



OFFICE OF RAIL AND ROAD



Network Rail Monitor

Quarters 1-2 of Year 2 of CP5
1 April 2015 to 17 October 2015

1 December 2015

Contents



■ Network Rail Monitor	1		
■ Overview	4		
Health and safety	4		
Train service performance	4		
Asset management	5		
Developing the network	6		
Managing engineering works	7		
Expenditure and finance	7		
■ Health and safety	8		
Track	8		
Earthworks, structures and drainage	9		
Electrification	10		
Signals passed at danger (SPADS)	11		
Level crossings	11		
Infrastructure worker safety	12		
Crowd management	12		
Enforcement	12		
Transforming Safety and Health Strategies	13		
Occupational health	13		
■ Train service performance	14		
National level performance	14		
Performance at TOC level	16		
		London and South East resilience fund	19
		Investigation of Network Rail's delivery of operational performance	19
		Delay minutes	20
		Freight performance	20
		■ Customer service	22
		Passenger satisfaction	22
		Customer service maturity	23
		Network capability	23
		Network availability	23
		■ Asset management	24
		Maintenance and renewals volumes	24
		Asset performance	25
		Civils Adjustment Mechanism (CAM)	27
		ORBIS milestones	28
		Electrification asset measurement fleet	28
		■ Developing the network	29
		Network Rail's capability	29
		Re-plan of CP5 Enhancements	30
		Delivery progress	32
		New approach to major programmes	33
		■ Expenditure and finance	34

Contents



Overall financial performance	34
Network Rail's financial performance	35
Network Rail's debt and borrowing	37
Route level expenditure and financial performance	37
■ The railway in Wales	39
Health and Safety	39
Train performance	40
Developing the network	41
Expenditure and financial performance	42
■ Rheilffyrdd yng Nghymru	43
Iechyd a Diogelwch	43
Perfformiad trenau	44
Datblygu'r rhwydwaith	45
Gwariant a pherfformiad ariannol	46

Overview



Health and safety

Britain's railways are currently the safest in Europe, a significant achievement for Network Rail and the industry. While safety performance has generally been good, with improvements in asset condition in some key areas, such as track quality and drainage compared with the end of Control Period 4 ([CP4](#)), Network Rail needs to be vigilant on its management of risks and in some areas needs to ensure it complies more robustly with its own standards. In particular the impact of reduced work to renew infrastructure needs to be carefully monitored and managed, given the greater onus this puts on both maintenance and operational teams to manage risk.

Level crossings are a significant source of risk to safety on the railway, and to manage this risk Network Rail signed up to a programme of closures in Control Period 5 ([CP5](#)). Network Rail has been successful in keeping the closure trend on target. At the end of June 2015, more than 140 level crossings had been closed since the start of CP5.

During the first half of 2015-16 ORR inspectors scrutinised Network Rail's local management delivery, performance, and renewal plans, particularly in relation to track quality. We found varying compliance with key standards and processes with some evidence of some significant non-compliance. These are

detailed in the health and safety section below. Network Rail is investigating these problems and we are monitoring its response.

Network Rail is currently behind schedule with the examination of structures, resulting in a significant backlog of work, with a small number of inspections more than a year overdue. Poor access planning is a significant contributor to this problem, and we expect the company to address it.

On occupational health, we have concentrated on the key risk areas of hand-arm vibration, silica dust from ballast handling, manual handling and control of exposure to asbestos. Network Rail needs to focus on implementing its new central policies at route and site level.

Train service performance

Passenger

The National Rail Passenger Survey for Spring 2015 (published by Transport Focus in June 2015) shows that punctuality/reliability remains the single most important driver of passenger satisfaction. This underlines the need for a continuing focus on performance delivery.

In 2014-15 passenger kilometre growth exceeded our CP5 assumptions; this is an achievement for the industry. We do not however accept that growth in passenger demand alone necessarily results in greater likelihood of delays across the network.

As we reported in the Network Rail Monitors for 2014-15, the company's worse-than expected performance in CP4 meant that it entered CP5 at a lower level of performance than anticipated. On that basis, Network Rail proposed to return performance to targeted levels by 1 April 2016 and we agreed to monitor delivery against its plan to achieve this ("the Performance Plan") during the first two years of CP5.

Although Network Rail is largely delivering the milestones in that plan, the anticipated performance benefits have yet to materialise. At the end of [period 7](#) 2015-16 [PPM Moving Annual Average](#) (MAA) in England and Wales stood at 89.4% with [CaSL](#) MAA at 3.0%, both just short of target. The challenge for the company is to understand why, despite the measures it has taken, performance is not improving sufficiently quickly and to implement further measures to address this.

Performance has declined over the last four years, although the rate of decline has slowed recently, particularly during 2015-16. The weather has been generally benign during the period covered by this Monitor but there may be some cause for optimism that the declining performance trend has now been halted.

Freight

Performance for the freight sector was relatively strong. The Freight Delivery Metric (FDM) MAA at the end of period 7 2015-16 stood at 94.3%, 1.8pp above the 92.5% target.

Asset management

Asset performance has continued to improve this year. At period 7 the [Composite Reliability Index \(CRI\)](#) reached 14.0% for the network as a whole, well above target (9.3%). The improvement is across all asset areas except telecoms.

Delivery of track renewal has improved this year and is close to plan, but there are significant shortfalls in signalling and civils. Delivery of maintenance continues to be variable compared to plan, reflecting weaknesses in the maintenance plans themselves. To address this, the routes are working with their maintenance delivery units to develop asset management plans at delivery unit level, so that plans better reflect local knowledge of maintenance needs.

We received Network Rail's [Civils Adjustment Mechanism \(CAM\)](#) submission at the end of March 2015, and found the [bottom-up workbank](#) to be broadly consistent with the asset policy targets for achieving sustainability during CP5. However, Network Rail was unable to provide sufficient certainty about costs, which appear to be significantly higher than expected during the periodic review. This has prevented us deciding the efficient level of funding.

Developing the network

At the end of 2014-15, Network Rail had not achieved 30 out of 84 regulated project milestones. While not all of these had an immediate impact on benefits for rail users, missed 'intermediate' milestones are indicative of delivery risks, and can cause further disruption to services where works are prolonged. In April 2015, following several meetings and formal letters dating back to autumn 2014 asking the company to produce an improvement plan, we initiated a formal investigation into the Network Rail's planning and delivery of enhancements, since we were not seeing a satisfactory response. In September 2015, we concluded that Network Rail was in current breach of its licence because we found systemic weaknesses in its ability to plan and deliver enhancements.

In this context, we assessed whether Network Rail was taking all necessary steps to address our concerns. We concluded that its plans to improve its capability (known as its *Enhancements Improvement Programme (EIP)*) were sufficient, but we would need greater assurance and evidence of benefits realisation before we could be confident that the company's projects were deliverable.

Our immediate concern is around ensuring value for money for taxpayers from the Great Western electrification scheme, where Network Rail recently announced that it expected costs to escalate to between £2.5bn and £2.8bn compared to its own estimate of £1.8bn included in its ECAM submission to ORR in July 2014. We have yet to see the back up to this

re-forecast but are particularly concerned about the productivity assumptions it is based on. Although Network Rail has identified issues with buried signalling cables, we are much more concerned about the poor quality of information supplied to its design contractors and particularly the very poor use of the midweek access that we have seen from our own nightshift site visits.

Network Rail is continuing to work on its business plans to address the problems arising from cost escalation on enhancements and underperformance on efficiency in the core business. The Government has stated its ambition to see the big enhancement projects delivered and Sir Peter Hendy has recently reported on this. As well as ensuring that Network Rail addresses its systemic issues with its capability in project delivery through its EIP, we are seeking Network Rail's assurances that the any changes to its planned renewal and maintenance of the existing network can be properly resourced and managed safely and in a way which is consistent with its licence obligations on the condition of its assets. We will monitor and inspect the network accordingly.

Managing engineering works

On 27 and 28 of December 2014, passengers travelling into or out of King's Cross and Paddington stations were severely disrupted as a result of overrunning engineering works. In February, ORR found Network Rail in breach of its licence in that it had not taken reasonably practicable steps in planning engineering work and the development and implementation of its contingency plans. We made nine recommendations for improvement and since then we have been closely monitoring the work that Network Rail has been doing to address these as recommendations as well as the findings from its own internal review.

In addition to making recommendations to Network Rail, ORR has also moved to a more proactive review of work planned ahead of major possessions. We carried out our own readiness reviews to validate Network Rail's preparation and contingency plans both for the engineering works and for passengers, for the works at Easter and other bank holidays. These identified issues, for example, with East Kent re-signalling. We have used this work to provide assurance to the Secretary of State.

The company has undertaken a detailed change project focusing on key areas, such as contingency planning and the performance of its contractors. On the basis of the evidence provided, interviews with managers and observation of the implementation of actions, we have concluded that Network Rail has taken reasonably practicable steps to respond to our recommendations. We will continue to hold the company to

account through its existing licence obligations for the way in which it works with train operators and prepares for significant engineering workloads on bank holidays.

Expenditure and finance

For the year to date Network Rail's financial performance is £58m worse than its own budget and for the full year it is £227m worse, as Network Rail is delivering lower efficiencies than it forecast. Compared to our determination it is forecasting to underperform the regulatory financial performance measure by around £810m in 2015-16 largely because of the efficiency challenges it faces.

For the first time our document provides a simple analysis of Network Rail's financial performance across its routes.

Network Rail's borrowing is expected to be £8bn for 2015-16, which is equal to the amount it told the Department for Transport (DfT) it would borrow in the year.

Health and safety



Britain's railways are currently the safest in Europe, a significant achievement for Network Rail and the industry. While safety performance has generally been good, with improvements in asset condition in some key areas, such as track quality and drainage compared with the end of CP4, the company needs to be vigilant on its management of risks and in some areas needs to ensure it complies more robustly with its own standards. In particular, the impact of reduced work to renew infrastructure needs to be carefully monitored and managed, given the greater onus this puts on both maintenance and operational teams to manage risk.

Track

Track Geometry

In period 7, track contributed 4.6% of the total [Precursor Indicator Model \(PIM\)](#) score, and 9.3% of the total risk to passengers. These are slight improvements on the position at the end of 2014-15 and continue the long term decrease in risk attributable to track. The 'twist and geometry fault' precursor makes up the largest proportion of the track discipline precursor, followed by [switches and crossings \(S&C\)](#) faults. Both are again on an increasing trend at present. Good and poor track geometry levels are at levels better than CP4 exit. We are closely monitoring track geometry performance including discrete track geometry fault risk and in particular the

slow and seemingly fragile reduction in repeat fault numbers and the barriers to faster progress.

We are currently undertaking a programme of visits to Delivery Units (DUs) in selected routes in order to verify the effectiveness of their arrangements for managing poor track geometry in the short, medium, and longer term. This work includes consideration of volume delivery, performance, and renewal plans. We have visited four routes to date and we found a consistent picture across all of them. In general we found that DUs were managing the immediate risk arising from track geometry faults, but were heavily dependent on the knowledge, competence, experience and availability of key individuals. Levels of compliance with key company standards and processes in place to manage track geometry risks varied across the DUs with some significant failings identified.

We consider that a lack of effective monitoring and surveillance activity, and governance is preventing Network Rail from tackling these long standing issues effectively.

Network Rail does not believe that the reduction in renewals volume delivery to date has had an impact on maintenance. We have no evidence of safety risk being increased because of this reduction, but there is the potential for a sustainability gap with increased reliance on the maintenance function.

Switches and Crossings

Network Rail has three significant workstreams addressing the management of risk:

- the roll out of the new tubular stretcher bar design developed as a result of the Grayrigg derailment in 2007. There have been failures in the installation of this equipment, but Network Rail is investigating these and we are monitoring the investigation;
- improved management of track joints near S&C, including a greater understanding of site risk, and removal at the highest risk locations; and
- improved implementation of the inspection and maintenance regime for managing derailment risk at switches.

We will continue to monitor delivery of these key improvements to risk control.

Management of Rail

Since Hatfield, Network Rail has put significant effort into reducing the number of broken rails. Real progress has been made in the last 15 years, primarily through better understanding of causes, better inspection techniques, more frequent inspection, and better quality control over rail and weld manufacture. Network Rail is developing an [eddy current testing](#) tool for use in the rail environment. The tool is being fitted to four of the company's ultrasonic test train trains but not the fifth (known as UTU-S) and is being rolled out across those

routes covered by the ultrasonic test trains on which it is fitted. Network Rail is partly attributing the increased re-railing volumes (year to date: 158km as against 117km planned) to data clarity provided by the new eddy current inspection regime.

Interaction of train and track

There have been a series of freight container wagon derailments over the last few years, e.g. Reading West in 2012 and Camden in 2013. These exhibited a number of common factors relating to track condition which include: track twist, vehicle sensitivity to track geometry and asymmetric loading of containers. Following ORR's lead, a cross industry working group was formed with the aim of identifying and implementing improvements. A number of key workstreams are underway.

Earthworks, structures and drainage

Earthworks

We have previously found evidence of weaknesses in Network Rail's management of earthworks, especially during periods of adverse weather. In 2012 we served an Improvement Notice on risk assessment as Network Rail Scotland could not demonstrate it had a suitable and sufficient assessment of the risks associated with trains colliding with failed earthworks during adverse weather. Network Rail's response to that notice has since been rolled out to the rest of Great Britain. Key interventions within the last six months include:

- a review of Network Rail's changes to the national risk assessment process used for managing earthworks in adverse weather. This has resulted in significant changes to the process being followed, which are being scrutinised;
- progress towards completing the process of identifying previously unknown earthworks.

Structures

Structures such as bridges and tunnels need to be examined at prescribed intervals to ensure that they remain in a safe and sustainable condition. Over the past few years a backlog of structures examinations has built up and ORR has been challenging Network Rail to reduce it. Whilst improvements have been made, significant numbers of structures examinations remain in backlog, with a small number more than a year overdue. Pressure from ORR during the first half of 2015-16 has driven a reduction in the backlog and Network Rail is working to complete the longest overdue examinations. However, there remains an unacceptably high level of backlog (2,163 structures not yet examined on site at period 7.) A significant contributor to the backlog has been poor planning for engineering access to the structures.

Drainage

Inadequate drainage may lead to earthwork failures which present a significant safety risk to the network. On 18 February 2015, we served an Improvement Notice on Network Rail

focusing on management of catastrophic risks associated with inadequate capacity or degraded performance of drainage systems in soil cuttings.

During the first half of 2015-16, ORR inspectors have seen notable improvements, for example with improved asset knowledge through digital mapping of drainage systems and introduction of a new drainage 'My Work App' that drives accuracy and better recording of drainage system inspections. However, Network Rail has recently indicated that it may not achieve the compliance date of January 2016 set out in the notice. A revised compliance date - before mid-2016 - is being discussed.

Electrification

Design of new and upgraded traction supply

We are ensuring that designs for new AC electrical traction systems incorporate the principles of *Safety by Design*, that designs comply with legal requirements and are fit for purpose. On the whole the industry has responded positively, if not consistently to the complex challenges raised.

Network Rail has produced a set of *Electrical Principles for New Electrification*. Whilst not ideal in every respect these are realistic and achievable and represent a clear step forward in terms of safety culture. ORR will continue to engage with Network Rail both at the centre and on a project by project basis to help drive further improvement. The principal challenge is to ensure that focus and commitment is not lost

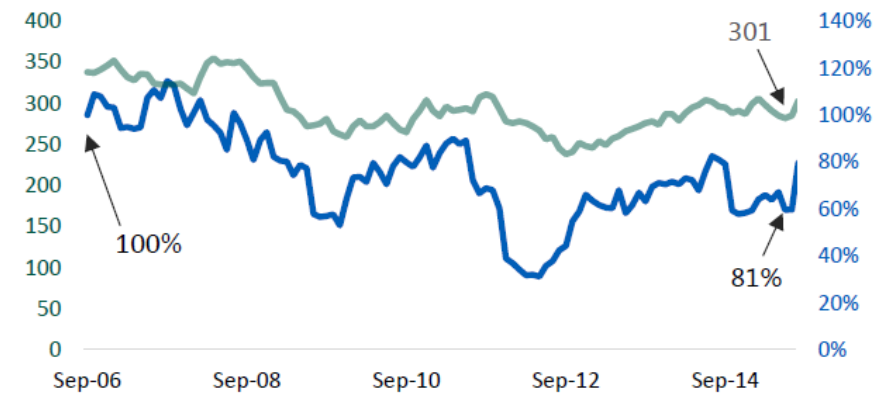
despite the current pressures on cost and delivery by a supply chain which is itself evolving and developing.

We are also monitoring spend and effectiveness of CP5 work on *Safer, Faster Isolations* in DC and AC areas. Good progress is being made in both areas and on the DC side, trial equipment is now being installed.

Signals passed at danger (SPADS)

At the end of September 2015, the annual moving total of SPADs was 301. SPAD risk declined over the last year but increased by 21pp over August and September 2015 to 81%, driven by events where a train had passed the [conflict point](#) and there was potential for a collision. There were three SPADs involving passenger trains which passed conflict points in the last 12 months. The higher risk SPAD trend is volatile due to the relatively small numbers involved: there are around 80-90 '16-19 risk ranked' SPADs annually and around 10-20 of the higher '20+ risk ranked' SPADs annually.

Green SPADs Annual Moving Total and Blue Risk:



Source: RSSB's monthly SPAD report - September 2015

Level crossings

Since the start of CP5, over 140 level crossings had been closed, keeping the closure trend on target.

ORR has been inspecting the management of risk to users of [passive level crossings](#) where warning is provided by train horn – sometimes known as “Whistle Board Crossings”. The aim was to verify that train horns were audible at the crossings and that the warning time was in excess of the crossing time. The clarity of the warning was generally found to have been adequate, but the effectiveness of this approach can be compromised in some locations by inconsistent application on the part of train drivers, environmental noise and weather. We are challenging Network Rail to roll out new technologies to help address this issue.

Infrastructure worker safety

Trackworker safety

Network Rail is currently trialling its new *Planning and Delivery of Safe Work (PDSW)* process to improve track worker safety in the East Midlands. The implementation has revealed significant problems with:

- the quality and consistency of the briefing being given to staff;
- the IT system; and
- planning and resource concerns.

Our inspections and discussions with Network Rail and the Trade Unions have not uncovered any instances of unsafe work resulting from PDSW. We recognise that the new process aims to change behaviours that are much wider than just trackworker safety and that PDSW has revealed in particular serious underlying planning weaknesses.

We continue to monitor Network Rail's work developing track protection and warning systems, such as the [remote disconnection device \(RDD\)](#) and the [signal controlled warning system \(SCWS\)](#) for which funding was provided to the company under the CP5 settlement. These innovations show promise and we will continue to support this valuable work.

Crowd management

We hosted a crowd management seminar on 7 October 2015 to urge the industry to consider and effectively manage the impact of growth on the network. A number of examples of good practice were identified and it was generally accepted that the industry needed to do more to manage growth effectively. The *Passengers on Trains and Stations Risk Group (PTSRG)* will take the outputs from the seminar and develop a programme of work, including the revision of existing guidance on crowding.

Enforcement

ORR has served five notices on Network Rail since 1 April 2015, three on manual handling of troughing, one on the maintenance of a fire suppression system in a [GSM-R](#) control centre and one on a level crossing. One notice served last year on a contractor relating to failure to adequately control exposure to respirable silica in ballast dust, was appealed against. The appeal was dismissed and the notice was re-imposed. There is currently one prosecution in the courts against Network Rail for failure to comply with an Improvement Notice.

Transforming Safety and Health Strategies

Network Rail's central Health and Wellbeing Strategy team has demonstrated effective leadership and support to the routes through its *Management Maturity Matrix* and *Health Improvement Plan*. This approach allows routes flexibility to work within a structured framework on areas where they have identified a specific need.

Network Rail has developed and is implementing an integrated plan to deliver the 209 projects that make up its *Transforming Safety Strategy*. The table below sets out their current status.

Projects		
■	On Plan	172
■	Timeline at risk	3
■	Not Started	4
■	Delivery at risk	5
■	Completed	25

Occupational health

ORR has concentrated on the key risk areas of hand arm vibration, silica dust from ballast handling, manual handling and control of exposure to asbestos. Network Rail's central policies and strategies in these areas are being improved and the company now needs to focus on implementing these and embedding the new approaches at route and site level – something that has been a challenge in the past.

Network Rail also needs to work harder to manage basic workforce health risks, one example being the handling of very heavy concrete troughing. The company's response to the risk was slow and weak over two years, and in April 2015 ORR served two prohibition notices on individual and team lifts over 40kg and 70kg respectively, and an improvement notice requiring assessment of risks for lifts over 25kg.

Train service performance



National level performance

Approach in years one and two

Network Rail entered 2014-15 at much lower levels of performance than anticipated in our CP5 Final Determination and at that stage did not expect to meet a number of its regulated performance outputs during the first two years of CP5. We agreed we would take an input-based approach to monitoring Public Performance Measure (PPM) and Cancellations and Significant Lateness (CaSL) in England and Wales during these years. We have monitored (and continue to monitor) delivery of the company's CP5 Performance Plan.

In addition, we are monitoring Network Rail's delivery of the regulated performance outputs (PPM and CaSL) at TOC level as specified by the targets in the [Performance Strategies](#). Network Rail has agreed with each operator. We consider these to be Customer Reasonable Requirements (CRRs). National freight performance, measured by the [Freight Delivery Metric \(FDM\)](#), remains an annual regulated target throughout CP5.

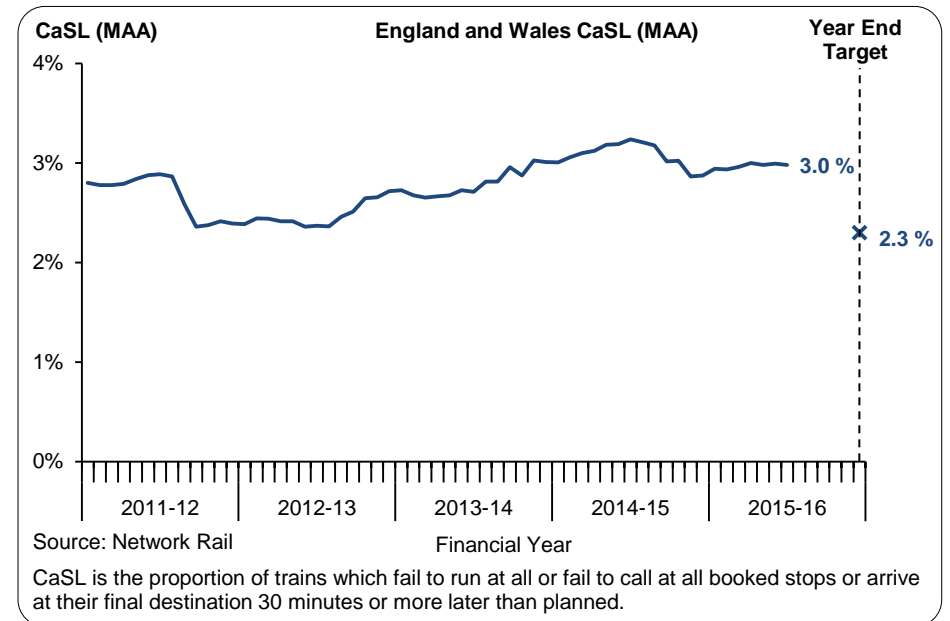
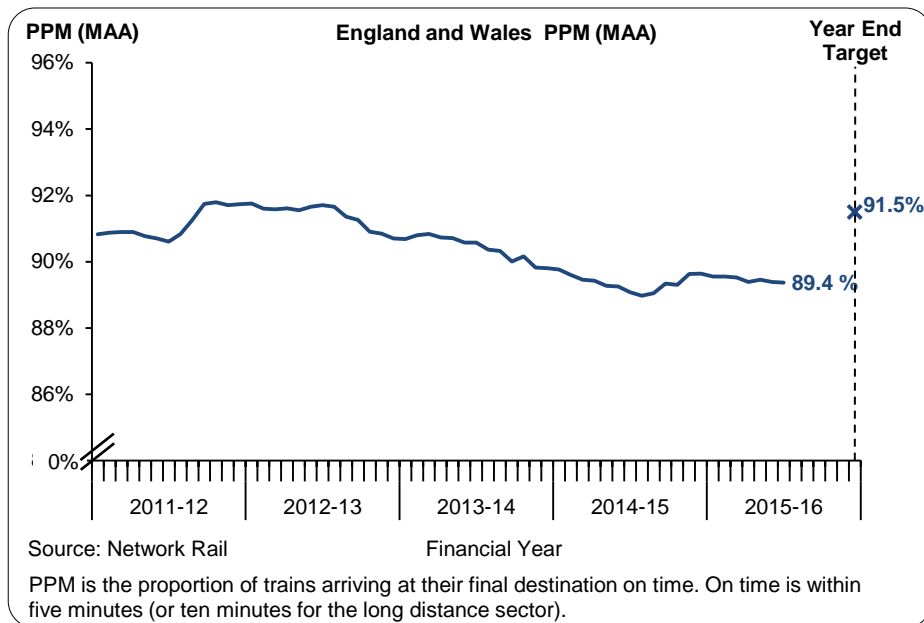
Delivery of the CP5 performance plan

Network Rail provides quarterly reports on delivery of the CP5 Performance Plan. These reports show that at the end of Quarter 2, 2015-16, of the 235 activity milestones completed in England and Wales, 188 were completed on time or early whilst 47 were completed late. Of the 201 milestones yet to be delivered in England and Wales, 114 are expected to be delivered on schedule whilst 27 are forecast to be delivered late. 60 milestones have either been abandoned or are on hold.

While this represents good progress in delivering performance improvement schemes, we are carefully monitoring the proportion of schemes delivered late and the proportion that are scheduled to be delivered late. Network Rail's cancellation of its Traffic Management programme has left a large shortfall in the Performance Strategies for all routes. The company has yet to confirm how it will offset this shortfall. We will continue to hold Network Rail to account for the delivery of the claimed benefits.

At the end of period 7 of 2015-16, underlying performance in England and Wales was below the levels predicted when the CP5 Performance Plan was produced. The picture has improved since the beginning of 2015-16, but not to the level required for Network Rail to meet the targets specified in its Delivery Plan at the beginning of the control period. The graphs below show the national PPM and CaSL positions. PPM MAA was 2.1pp below target, ending the period at 89.4%. The end of year regulatory target for 2015-16 is 91.5%. PPM MAA, during CP5, declined until period 8 of 2014-15 and then saw an improvement for the rest of that year.

CaSL MAA, during CP5, worsened until period 7 of 2014-15 and then improved over the rest of that year. It declined slightly in the early periods 2015-16 but has levelled off recently. It needs to improve further to meet the targets specified in the Delivery Plan. At the end of period 7 CaSL MAA was 0.7pp worse than target, ending the period at 3.0%. The end of year regulatory target for 2015-16 is 2.3%.



We have analysed the numbers of trains failing PPM and the amount of time by which they failed. In 2014-15 the regulatory target of 91.9% for England and Wales would have been achieved if an extra 147,000 trains had arrived within the PPM threshold (5 minutes for London and South East and regional services and 10 minutes for long distance services). On average, these trains missed target by 1 minute 25 seconds, so if punctuality of these services could be improved by this amount the regulatory target would have been achieved. Network Rail's performance plan target of 91.0% was missed by 88,000 trains. This could have been achieved if punctuality had been only 47 seconds better.

In 2014-15 passenger kilometre growth exceeded our CP5 assumptions (see table below); this is an achievement for the industry. We do not however accept that growth in passenger demand alone necessarily results in greater likelihood of delays across the network.

Passenger Kilometres (2014-15 – annual growth)

Sector	Growth assumed	Actual Growth
Long Distance	2.9%	5.5%
London SE	2.4%	3.4%
Regional	3.1%	5.4%

Performance at TOC level

Performance since the beginning of CP5 has generally been worse than the targets specified in the Performance Strategies for a significant number of operators. As mentioned above, we hold Network Rail to account for its delivery to operators through performance targets within their Performance Strategies. We consider that these targets constitute CRRs.

PPM

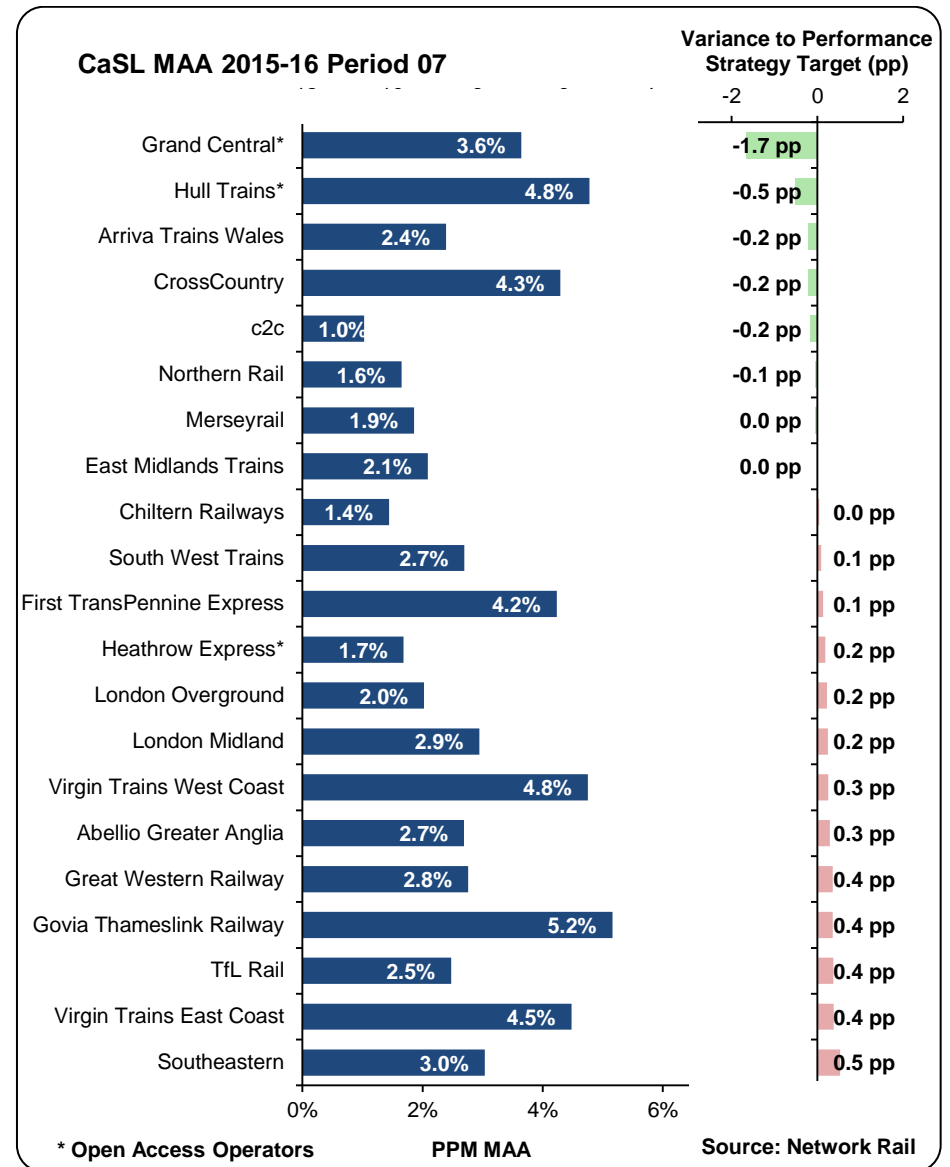
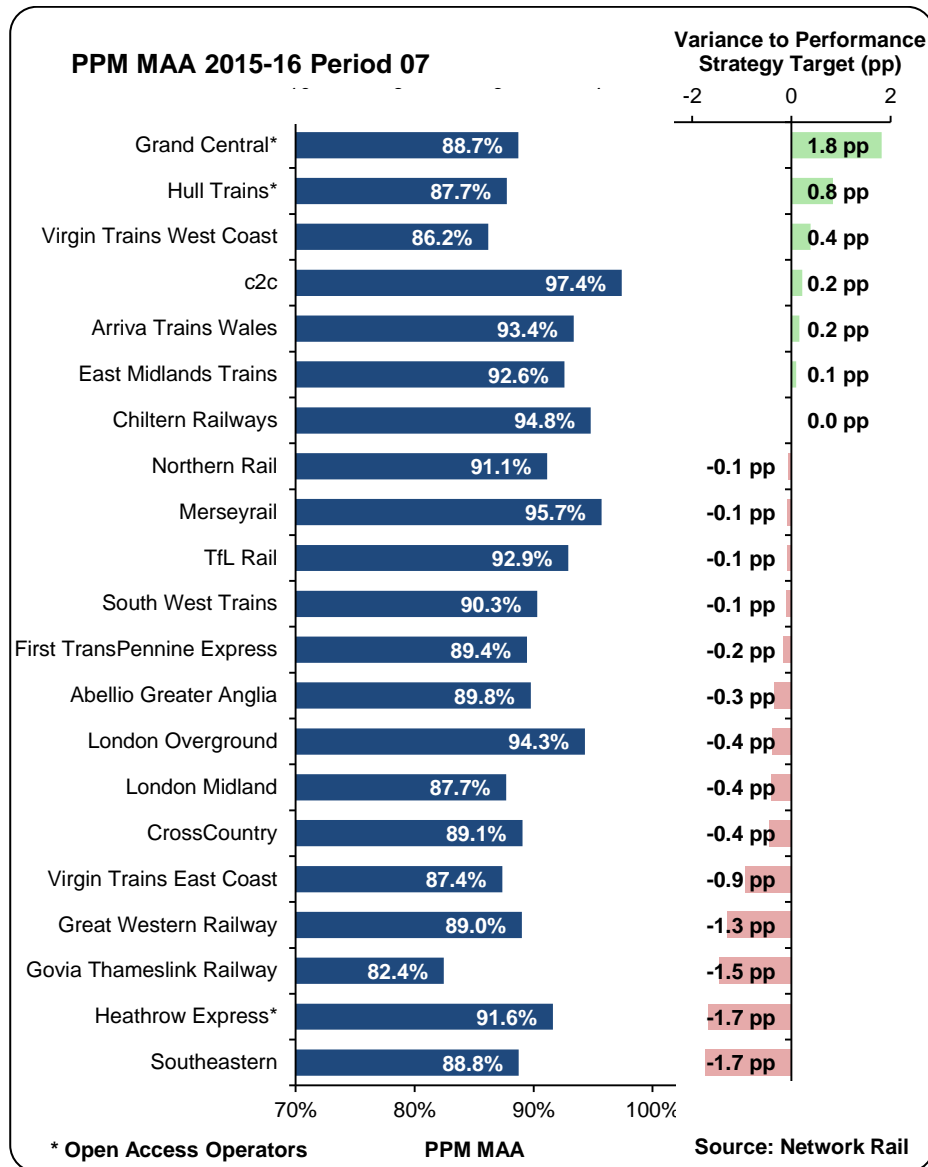
c2c recorded the highest absolute PPM MAA score (97.4%). By contrast, four operators, Southeastern, Heathrow Express, Govia Thameslink Railway (GTR) and Great Western Railway had the largest variance against period 7 PPM MAA targets, all missing by more than 1.0pp. GTR recorded the lowest absolute PPM score (82.4%).

CaSL

Eight operators met or beat their period 7 CaSL MAA targets. Grand Central beat its target by the greatest amount (1.7pp). c2c recorded the lowest (i.e. best) absolute CaSL result (1.0%). Southeastern missed target by the greatest amount (0.5pp). GTR was the only operator to deliver CaSL results in excess of (i.e. worse than) 5%.

The CP5 Final Determination set thresholds of 2.0pp for PPM MAA and 0.2pp for CaSL MAA. Beyond these we will consider whether we need to intervene. We are currently forecasting that Network Rail's delivery to Great Western Railway and Southeastern will miss these thresholds at the end of the year for PPM, while CaSL performance is forecast to be outside the thresholds for Virgin Trains West Coast and London Midland. We are monitoring performance of these TOCs closely and are engaging with them to better understand their concerns.

The graphs below show all operators' performance ranked by variance to their Performance Strategy targets at the end of period 7.



London and South East resilience fund

Network Rail continues to develop and deliver the suite of schemes constituting the £25m London and South East (LSE) resilience fund. These schemes will improve the resilience of the infrastructure to adverse and extreme weather delivering benefits to London and South East services. The first of these schemes will be completed during 2016 providing lightning mitigation on the Anglia route and for the Wessex route between Waterloo and Clapham Junction. Network Rail is also on course to complete further flood, high wind and cold weather mitigation schemes during 2017 funded by the LSE resilience fund as well as coastal defence works at Folkestone Warren.

Investigation of Network Rail's delivery of operational performance

We have completed a performance investigation into whether Network Rail did everything reasonably practicable to achieve its performance targets in 2014-15. In England and Wales this has focused on delivery to GTR. We found Network Rail in breach of its licence and proposed to impose a financial penalty. We gave Network Rail the opportunity to put forward an offer of reparations as part of response to our draft penalty notice. In lieu of the proposed penalty, we have accepted the company's offer of a reparation fund of £4.1m for a package of performance improvement schemes which will provide benefits for those passengers affected by poor performance on GTR (and formerly Southern) services in 2014-15.

An emerging concern is the new GTR timetable, to be introduced on 13 December 2015. This will make significant changes to off-peak services across the franchise and we have identified some specific concerns.

Whilst Network Rail has provided evidence to satisfy us in a number of areas, we remain concerned by the lack of performance modelling and evidence of post-implementation contingency planning. We will continue to press the company on these issues in order to minimise the potential for further disruption for passengers.

We are continuing to monitor Network Rail's delivery to all other operators and will consider taking regulatory action should the plans set out in the Performance Strategies fail to deliver the proposed benefits, or should other concerns come to light.

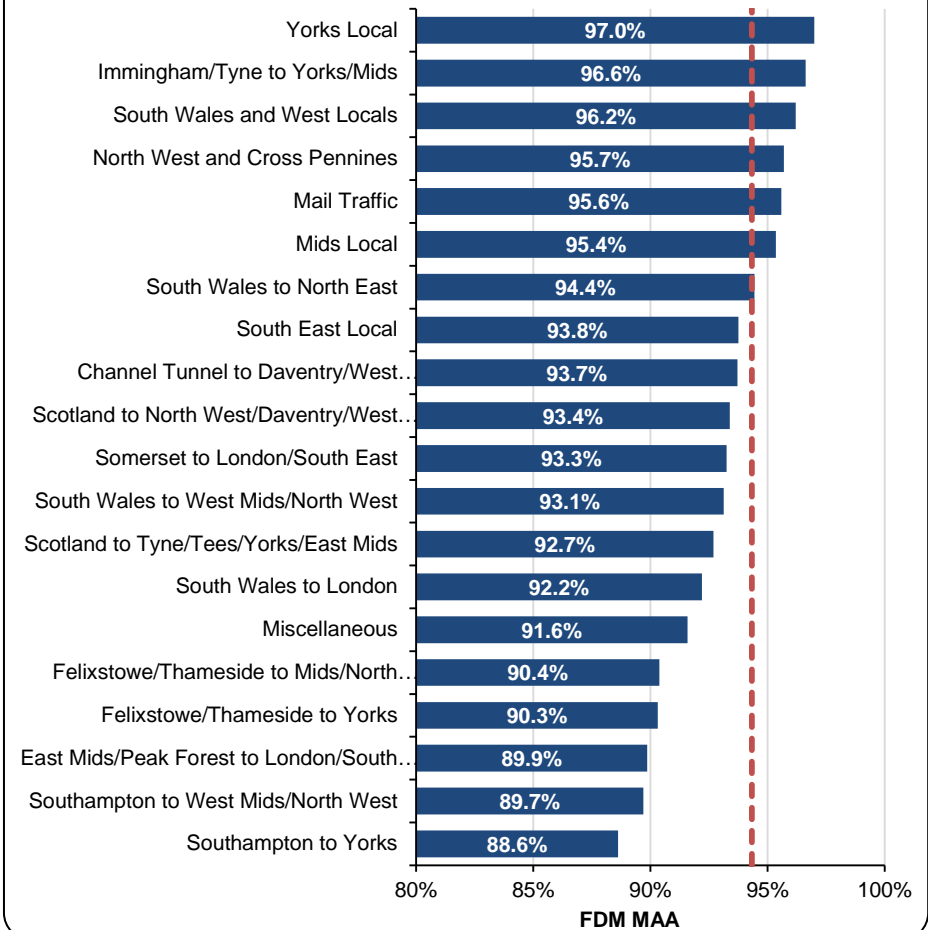
Delay minutes

We monitor Network Rail delay minutes as a key indicator for train performance. In the year to period 7, 2015-16, Network Rail caused 59% of delay minutes. 29% were “TOC on Self” (delays to a passenger train operating company's services caused by that company) and 13% were “TOC on TOC” (delays to a passenger train operator’s services caused by another train company). The operators with the lowest proportion of Network Rail caused delays were Arriva Trains Wales and Chiltern Railways (49%). Network Rail caused the highest proportion of delays to Hull Trains (69%). In period 7 Network Rail was responsible for 39 of the top 50 passenger-affecting incidents. The table on page 20 provides further detail.

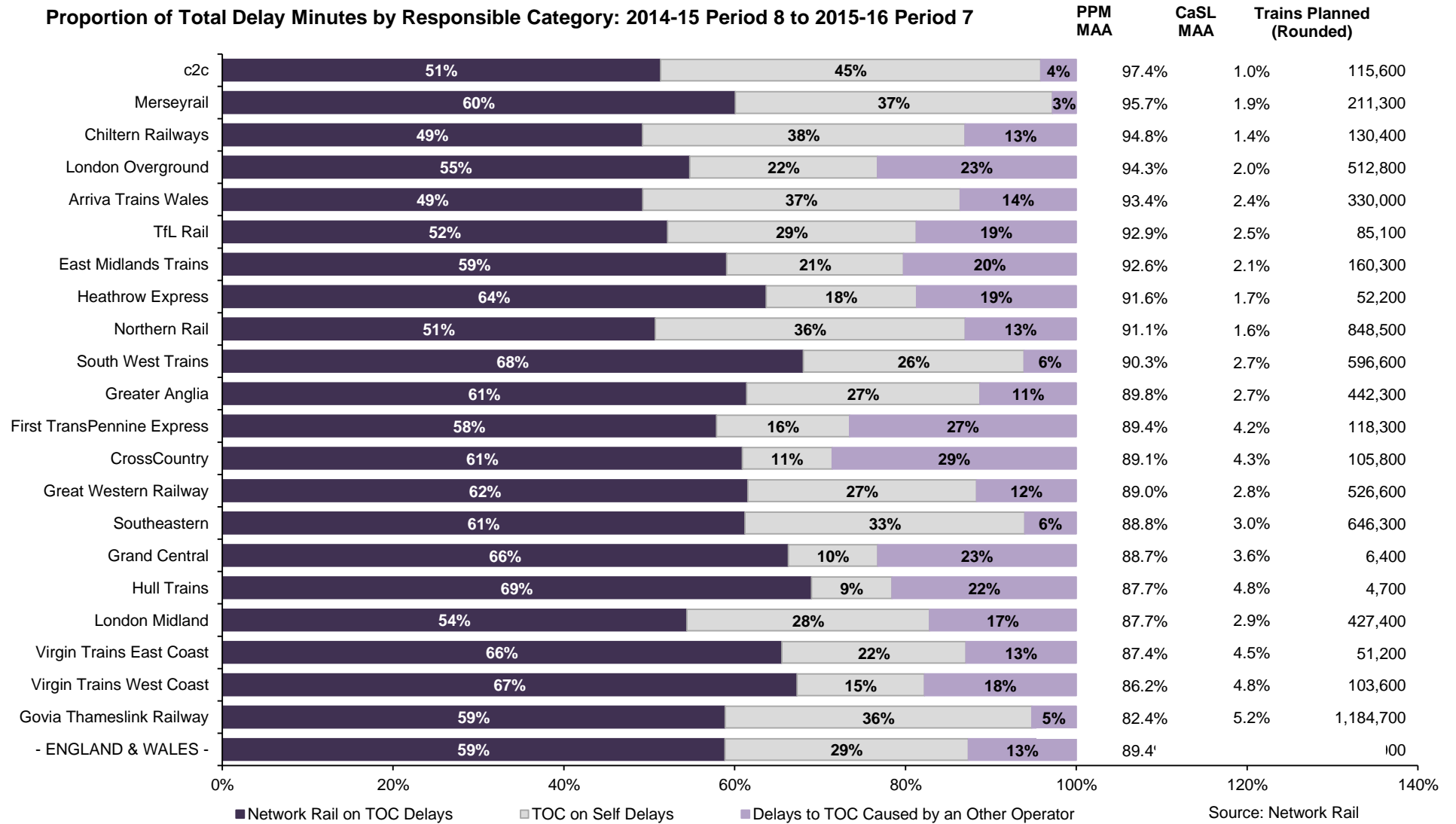
Freight performance

The regulatory performance measure for freight is the Freight Delivery Metric (FDM). This measures the percentage of freight trains arriving at their destination within 15 minutes of scheduled time. FDM covers delays for which Network Rail is responsible, i.e. *not* those caused by other train operators. FDM MAA at the end of period 7 stands at 94.3%, 1.8pp ahead of the annual target of 92.5%. The level of service delays to freight customers caused by the freight operators themselves has also declined during the first half of 2015-16.

FDM by Strategic Freight Corridor - 2015-16 Period 07



Proportion of Total Delay Minutes by Responsible Category: 2014-15 Period 8 to 2015-16 Period 7



Customer service



Passenger satisfaction

Transport Focus published the results of its Spring 2015 National Rail Passengers' Satisfaction survey (NRPS) on 25 June 2015.

Although passenger satisfaction depends on TOC as well as Network Rail performance, these results reflect our concerns about Network Rail's non-delivery of some regulated outputs. The latest results showed that nationally the percentage of passengers satisfied with their journey overall was 80%. This is lower than the Spring 2014 result when 82% of passengers were satisfied. Overall satisfaction by operator varied between 72% (Southern) and 96% (Hull Trains). By individual routes within TOCs it varied between 64% and 96%.

For London and the South East operators, 78% of passengers were very or fairly satisfied with their journey overall; this is down compared to Spring 2014 (80%). For long distance operators the proportion was 88% compared to 86% in Spring 2014. For regional operators 85% of passengers were very or fairly satisfied, compared to 86% in Spring 2014.

Satisfaction with punctuality and reliability

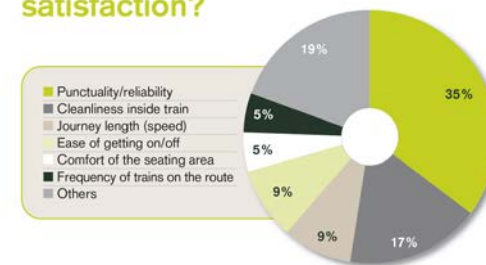
Nationally, the proportion of passengers satisfied with the punctuality/reliability of their journey was 75%. This was down compared to Spring 2014 (77%).

Satisfaction with punctuality/reliability by individual TOC varied between 56% (Southern) and 96% (Hull Trains and Grand Central).

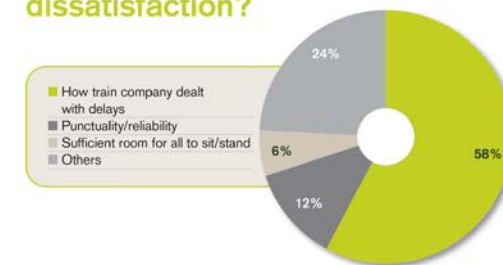
Drivers of satisfaction and dissatisfaction

Analysis of which station and train factors correlate most highly with overall journey satisfaction shows that punctuality/reliability remains the biggest single influence on satisfaction. The way delays are handled by TOCs has a strong influence on dissatisfaction.

What has the biggest impact on overall satisfaction?



What has the biggest impact on overall dissatisfaction?



Customer service maturity

Network Rail continued to make progress in embedding its Customer Service Maturity model, as we specified in our CP5 Final Determination. This will provide a much fuller picture of the level of service delivered to its customers than the annual Customer Satisfaction survey.

In the first half of 2015-16, Network Rail reported that nationally, at an aggregate level there had been a slow improvement in scores from 2.82 (the benchmark), to 2.86 in May and 2.96 in August. The end of Control Period trajectory remains at 4.27. We acknowledge this improvement but Network Rail will need to continue and indeed accelerate to hit the trajectory to achieve 4.27 by the end of the Control Period.

The scores vary significantly by route. Anglia showed the biggest individual improvement since the previous update with an increase of 0.35 to 2.75, whilst HS1 declined the most losing 0.22, down to 3.07. However, HS1 still remains above Anglia in absolute terms.

Network capability

Network Rail published updates to its network capability section of its Annual Return in August 2015, explaining the changes made to the network as a result of network changes since 1 April 2014. These changes covered issues such as line speed, gauge, route availability and the amount of electrified track.

The industry's network capability steering group has continued to provide a forum for engagement between Network Rail and a range of industry stakeholders. Whilst a range of issues around capability have been discussed there have been no material concerns raised formally with ORR.

Network availability

Network availability is a measure of the impact of planned engineering work on passengers and freight customers.

On the passenger side, Network Rail has not reported the [Possession Disruption Index for Passengers \(PDI-P\)](#) to us since the start of this year. This is due to technical issues with the system that produces the figures. Network Rail has developed a plan to repair the system and recommence reporting by early next year and we will reassess delivery of this regulated output at that stage.

As far as freight customers are concerned, Network Rail is currently on track to meet its CP5 target for the [Possession Disruption Index for Freight \(PDI-F\)](#).

Asset management



Maintenance and renewals volumes

Maintaining and renewing the network is fundamental to Network Rail's responsibilities. Regular maintenance counters the effects of wear and aging to keep the assets safe and performing as intended. But eventually they do have to be renewed when it becomes uneconomical or impractical to maintain them any longer.

Network Rail's approach to maintaining and renewing the network sustainably and at least cost is set out in its asset policies. The volume of work required during CP5 in accordance with these policies was set out by Network Rail in its 2014 Delivery Plan, so we monitor the actual volume of work delivered, and compare against the delivery plan to understand whether Network Rail is doing enough to sustain the network. During the first year of CP5 the volume of renewals delivered by Network Rail was significantly less than planned, so in most areas there is more work to do to catch up during the rest of the control period.

So far this year Network Rail has done better at delivering the track renewals work required. [Plain line](#) renewals are 4% ahead of plan reflecting over-delivery of conventional renewal, but under-delivery of [high output track renewal](#). Renewal of switches and crossings is 14% behind plan, due to a loss of some refurbishment works. In electrification, renewal of

conductor rail is on plan, and overhead line is 32% ahead of plan. Delivery of renewals for other assets has also improved from last year, but is still well behind plan. In signalling renewals there is a shortfall of 41% due to delays in the East Kent and Swindon Area schemes. In civils, [underbridges](#) are 33% behind plan, and earthworks 8% behind plan.

Expenditure on renewals in England and Wales is 7% below budget so far this year, reflecting the shortfall in delivery. The cost of the work delivered was 7% more than budgeted.

Maintenance delivery remains variable compared to plan. For plain line track, less [tamping](#) and [stoneblowing](#) has been delivered than planned, but there has been more [wet bed](#) removal, manual correction of plain line geometry, and replacement of [pads](#) and [insulators](#). Similarly, more manual vegetation management has been delivered, but less mechanised. Maintenance of conductor rail, DC traction power supply, and overhead line components are all ahead of plan.

Variances between planned and actual maintenance volumes can arise where part of the work is reactive, but the overall picture suggests weaknesses in the maintenance plans themselves. To address this, the routes are working with their maintenance delivery units to develop asset management plans at delivery unit level, so that plans better reflect local knowledge of maintenance needs. Network Rail is also

employing “lean” management methods to improve accountability, and to provide a line of sight from the centre down to DU level. These are best practice approaches that should result in more realistic and robust plans that are better delivered in future.

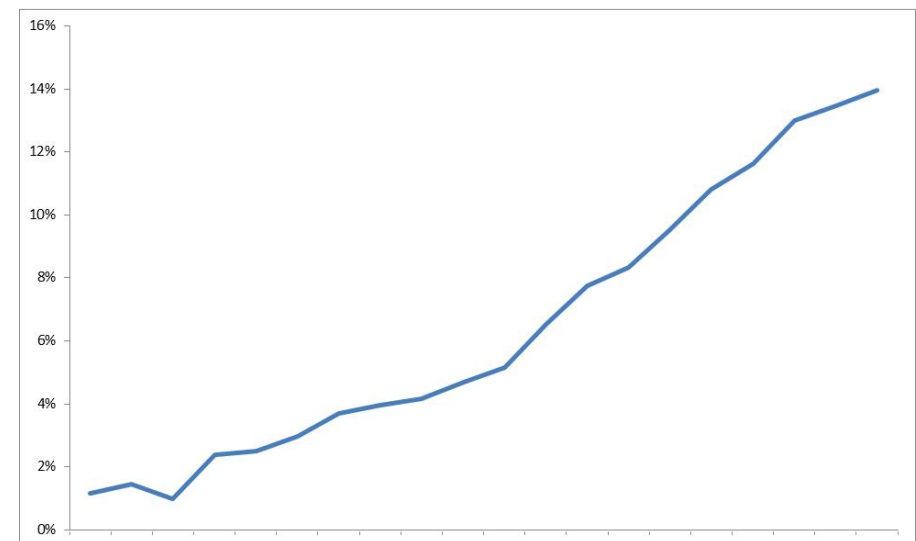
For this control period, we required Network Rail to report in more detail on the work delivered, and this has revealed shortcomings with the quality of Network Rail’s systems for capturing and reporting work done. Problems in this area also impair the company’s ability to plan and estimate the cost of future work. To improve the situation Network Rail has set up an *Activity Based Planning* project. The project is focused initially on simplifying and standardising reporting in both maintenance and renewals, so that the improved arrangements are in place in time for the next financial year.

Network Rail’s maintenance delivery units have been carrying a significant level of vacancies. This has the potential to impair maintenance delivery and create a maintenance backlog. The situation has improved this year so that at the end of August the vacancy level for England and Wales had fallen to 5.4%, and was set to fall below 5% taking into account new starters. The backlog of maintenance work orders has also fallen over the last 12 months, from 6.5% to 5.3% (moving annual average).

Asset performance

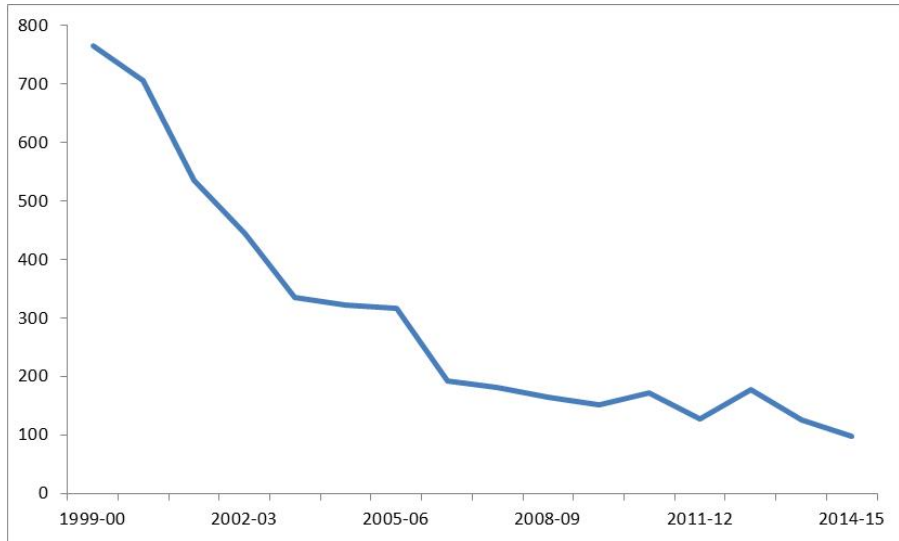
So far this year Network Rail has succeeded in reducing service-affecting asset failures in most areas. At the end of 2014-15, the Composite Reliability Index (CRI) showed an overall improvement of 7.7% for the GB network on the end of CP4 baseline, exceeding target (5.7%), with improvements in all asset areas except telecoms. This year the CRI has further improved, reaching 14.0% for the network as a whole at period 7, well above target (9.3%). The improvement is again across all areas except telecoms.

CRI period 1 2014-15 to period 7 2015-16 (GB network)

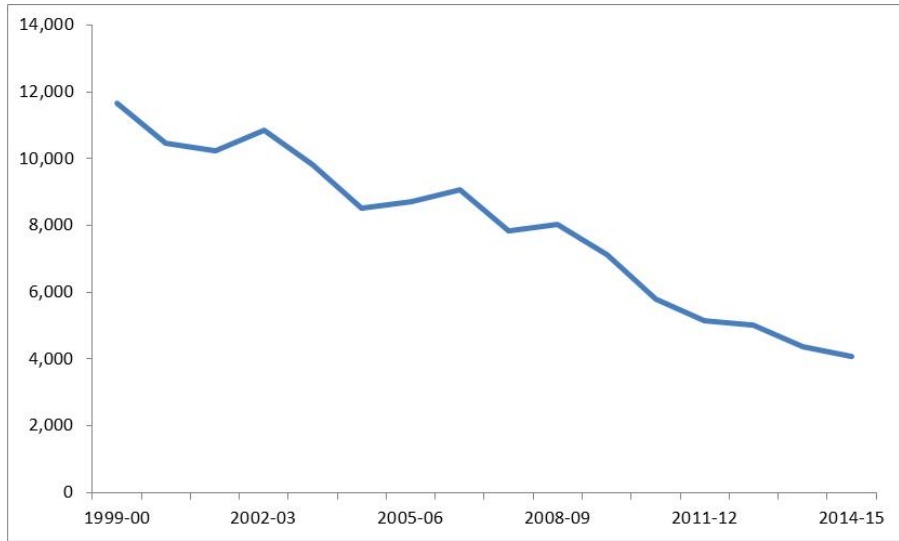


The improvement continues the long-term trend of improving asset performance in most areas. The graphs below provide a more detailed picture for some of the different assets.

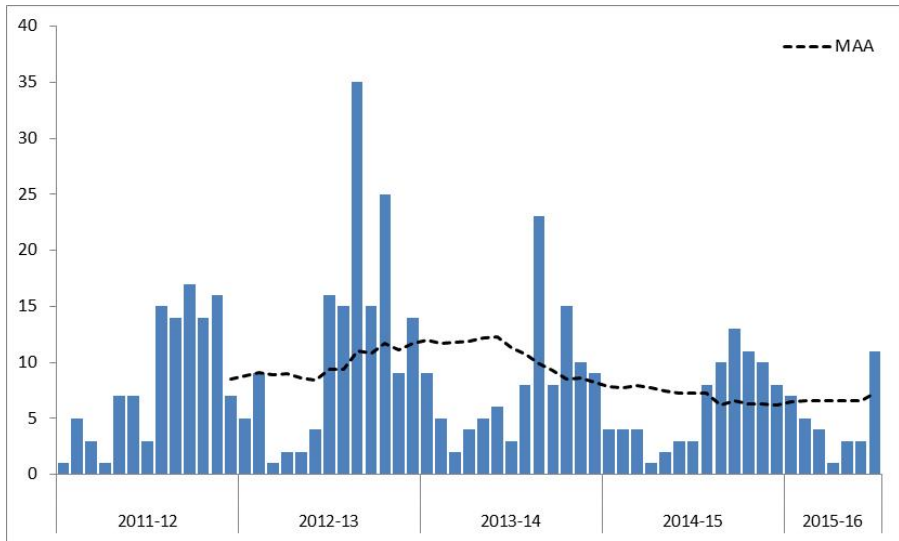
Broken Rails GB (annual total)



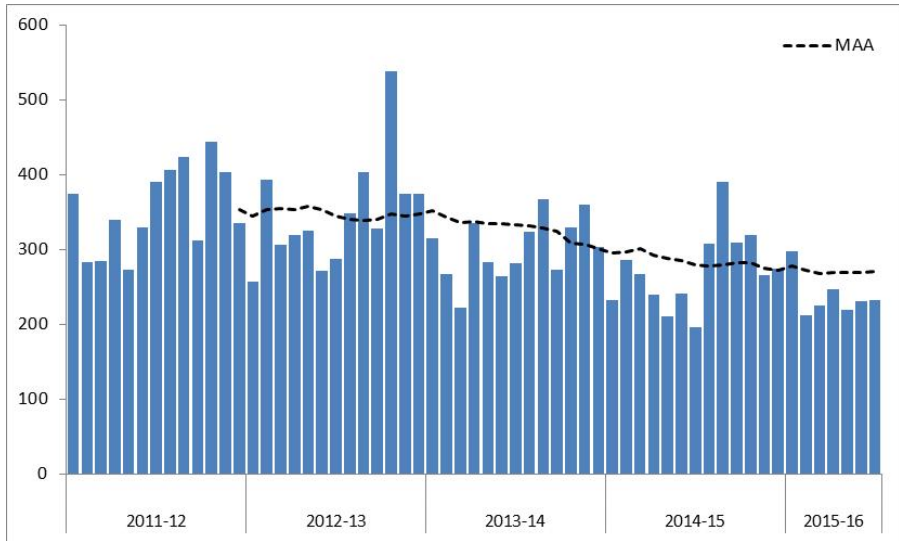
Points Failures GB (annual total)



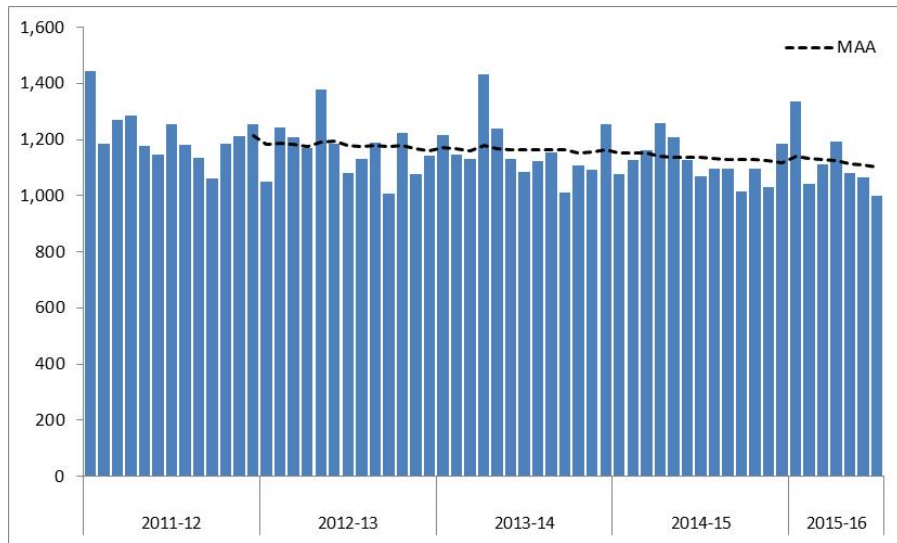
Broken Rails England & Wales (period total)



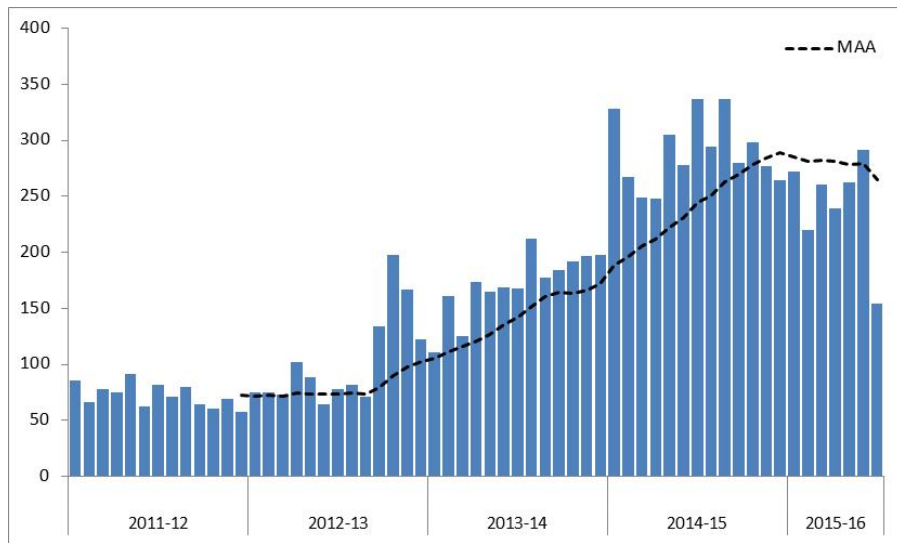
Points Failures England & Wales (period total)



Signalling Failures England & Wales (period total)



Telecoms Failures England & Wales (period total)



The rise in service-affecting telecoms failures reflects the migration to GSM-R. Performance is starting to recover with the roll-out of software updates to in-cab mobiles.

Civils Adjustment Mechanism (CAM)

At the end of March 2015, Network Rail submitted a bottom-up workbank for years 3-5 of CP5, as required by CAM. We reviewed the submission and the planning approach followed by the routes, and concluded that the workbank proposed was broadly consistent with the asset policy targets for achieving sustainability during CP5, given the current condition of the civils assets. However, Network Rail was unable to provide sufficient certainty about the costs of the work, which appear to be significantly higher than expected during the periodic review, particularly for earthworks. This has prevented us deciding the efficient level of funding.

Network Rail is now proposing to deal with the significant cost increases in civils by reducing the volume of civils renewals materially below the level proposed in its CAM submission, again particularly for earthworks. We expect this to result in further deterioration of these assets, which Network Rail set out to stabilise during CP5. We recognise that civils cost pressures have to be managed within the wider challenge of delivering the CP5 settlement as a whole within the available funding. However we must also acknowledge the risks inherent in a decision to prioritise spend on enhancement projects over the core business of maintaining and renewing the network.

We are seeking Network Rail's assurances that changes to its planned renewal and maintenance of the existing network can be properly resourced and managed safely and in a way which is consistent with its licence obligations on the condition of its assets. We will monitor and inspect the network accordingly.

ORBIS milestones

ORBIS stands for Offering Rail Better Information Systems. It is an ambitious programme aimed at improving asset management capability through improved information management. It involves adopting consistent data specifications, providing simpler mobile data capture tools, replacing outdated asset information systems, and providing improved decision support tools. For CP5 we set specific milestones to help ensure it delivers all the benefits expected.

To date all milestones have been achieved on schedule, including the national rollout of the Signalling Decision Support tool in September 2015. The next milestone is the national roll-out of the Electrification & Plant Decision Support tool, due in December 2015.

Electrification asset measurement fleet

Network Rail's electrification asset measurement capability has been significantly degraded as much of the train-borne equipment has been out of service for a number of months. The company has therefore had to rely on additional (and less efficient) manual maintenance methods whilst working to reinstate the equipment.

Reinstatement of [MENTOR](#) (achieved at the end of November) was particularly important given the significant volume of new overhead line infrastructure Network Rail plans to commission in the coming years. For this infrastructure the data is a mandatory component of the pre-service validation. We are continuing to press for the delivery of full service recovery.

Developing the network



Network Rail's capability

We reported in the last monitor that the high number of missed project completion milestones in 2014 resulted in a licence investigation into whether Network Rail was doing everything reasonably practicable to deliver its enhancements obligations. In October 2015, ORR concluded that Network Rail was in breach of its network licence, and would continue to be in breach until it improved its capability to plan and deliver enhancements. We determined that the weaknesses were systemic rather than being confined to isolated projects, and therefore there was a continuing risk that further milestones would be missed. We have published the [key documents from our investigation](#) on our website.

In finding Network Rail in current breach, we assessed whether the company was taking all necessary steps to meet its obligations. We have accepted that it is doing so, principally through its *Enhancements Improvement Programme (EIP)*, which contains the following seven workstreams.

1. Clienting and governing the enhancement portfolio

This workstream seeks to establish more control around how Network Rail engages with funders and other stakeholders throughout large complex programmes – particularly at the early stages of development. So far in CP5, we have seen a

lack of governance and change control between Network Rail and DFT in agreeing what is required as projects develop from initial high level statements to set of detailed options.

2. Project sponsorship and transition management

This should strengthen accountabilities and responsibilities within Network Rail's organisation for projects and programmes during the transition from each development and delivery stage, ensuring clear ownership throughout.

3. Cost planning, estimating risk and value management

This aims to improve the estimating resources within Network Rail both at the centre and in the routes. It should improve systems, data and processes both within Network Rail and in its supply chain. In addition, it should improve the company's ability to model and forecast risk and value, particularly at portfolio level.

4. Project governance and gateway assurance.

This workstream should achieve better quality control and internal challenge throughout key stages of the project lifecycle. It should ensure that projects pass certain strict criteria before being authorised to progress to the next stage of development or delivery so that, for example, costs and risks

have been properly understood before planned completion dates are made into firm commitments.

5. Project and portfolio monitoring

This should improve Network Rail's understanding of its investment portfolio, so it can better identify and manage common risks or issues, and report up the management hierarchy accurate and meaningful information.

6. Project and portfolio delivery capability

This workstream aims to take further the medium and long term resource planning tools Network Rail has developed so that it can better understand critical resource shortfalls in its forward plan and take steps to mitigate them. For example, it should be able to identify shortages of plant and machinery sufficiently early that it can order additional equipment where it makes business sense to do so.

7. Safety by design

This aims to improve Network Rail's ability to identify and mitigate safety risks at the early design stage, and then demonstrate that the risk has been sufficiently managed. Shortcomings in this area have led to ORR (in its role as the authorising body for interoperability), rejecting interoperability submissions.

We will be holding Network Rail to account for the delivery of the intended benefits in the EIP. We expect that some workstreams will develop over time and will need to be refined

to improve the effectiveness of the programme. We will be closely monitoring the improvements and will escalate if we consider that progress is falling behind plan.

Re-plan of CP5 Enhancements

The above weaknesses, particularly in cost forecasting and missed milestones, prompted government to request that Sir Peter Hendy (Network Rail's new Chairman) conduct a re-plan exercise to establish a new baseline of projects that are deliverable and affordable within CP5 ("the Hendy review"). The aim of the review, which was completed in November, was to agree a re-plan with government and publish a new *Enhancement Delivery Plan* in April 2016 – with a focus on the highest priority government schemes and the commitments that government has made in recent train operator franchise competitions and train procurement contracts.

The Hendy review was carried out within significantly compressed timescales, and there are complex interdependencies including wider industry issues such as:

- timetable and capacity planning,
- train reliability performance,
- government train procurement and the resultant national rolling stock cascade,
- maintenance and renewals budgets,
- depot and stabling requirements for new or cascaded trains; and
- franchise commitments.

There are therefore significant risks. Furthermore, since the Hendy review was initiated in July 2015, there have been several developments which have materially changed the assumptions underpinning it, namely:

- the re-forecasting of the Great Western mainline electrification (commenced prior to the Hendy review) has resulted in a substantially higher cost and different construction schedule for the route upgrade;
- the Secretary of State announced in October the ‘unpausing’ of Trans Pennine Electrification (TPE) and Midland Main Line electrification, and referred to completion of a package of work in CP5; and final completion targets of 2022 and 2023 respectively. We are particularly concerned by the Government’s announcement of a firm date for the TPE programme given that the scope is at such an early stage of development;
- the extent of the capability weaknesses that Network Rail needs to address (through the conclusion and finalisation of the EIP) has become more apparent. There are systemic weaknesses that the company has not yet addressed and these will inevitably introduce uncertainties around the accuracy of such a hurried and complex re-plan.

Notwithstanding the Hendy review, compared to our funding assumptions in PR13, there are considerable affordability challenges for Network Rail on enhancements. For example, we have only completed ECAM reviews on around half of the current ECAM portfolio (by *Strategic Business Plan* value), but the efficient funding we have determined already adds up to about 80% of the total assumed in the CP5 Final Determination. Following [reclassification](#), Network Rail now has a maximum borrowing limit for the control period. It is for government to decide whether any additional funding in CP5 is affordable, but clearly there is a risk that some of the planned work may be deferred to later control periods.

An immediate concern is around ensuring value for money for taxpayers from the Great Western electrification scheme. Network Rail has recently announced that it expects costs to escalate to between £2.5bn and £2.8bn compared its own estimate of £1.8bn included in its ECAM submission to ORR on 21 July 2014. We have yet to see the back up to this re-forecast but are particularly concerned about the productivity assumptions it is based on. Although Network Rail has identified issues with buried signalling cables, we are much more concerned about the poor quality of information supplied to design contractors and particularly the very poor use of the midweek access that we have seen from our own nightshift site visits.

Delivery progress

In the six months covered by this monitor, 11 projects were due for final completion (see table below). Two missed their planned completion milestones and the remaining 9 were completed on schedule – although it should be noted that four of these had already missed earlier completion milestones and had been re-planned. However, the impact on rail users was largely localised and not material.

The most significant project completion was the final stage of Reading station (West Country grade separation) which was completed a year ahead of its original schedule agreed in CP4. This has been a significant achievement for the project team and Network Rail's own challenge is to achieve consistency of success in delivering projects across the network in the coming years.

EDP Ref	Project Name	Milestone Date	Status
CR002	Reading Station Area Redevelopment: Key Output 4: West Country Grade Separation	April 2015	Complete
CR005	North of England Programmes (LNW) – Phase 2c (NW Electrification Phase 2 Configuration State 5)	April 2015	Complete
S005	Balcombe to Copyhold bi-directional Signalling Upgrade	April 2015	Complete
W011	Westerleigh Junction to Barnt Green Linespeed Improvement	April 2015	Missed
SC006	2013 Advance Route Clearance Programme (Other Routes)	June 2015	Complete
SC007	Borders Railway	June 2015	Complete
EM002	St Pancras – Sheffield Linespeed Improvements	July 2015	Missed
F006	Strategic Freight Network: Peak Forest	August 2015	Complete
LNW007	Chiltern Mainline Train Lengthening – High Wycombe Down Platform	August 2015	Complete
CR002	Reading Station Area Redevelopment – Non Key Output 4 Deliverables: Recoveries & Speed Restrictions Only	September 2015	Complete
LNW005	Birmingham New Street Gateway Project	September 2015	Complete

New approach to major programmes

In the last Monitor we reported on a review we have been doing over the last 12 months looking at Network Rail's approach to major route upgrades. This is important because there are several complex major programmes in CP5 involving significant route upgrade work that needs to be coordinated with new franchises, major timetable recasts and new or cascaded rolling stock. Network Rail has a critical role in these cross-industry programmes. The review focused on best practice programme management, and whether Network Rail had in place a framework to ensure major infrastructure programmes - such as Great Western Route Modernisation - were appropriately organised, governed and resourced to successfully enable the significant and complex timetable changes planned for CP5 and beyond.

The first part of the review looked at how Network Rail assured itself that large programmes were likely to succeed. It concluded that the company did not have a framework setting out how infrastructure programmes should be organised, governed and managed. Each major route upgrade appeared to start from a 'blank piece of paper', with assumptions not adequately tested by timetable and performance modelling, before infrastructure requirements were set. Therefore in part 1 of the review the reporter needed to develop a 'rapid assessment framework' to check the health of each major programme. The second part of the review applied the rapid assessment framework to six major infrastructure programmes,

namely: East Coast Programme, Northern Programme Yorkshire, Midland Mainline Programme, North of England (incorporating NW Electrification and TPE), South West Programme and Edinburgh Glasgow Improvement Programme (EGIP).

The independent reporter concluded the review in July 2015. This work has been very valuable in establishing what each programme needs to do to improve its chances of success. Network Rail engaged very positively in the review, and is now taking forward the recommendations as part of the EIP.

It had already started work to develop a process called "GRIP for programmes", designed to address risks with programmes such as scope creep, slippage and escalating costs. Progress in this area is particularly important as government is demanding even greater and more challenging timescales for CP6 route upgrades such as electrification, capacity improvement and journey time improvements on the Trans Pennine route.

Expenditure and finance



Overall financial performance

We consider Network Rail's financial performance in two different ways; firstly by providing (in the tables below) a simple comparison of spend against its own budget and second by considering our regulatory performance measure. This measure is broader as it takes account of issues such as the delivery of regulated outputs and the effectiveness of Network Rail's asset management, in order to assess how the company is performing in relation to our CP5 Final Determination. It does not allow any benefit from where work has simply been delayed. The baseline is our CP5 Final Determination.

Financial performance against budget

Financial performance for the year to date is £58m adverse to Network Rail's own budget. This is because of:

- higher maintenance costs arising from the difficulty of in achieving efficiency targets, compounded by a higher than planned pay settlement;
- higher than expected renewal costs partly due to delays in some efficiency initiatives; and
- overspend across a number of enhancements projects.

Overall regulatory financial performance

We currently expect Network Rail to underperform the regulatory financial performance measure by around £810m in 2015-16. This is because:

- Network Rail's forecast financial performance for the full year compared to its budget is £227m unfavourable. This is largely because forecast expenditure is higher than Network Rail's own budget on operations (£11m), support (£20m) and maintenance (£60m) in part because of difficulties in achieving efficiency savings and £182m underperformance across renewals and enhancements, offset by £32m lower expenditure on schedule 8;
- Network Rail's 2015-16 budget is itself £462m higher than our PR13 financial assumptions. This was due to lower planned cumulative efficiencies and higher unit costs than previously assumed across most core business activities; and
- Network Rail has estimated that we will make £121m of adjustments for forecast under-delivery of the PPM and CaSL train performance regulatory output requirements in 2015-16. We will review this at the end of the year, so the final adjustment may be different.

Network Rail's financial performance

Comparison of income and expenditure

£m	2015-16 year to date			2015-16 full year forecast		
	Budget	Actual	Variance	Budget	Actual	Variance
Turnover	3,523	3,505	-18	6,562	6,567	5
Schedule 4	-120	-100	20	-250	-233	17
Schedule 8	-37	0	37	-127	-95	32
Operations, support & maintenance	-1,445	-1,438	7	-2,702	-2,791	-89
Financing costs	-787	-738	49	-1,499	-1,368	131
Capex - Renewals	-1,705	-1,598	107	-3,399	-3,317	82
Capex - Enhancements	-1,928	-1,847	81	-3,692	-3,625	67
Total	-2,499	-2,216	283	-5,107	-4,862	245

Total regulatory financial performance

£m	Year to date						Full year forecast				
	Budget	Actual	Variance b/(w)	Timing b/(w)	(Under)/out performance		Budget	Full Year Forecast	Variance b/(w)	Timing b/(w)	(Under)/out performance
Turnover	888	877	-11	-15	4		1,631	1,648	17	7	10
Schedule 4	-120	-100	20	8	12		-250	-233	17	13	4
Schedule 8	-37	0	37	-2	39		-127	-95	32	0	32
Operations	-258	-269	-11	0	-11		-517	-528	-11	0	-11
Support	-281	-265	16	2	14		-484	-503	-19	1	-20
Maintenance	-667	-672	-5	34	-39		-1,234	-1,294	-60	0	-60
Capex - Renewals	-1,705	-1,598	107	202	-95		-3,399	-3,317	82	355	-273
Capex - Enhancements	-1,928	-1,847	81	292	-211		-3,692	-3,625	67	474	-407
Capex adjustment - Renewals					72						193
Capex adjustment - Enhancements					158						305
Capex					-76						-182
Financial performance measure compared to Network Rail budget					-58						-227
Less: Network Rail budget compared to PR13					-217						-462
Less: Adjustments for missed regulatory outputs					0						-121
Total financial performance measure (FPM)					-274						-810

Notes to Total Regulatory Financial Performance table:

1. Categories of income and expenditure excluded from the financial performance measure include for Turnover – Network Grant, Fixed Track access charges, Traction Electricity and for Operations – Depreciation, Traction electricity costs and business rates.
2. Types of variance that do not count for financial out/underperformance are mainly items such as renewals that have been deferred to later in CP5.
3. In simple terms, capex renewals financial performance is measured as 25% of the renewals under/overspend, e.g. for the year to date the renewals adjustment of £72m = £95m x (100%-25%). This aligns with Network Rail's financial reward/penalty for renewals and enhancements expenditure through the RAB roll forward mechanism. The same process is used for the capex adjustment - enhancements.
4. The adjustment for missed regulatory outputs represents Network Rail's estimate of an anticipated ORR adjustment for not meeting the PR13 train performance target in 2015-16. We will review this issue at the end of the year, so the final adjustment may be different. Network Rail has not recognised a proportion of this adjustment in the year to date figures.
5. This information is from the Network Rail Period 7 Finance Pack.

Network Rail’s debt and borrowing

Network Rail is expecting that its debt for Great Britain at 31 March 2016 will be £41.0 billion, which is £0.7bn under budget largely due to the working capital movements and an underspend on financing costs.

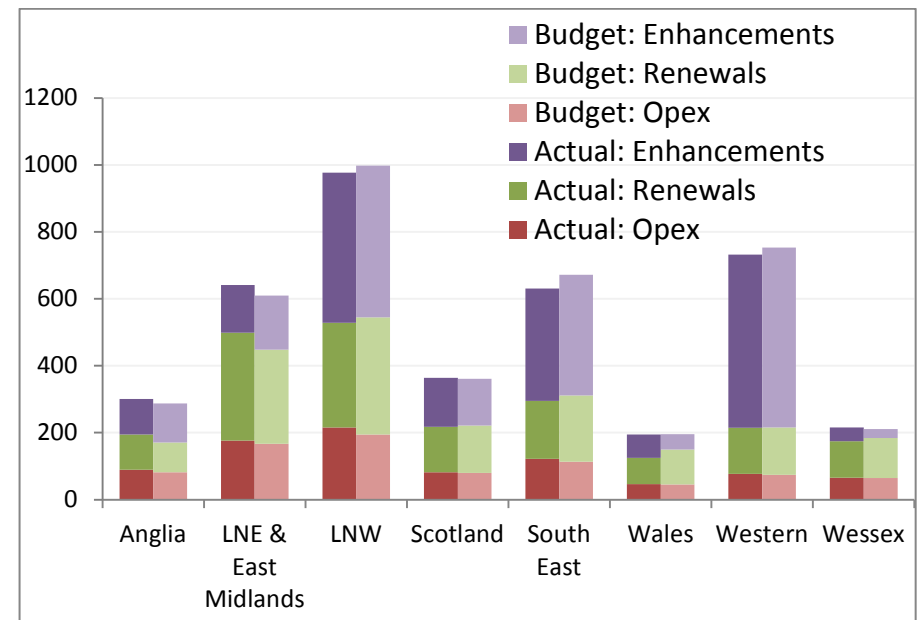
Following the company’s classification to the public sector by the Office of National Statistics (ONS), Network Rail agreed to borrow from DfT instead of issuing bonds. The amount of new borrowing available from DfT is limited to £30.2 billion across CP5. Currently Network Rail expects to finish 2015-16 in line with but not in excess of the annual ‘notified borrowing’ amount agreed with DfT of £8bn.

Network Rail is continuing to work on its business plans to address the problems arising from cost escalation on enhancements and underperformance on efficiency in the core business. The Government has stated its ambition to see the big enhancement projects delivered and Sir Peter Hendy has now reported on this. As well as ensuring that Network Rail addresses systemic issues with its capability in project delivery through its EIP, we are seeking Network Rail’s assurances that changes to its planned renewal and maintenance of the existing network can be properly resourced and managed safely and in a way which is consistent with its licence obligations on the condition of its assets. We will monitor and inspect the network accordingly.

Route level expenditure and financial performance

This section provides a simple comparison of route expenditure compared to Network Rail’s budget in the year to date. The data is not normalised to reflect differences in characteristics of routes, such as length of track, electrification, geography and types of services. Therefore this analysis cannot be used to draw conclusions about the relative performance of the routes. But it can highlight particular issues at a route level or the differing impact of challenges faced across Network Rail.

Route level expenditure for the year to date against budget



Route level financial performance

£m	2015-16	
	Actual year to date	Full year forecast
Anglia	-4	-15
LNE	14	8
East Midlands	-6	-20
LNW	-29	-85
Scotland	0	-11
Kent	-8	-25
Sussex	19	14
Wales	-3	-16
Western	-44	-79
Wessex	2	3
Total	-58	-227

Note: The numbers in this table include Network Rail's central business unit's financial performance allocated to routes - whereas the numbers in the chart on the previous page do not include them.

Network Rail has financially underperformed its own budget in six routes in the year to date, most significantly in LNW on maintenance and renewals and Western on enhancements for the Great Western Electrification Programme (GWEP). There has been financial outperformance in four routes where the outperformance on schedule 4 and particularly schedule 8 exceeds underperformance in operations, support and maintenance, renewals and maintenance.

In the full year forecast Network Rail is expecting to financially underperform its own budget in all routes other than LNE, Sussex and Wessex. These routes are forecasting to continue to financially outperform on turnover, schedule 4 and 8 above the level of underperformance in other areas of expenditure.

Currently there is no route level breakdown of: the difference between Network Rail's own budget and our PR13 assumptions (£217m in the year to date and £462m in the full year forecast); and also the anticipated adjustments for missed regulatory outputs (£121m in the full year forecast). After taking account of these issues it is likely that all the routes will be financially underperforming our PR13 determination for both the year to date and the full year forecast.

The railway in Wales



This is the first time we have reported separately on the Wales route in the Network Rail Monitor for England and Wales. This reflects our commitment to providing information at a more disaggregated level which we believe will provide greater clarity for the industry, customers and funders. We expect to develop this approach over time.

Health and Safety

Track

During the course of our planned and reactive inspection work over the last six months a number of concerns have emerged. These relate to the management of track geometry and defects as well as processes around proactive maintenance and the scheduling of asset renewals (the replacement of worn out or life expired assets). In summary these are:

- On plain line track renewals, Network Rail is behind target on specific projects although it expects to complete all planned renewals work within the control period.
- The plan for heavy maintenance of switches and crossings is falling behind schedule due to a lack of maintenance trains and difficulty in getting enough time with the track closed to do the work

More positively, Network Rail is keeping [Temporary Speed Restrictions \(TSRs\)](#) in place until confirmation has been received that the underlying issue which prompted the imposition of the restriction has been resolved. (Previous practice was to remove the TSR once the remedial work on site had been completed.) A management plan is now in place for each TSR site. Additionally, the company is looking at the way in which it plans the deployment of maintenance machinery to see if there is further scope for efficiencies.

Civils

The route has developed a Coastal Asset Management Plan. This builds upon surveys carried out by coastal engineers of all of the Wales route coastal assets. It determines the impact of coastal events on the asset base with a focus on loss of track support as the principal hazard. This should help to improve resilience to severe weather events.

Structures

There are a number of particular challenges which the route faces including:

- a large number of physical assets (bridges, tunnels etc.);
- poor information on asset condition; and
- a high asset to engineer ratio.

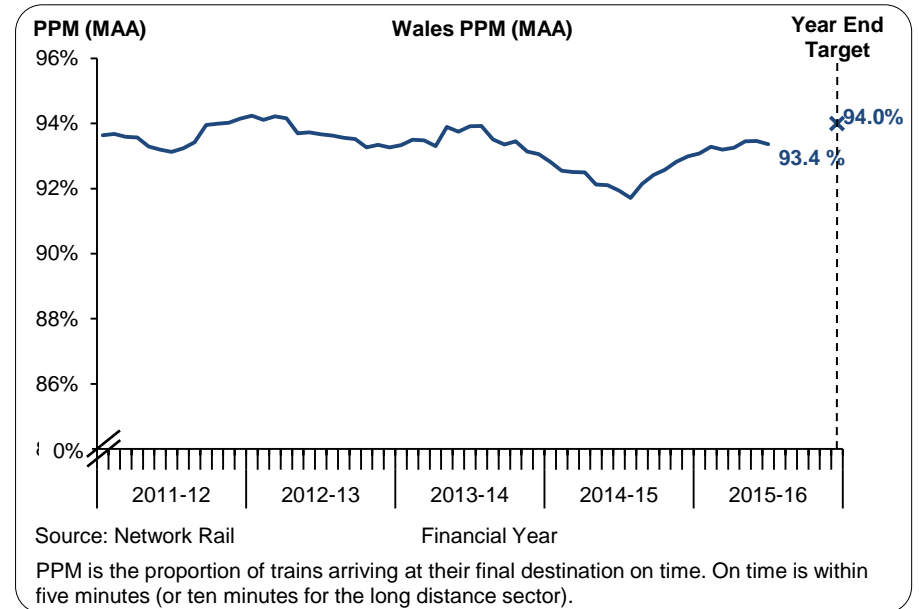
The route has increased the number of structures engineers and consequently has begun to improve its asset data. We have seen progress in dealing with the backlog of structures examinations that had built up.

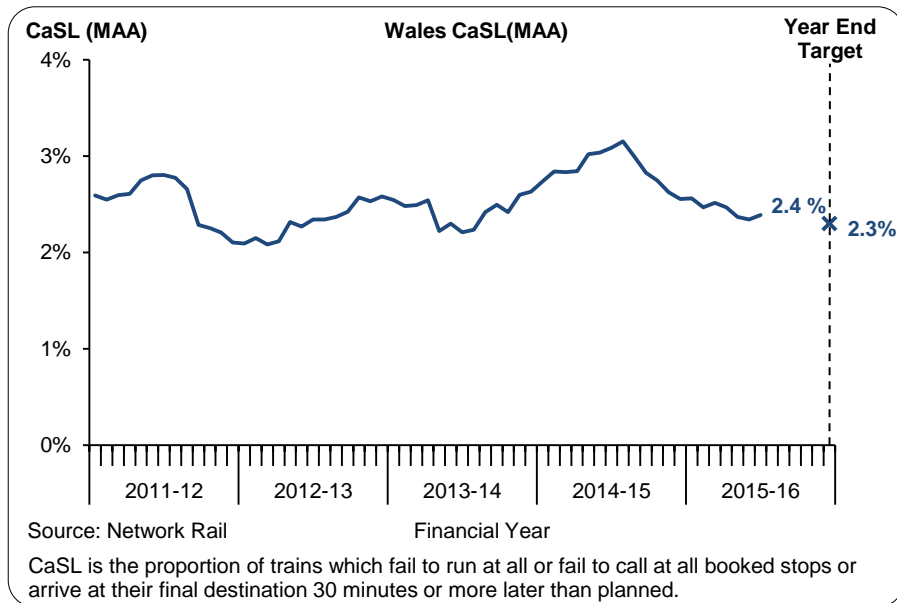
Drainage

Drainage management has been historically weak. Wales route has worked hard to improve asset data, for example, piloting a Drainage App that drives accuracy and better recording of drainage system inspections. It has also delivered more and better training to front line staff. More robust inspection plans have also been drawn up to reflect drainage asset numbers and complexity. The route has also begun to develop a more robust and detailed drainage asset management plan.

Train performance

Arriva Trains Wales' Public Performance Measure (PPM) Moving Annual Average (MAA) was 93.4% at the end of period 7 2015-16, 0.6pp worse than regulatory target. CaSL MAA was 2.4%, 0.1pp worse than target.





As with England, we agreed we would take an input-based approach to monitoring PPM and CaSL in Wales during the first two years of the control period. We have monitored (and continue to monitor) delivery of Network Rail's CP5 Performance Plan. Feedback we have received from franchised operators suggests that, on the whole, Network Rail has delivered the activities in the plan. However, we have yet to see the anticipated improvement in performance.

Developing the network

Network Rail's recent work has focused in particular on Cardiff. The new southern entrance at Cardiff Central opened on 29 August 2015 meeting the requirement that it be available before the start of the Rugby World Cup. Its associated new platform is also physically complete, although it cannot be used until the resignalling of the station area completes in early 2017.

In addition to the new station building, the changes at Cardiff Queen Street also brought two new platforms into use. The Cardiff Bay shuttle now has its own platform and a new through platform is helping to ease congestion in this busy city centre station.

However, work on the Cardiff Area Resignalling scheme, which is designed to deliver a range of benefits including extra capacity on the busy Cardiff Central to Queen Street Corridor, has been subject to delays which we have commented on in previous Monitors. The project was re-planned in 2014-15 to give more certainty of delivery of the remaining two phases of work. Phase 4 (resignalling east of Cardiff) was delivered at the end of June 2015 and phase 5 (Cardiff Central resignalling) will be delivered in December 2016.

Network Rail has for some time been working on a project to improve north/south rail links in Wales. This involves track redoubling, signalling improvements and upgrades to level crossings. Although this project is managed and funded locally (and as such is not regulated directly by ORR) significant problems have been encountered covering a range of issues including project development, asset knowledge and project delivery and we will discuss with the Welsh Government whether it considers that the project raises issues it would wish to discuss further with us. But more generally a number of capability concerns here, for example around project planning, reflect things we have already picked up through the *Enhancements Improvement Programme*.

Expenditure and financial performance

Total expenditure (support costs, operations costs, maintenance, renewals and enhancements) in the Wales route is forecast to be £327m in 2015-16. For the year to date most routes are financially underperforming. In Wales Network Rail has only financially underperformed by £3m. However, the position in Wales is worse for the full year due to underperformance on renewals and enhancements exceeding outperformance on schedules 4 and 8. The financial underperformance on renewals is expected to come mainly on

the Cardiff Area Signalling Renewal project where there was an overspend of £26m (more than offsetting outperformance in the Newport to Shrewsbury signalling renewals project). The financial underperformance on enhancements relates to the parts of the Great Western Electrification Programme that are in Wales.

Financial performance in Wales compared to Network Rail's budget

£m	2015-16	
	Actual year to date	Full year forecast
Turnover	-1	0
Schedule 4	3	4
Schedule 8	1	3
Operations	0	0
Support	-1	-3
Maintenance	0	-1
Renewals	-1	-6
Enhancements	-3	-12
Total	-3	-16

Note: The numbers in this table include Network Rail's central business unit's financial performance allocated to routes.

Rheilffyrdd yng Nghymru

Mae Monitor Network Rail yn offeryn y bydd y Swyddfa Ffyrdd a Rheilffyrdd (ORR) yn ei ddefnyddio i ddal Network Rail i gyfrif. Mae'r Monitor yn cyflwyno barn y Swyddfa ar lwyddiant Network Rail i gyflawni ei ymrwymadau i'w gwsmeriaid a chyrrff ariannu; mae hefyd yn amlygu unrhyw faterion sy'n destun pryder.

Hwn yw'r tro cyntaf i'r ORR gynnwys adroddiad ar wahân ar gyfer Llwybr Cymru ym Monitor Network Rail Cymru a Lloegr. Mae'n arwydd o ymrwymiad y Swyddfa i ddarparu gwybodaeth ar lefel mwy datganoledig, gwybodaeth fydd, fe greidir, yn fwy eglur o'r herwydd i'r diwydiant, y cwsmeriaid a'r cyrrff ariannu. Mae disgwyl ymhen amser y bydd datblygu pellach ar y proses hwn.

Iechyd a Diogelwch

Y traciau

Yn ystod y chwe mis diwethaf, f el rhan o'n gwaith archwilio ymlaenllaw, ac hefyd fel rhan o'n gwaith archwilio ymatebol, fe ddaeth nifer o faterion oedd yn achosi pryder i'r amlwg - materion cysylltiedig â thrin gwallau a rheoli geometreg y traciau, ac â phrosesau cynnal a chadw rhagweithiol a'r amserlen adnewyddu asedau (adnewyddu asedau oedd wedi eu treulio neu wedi dod i ddiwedd eu hoes), sef:

- O ran targedau adnewyddu traciau di-dor (plain line), mae Network Rail ar ei hôl hi ar rai prosiectau penodol ond yn disgwyl cwblhau'r holl waith adnewyddu a gynlluniwyd o flaen llaw o fewn y cyfnod cheolaeth cyfredol.
- Mae'r gwaith cynnal a chadw trwm ar bwyntiau dargyfeirio a chroesfannau'n digwydd yn arafach nag a fwriadwyd oherwydd diffyg trenau cynnal a chadw ac anhawster cau'r traciau am ddigon o amser i gwblhau'r gwaith.

Yn fwy cadarnhaol, mae Network Rail yn parhau â'r Cyfyngiadau Cyflymder Dros Dro ([TSRs](#)) nes y derbynnir cadarnhad bod yr hyn a achosodd gosod y cyfyngiad wedi ei ddatrys (yr arfer cynt oedd i godi'r cyfyngiad yn syth ar ôl cwblhau'r gwaith trwsio ar y safle). Mae cynllun rheoli ar waith ar bob un safle lle mae cyfyngiad. Mae'r cwmni hefyd yn edrych ar ei drefniadau ynghylch lleoli peiriannau cynnal a chadw er mwyn gweld a oes trefniant mwy effeithlon.

Gwaith Peirianeg Sifil

Mae'r rhwydwaith wedi datblygu Cynllun Rheoli Asedau Arfordirol a seiliwyd ar arolygon gan beiriannwyr arfordirol o holl asedau arfordirol rhwydwaith Cymru. Y bwriad yw rhagweld effaith digwyddiadau arfordirol ar yr asedau, a rhoddir sylw penodol i'r prif berygl sef colli'r gallu i gynnal y traciau. Fe ddylai hyn wella gallu'r rhwydwaith i wrthsefyll tywydd difrifol.

Adeileddau

Mae sawl her benodol yn wynebu'r rhwydwaith, yn cynnwys:

- y nifer fawr o asedau ffisegol (pontydd, twneli ayb)
- gwybodaeth wael ynghylch cyflwr yr asedau
- prinder peirianwyr (o'i gymharu â nifer yr asedau)

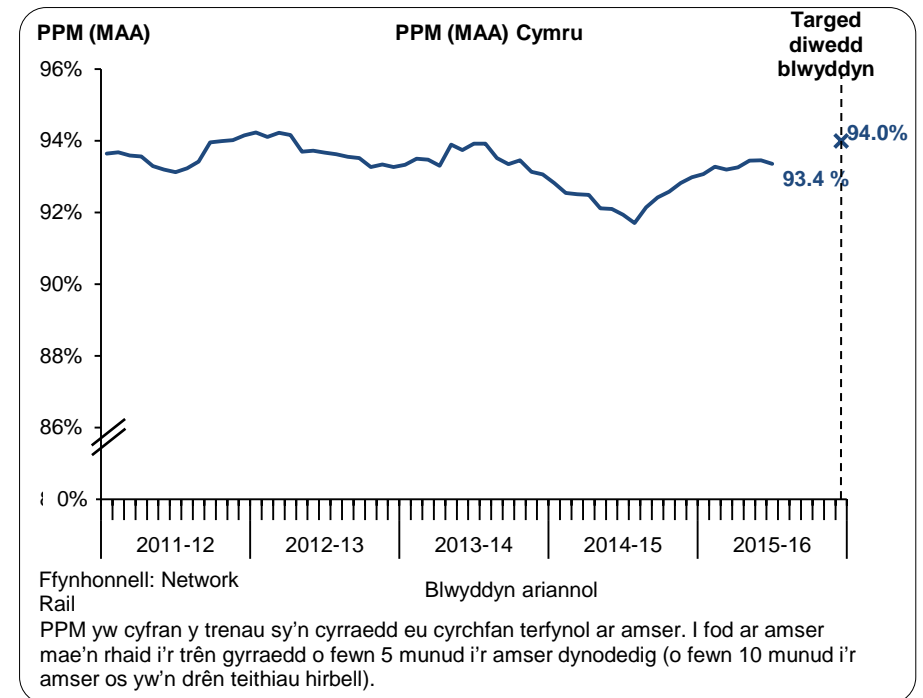
Mae'r rhwydwaith wedi cynyddu nifer ei pheirianwyr adeileddau ac o ganlyniad wedi gallu dechrau gwella'r data ar ei asedau. Gwelwyd cynnydd yn y gwaith o ddelio â'r pentwr archwiliadau adeiledd angenrheidiol.

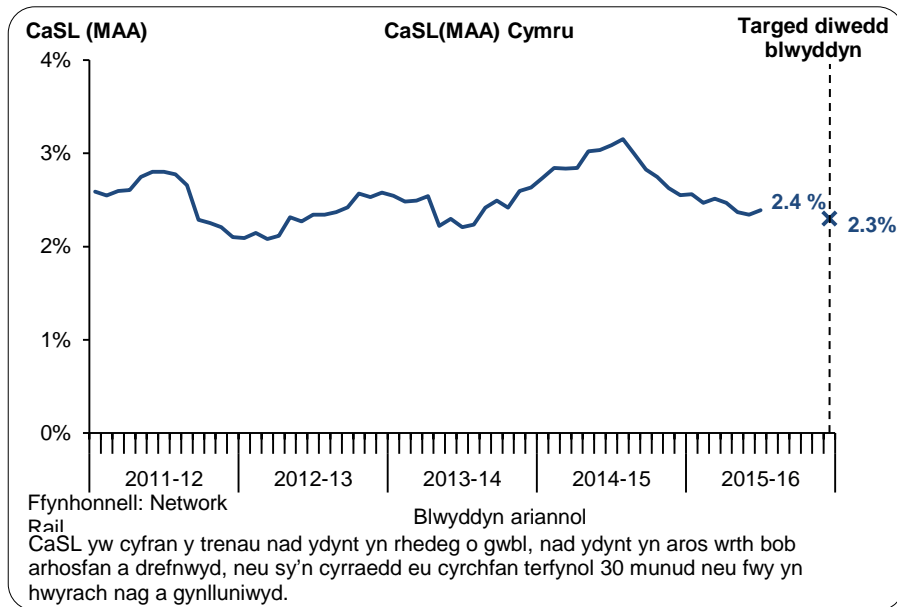
Draenio

Mae rheoli draenio wedi bod yn fan gwan erioed. Mae rhwydwaith Cymru wedi gweithio'n galed i wella'r data ar ei asedau gan, er enghraifft, arbrofi gydag Ap Draenio sy'n hwyluso ac yn hybu manwl-gywirdeb a gwell cofnodi wrth gynnal archwiliadau systemau draenio. Mae'r rhwydwaith hefyd wedi cyflwyno gwell hyfforddiant a mwy ohono i'w staff rheng flaen. Fe luniwyd cynlluniau archwilio cryfach, rhai mwy addas ar gyfer niferoedd a chymhlethdod yr asedau draenio, a dechreuwyd ddatblygu cynllun manylach a mwy atebol ar gyfer y gwaith o reoli asedau draenio.

Perfformiad trenau

Roedd Cyfartaledd Symud Blyneddol (MAA) Trenau Arriva Cymru yng nghyswllt Mesur Perfformiad Cyhoeddus (PPM) yn 93.4% ar ddiwedd cyfnod 7 y flwyddyn 2015-16, 0.6 o bwyntiau canran yn is na'r targed Roedd y Cyfartaledd Symud Blyneddol yng nghyswllt Trenau a Ganslwyd neu a oedd yn Arbennig o Hwyr (CaSL) yn 2.4%, 0.1 o bwyntiau canran yn well na'r targed.





Fe gytunwyd i weithredu yn yr un modd ag yn Lloegr, sef monitro Mesur Perfformiad Cyhoeddus (PPM) a Threnau a Ganslwyd neu a oedd yn Arbennig o Hwyr (CaSL) yng Nghymru ar sail mewnbwn yn ystod dwy flynedd cyntaf y Cyfnod Rheolaeth ddynodedig. Hefyd, fe fonitrowyd gweithredu Cynllun Perfformiad CP5 Network Rail (mae'r proses hwn yn parhau). Mae'r adborth a dderbyniwyd oddi wrth ddeiliaid rhyddfrait gwasanaeth (franchised operators) yn awgrymu, ar y cyfan, fod Network Rail wedi darparu'r gweithgareddau a nodwyd yn y cynllun. Fodd bynnag, ni welwyd hyd yma y gwelliant perfformiad a ddisgwyliwyd.

Datblygu'r rhwydwaith

Mae gwaith diweddaraf Network Rail wedi ei ganolbwyntio'n bennaf ar Gaerdydd. Agorwyd mynedfa newydd ddeheuol gorsaf Canol Caerdydd ar y 29ain o Awst 2015, gan fodloni felly'r galw am iddi fod yn barod erbyn dechrau Cwpan Rygbi'r Byd. Mae gwaith adeiladu'r platfform cysylltiedig â'r fynedfa wedi ei gwblhau hefyd, ond ni fydd yn bosibl ei ddefnyddio tan ddechrau 2017 pan fydd y gwaith o osod system signal newydd wedi ei gwblhau.

Roedd y newidiadau i orsaf Stryd y Frenhines, Caerdydd, yn cynnwys codi adeilad newydd ac ychwanegu dau blatfform. Bellach mae gan drên gwennol Bae Caerdydd blatfform iddo'i hun ac mae'r platfform trwodd newydd yn gymorth i leddfu gorlawnder yr orsaf brysur hon.

Fodd bynnag, mae gwaith gosod y system signalau newydd sy'n cynnig sawl gwelliant, yn cynnwys cynyddu capasiti'r lein brysur rhwng gorsafoedd Canol Caerdydd a Heol y Frenhines, wedi dioddef sawl cyfnod o oedi a nodwyd mewn adroddiadau Monitor blaenorol. Fe ailgynlluniwyd y prosiect yn 2014-15 er mwyn creu mwy o sicrwydd ynglŷn â chwblhau dwy ran y prosiect a oedd yn weddill. Cwblhawyd Cam 4 (gosod signalau newydd i'r dwyrain o Gaerdydd) ar ddiwedd Mehefin 2015, ac mae Cam 5 (signalau newydd ar gyfer gorsaf Canol Caerdydd) i'w gwblhau ym mis Rhagfyr 2016.

Bu Network Rail yn gweithio ers peth amser ar brosiect i wella'r cyswllt rheilffyrdd rhwng gogledd a de Cymru. Mae'r prosiect yn cynnwys dyblu traciau, gwella'r system signalau a gwella croesfannau. Er ei fod yn brosiect sydd wedi ei reoli a'i ariannu'n lleol (ac felly ddim yn dod dan oruchwyliaeth uniongyrchol Swyddfa'r Ffyrdd a'r Rheilffyrdd) mae problemau sylweddol wedi eu canfod yn ymwneud â materion megis datblygiad y prosiect, gwybodaeth o'r asedau, a gweithredu'r prosiect. Byddwn felly'n gofyn wrth Lywodraeth Cymru a oes materion o'r fath yr hoffai eu trafod ymhellach â ni. Yn fwy cyffredinol, mae nifer o bryderon yn codi ynglŷn â galluoedd, er enghraifft y gallu i gynllunio prosiect, sy'n adleisio materion a godwyd eisoes yn y Rhaglen Gwella Gwelliannau (*Enhancements Improvement Programme*).

Gwariant a pherfformiad ariannol

Rhagwelir cyfanswm gwariant (costau cefnogaeth, gweithredu, cynnal a chadw, adnewyddu a gwelliannau) o £327 miliwn ar gyfer rhwydwaith Cymru yn ystod 2015-16. Mae rhan fwyaf leiniau Cymru yn ystod y flwyddyn ariannol hyd yma'n tanberfformio. £3 miliwn yn unig yw tanberfformiad Network Rail hyd yma yng Nghymru. Mae'r sefyllfa'n waeth, serch hynny, ar gyfer y flwyddyn gyfan oherwydd bod y tanberfformiad ar adnewyddu a gwelliannau'n fwy na'r gorberfformiad ar Gynlluniau Atodol 4 ac 8. Disgwylir y daw tanberfformiad Adnewyddu'n bennaf o'r gorwariant o £26 miliwn a fu ar brosiect adnewyddu signalau ardal Caerdydd (sy'n fwy na gwrthbwysu gorberfformiad prosiect adnewyddu

signalau'r lein o Casnewydd i'r Amwythig). Mae tanberfformiad ariannol Gwelliannau'n gysylltiedig â'r rhannau hynny o raglen drydaneiddio cwmni'r Great Western sydd yng Nghymru.

Perfformiad ariannol yng Nghymru o'i gymharu â chyllideb Network Rail

D.S: Mae'r ffigyrau yn y tabl uchod yn cynnwys ffigyrau uned fusnes ganolog Network Rail ar berfformiad ariannol rhwydweithiau unigol.

£m	2015-16	
	Cost hyd yma	Rhagolwg blynyddol
Trosiant	-1	0
Cynllun atodol 4	3	4
Cynllun atodol 8	1	3
Gweithredu	0	0
Cefnogaeth	-1	-3
Cynnal a chadw	0	-1
Adnewyddu	-1	-6
Gwelliannau	-3	-12
Cyfanswm	-3	-16

We publish the *Network Rail Monitor* every six months, focusing on Network Rail's delivery of its obligations to its customers and funders, for which it is mainly accountable under its network licence.

We welcome your feedback on this publication. Please send your comments or queries to:

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