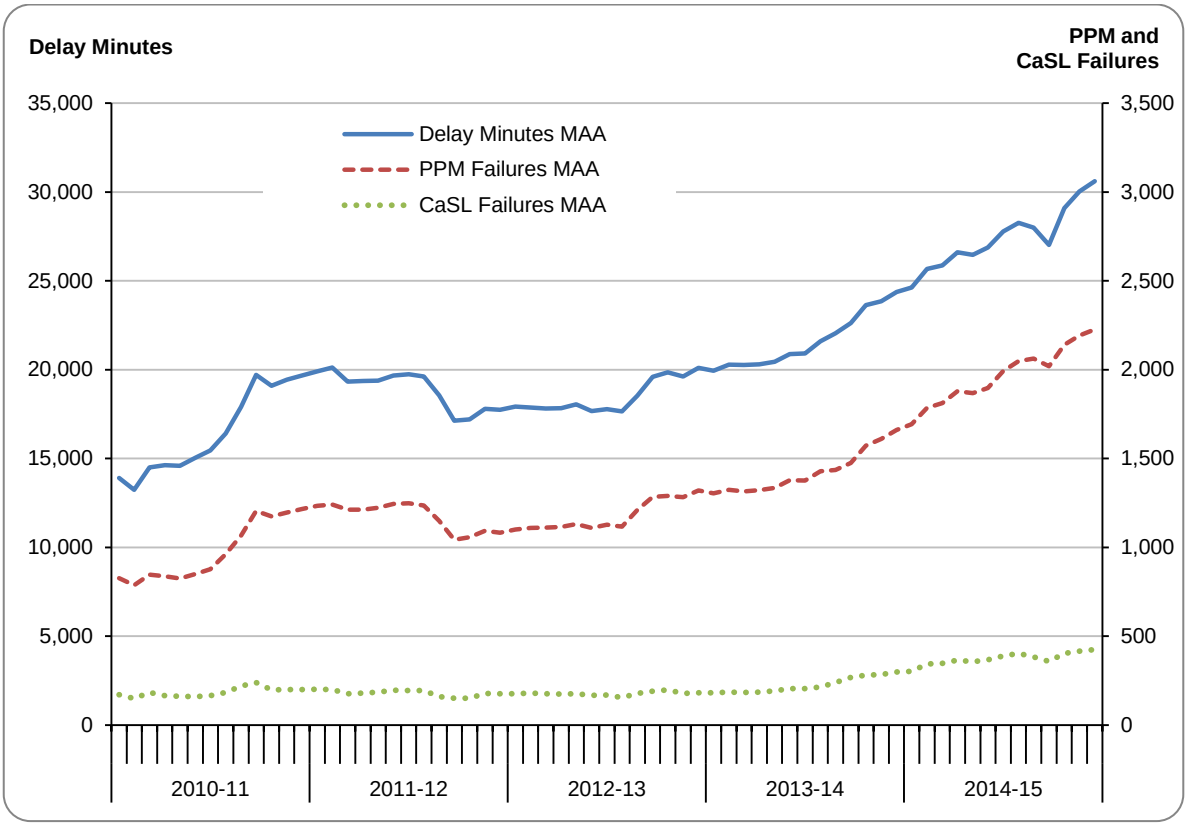
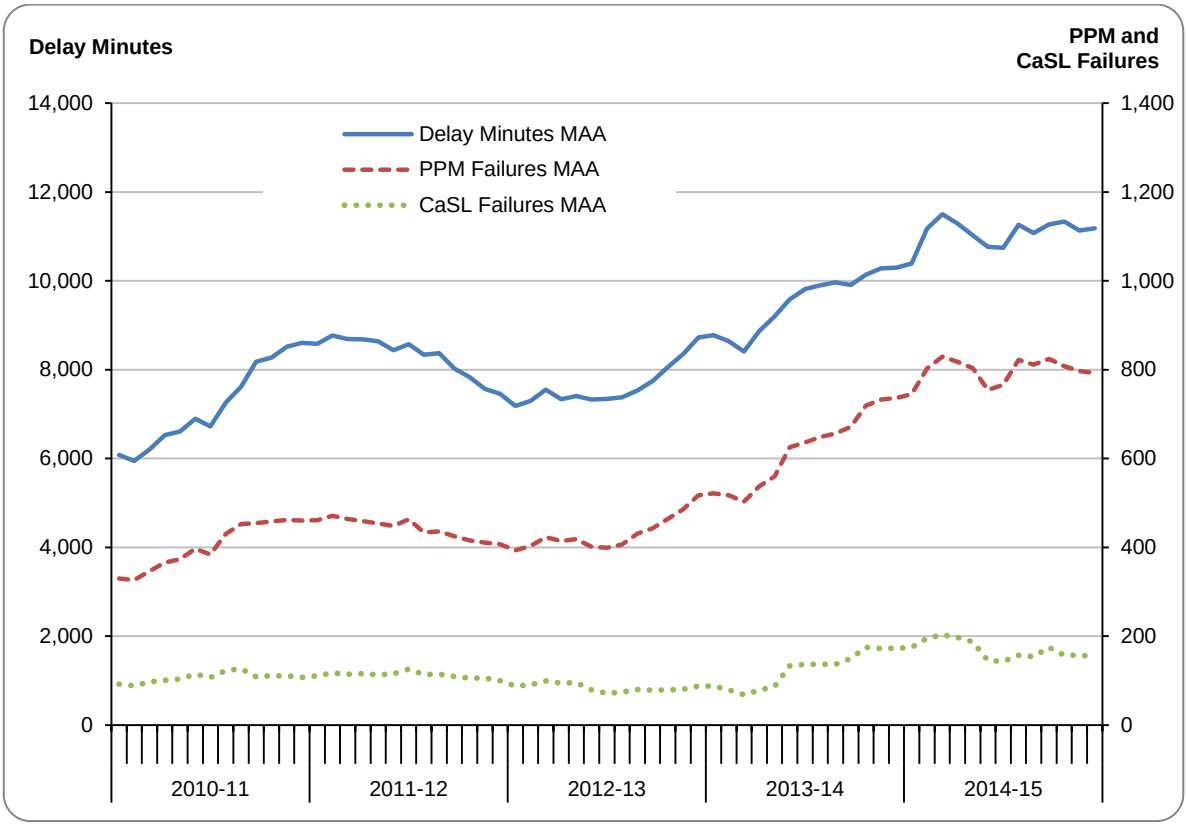


Figure 19: Network Management / Other Delay Minutes, PPM Failures and CaSL Failures, GTR, 2010-11 to 2014-15



131. The increase in Network Management / Other for both Southern and GTR has been driven, in part, by an increase in delays attributed to signalling errors.

4.5.1 Operations - Signalling

132. A number of significant layout changes in the London Bridge area in 2014-15, combined with the migration of signalling panels from London Bridge to the Three Bridges Route Operating Centre (ROC), have added additional pressure to signallers. As underlying resilience of the network worsened in 2014-15, signallers will have had to make more interventions and regulating decisions. This will have increased the opportunity for signalling delays to occur. This has been further compounded by the lack of Automatic Route Setting (ARS) at Three Bridges ROC.

133. NR delays to Southern due to signalling errors totalled 194,809 minutes at the end of 2014-15, an increase of 113% on the previous year and 153% worse than target. At the end of 2014-15, PPM failures for signalling errors totalled 14,026, which was

114% worse than the previous year and 154% worse than target. When compared to 2013-14, CaSL failures for operational signalling errors more than tripled, leading to Southern ending the year with a total of 1,986 failures and 445% worse than target.

Figure 20: Signalling Operations Delay Minutes, PPM Failures and CaSL Failures, Southern, 2010-11 to 2014-15

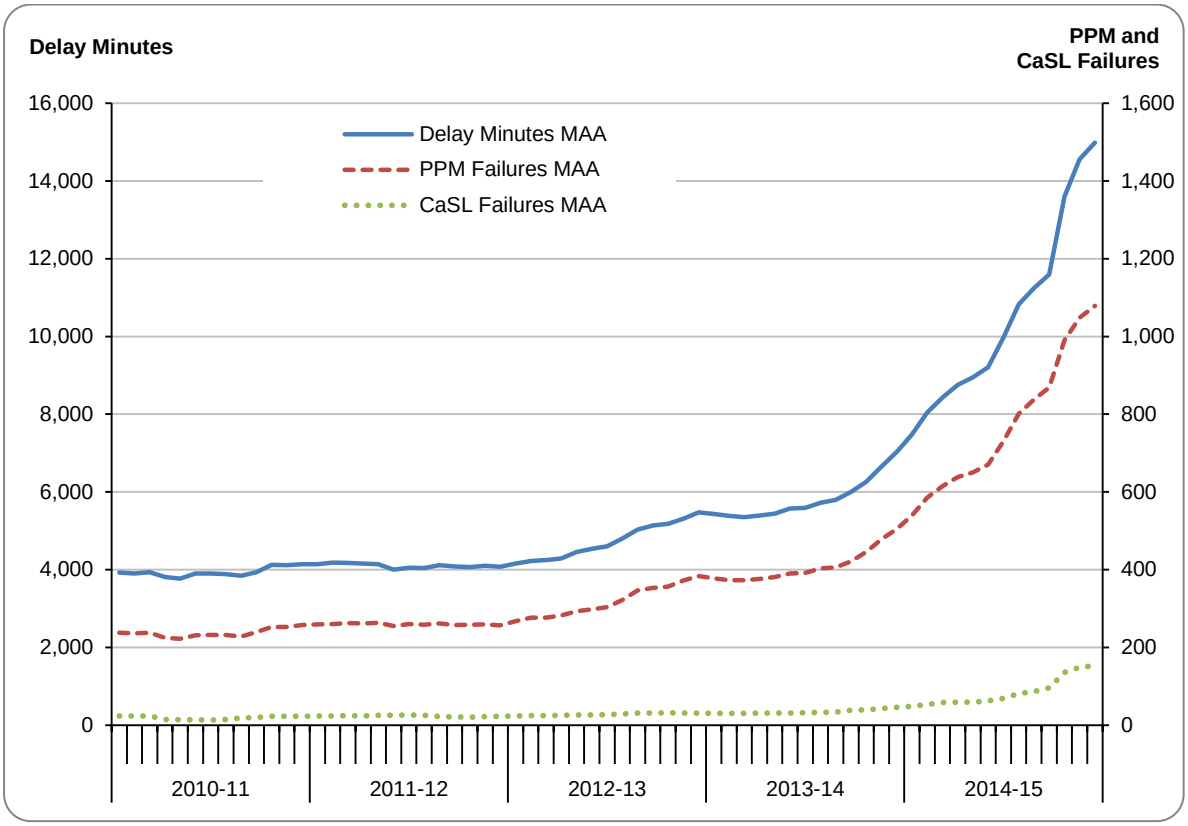
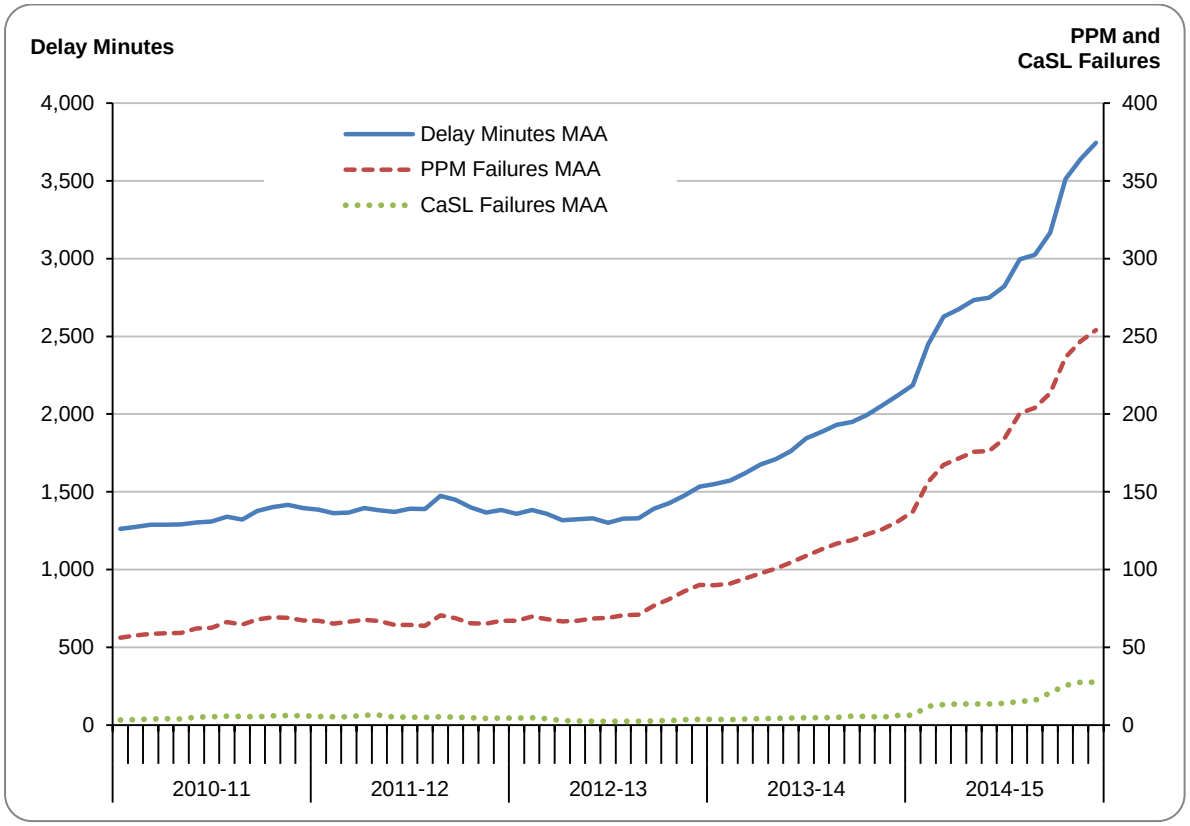


Figure 21: Signalling Operations Delay Minutes, PPM Failures and CaSL Failures, GTR, 2010-11 to 2014-15



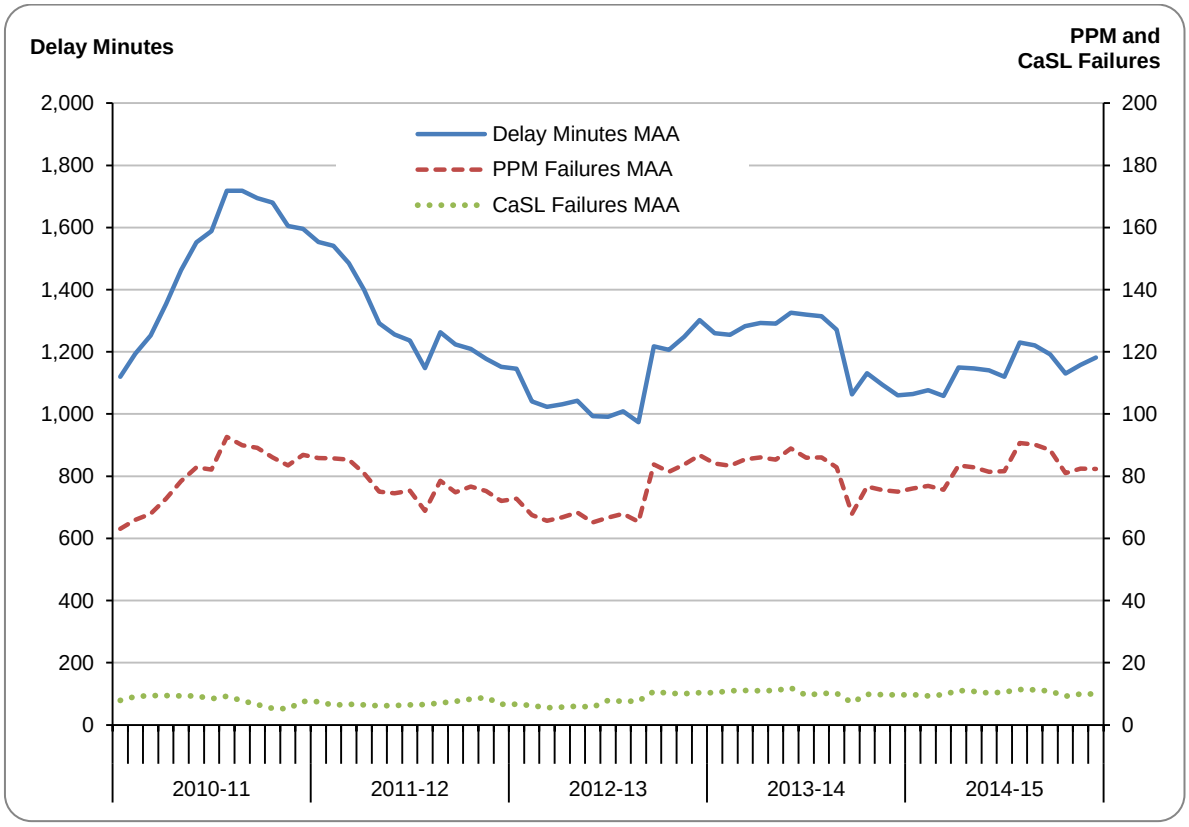
134. In April 2015, Sussex Area, in collaboration with Southern, GTR (Thameslink) and London Overground Rail Operations Ltd LOROL introduced a 10 Point Signalling Plan which focused on areas such as regulating policy and delay attribution. Both Southern and GTR have stated to us that the 10 Point Plan introduced by NR has reduced the performance impact of signalling errors.

135. We consider that the Signalling 10 Point Plan was too heavily focused on delay attribution and associated payments rather than identifying and managing the root causes of signaller errors and consequent delay. The new regulation policy introduced in April 2015 appeared to be a clarification of the existing 'Regulating for PPM' policy. That it was promoted as something new questions what was adopted in the past.

4.5.2 Timetabling Planning

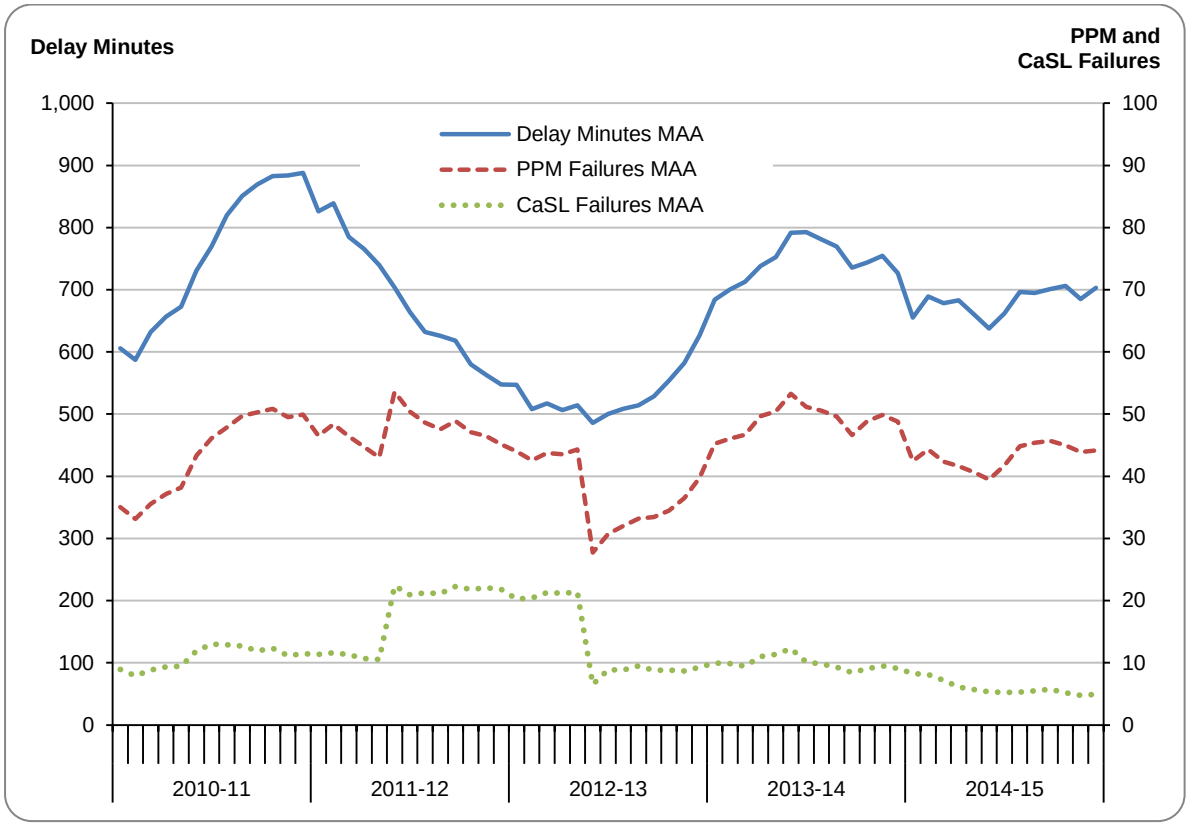
136. Timetable planning delay minutes for Southern totalled 15,357 minutes at the end of 2014-15. This is an 11% increase on 2013-14 and 32% worse than target. Southern had a total of 1,071 PPM failures in 2014-15, 10% higher than the previous year and 30% worse than target. Between 2013-14 and 2014-15, CaSL failures increased by 4% to 130, leading to Southern being 68% worse than target.

Figure 22: Timetable Planning Delay Minutes, PPM Failures and CaSL Failures, Southern, 2010-11 to 2014-15



137. GTR timetable planning delays decreased by 3% between 2013-14 and 2014-15 but GTR still ended the year 29% worse than target with 9,138 delay minutes. A similar trend was seen for PPM failures; 574 were recorded. This was a 10% decrease on 2013-14 but 21% worse than target. A total of 64 CaSL failures were achieved for this category during 2014-15, 46% lower than the previous year and 30% better than target.

Figure 23: Timetable Planning Delay Minutes, PPM Failures and CaSL Failures, GTR, 2010-11 to 2014-15



4.5.3 Commercial Take Back / Other

138. Commercial Takeback incidents are those that, as defined by the Delay Attribution Guide (DAG), are "…accepted by Network Rail as part of a commercial agreement where no substantive delay reason is identified".

139. NR Commercial Takeback/Other delay minutes on Southern totalled 2,006 at the end of 2014-15, a 57% decrease on 2013-14 and 49% better than target. A decrease was also seen for this category for PPM failures, reducing by 56% to 136 between 2013-14 and 2014-15 and ending the year 47% better than target. CaSL failures declined by 54% between 2013-14 and 2014-15 with Southern ending the year 26% better than target with a total of 29 failures.

140. NR delay minutes attributed to Commercial Takeback/Other for GTR increased by 12% between 2013-14 and 2014-15. A total of 3,162 delay minutes for this category led to GTR ending the year 49% worse than target. GTR had 283 PPM failures in

2014-15, 36% higher than 2013-14 and 81% worse than target. CaSL failures for this category totalled 149 in 2014-15, a 75% increase on 2013-14 and 125% worse than target.

Unexplained Delays

141. Southern Unexplained delay minutes reached 60,282 at the end of 2014-15, 3% higher than the previous year and 23% worse than target. PPM failures for this category increased by 21% over the same time period, leading to a total of 3,698 at the end of 2014-15, which was 44% worse than target. CaSL failures increased by 48% between 2014-15 and 2013-14. A total of 225 failures at the end of 2014-15 resulted in Southern ending the year 141% worse than target.

142. Unexplained delay minutes affecting GTR performance in 2014-15 decreased by 14% compared to the previous year but still resulted in the delay minutes for this category being 15% worse than target at 23,258 minutes. GTR PPM failures totalled 1,350 at the end of 2014-15, 7% lower than 2013-14 but 23% worse than target. There were 15 CaSL failures for this category in 2014-15, an increase of 2% from the previous year and 46% worse than target.

Figure 24: Unexplained Delay Minutes, PPM Failures and CaSL Failures, Southern, 2010-11 to 2014-15

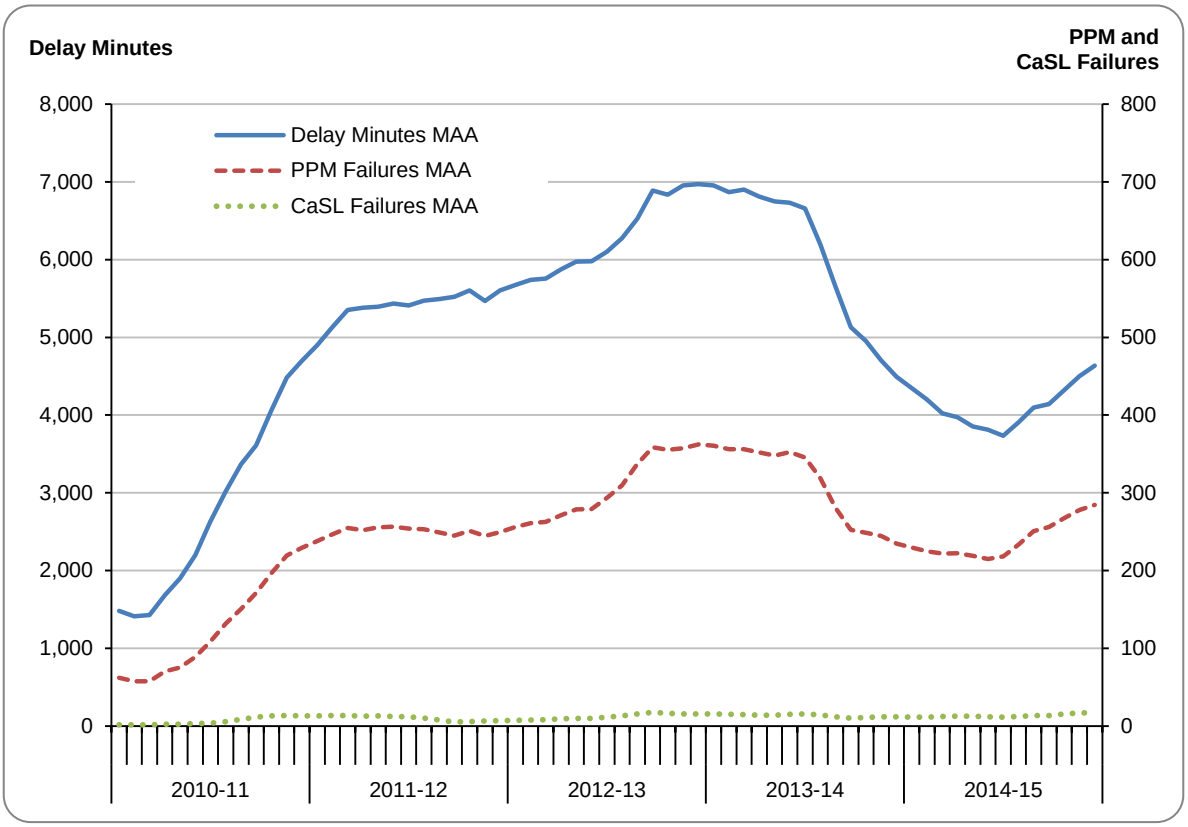
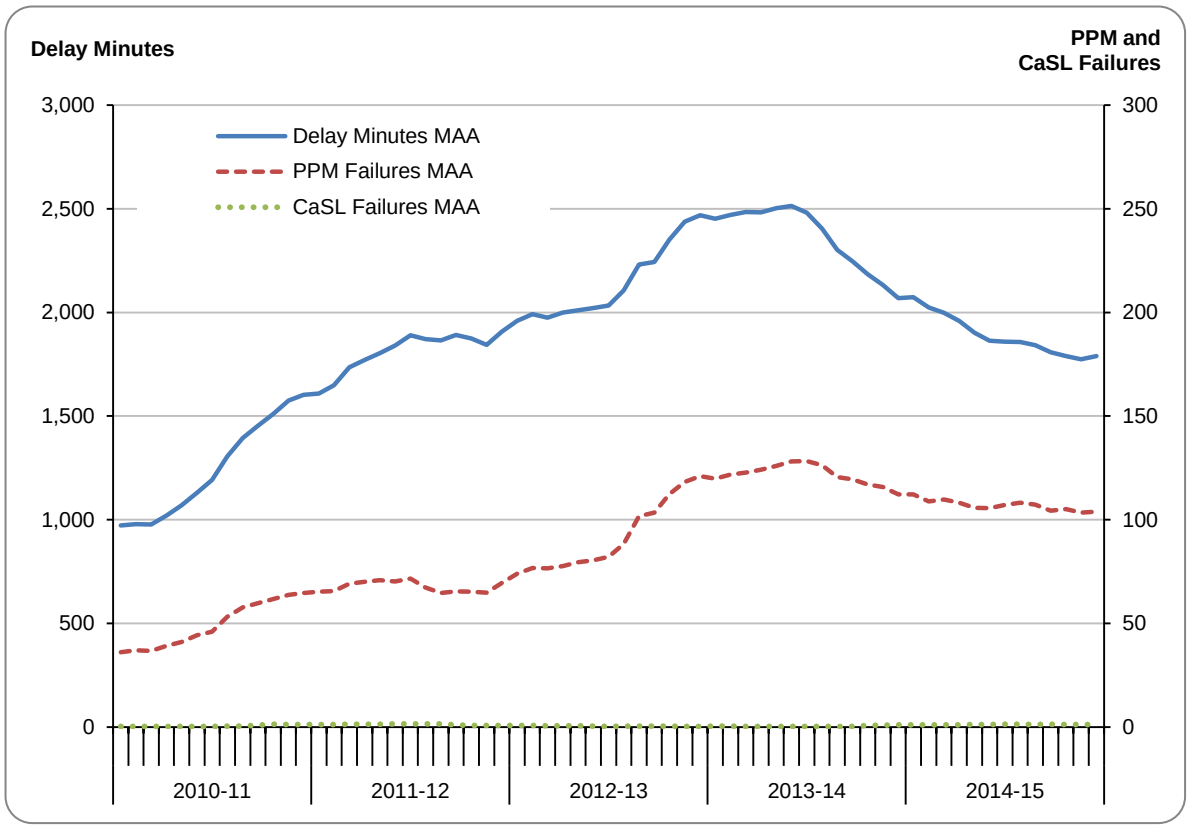


Figure 25: Unexplained Delay Minutes, PPM Failures and CaSL Failures, GTR, 2010-11 to 2014-15



4.6 Possession Overruns and Related Faults

Southern possession overruns

143. For Southern, delay minutes due to Possession Overruns and Related Faults improved by 31.0% in 2014-15, with Southern ending the year 18% better than target. PPM failures for this category decreased by 34% to 1,913; Southern was 22% better than target. CaSL failures totalled 858 at the end of 2014-15, a 33% decline on the previous year but 9% worse than target.

GTR possession overruns

144. For GTR, delay minutes due to Possession Overruns and Related Faults increased by 11%, ending the year 48% worse than target. PPM failures decreased by 17% to 1,287, but still led to GTR being 10% over target. CaSL failures for this category reduced by 41% to 498; 25% better than target. A significant proportion of this delay was caused by the London King's Cross possession overrun in December 2014 that was subject to an investigation by ORR. Our findings and subsequent

recommendations were published in February 2015 and NR is currently developing a plan to implement our recommendations.

Analysis/Conclusions

145. Underlying performance levels declined for Southern and GTR in 2014-15. As lateness and delays have increased the need for consequent signaller interventions and regulation decisions has increased, further compounded by a lack of ARS.

146. The April 2015 regulation policy appeared to be a clarification of the existing policy, rather than anything new.

147. We consider that the 10 Point Signalling Plan was too heavily focused on delay attribution rather than identifying and managing root causes.

148. Timetable Planning delays saw Southern miss target for delay minutes, PPM and CaSL. GTR missed target for delay minutes and CaSL. For Southern, delay increased for all three metrics; for GTR all three improved. This underlies the problems experienced at London Bridge, where timetables have been amended on multiple occasions in an attempt to stabilise the service. The relative infrequency of the GTR service at London Bridge would support this conclusion and explain the relative lack of impact from this category on GTR.

149. Unexplained delays for Southern and GTR missed target for all metrics. Southern in particular witnessed an increase in all metrics in comparison to 2013-14. This would indicate that the delay attribution system has become overwhelmed with the high level of delay being experienced, resulting in many delays remaining unexplained. With significant pressure from many stakeholders for Southern's performance to improve, this increase in unexplained delay (with the subsequent loss of granularity in the data available) will make identifying and tackling the root causes of delay that much more difficult.

4.7 Resourcing and Reorganisations

150. Southern has told us that it believes performance has been impacted by regular senior staff changes at NR. Sussex Area (and Sussex Route before it) in particular has had five Route Directors, Route Managing Directors and Area Directors since 2009. A number of other key personnel changes have taken place in 2014-15, particularly following the merger of Kent and Sussex Routes into the South East Route.

151. An internal review undertaken by NR into current levels of performance on South East Route has stated that personnel are '*fatigued'* as '*they have been fire-fighting issues arising from the previous project commissioning and timetable changes*'.

Analysis/Conclusions

152. We consider that frequent resource changes will likely have had an impact on performance for Southern and GTR although it is impossible to quantify the effect.

4.8 Asset Management

153. Our analysis in the Asset Management section focuses on the performance of Sussex Area and LNE Route as these are the routes over which Southern and GTR operate the majority of their services.

154. We recognise however that asset failures in Kent have caused a disproportionate amount of delay to Southern services in 2014-15[15], so have therefore additionally looked at delay minutes and PPM and CaSL failures caused by assets to GTR and Southern.

155. For renewals data we have referred to NR's Business Plan update information, using the 2014-15 actual data given in the May 2015 update of the CP5 delivery plan.

156. The delay minutes quoted in this section are for infrastructure related delay only (e.g. reactionary delay from P-coded TSRs are excluded from track delay minutes),

[15] The London Bridge area and the route as far as the Penge/Anerley area is within the Kent Area.

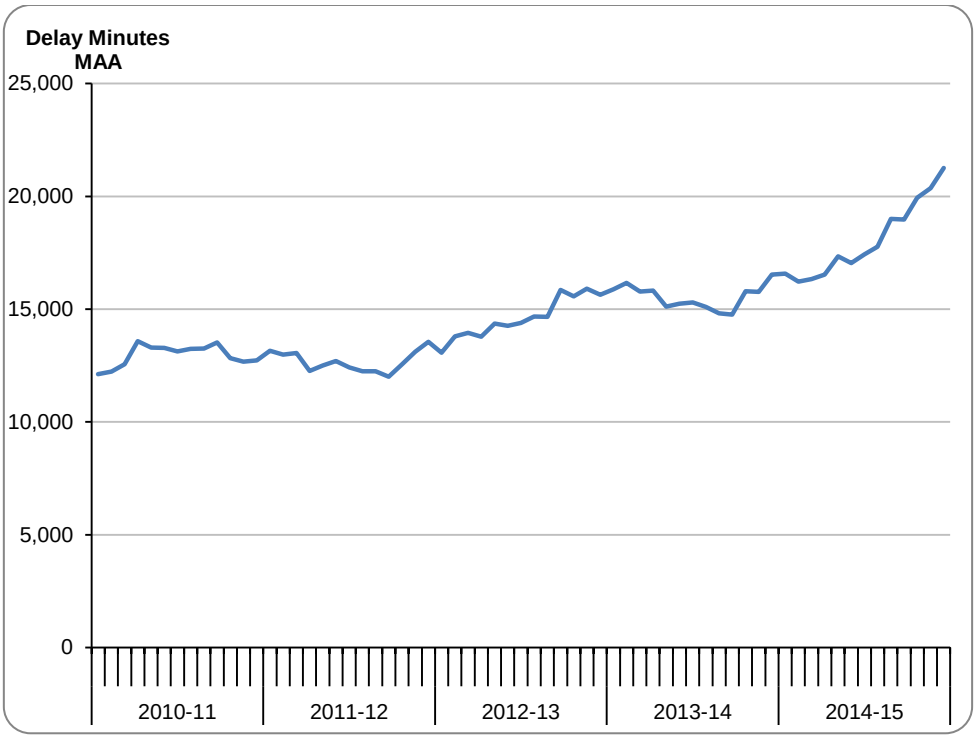
therefore these numbers may differ slightly from those reported from other sources or from elsewhere in this report.

4.8.1 Asset Performance – Delay minutes and PPM / CaSL failures

Southern

157. Delays attributed to the Non-Track Asset KPI group have shown an increase in 2014-15 for Southern. At the end of 2014-15, delay minutes due to non-track assets were 29% worse than in 2013-14 and 44% worse than target.

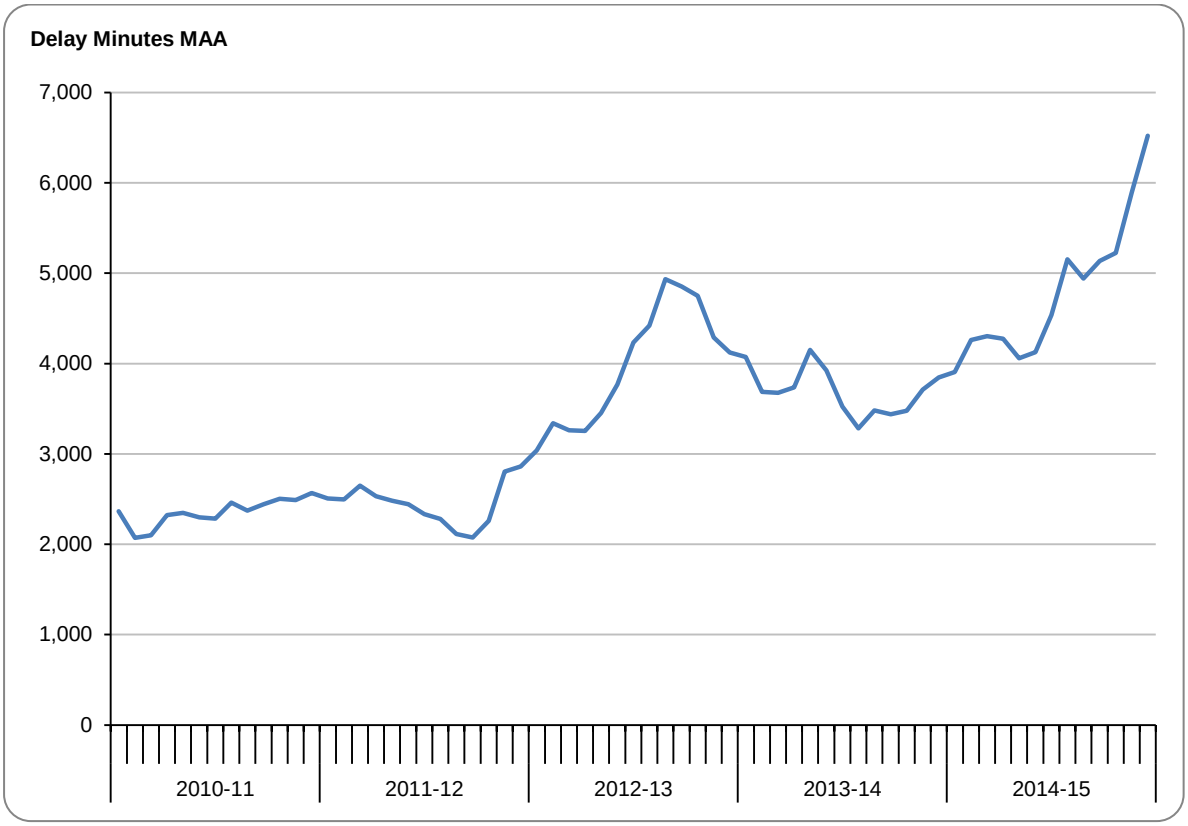
Figure 26: Non-Track Asset Failure Delay Minutes MAA, Southern, 2010-11 to 2014-15



158. PPM and CaSL failures caused to Southern services by Non-Track Assets have also increased in 2014-15 by 34%.

159. Delays attributed to the Track Assets KPI group have shown an increase in 2014-15 for Southern. At the end of 2014-15, delay minutes caused to Southern services due to track performance were 70% worse than in 2013-14 and 39% worse than target.

Figure 27: Track Failure Delay Minutes MAA, Southern, 2010-11 to 2014-15

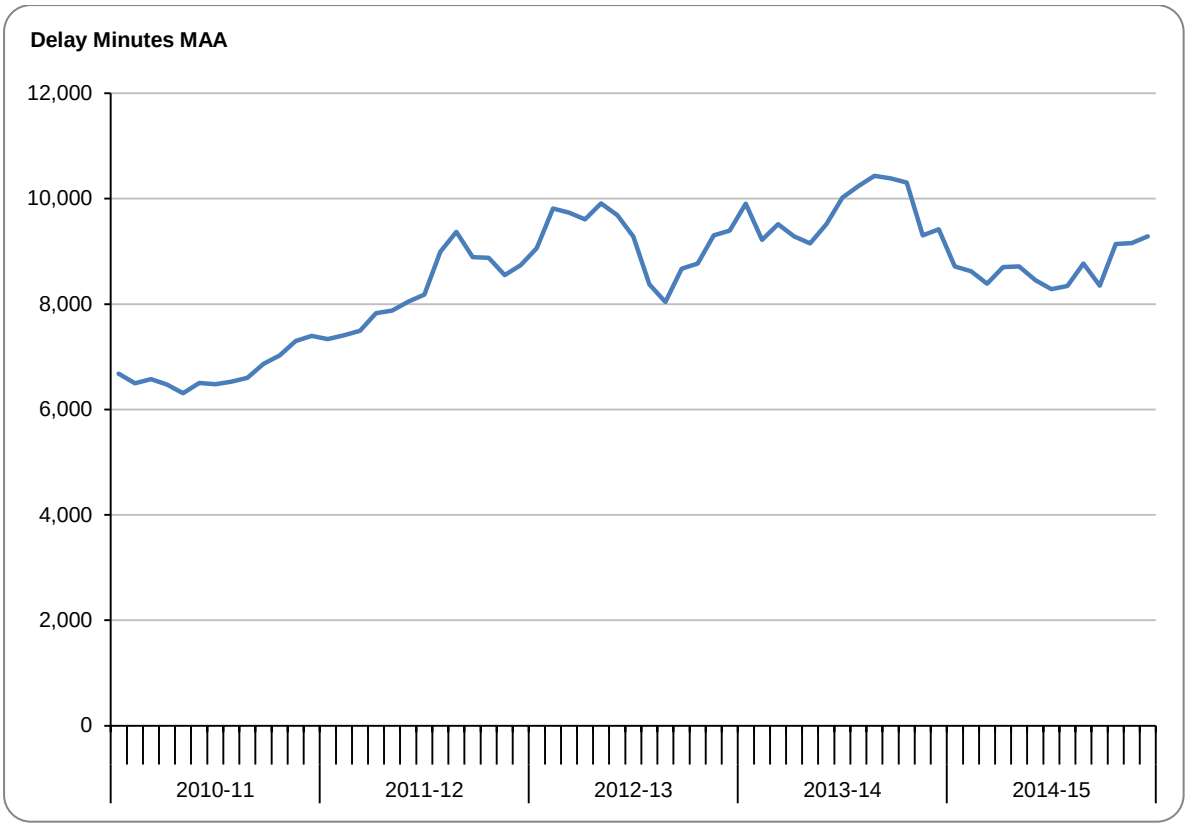


160. PPM and CaSL failures caused to Southern services by Track Assets have also increased in 2014-15 by 68% and 31% respectively.

GTR

161. Delays attributed to the Non-Track Asset KPI group have shown a decrease for GTR in 2014-15. At the end of 2014-15, delay minutes caused to GTR services due to the performance of Non-Track Assets was 1% better than in 2013-14 although 13% worse than target.

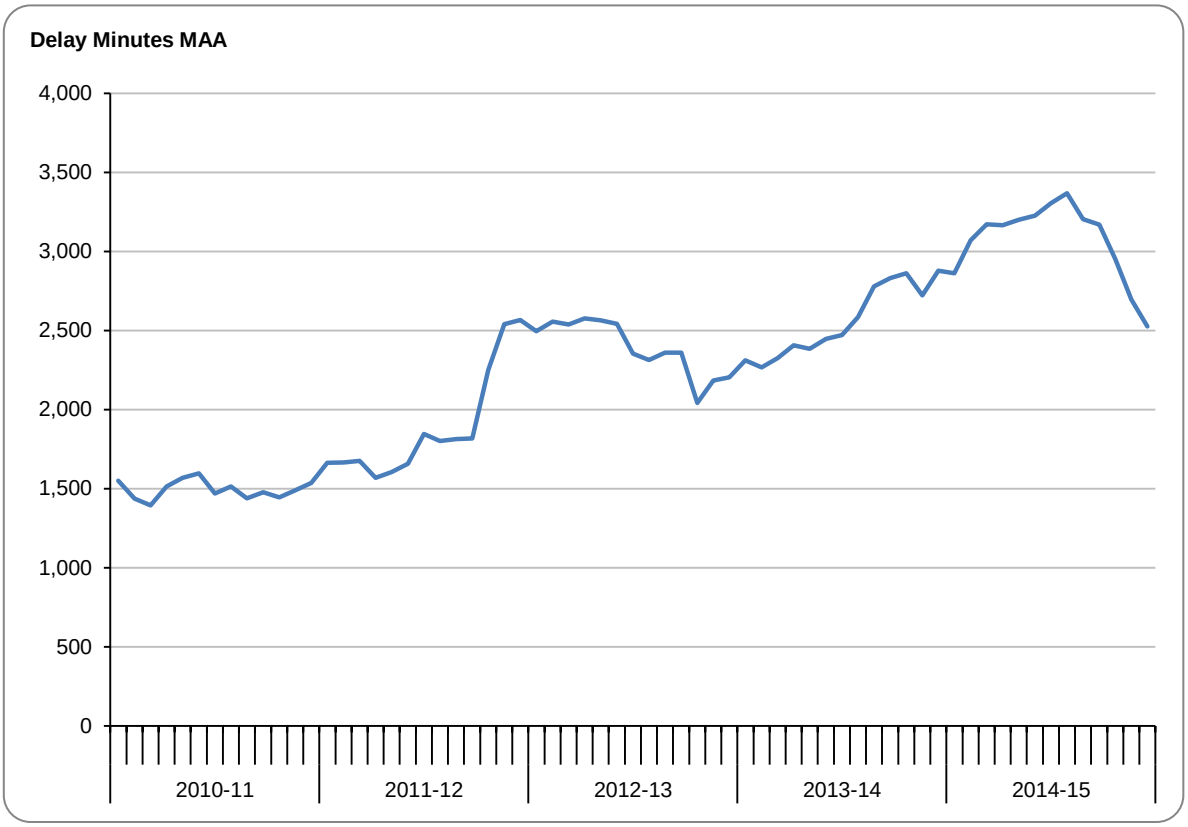
Figure 28: Non-Track Asset Failure Delay Minutes MAA, GTR, 2010-11 to 2014-15



162. PPM failures to GTR services caused by non-track asset failures have increased by 0.4% whilst CaSL failures have decreased by 11% on the levels seen in 2013-14.

163. Delays attributed to the Track Asset KPI group have shown a decrease for GTR in 2014-15. At the end of 2014-15, delay minutes caused to GTR services due to the performance of Track Assets were 12% better than in 2013-14 and 5% better than target.

Figure 29: Track Failure Delay Minutes MAA, GTR, 2010-11 to 2014-15



164. PPM failures impacted on GTR services due to Track Assets have decreased by 7% whilst CaSL failures have shown a marginal increase of 10% on the levels seen in 2013-14

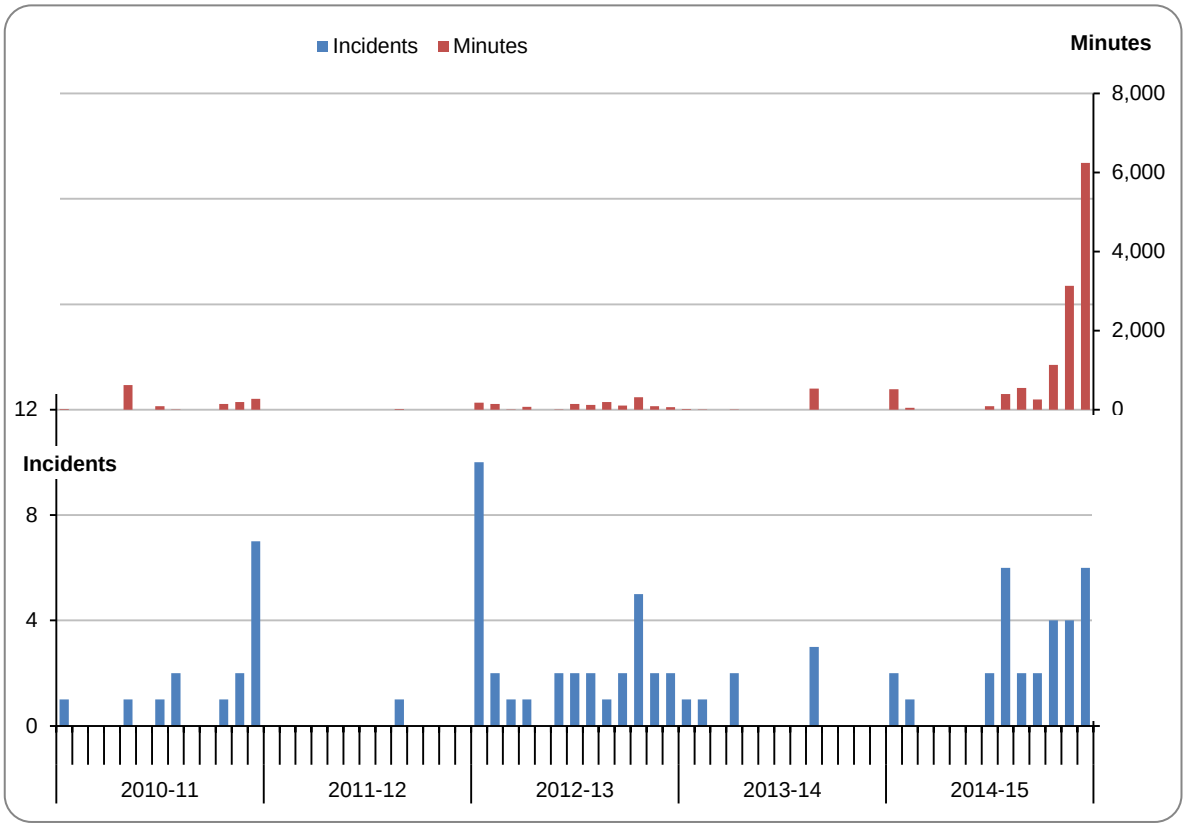
Sussex Area

165. During 2014-15 there was only a small (3%) increase in the number of service affecting infrastructure incidents on the Sussex Area, but the associated delay minutes increased more significantly (15%). This reflects a general increase in Delay Per Incident (DPI) affecting all asset groups:

- Although there was a 28% reduction in points failures (a very significant improvement), there was no change in the associated delay minutes;
- For Non-Track Assets as a whole the number of incidents stayed the same but delay minutes increased by 6%;
- Track incidents increased by 15%, but the associated delay minutes increased by 70%; and
- Telecoms failures increased by 37% but the delay minutes increased by 80%.

166. The number of TSRs increased significantly over 2013-14, but was nonetheless slightly less than in 2012-13. There was a significant increase in the associated delay minutes during the last three periods.

Figure 30: Delay Incidents and Minutes caused by TSRs due to the Condition of Track, Sussex, 2010-11 to 2014-15



167. Poor track geometry increased in Sussex during CP4, reaching 5.7% in 2011-12, before improving later in the control period. At the beginning of 2014-15 it had fallen to 4.8%, and had further improved to 4.5% by the end of the year, but this is still more than twice the network average (2%).

168. The Sussex Area is a very congested network at peak times, when infrastructure failures can cause disproportionate knock-on delays, but the above data suggests that its resilience to disruption deteriorated during 2014-15. The spike in TSR-caused delay per incident towards the end of the year follows the pattern of the timetabling and operational problems at London Bridge.

LNE Route

169. In 2014-15 delay incidents due to Non-Track Assets failures on the LNE Route were 2% worse than in 2013-14.

170. Delay minutes and DPI for Non-Track Assets failures both improved by 17% and 18% respectively.

Composite Reliability Index

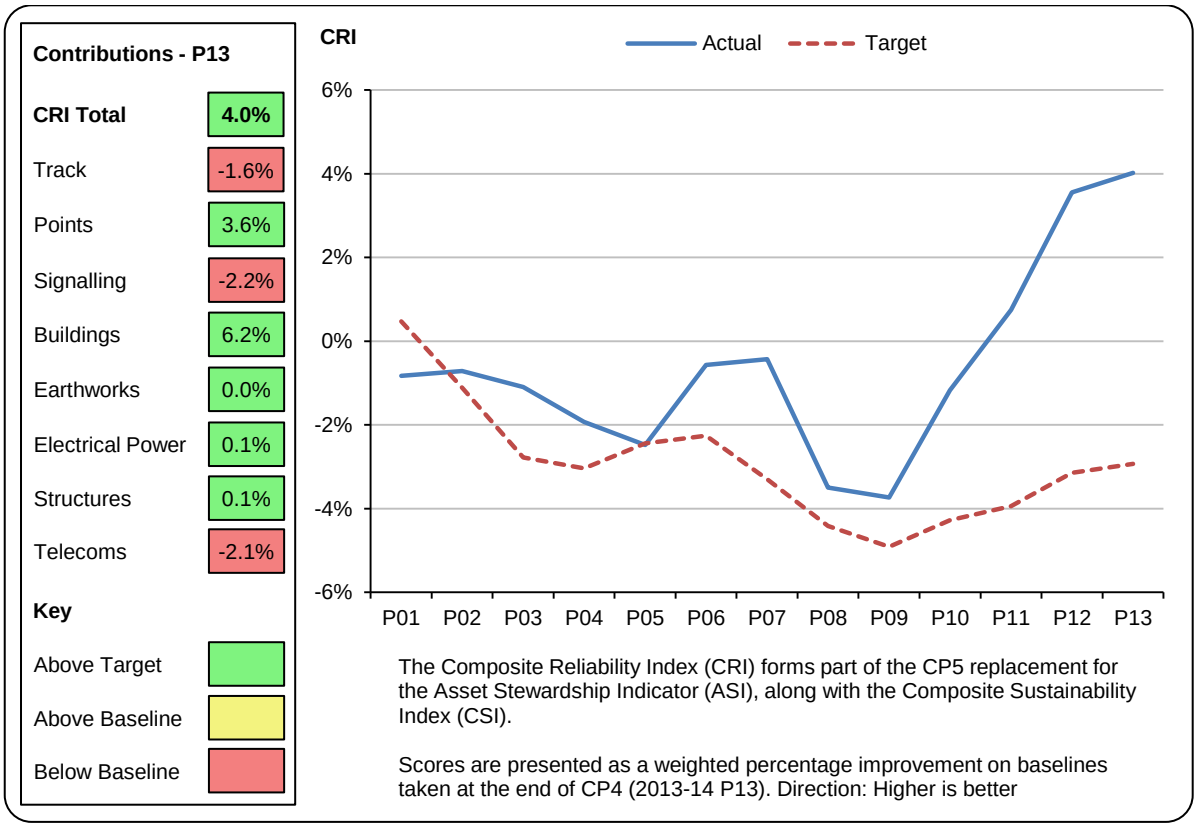
171. The Composite Reliability Index (CRI) is part of the CP5 replacement for the previously used Asset Stewardship Indicator (ASI). The CRI is a proxy measure for the contribution we expect from asset reliability in order to deliver the required punctuality.

172. The CRI shows the percentage improvement of asset reliability compared to the baseline taken at the end of CP4 by assessing the component measures covering the key asset disciplines: track, signalling, points, electrical power, telecoms, buildings, structures and earthworks. Each component measure is given a weighting, calculated as the effective cost per failure, based on train performance and safety. Please refer to **Annex H** for further explanation on CRI.

Sussex Area CRI

173. The year-end CRI for Sussex Area showed that asset reliability improved overall by 4.0% during 2014-15, which is 7% better than target. However this reflects a significant contribution from buildings faults, which typically have a limited impact on PPM. The CRI associated with points reliability improved significantly (21.3%), but this was offset by problems with track and signalling.

Figure 31: Composite Reliability Index, Sussex, 2014-15



Maintenance and Renewals (Sussex Area)

174. Sussex Area under-delivered its programme of renewals activities in 2014-15. Plain line track renewal was 49% behind programme. For Switches and Crossings (points etc., S&C) 95% of the work planned was completed. Civils work was also behind schedule, although some work in progress will not have been reported yet as NR only reports on 100% complete projects.

175. According to data received from the Area during the business plan review, NR's Sussex Route exceeded its maintenance programme during 2014-15. This will have contributed to the improvement in track quality.

Maintenance and Renewals (LNE Route)

176. LNE Route has broadly delivered its programme of maintenance and renewals activities to varying degrees in 2014-15. Plain line track renewals exceeded plan by 17%, but S&C achieved only 78% of plan. For civils underbridges only 26% of the

renewals programme has been delivered to date although as mentioned earlier the asset performance has generally been good for LNE Route. There is a mixed picture for maintenance, but LNE Route has improved the reliability of its assets overall.

Introduction of new assets

177. During 2014-15 there has been a high incidence of newly installed assets failing or their performance being sub-optimal. Both Southern and GTR have raised concerns to us around instances of 'early asset life' failures installed as part of the TLP for example.

178. NR has stated that there have been 184 failures on assets installed by the TLP since December 2014 although a recent improvement meant that the reliability of new assets '*is now at least comparable to the rest of the network*'. In particular it has stated that:

- the performance of points was affected by back drive set-up although this issue was '*largely resolved in January*';
- bonding of redundant Insulated Block Joints (IBJs) and the power supply, provided by a generator rather than a permanent power source, in Reloadable Equipment Building (REB) (LB179) caused a number of infantile track circuit failures; and
- performance of newly installed EBI 400 track circuits which were operating under a trial certificate and did not perform as well as anticipated.

Analysis/Conclusions

179. Overall there was only a small (3%) increase in infrastructure incidents affecting the Sussex Area during 2014-15, but the associated delay minutes increased more significantly (15%). Points reliability improved significantly, but this was offset by problems with track and signalling. DPI has increased across all asset groups, reflecting deterioration in network resilience, due to the TLP works at London Bridge. Renewals were under-delivered in all areas, but maintenance delivery exceeded plan overall, and poor track geometry continued to improve.

180. Sussex Area suffered problems with newly installed equipment failures due to teething problems and issues with the quality of installation. This would have had a detrimental impact on asset performance although it is difficult to quantify.

181. LNE Route under-delivered most of its renewals programme and the maintenance picture is mixed reflecting immaturity in its maintenance plans), but this has not had a negative impact on asset performance. LNE Route improved its CRI by 5% which shows an improvement in the reliability for the route assets overall. Even though it did not achieve the 'stretch' target, there has been a reduction is the incident count and delay minutes overall for this route.

182. The overall conclusion is that asset-related delays account for around 25% of performance so that the contribution from asset management needs to be considered in the context of other activities including operations, timetabling etc. Sussex Area is a particularly congested route on which Southern and GTR (and other TOCs and FOCs) operate so that any infrastructure delays tend to compound very quickly, and this problem has got worse during 2014-15.

4.9 Passenger Growth 2014-15 – impact to Southern and GTR

183. NR has cited passenger growth, in particular in London and the South East, as one of the contributing factors for the performance shortfall in 2014-15. NR sent ORR a paper outlining its evidence on 28 May 2015.

184. The paper indicates that the rail network experienced significant passenger growth in 2014-15 and that station dwell times have increased. Simultaneously, the punctuality of some operators in England and Wales has declined. Additionally it states that '*between the summers of 2012 and 2014, a 7 percent growth in passenger numbers created a 4.9 per cent reduction in LSE morning peak PPM and a cumulative 1 per cent impact on England and Wales PPM'*. The paper recognises that there is a lack of data on passenger growth and indicates that there is no comprehensive industry recording of station dwell times. The table below highlights the assumed annual passenger growth rates against the actual passenger growth data.

Table 11: Assumed Annual Passenger km Growth Rates and Actual Passenger km by Sector, 2014-15 on 2013-14[16]

Sector	IIP Assumption	Actual passenger (2013-14 to 2014-15)
Long Distance	2.9%	5.5%
London & South East	2.4%	3.4%
Regional	3.1%	5.4%

185. At a meeting on 13 May 2015 NR South East Route stated that they believed that passengers using London Bridge had increased on the levels seen in 2013-14 by 6% and that this had an impact on Southern and GTR's performance in 2014-15.

186. We asked Southern and GTR if increased passenger numbers had affected their performance in 2014-15. Both operators stated that they did not believe passenger growth was a significant contributory factor 2014-15 performance.

Analysis/Conclusions

187. Whilst it is possible that a greater than forecast increase in passenger growth could have adversely impacted performance in 2014-15, we do not consider that the report provided by NR conclusively proves the link to, or the extent to which, passenger growth affected Southern and GTR's performance in 2014-5.

188. There has clearly been an increase in delays and dwell times at some locations in England and Wales but the cause of these remains unproven.

189. Although the level of passenger growth in 2014-15 may have been beyond the levels that NR was funded to deal with, more comprehensive data is needed to show where and when such growth is occurring.

[16] Assumptions data taken from NR's Initial Industry Plan – September 2011 https://www.networkrail.co.uk/IIP.aspx

5. Conclusions

5.1 Introduction

190. The following section reviews the evidence outlined in the previous chapters and seeks to identify if there is any evidence to suggest that NR did not do everything reasonably practicable to achieve the performance commitments it made to Southern and GTR. We will also consider whether any of the evidence identified explains where there are any systemic issues affecting the delivery of performance more widely.

5.2 Conclusions

191. At national (England and Wales) level, PPM and CaSL performance in 2014-15 was below both the CP5 regulated targets and the trajectories specified in NR's CP5 Performance Plan.

192. Similarly, the performance of Southern and GTR was well below NR's own trajectory and behind the levels that would have been required to achieve the regulated outputs for year one of CP5. It was also beyond the threshold levels for operator performance that we agreed we would intervene. Southern exited 2014-15 with PPM (MAA) at 83.1%, 4.7 pp worse than target, and CaSL (MAA) at 4.8%, 1.9 pp worse than target. GTR exited 2014-15 with PPM (MAA) at 85.2%, 2.8 pp worse than target and CaSL (MAA) at 4.3%, 1.3 pp worse than target. Southern and GTR were the two worst performing operators in England and Wales in terms of their variance to Performance Strategy targets.

193. For Southern the delay causes of PPM failures with the greatest negative variance to target were Non-Track Assets and Network Management/Other. For GTR it was Network Management/Other, External and Traincrew.

Factors affecting performance

Weather

194. There is no evidence to suggest that there were any extreme days affecting NR's performance delivery to Southern and GTR in 2014-15. We have therefore not considered this category for adjustment.

External

195. We recognise the continued good work by NR on fatality prevention. We also recognise that the impact of these incidents is not entirely within NR's control and that the underlying national level of suicides and attempted suicides is increasing. We therefore consider an adjustment should be applied to the 2014-15 PPM and CaSL results for Southern and GTR.

Traincrew

196. GTR has seen a very significant rise in delay minutes arising from Traincrew issues. We note that NR cannot influence delays caused by operator industrial action and staff shortages. We have therefore concluded that an adjustment should be applied to both Southern and GTR's 2014-15 PPM and CaSL for this category.

Fleet

197. We have concluded that the 2014-15 PPM and CaSL results for Southern and GTR should not be adjusted due to fleet performance.

Summary of adjustments

198. The table below summarises the areas we investigated as potential adjustments.

Table 12: Summary of adjustments to Southern and GTR PPM and CaSL 2014-15

		Southern		GTR	
Category	**Adjustment recommended**	**PPM impact**	**CaSL impact**	**PPM impact**	**CaSL impact**
Severe Weather, Autumn and Structures	×				
External	✓	0.8pp	0.3pp	0.8pp	0.1pp
Traincrew	✓	0.6pp	0.2pp	1.4pp	0.2pp
Fleet	×				
Passenger growth	×				

199. The overall impact of these adjustments mean that Southern's mitigated PPM and CaSL results were still beyond the thresholds specified. Similarly, GTR's CaSL result remained beyond the threshold.

Performance Planning

200. NR's delivery of milestones in its CP5 Performance Plan for Southern and GTR shows some slippage but was within the levels that we would expect for a plan of this complexity. Additional milestones were added as a result of the BMLIP at the end of Quarter 4. However, the evidence suggests, and both operators concur, that the level of benefits accruing from these milestones was significantly less than planned. Even if all funded schemes are delivered, currently the gap to the end of CP5 performance targets will not be closed.

201. Performance targets for Southern and GTR have been significantly lowered for the remaining years of CP5 as part of the BMLIP process. This has had the impact of making Southern the worst performing franchised operator in absolute terms for the first two periods of 2015-16 but the best performer in terms of variance to target. The lower targets for these two operators have also created a larger challenge at national level. Southern has told us that it believes the targets are now too low and should be revised.

202. Despite milestone delivery for Southern and GTR being largely to plan and in line with the delivery observed in England and Wales during 2014-15, both operators

have stated to us that it is difficult to understand if the benefits of delivered milestones have been realised due to the performance impact of the TLP, notably the works at London Bridge. GTR has additionally questioned the robustness of programme management underpinning the Performance Planning process.

203. We conclude that recently NR has taken steps to improve its performance delivery to both Southern and GTR. A South East Performance Improvement Plan has been developed as an extension of the BMLIP and workstreams created to focus on operations, asset reliability and governance. A number of the recommendations address key areas considered as part of our investigation. At the time of writing, it is too early to judge if this is having the expected impact on performance.

204. Although delivery of milestones has been broadly acceptable, NR's performance planning process has exhibited some inherent and systemic weaknesses. We conclude that a number of these weaknesses will have contributed to the current performance shortfalls for Southern and GTR. We have seen evidence to suggest that:

- abandoned schemes and schemes with reduced benefits. The benefits that would have accrued from these schemes will now not materialise or may be significantly less than originally planned and new schemes have not been developed to close the gap (e.g. Traffic Management System (TMS) and TRIP);

- wide ranging and significant optimism bias in the estimation of benefits;

- top-down imposition of targets and schemes with limited buy-in at local level and inclusion of schemes for which funding was unavailable (as evidenced by South West Trains);

- a failure to proportionately acknowledge risk – as evidenced by FGW and ScotRail who stated that "*completed milestones have not delivered the anticipated benefits*";

- we have seen evidence of, and some operators (e.g. London Midland) have observed that the performance planning process (PPRP) has tended to focus too heavily on PPM rather than both PPM and CaSL; and

- the PPRP process uses a process of PPM attrition but milestone benefits are still being calculated using the "old currency" of delay minutes, leading to potential discontinuities.

205. We recognise that NR worked collaboratively with us during the course of its Internal Review into Train Performance Delivery and that it was transparent in sharing the findings with us. We conclude that whilst a number of issues in the performance planning process are apparent, NR is taking steps to address these issues at a national level, although we are not clear on the details of these steps or their impact.

Major Projects

206. The impact of the delivery of projects has been greater than forecast, had an operational impact on the railway and the ability of Southern and GTR to meet their performance targets. Both operators have stated that the impact of the TLP was the major factor impacting on their performance in 2014-15. In its Q4 performance report, NR has stated that the "*negative effect of major projects have been greater than forecast in 2014-15*"

207. In addition to the TLP, Southern has expressed concern about signalling renewal schemes while GTR has stated that it has been impacted by the MML LSIP project. A number of other operators have also raised concerns, including the Cardiff Area Signalling Renewal project (CASR), the North West electrification (the "Lancashire Triangle" project) and Wolverhampton resignalling.

208. NR's performance modelling indicated a 1.06pp impact on Southern's PPM and a 0.92pp impact on GTR's PPM in 2014-15 from the TLP. However both operators believe this impact on PPM was underestimated. Issues were exacerbated by lack of resilience in the timetable and significant reactionary delays. Issues with the data used in the modelling have been identified by NR and the modelling was completed two months before implementation severely restricting the opportunity to make

changes. NR has also stated that a number of the assumptions made in the modelling were incorrect or issues were omitted.

209. Southern has also advised us that it believes that the performance modelling process was "*construction rather than performance led*". The impact of drivers driving cautiously (particularly initially) over complex new layouts was also not considered sufficiently.

210. There were significant weaknesses in the process in terms of data quality and operator engagement. Risks to performance were underestimated in performance strategies. The significant and frequent changes to services from London Bridge suggest significant over-estimation of service reliability. We therefore conclude that the performance and timetable modelling undertaken by the TLP contributed significantly to lower underlying performance levels in 2014-15.

211. The post-implementation impact of the MML LSIP appears to have been underestimated, suggesting a failure to fully understand and allow for the impact of TSRs and other network limitations (e.g. CDRs).

Network management / other

212. PPM loss caused by the Network Management /Other categories increased in 2014-15. Increased delays appear to have been attributed to signaller errors as a result of the increasing interventions that have had to be made. The "10 Point Plan" that has been introduced has focused too heavily on delay attribution rather than addressing the root cause of the issues.

213. Southern has advised us that it believes that signalling errors were caused by lack of familiarity with the new layout at London Bridge and the simultaneous transfer of staff to the new Route Operating Centre (ROC) at Three Bridges.

Asset Management

214. In terms of its asset management we have concluded that although NR achieved its own CRI target for South East Route, the target may not have been ambitious enough.

215. The number of condition of track TSRs on the Sussex Route quadrupled in 2014-15, while delay minutes due to track faults increased by 44%.

216. Incidents and delays caused by Non-Track Asset failures have increased by around 9% in the Sussex Area.

217. The Sussex Area has under-delivered in its programme of maintenance and renewal activities. Track renewals are 60% behind programme; around 33% of planned S&C refurbishment and 50% of renewals has been completed.

218. There have been a high number of instances where newly installed assets have failed or their performance has been sub-optimal. Southern and GTR have both raised this as an issue. This issue has also been corroborated by feedback from other operators; Southeastern has raised the issue of GSM-R[17], ATW has observed that the reliability of infrastructure installed by the CASR project has often been poor. FTPE and London Midland have also noted issues.

219. NR Sussex Route/Area has had five directors since 2009. Southern has told us that it believes this has created issues in terms of organisational instability and strategic thinking and delivery. Kent Area has also had significant issues with vacancies in its London Bridge Delivery Unit but NR appears to be on course to resolve these.

220. LNE Route has broadly delivered its programme of maintenance and renewals activities to varying degrees in 2014-15. Delay incidents due to Non-Track Asset failures on the Route were 2.1% worse than in 2013-14. Delay minutes and DPI for Non-Track Asset failures both improved.

[17] Global System for Mobile communications – Railway. A new standard being introduced across NR for improved communication between trains/drivers and signallers.

221. The overall conclusion is that asset-related delays account for around 25% of performance so that the contribution from asset management needs to be considered in the context of other activities including operations, timetabling etc. Sussex Area is a particularly congested part of the network, so any infrastructure delays tend to compound very quickly, and this problem has got worse during 2014-15.

Passenger Growth

222. NR has cited passenger growth as a factor contributing to the shortfall in performance, particularly in London and the South East. It has recently sent ORR a paper setting out its evidence.

223. This paper states that the network has witnessed significant passenger growth and that morning peak dwell times have increased, while punctuality of some operators has declined. It states that *"between the summers of 2012 and 2014, a 7 per cent growth in passenger numbers created a 4.9 per cent reduction in LSE morning peak PPM and a cumulative 1 per cent impact on England and Wales PPM"*. However the paper does not conclusively prove the linkage, or the extent to which increased passenger growth has impacted performance.

224. The paper identifies that there is a lack of data on passenger growth and it further points out that there is no consistent or comprehensive industry recording of dwell times.

225. Although there has clearly been growth (and that this may possibly have been beyond the levels that NR was funded to deal with) more data is needed on, for example, where and when growth has occurred. Similarly, there clearly has been an increase in dwell times and passenger delays – but the cause of this remains unproven (times in station berths could increase by train lengthening, for example, as longer trains take longer to clear signal sections).

Overall Conclusion

226. We conclude that there are grounds to take into account the impact of suicides and Traincrew to GTR and Southern in 2014-15.

227. Notwithstanding this, there is evidence to suggest that NR has not done everything reasonably practicable in its delivery of PPM and CaSL performance to Southern and CaSL performance to GTR in 2014-15, because the performance and timetable modelling undertaken to assess the impact of construction works being undertaken by TLP was flawed. A number of assumptions fed into the timetable modelling were incorrect and the results of the modelling were made available (to TOCs) too late in the process (October 2014). The data feeding into the performance modelling was used before being validated.

228. Furthermore we have observed some inherent weaknesses in its performance planning process both in England and Wales as a whole and in Southern/GTR specifically. However we note that NR is seeking to address these issues through the actions following its Internal Audit review and through the South East Performance Review.

229. We also remain concerned about the increase in condition of track TSRs in Network Rail South East Route, the increase in incidents and delays from Non- Track Asset failures in the Sussex Area, under-delivery of maintenance and renewal volumes and failure rates of newly installed assets.

230. We will continue to monitor the above through our existing regulatory processes.

ANNEXES

Annex A - Glossary

AGA	**Abellio Greater Anglia**
ATOC	Association of Train Operating Companies
BMLIP	Brighton Main Line Improvement Plan
BTP	British Transport Police
CaSL	Cancellations and Significant Lateness
CASR	Cardiff Area Signalling Renewal (project)
CDR	Conditional Double Reds
CP4	Control Period 4 (2009 - 2014)
CP5	Control Period 5 (2014 - 2019)
CRI	Composite Reliability Index
CRR	Customer Reasonable Requirements
DfT	Department for Transport
DM	Delay Minute
E&W	England and Wales
FDM	Freight Delivery Metric
FGW	First Great Western
FTPE	First TransPennine Express
GTR	Govia Thameslink Railway
KPI	Key Performance Indicator
LNE	London North Eastern
LSE	London and South East (sector)
LSIP	Line Speed Improvement Programme
MAA	Moving Annual Average
MML	Midland Main Line
NHS	National Health Service

NR	Network Rail
NTA	Non-Track Assets
NRPS	National Rail Passenger Survey
OTMR	On Train Monitoring Recording
PDP	Professional Driving Policy
PIDD	Passenger Information During Disruption
PPM	Public Performance Measure
PR13	Periodic Review 2013
ROC	Route Operating Centre
RU	Railway Undertaking
SBP	Strategic Business Plan
SNRP	Statement of National Regulatory Provisions
SWT	South West Trains
TF	Transport Focus
TLP	Thameslink Programme
TMS	Traffic Management System
TOC	Train Operating Company
TPRs	Timetable Planning Rules
TRIP	Timetable Rules Improvement Programme
VTEC	Virgin Trains East Coast
VTWC	Virgin Trains West Coast

Annex B – Terms of reference

Background

Enforcing Train Operating Companies (TOC) operational performance

Network Rail (NR) and train operating companies (TOCs) have the flexibility to work together to set the 'trajectory' to reach the 2019 outputs, using the industry led Performance Strategies (previously known as joint performance improvement plans (JPIPs)) process. We will intervene in certain circumstances, for example if an operator's PPM (MAA) appears likely to fall more than two percentage points below its agreed PPM output or CaSL MAA appears likely to increase more than 0.2 percentage points above target.

NR will need to explain each year how delivery of the individual Performance Strategies relates to delivery of the required national performance. We expect robust governance arrangements to be in place so that whenever the Performance Strategies taken together do not give us confidence the national requirements will be met, NR develops clear and convincing plans to bridge any gap, which it must then deliver.

There are established industry processes through which NR, TOCs and FOCs work together to deliver good train performance. While we can hold NR to account, funders can hold their operators to account. We work with the funders to ensure these performance management processes work well and we have a shared understanding of industry performance risks. We may intervene if called on by third parties such as an operator, a funder, Transport Focus or London TravelWatch. However we will not wait for a complaint if our own monitoring suggests action is needed to address performance issues.

In summary, we will intervene when:

(a) NR and a TOC cannot agree a Performance Strategy target; or

(b) NR's plans or actions to deliver at least 88% PPM for Virgin East Coast Trains and Virgin Trains West Coast (and First Great Western's high speed services), 92.5% PPM for Scotland and at least 90% PPM for every other franchised TOC in the last year of CP5 are inadequate; or

(c) NR's plans or actions to deliver the national performance outputs are inadequate (including where NR needs to bridge a gap between the sum of the Performance Strategy targets and the national outputs); or

(d) Performance for an individual TOC is, or is likely to fall more than 2 percentage points below its agreed end of year PPM (MAA) output or 0.2 percentage points above its agreed end of year CaSL (MAA) output.

(e) A concerned TOC requests that we do so where NR is unable to realise the deliverables that underpin the performance trajectory, or the outputs committed to in the Performance Strategy.

Where we intervene, we will follow a staged approach of review, investigation and escalation which may ultimately lead to formal enforcement action. We may require new or updated recovery plans, the formation of a recovery board, or some other form of assurance from NR.

In deciding whether and how to intervene we will focus on systemic and/or serious issues. We will work with the established industry processes, (for example National Task Force (NTF)), where possible, taking account of how the commitments made dealt with the greater uncertainty associated with forecasts at the TOC level.

Approach to performance targets in first 2 years of CP5 (England and Wales)

NR has stated that its exit position for its regulated performance outputs in CP4 means that it is unlikely to achieve its performance outputs in England and Wales in the first 2 years of CP5.

NR remains committed to achieving its performance outputs from the commencements of year 3 of CP5 and has produced a Performance Plan in order to ensure that it returns to the necessary trajectory to achieve its CP5 performance outputs from 2016-17. We monitor NR against the delivery of the inputs specified in this plan and therefore consider delivery of this plan, together with NR demonstrating flexibility to effectively adjust the plan through a robust Change Control process to meet changing circumstances, as evidence in assessing whether it is doing everything reasonably practicable to achieve its regulated performance outputs in the first 2 years of CP5.

We will intervene when;

(a) NR's plans or actions to deliver the national performance trajectory are inadequate and the inputs specified in the CP5 performance plan (which needs to bridge a gap between the sum of the Performance Strategies and the national outputs) show milestone slippage that has a material impact on the ability to commence the third year of CP5 on the profiled targets for PPM (MAA) and CaSL (MAA).

Scotland regulatory performance target PPM (MAA)) continues to be enforceable in 2014-15 and 2015-16.

End of 2014-15

ORR's Initial review of NR's 2014-15 performance

In March we assessed that a number of operators in England and Wales[18] could no longer achieve the threshold established in our Final Determination for either their PPM (MAA) and / or CaSL (MAA) Performance Strategy targets[19] and that a number of other operators were likely to miss this threshold.

We also assessed that Scotland was unable to meet its 2014-15 PPM regulatory target.[20]

Alan Price, Director Railway Planning and performance, wrote in February to the Managing Directors of all franchised passenger operators asking for their opinion on Network Rail (NR) performance delivery in 2014-15. Responses were requested by 17 April.

We have now received the final Period 13 figures from NR and they state that:

a. Scotland out turned at 90.5%, 1.5 percentage points (pp) below the 2014-15 regulatory target

b. The following operators missed their PPM (MAA) targets by greater than the 2pp threshold and / or their CaSL (MAA) targets by greater than the 0.2pp threshold:

	PPM MAA	Variance to target		CaSL MAA	Variance to target
Southern	83.1%	4.7pp	Southern	4.8%	1.9pp
GTR	85.2%	2.8pp	GTR	4.3%	1.3pp
FTPE	88.6%	2.4pp	Virgin Trains West Coast	5.0%	1.0pp
			AGA	2.5%	0.9pp
			FTPE	4.3%	0.8pp
			SWT	2.7%	0.6pp
			FGW	3.0%	0.4pp
			Southeastern	2.8%	0.3pp

Purpose of the investigation

To establish whether NR did or is doing everything reasonably practicable to meet its licence obligations in relation to achieving its regulated performance outputs.

This includes:

a. PPM targets in Scotland for the first year of CP5[21] (regulated performance target);

[18] England and Wales regulatory performance targets (PPM and CaSL) are not enforceable in 2014-15 and 2015-16, being instead monitored through NR's delivery of its CP5 Performance Plan.

[19] Threshold is defined as 2.0 pp below (PPM MAA) and 0.2 pp above (CaSL MAA) Performance Strategy target. Details are set out in ORR's final determination document - chapter 23

[20] Scotland regulatory performance target (PPM MAA) continues to be enforceable in throughout years 1-5 CP5.

b. performance delivery to Southern for the first year of CP5 (Performance Strategy targets);

c. performance delivery to GTR for the first year of CP5 (Performance Strategy targets);

d. ensuring that end of CP5 regulatory targets are met – including assessing whether there any systemic weaknesses relating to NR's operational planning, management and delivery of performance, such as timetabling.

Scope

The investigation will focus on NR's performance obligations in the four main areas addressed above.

Our initial review and analysis of performance in 2014-15 has raised concerns with performance in Scotland and a range of operators.

We will use NR performance in Scotland, and with operators Southern and GTR as the basis of this investigation because:

i) Scotland failed to meet its 2014-15 regulatory performance target and;

ii) Southern and GTR represent the worst performers in 2014-15. Southern and GTR performance in 2014-15 represents roughly a third of the England and Wales PPM (MAA) shortfall and roughly half of the CaSL (MAA) shortfall in England and Wales.

Our initial review has also highlighted a number of potential operational performance issues:

a. Scotland (PPM 2014-15 miss)

The December 2014 timetable contained planning errors which we need to investigate further in order to assess whether they could have been avoided.

Whilst we accept that there was a performance impact caused by the Commonwealth Games, we estimate this to account for 0.6pp of the shortfall in the PPM MAA in Scotland. Even allowing for this effect therefore, NR would have failed to meet its PPM (MAA) target.

We will carry out further assessment to confirm our initial view that the weather in 2014-15 was not beyond the level that Scotland Route is funded to deal with.

We will also carry out a further assessment of the delivery of ScotRail's Performance Strategy, noting that there was a relatively high degree of milestone slippage.

b. Southern (PPM and CaSL miss)

The disruption caused by the impact of the Thameslink programme, principally at London Bridge, and timetabling issues (leading to a reduction in peak services) has contributed to Southern's level of performance.

This has been further exacerbated by the performance of non-track assets and network management, CaSL impact of fatalities and trespass incidents and Southern traincrew issues.

We need to investigate further whether a number of the issues associated with the Thameslink Programme could have been avoided.

c. **GTR** (PPM and CaSL miss)

Disruption caused by the impact of the Thameslink programme and performance of non-track assets, network management and an increase in delay minutes related to fatalities and trespass have contributed to worsening performance.

Both PPM and CaSL have displayed consistently negative trends during the year – we have yet to have sight of any substantial plans to tackle this.

We need to investigate further whether a number of the issues associated with the Thameslink Programme could have been avoided.

Potential systemic performance failures - NR Performance delivery to other operators

We have concluded at this stage that we should not specifically investigate NR's performance delivery to other operators because:

i. In some cases operator issues have contributed to performance shortfalls

ii. our ongoing dialogue with operators has indicated that they are broadly satisfied with NR's performance delivery to them

iii. we are satisfied NR is making reasonable efforts to address performance-impacting issues

However we still have some concerns regarding NR's delivery to other operators *(First Great Western, Virgin Trains West Coast, Southeastern, South West Trains, Abellio Greater Anglia and First TransPennine Express)* and we will continue to monitor delivery of operational performance to these operators through our regulatory processes. We may also consider any relevant evidence provided by other operators which could highlight potential systemic operational performance issues.

NR Performance Plan (England and Wales)

At the end of quarter 3 (Q3) NR reported against delivery of the milestones in its Performance Plan. At the time we concluded that, although there had been some slippage, this was within the margins we would expect to see. NR is due to report progress on the Q4 milestones to us on 5 May 2015.

We will assess the Q4 report as a source of evidence in our investigation to help us determine whether there are any systemic performance issues which NR is not reasonably addressing.

We recognise there may be links between enhancements and performance, and will ensure in the conduct of this performance investigation to avoid duplication with our

on-going enhancement investigation, which is subject to its own separate terms of reference.

Methodology

We will use the evidence gathered from our own monitoring, NR and industry to assess:

- Whether there are any mitigating factors which affected or are affecting performance in these specific Route (Scotland) / operators, for example factors such as weather and passenger growth.
- The steps, if any NR has taken or is taking to address performance issues and make improvements

In order to conduct our investigation we will consider the following sources:

- The CP5 Performance Plan
- The quarterly progress reports we received throughout the year
- The full end of year review we are due to receive on 5 May
- Any further evidence that NR ask us to consider
- Views and further information from relevant operators
- Evidence provided by NR's Internal Audit Team looking at the effectiveness of Performance Strategies,
- End of year performance data

Investigation team

This investigation is led by Alan Price as senior director Railway Planning and Performance, supported by ORR experts. The project team will include cross office representatives including Railway Planning and Performance, Legal and External Affairs. Governance arrangements are detailed in the project initiation document.

How the investigation will be conducted

In carrying out its investigation ORR expects to draw upon information and reviews already carried out internally as part of its usual regulatory roles. The review will engage primarily with NR, as well as affected operators [and funders].

Timescales

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

Annex C - PPM and CaSL targets – methodology

PPM failures targets

In order to derive targets for PPM failures in 2014-15, we used the established relationship between delay minutes and PPM.

We calculated the number of delay minutes per PPM failure in 2013-14 for each KPI (e.g. Non Track) and applied this to the 2014-15 delay minutes targets to derive an estimate of the 2014-15 PPM failures targets.

For example:

	2013-14 delay minutes		2014-15 delay minutes		2013-14 PPM failures		2014-15 PPM failures	
	Actual	**Target**	**Actual**	**Target**	**Actual**	**Target**	**Actual**	**Target**
Non-Track Assets	100	150	200	250	50	75	100	125

Number of delay minutes per PPM failure:

= Actual delay minutes (2013-14) / Actual PPM failures (2013-14)

= 100 / 50

= 2

Therefore, the 2014-15 PPM failures target would be:

= Target delay minutes (2014/15) / Number of delay minutes per PPM failure

= 250 / 2

= 125

PPM failure targets for the individual delay categories (e.g. Points Failures) within the KPI group (e.g. Non Track) are based on the proportion of delay minutes that the individual delay category accounts for within the KPI for 2013-14.

For example:

Incident category/KPI	Proportion of 2013-14 Non-Track delay minutes	2014-15 PPM failures target
Points Failures	20%	25
Track Circuit Failures	45%	56
Signal Failures	35%	44
Total Non-Track Assets	-	125

2014-15 PPM failures target for Points Failures = 20% * 125 = 25

CaSL failures targets

Given that the relationship between delay minutes and CaSL is not as strong as the delay minutes and PPM relationship, CaSL failures were calculated using a slightly different method.

In order to work out the target for CaSL failures in 2014-15, we calculated the number of CaSL trains per failure in 2013-14 and applied this to the total number of CaSL trains needed to meet target in 2014-15.

For example

	2013-14	2014-15
CaSL trains	34	
CaSL failures	30	
CaSL trains per failure	1.13	
CaSL trains needed to meet target	15	21
Trains planned	750	745
CaSL MAA target	2.8%	2.8%

CaSL trains per CaSL failure:

= Total number of CaSL trains (2013-14) / Total number of CaSL failures

= 34 / 30

= 1.13

Therefore, the target for total number of CaSL failures (2014-15):

= Total number of CaSL trains need to meet target (2014-15) / CaSL trains per failure

= 21 / 1.13

= 19

As with the PPM targets calculation, targets for individual delay categories (e.g. Points Failures) are derived from the KPI target (e.g. Track) and based on the proportion that the individual delay category accounts for of the KPI in 2013-14.

Incident category/KPI	Proportion of 2013-14 CaSL failures	2014-15 CaSL failures target
Track assets	25%	5
Non-Track assets	40%	8
Network Management	35%	7
Total Track assets	-	19*

* Figures may not sum due to rounding

Adjustments

The mitigations for the different KPIs are based on the established relationship between delay minutes and PPM.

Using a regression model based on Network Rail and TOC caused delay minutes data from 2007-08 onwards, we produced a model that estimates PPM outturn. From that model, we can measure what effect changes in delay minutes have on PPM outturn for each category of delay minutes (NR on TOC, TOC on TOC, TOC on Self). For example, an increase of 1,000 NR on TOC delay minutes may result in a 0.2 percentage point (pp) fall in PPM whereas 1,000 TOC on Self delay minutes may only produce a 0.1pp fall in PPM.

From this, we calculated the effect that TOC on Self delay minutes had on PPM for each year back to 2007-08 and created a new model that measured the effect on PPM of delay minutes for each of the different KPIs within the TOC on Self group (Fleet, Operations, Stations, Traincrew and TOC other)

Essentially, this allowed us to say that if TOC on Self delay minutes as a whole reduced PPM by 3.0pp in 2013-14, we could break down that 3.0pp to tell us how much of that was down to Fleet, Traincrew etc.

We then fed back into the model the actual number of delay minutes and the target number of delay minutes to calculate expected PPM outturn which meant that we could identify what impact the excess minutes in each KPI had on PPM.

For example:

	Fleet	Traincrew	Stations	TOC Other	Operations	TOC on Self impact on PPM
Actual	-1.00	-0.50	-0.50	-0.30	-0.20	-2.50
Target	-0.80	-0.40	-0.30	-0.20	-0.40	-2.10
Effect of Excess minutes (Actual - Target)	-0.20	-0.10	-0.20	-0.10	0.20	-0.40

The estimates of the PPM impact quoted in this report are based on the operator meeting the delay minutes target for each KPI.

Annex D - List of meetings held as part of investigation

Organisation	Date	Industry attendees	ORR attendees	Subject
Network Rail	07/05/15	Rob Freeman, Jon Haskins, Tamzin Readman, Alun Fowles	Nigel Fisher, Louise Deadman, Chris Howard, Sam McClelland-Hodgson	NR Internal Review - Train Performance
Network Rail	13/05/15	Charles Robarts, Eliska Burrows, Steve Knight, Alan Ross, John Gerrard, Alasdair Coates, Tyson Singleton, Simon Blanchflower	Nigel Fisher, Louise Deadman, Alan Price, Andrew Wallace, Dominic Wall	NR performance delivery to Southern and GTR 2014-15
Southern	20/05/15	Rebecca Holding, David Scorey	Nigel Fisher, Louise Deadman, Chris Howard, Dominic Wall	NR performance delivery to Southern in 2014-15
Network Rail	20/05/15	Jon Thompson, Rob Freeman, Jon Haskins	Nigel Fisher, Louise Deadman, Chris Howard, Sam McClelland Hodgson	Performance Planning 2014-15
GTR	29/05/15	Dyan Crowther, Robert Moss, Stuart Cheshire	Nigel Fisher, Louise Deadman,	NR performance delivery to GTR in 2014-15

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

Quarter 4 Performance Report and tracker – NR Report

Internal Audit Review into Train Service Delivery – Anglia

Letters from stakeholders

Meeting minutes from NR

ORR Performance Dashboard – ORR

National Rail Passenger Survey – Transport Focus

The Impact of Passenger Growth on Train Performance – NR Report

Renewals & Maintenance Volume, Q4 Assurance Review Period 11.5 Reforecast (RF11.5)

Network Rail's Composite Reliability Index (CRI) Report Period 13 - 2014/1

Annex F - Relevant Railways Act 1993 legislation

The Office of Rail Regulation (ORR) must discharge the statutory duties placed upon it by section 4 of the Railways Act 1993 (as amended by the Transport Act 2000 and the Railways Act 2005).

Section 4 of the Railways Act 1993

(1) The Office of Rail Regulation shall have a duty to exercise the functions assigned or transferred to it under or by virtue of this Part or the Railways Act 2005 that are not safety functions in the manner which it considers best calculated —

(zb) to promote improvements in railway service performance;

(a) otherwise to protect the interests of users of railway services;

(b) to promote the use of the railway network in Great Britain for the carriage of passengers and goods, and the development of that railway network, to the greatest extent that [it] considers economically practicable;

(ba) to contribute to the development of an integrated system of transport of passengers and goods;

(bb) to contribute to the achievement of sustainable development;

(c) to promote efficiency and economy on the part of persons providing railway services;

(d) to promote competition in the provision of railway services for the benefit of users of railway services;

(e) to promote measures designed to facilitate the making by passengers of journeys which involve use of the services of more than one passenger service operator;

(f) to impose on the operators of railway services the minimum restrictions which are consistent with the performance of its functions under this Part or the Railways Act 2005;

(g) to enable persons providing railway services to plan the future of their businesses with a reasonable degree of assurance.

(2) Without prejudice to the generality of subsection (1)(a) above, the Office of Rail Regulation shall have a duty, in particular, to exercise the functions assigned or transferred to it under or by virtue of this

Part or the Railways Act 2005 that are not safety functions in the manner which it considers is best calculated to protect—

(3) the interests of users and potential users of services for the carriage of passengers by railway provided by a private sector operator otherwise than under a franchise agreement, in respect of—

(a) the prices charged for travel by means of those services, and

(b) the quality of the service provided, and

(4) the interests of persons providing services for the carriage of passengers or goods by railway in their use of any railway facilities which are for the time being vested in a private sector operator, in respect of—

(a) the prices charged for such use; and

(b) the quality of the service provided.

The Office of Rail Regulation shall be under a duty in exercising the functions assigned or transferred to it under or by virtue of this Part or the Railways Act 2005 that are not safety functions—

[23] to take into account the need to protect all persons from dangers arising from the operation of railways; and

[24] to have regard to the effect on the environment of activities connected with the provision of railway services.

Sections 3A, 3B and 4 relate to the Secretary of State and the Scottish Ministers]

The Office of Rail Regulation shall also be under a duty in exercising the functions assigned or transferred to it under this Part or the Railways Act 2005 that are not safety functions—

(a) to have regard to any general guidance given to it by the Secretary of State about railway services or other matters relating to railways;

(aa) to have regard to any general guidance given to it by the Scottish Ministers about railway services wholly or partly in Scotland or about other matters in or as regards Scotland that relate to railways;

(ab) in having regard to any guidance falling within paragraph (aa), to give what appears to it to be appropriate weight to the extent (if any) to which the guidance relates to matters in respect of which expenditure is to be or has been incurred by the Scottish Ministers;

(b) to act in a manner which it considers will not render it unduly difficult for persons who are holders of network licences to finance any activities or proposed activities of theirs in relation to which the Office of Rail Regulation has functions under or by virtue of this Part or that Act

(whether or not the activities in question are, or are to be, carried on by those persons in their capacity as holders of such licences);

(5) to have regard to the funds available to the Secretary of State for the purposes of his functions in relation to railways and railways services;

(ca) to have regard to any notified strategies and policies of the National Assembly for Wales, so far as they relate to Welsh services or to any other matter in or as regards Wales that concerns railways or railway services;

(cb) to have regard to the ability of the National Assembly for Wales to carry out the functions conferred or imposed on it by or under any enactment.

(6) to have regard to the ability of the Mayor of London, [25]and Transport for London to carry out the functions conferred or imposed on them by or under any enactment.

(5A) Before giving any guidance for the purposes of subsection (5)(a) above the Secretary of State must consult the National Assembly for Wales.

(5B) In exercising its safety functions, other than its functions as an enforcing authority for the purposes of the Health and Safety at Work etc Act 1974, the Office of Rail Regulation shall be under a duty to have regard to any general guidance given to it the Secretary of State.

[25] In performing its duty under subsection (1)(a) above so far as relating to services for the carriage of passengers by railway or to station services, the Office of Rail Regulation shall have regard, in particular, to the interests of persons who are disabled.

[26] Without prejudice to the generality of paragraph (e) of subsection (1) above, any arrangements for the issue and use of through tickets shall be regarded as a measure falling within that paragraph.

(7ZA) Where any general guidance is given to the Office of Rail Regulation for the purposes of subsection (5)(a) or (aa) or (5B)—

- it may be varied or revoked by the person giving it at any time; and

- the guidance, and any variation or revocation of the guidance, must be published by that person in such manner as he considers appropriate.

(7A) Subsections (1) to (6) above do not apply in relation to anything done by the Office of Rail Regulation in the exercise of functions assigned to it by section 67(3) below ("Competition Act functions").

(7B) The Office of Rail Regulation may nevertheless, when exercising any Competition Act function, have regard to any matter in respect of which a duty is imposed by any of subsections (1) to (6) above, if it is a matter to which the Office of Fair Trading could have regard when exercising that function.

. . .

(8) In this section—

"the environment" means all, or any, of the following media, namely, the air, water and land (and the medium of air includes the air within buildings and the air within other natural or man-made structures above or below ground);

"notified strategies and policies", in relation to the National Assembly for Wales, means the strategies and policies of that Assembly that have been notified by that Assembly for the purpose of this section to the Office of Rail Regulation;

"the passenger transport market" means the market for the supply of services for the carriage of passengers, whether by railway or any other means of transport;

"railway service performance" includes, in particular, performance in securing each of the following in relation to railway services –

a. reliability (including punctuality);

b. the avoidance or mitigation of passenger overcrowding; and

c. that journey times are as short as possible;

"safety functions" means functions assigned or transferred to the Office of Rail Regulation-

i. under this Part;

ii. under or by virtue of the Railways Act 2005; or

iii. under or by virtue of the Health and Safety at Work etc Act 1974;

so far as they are being exercised for the railway safety purposes (within the meaning of Schedule 3 of the Railways Act 2005) or for purposes connected with those purposes.

Annex G - Table showing concerns raised by operators - renewals and enhancements

Operator	Project Planning	Programme delays	Possession overruns	Reliability of new infrastructure	Project Management experience	Performance modelling	Resource availability
Arriva Trains Wales	✓		✓	✓			✓
Chiltern					✓		
CrossCountry		✓					
FGW		✓	✓				
FTPE	✓	✓		✓			
GTR				✓		✓	
London Midland	✓						
Merseyrail							
Northern	✓	✓					
Southeastern	✓	✓			✓	✓	✓
Southern		✓		✓		✓	
SWT				✓			
Virgin EC							
Virgin WC			✓				

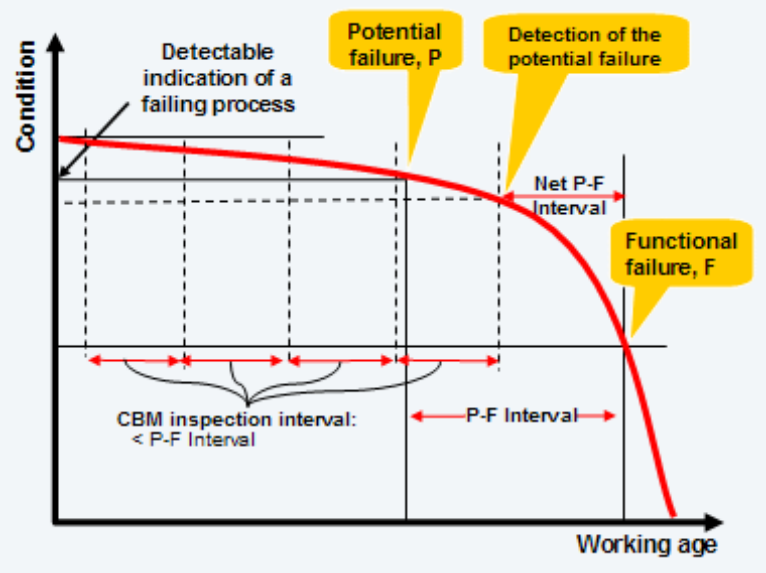
Table X Concerns raised by franchised operators in England and Wales – Enhancements and Renewal projects

Annex H – CRI – Background information

231. The Composite Reliability Index (CRI) is part of the CP5 replacement for the previously used Asset Stewardship Indicator (ASI). The CRI is a proxy measure for the contribution we expect from asset reliability in order to deliver the required punctuality.

232. The CRI shows the percentage improvement of asset reliability compared to the baseline taken at the end of CP4 by assessing the component measures covering the key asset disciplines: track, signalling, points, electrical power, telecoms, buildings, structures and earthworks. Each component measure is given a weighting, calculated as the effective cost per failure, based on train performance and safety.

233. The train performance costs are broken down into the criticality of the route on which the failures occurred to give a more accurate analysis of impact on performance. Route criticality is based on the breakdown of the railway into strategic route sections (SRS). Five criticality bands are initially defined by the average historical cost per failure, with band one having the highest level of cost and band five lowest.



234. Therefore failure to achieve the CRI targets means that this will have a corresponding detrimental impact on performance. Although there may be a time lag

between degradation in asset performance and impact on punctuality, the reliability of assets is a function of timely interventions made by NR.

235. As the assets get older and condition degrades the likelihood of failure increases. If interventions (maintenance and renewals) are not carried out in good time then the risk of failure increases within the P-F range and not surprisingly performance also tends to degrade over time. Hence, we monitor the volume of maintenance and renewals activity in order to support punctuality and sustain both the condition and reliability.

Annex I – Renewals and maintenance volumes

Table 11: Renewals Volumes, Sussex, 2014-15

Renewals	Type	Actual	Delivery Plan	Variance
Plain Line		24	47	-23
Switches & Crossings		53	56	-3
Off Track	Fencing	5	20	-15
Signalling	Full conventional	70	228	-158
Level Crossings		9	1	8
Civils	Under bridges	441	528	-87
E&P	Conductor Rails	17	7	10
	HV cables	2	18	-16
	LV Switchgear	57	33	24
	LV cables	0	3	-3

Table 12: Maintenance Volumes, Sussex, 2014-15

Maintenance	Units	Actual	Delivery Plan	Variance
PL Tamping	km	301	267	34
PL Stoneblowing	km	184	160	24
Manual web bed removal	Bay	1,379	180	1,199
S&C Tamping	Point end	241	282	-41
Mechanical wet bed removal	Bay	957	606	351
S&C Stoneblowing	Point end	14	50	-36
Manual Reprofiling of ballast	Rail yards	183,593	85,000	98,593
Manual correction of PL track geometry (CWR)	Yard track	107,595	85,100	22,495
Rail changing – CWR renew	Rail Yards	9,944	5,295	4,649
Fences and boundary walls	Yards	25,367	33,091	-7,724
Drainage	Yards	32,708	20,000	12,708
Vegetation Removal of trees	No.	426	700	-274
Vegetation Management by train	Mile	119	700	-581
S&C Maintenance (other)	Point end	10,928	2,871	8,057

Table 13: Renewals Volumes, London North Eastern, 2014-15

Renewals	Type	Actual	Delivery Plan	Variance
Plain Line		283	243	40
Switches & Crossings		177	228	-51
Off Track	Fencing	108	149	-41
Signalling	Full conventional	85	0	85
	Partial conventional	3	1	2
	Targeted component renewal	0	7	-7
Level Crossings				0
Civils	Under bridges	5,912	22,671	-16,759
E&P	OLE Re-wiring	5	26	-21
	HV Switchgear Renewal AC	4	0	4
	Structure Renewals	0	2	-2
	Points heaters	4	65	-61
	Signalling Power Cable Renewal	0	31	-31

Table 14: Maintenance Volumes, London North Eastern, 2014-15

Maintenance	Units	Actual	Delivery Plan	Variance
PL Tamping	km	991	1,280	-289
PL Stoneblowing	km	247	909	-662
Manual web bed removal	Bay	4,877	4,500	377
S&C Tamping	Point end	689	870	-181
Mechanical wet bed removal	Bay	3,096	2,500	596
S&C Stoneblowing	Point end	0	50	-50
Manual Reprofiling of ballast	Rail yards	197,433	300,000	-102,567
Manual correction of PL track geometry (CWR)	Yard track	342,164	250,000	92,164
Manual correction of PL track geometry (jointed)	Yard track	64,515	25,000	39,515
Rail changing – CWR renew	Rail Yards	17,284	23,000	-5,716
Fences and boundary walls	Yards	64,660	140,000	-75,340
Drainage	Yards	64,365	41,000	23,365
Vegetation Removal of trees	No.	1,130	1,500	-370
Vegetation Management by train	Mile	6	50	-44
S&C Maintenance (other)	Point end	49,320	75,000	-25,680

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