



OFFICE OF RAIL AND ROAD

Network Rail Monitor Scotland

Quarters 1-2 of Year 3 of CP5
1 April to 15 October 2016

24 November 2016



Level property Left luggage 71 71
Toilets and showers 71 71
Customer lounge 71 71
Station reception 71 71
Tickets and Travel Centre 71 71
Taxis and Glasgow Station Link 71 71
Western Bus, Airport Bus 71 71
Glasgow Street, Central Station 71 71
Way out 71 71

Welcome to Glasgow Central Station

Wider access gate

156 511

Contents



1. Overview	5
Health and safety	5
Train service performance	5
Asset management	5
Developing the network	6
Expenditure and finance	6
2. Health and Safety	9
Train accident risk	9
Track	9
Civils assets	10
Fencing and animal incursion	10
Worker Safety	11
Level Crossings	11
Vegetation	11
Occupational Health	12
3. Train service performance	13
Scotland performance	13
The performance improvement plan	15
Performance at TOC level	16
Delay minutes	17
Freight	17
4. Asset management	18
Delivery	18
Renewals	18
Maintenance	18
Asset Performance	19
ORBIS milestones	19
Deferred renewals	20
5. Developing the network	21
ORR reviews	21
Project progress	22

6. Expenditure and finance	26
Overall financial performance	26
Regulatory financial performance	27
Network Rail's debt, RAB and borrowing	29
Expenditure (excluding central unit cost allocations)	29

1. Overview

- 1.1 This Monitor provides ORR's assessment of Network Rail's performance in Scotland over periods 1-7 of 2016-17, the third year of [Control Period 5 \(CP5\)](#).

Health and safety

- 1.2 Network Rail Scotland has demonstrated a similarly positive safety performance to the rest of the network for the first half of the year. There are, though, some variations within the overarching trends. Its strengths and weaknesses are not identical to those of other routes, or the network as a whole. For example, Network Rail Scotland has led the way in understanding and remedying Section Manager workload and in seeking improved management of train movements in [possessions](#). On the other hand, it is behind other routes in achieving train accident risk reduction programmes.

Train service performance

- 1.3 At the end of [period 7](#), the [Public Performance Measure \(PPM\) Moving Annual Average \(MAA\)](#) for Network Rail Scotland was 89.5%, 1.2 percentage points (pp) worse than the period 7 MAA target. It has adjusted its year-end PPM MAA target from 92% to 91%. To achieve this, Network Rail Scotland will need to hit the regulatory target for each of the remaining four months of the year.
- 1.4 Although performance is forecast to be below the regulatory target, the ScotRail Alliance (the Alliance) has produced and published a *Performance Improvement Plan* which aligns improvement measures with its adjusted target. We have carried out a detailed review of the plan and have concluded that it is robust, and that the 91% target is therefore stretching but achievable (assuming an average autumn and winter). We will not initiate a formal performance investigation at this stage but will continue with our enhanced monitoring - both of performance and of delivery of the *Performance Improvement Plan*.

Asset management

- 1.5 Network Rail Scotland has delivered all renewals ahead of plan so far this year, except for plain line track, which is 4% down, due to lost production by the [high output track renewal](#) fleet. All overhead line renewals planned for the year have been completed early. Network Rail Scotland is forecasting to complete the year close to plan overall other than in signalling, because the Scotland Accelerated National Operating Strategy (SANOS) South scheme is now due for completion next year. The cost of renewals is 2% more than budgeted, and this is forecast to widen to 4% by the end of the year.

- 1.6 Maintenance delivery is broadly on plan overall so far this year, although there continues to be significant variability. The cost of maintenance is close to budget, and this is forecast to continue during the remainder of the year.
- 1.7 After two years of improvement, asset performance has fallen slightly this year, with the [Composite Reliability Index](#) (CRI) currently 12.0% better than at the end of CP4. Telecoms continues to perform less well following the rollout of [GSM-R](#), but a recovery is forecast to begin later this year. Signalling performance has deteriorated markedly since the beginning of the year, reversing the gains made during the last two years.

Developing the network

- 1.8 As announced in the last Monitor, we have been progressing a series of reviews of Network Rail Scotland's management and delivery of the Scotland portfolio of enhancements. We found that it has put actions in place to improve the Edinburgh to Glasgow Improvements Programme (EGIP). It is also making good progress with the construction of Edinburgh Gateway station. Network Rail Scotland is, however, still likely to miss its next regulatory milestone for electrification of the line between Edinburgh and Glasgow, via Falkirk High although the implications for passengers are minimal.
- 1.9 Our review of Network Rail Scotland's implementation of the *Enhancements Improvement Programme* (EIP) in Scotland concluded that it has lagged behind progress in England and Wales in several areas, but has plans to recover. We have also completed an efficiency review of the Aberdeen to Inverness project and now expect Network Rail to agree the phasing of outputs with Transport Scotland and progress the delivery of this project.
- 1.10 These reviews have been at conducted at the same time as an independent review commissioned by Transport Scotland of the level of control exercised by Network Rail. Although the remits are different we have identified several of the same issues. The findings of Transport Scotland's review have now been published. These findings are also consistent with the conclusions of our investigation into Network Rail's planning and management of enhancements in October 2015.

Expenditure and finance

- 1.11 For the full year, Network Rail Scotland is forecast to spend £43m more than its budget. This is largely because of £51m higher costs on the EGIP and rolling programme of electrification enhancement projects.
- 1.12 Volumes of renewals work to the value of £26m are forecast not to be delivered in 2016-17. Taking this into account, for the work to be delivered, Network Rail Scotland is forecast to overspend by £14m on renewals. For this work, the forecast overspend

on enhancements is £50m (these numbers are adjusted to £4m and £12m in line with the 25% sharing mechanism¹).

- 1.13 Following Network Rail's classification to the public sector by the Office of National Statistics (ONS), it agreed to borrow from the Department for Transport (DfT) instead of issuing bonds. The amount of new borrowing available from DfT is limited to £3.3bn across CP5 for Scotland.
- 1.14 Compared to its forecast at the start of CP5, Network Rail Scotland has spent more than it expected on the renewals and enhancements work it delivered in 2014-15 and 2015-16 and is forecasting to spend more on work to be delivered during 2016-17. It is also planning to spend more in the remainder of CP5. This means there is pressure on its borrowing facility with DfT.
- 1.15 Network Rail's latest business plan for Scotland, includes financial headroom of £0.1bn. In other words it thinks it will not need to use that amount of the borrowing facility. The main financial risks to this forecast include the costs of renewals and enhancements (as noted above), delivery of efficiency initiatives, movements in interest rates and cash collateral balances and inflation.
- 1.16 Given the relatively small size of the headroom, it is important that Network Rail has a robust plan in place to deal with any further cost pressures. Given the scale of the above variances and that Network Rail in recent years has continually been too optimistic in forecasting its financial performance, we are concerned that its plan may not be sufficiently robust. Network Rail is fully aware of our concerns and we are discussing with the company how it would deal with further cost pressures.

¹ Network Rail generally retains 25% of any out/underperformance of the renewals and enhancement costs.

2. Health and Safety

2.1 Network Rail Scotland has demonstrated a similarly positive safety performance to the rest of the national network. There are, though, some variations within the overarching trends.

Train accident risk

2.2 Network Rail has a corporate programme to reduce train accident risk. Network Rail Scotland is reporting that it is behind target in several key areas of the programme, including: fitment of tubular stretcher bars, the delivery of drainage plans and plans for the maintenance and renewal of lineside fencing. This makes it one of the worst performing routes overall for train accident risk reduction. It is the only route not reporting compliance with current requirements for [tubular stretcher bar](#) fitment but is finalising a detailed plan to recover the position by the end of the year. Scotland Route may also miss Network Rail's target for close-out of close calls within 90 days of receipt. The current closure rate in Scotland is 63% against the target of 80%.

Track

2.3 Numbers of new [twist faults](#) have reduced each period in the first half of the year. However, following a steady decline over the first four periods of 2016-17 numbers of *repeat* track twist faults have risen over the last two periods. This may in part reflect an increase in the frequency of track recording (from every 12 to every four weeks) but at the end of period 7 the number of repeat twist faults was the highest so far in 2016-17.

2.4 In October 2016 we began a programme of inspections of maintenance delivery, including track maintenance. This work is not yet complete, but emerging findings show some of the reasons why Network Rail Scotland has not been able to sustain recent improved management of track geometry. At one maintenance delivery unit we found track access constraints and a shortage of welding resource. This was extending the time taken to deliver simple rail replacements, requiring the use of clamps and temporary speed restrictions (TSRs), thus impacting performance as well as safety management.

2.5 Issues with the New Measurement Train (NMT) have also impacted Network Rail Scotland's ability to respond quickly and effectively to track geometry faults. The timescales for provision of outputs from NMT are unreliable, making it difficult to plan work effectively. There have also been a number of 'invalidated' runs – where, for example, the mileages were not correctly synchronised. Our inspections continue.

Civils assets

- 2.6 ORR has been scrutinising Network Rail Scotland's proposals arising from the revised Business Plan in 2015-16 which deferred some renewals. For both earthworks and structures we have found that asset management staff made appropriate prioritisation decisions – but did not always record the reasoning behind these decisions appropriately. Neither were they always able to describe what mitigations were in place. We are now carrying out site inspections to obtain further information. We have also noted very strong delivery of renewals volumes in the first two quarters of 2016-17. [Underbridges](#) are 66% ahead of target and earthworks 41%. However, it should also be noted that some of the work delivered has been deferred from 2015-16.
- 2.7 Since the incident which closed the West Coast Main Line at Lamington on December 31 2015, Network Rail has reviewed arrangements for the management of the risk of scour at bridges and viaducts. At the end of period 7 the network-wide figure for structures whose risk had not yet been assessed was 176, around half the previous period's figure of over 300 overdue sites. A large proportion of that reduction has apparently been due to Network Rail Scotland factoring in historical data that had been omitted from its scour database. We have yet to verify the position. We are also continuing our investigation of the failure at Lamington.
- 2.8 During the first half of 2016-17 we examined the circumstances of the failure of a 'cast in situ' service duct on the underside of a bridge deck at Scotstounhill. The incident resulted in large sections of concrete falling onto the railway. Enquiries revealed that bridge examiners and engineers mistook the service duct for a pre-cast beam and in consequence failed to recognise signs that failure was occurring. The route has since made checks for the existence of other overlooked service ducts, and has shared intelligence with other routes and Network Rail's central technical authority staff to ensure the issue is appropriately addressed nationally.

Fencing and animal incursion

- 2.9 At the end of 2015-16 we reported that Scotland was not performing as well as the rest of the network in relation to 'animal incursion' incidents. Since then Network Rail Scotland has taken positive action to increase the height of fencing where incursions have occurred and introduced additional checks of repairs carried out. Our inspections however do still reveal instances of damaged fencing. Its potential for harm is illustrated by an incident in August 2016 where a child suffered serious injuries from overhead electrification equipment at Musselburgh, having apparently accessed the railway at a point where fencing was inadequate. We are continuing to investigate this incident.

Worker Safety

2.10 Following our investigation of a collision between engineering trains within a possession at Logan in August 2015 we have pressed Network Rail Scotland and Network Rail nationally to secure better control of risks. The company has worked hard to achieve cross-industry co-operation to achieve improvements. We have monitored this closely during the first half of 2016-17 and continue to do so. The first tangible result has been the adoption of the '5/15 principle' – a change to the rules governing train movements mandating a maximum speed of 5mph within worksites and 15 mph in all other parts of possessions. The change has been progressively adopted across Scotland over the summer of 2016 on a voluntary basis. It will be formalised in a rule change in December 2016.

Level Crossings

2.11 Our site inspections during the first half of 2016-17 have found conditions to be good or satisfactory – with one exception at Bodsbury. This was attributable to an engineering team not leaving a site as it should have been following work to renew the track. Network Rail's rules on clearing sites had not been followed and we found damage, defects and lineside debris left behind.

2.12 Our inspections continue to find positive evidence of the added value that Level Crossing Managers bring to the control of level crossing risks. We saw several examples of Level Crossing Managers instigating proactive vegetation removal at crossings in order to maintain sufficient sighting.

Vegetation

2.13 As well as proactive management of vegetation at level crossings, we have seen some good examples of vegetation management activities in relation to new electrification projects. In general, though, the route has struggled to comply with the requirements of vegetation management standard *NR/L2/TRK/5201* or its Asset Policy. Discussions with colleagues in England and Wales, and scrutiny of incidents reported in the national logs, suggest that Network Rail Scotland is not alone in finding compliance difficult. Our site inspections found, for example, some areas where vegetation was very close to or encroaching on overhead line equipment. Scotland Route has an agreed and risk-assessed plan to recover compliance over time but we will require assurance that routine vegetation management activity is delivered at the same time.

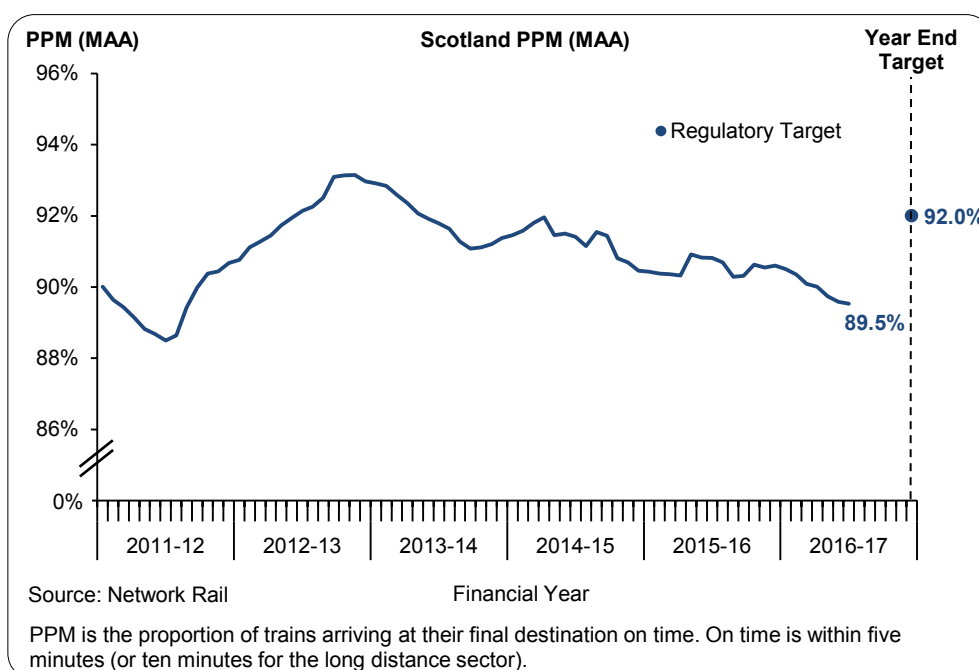
Occupational Health

- 2.14 Scotland Route is developing an action plan to address matters identified during our 2015-16 [Hand-Arm Vibration Syndrome](#) HAVS inspections. During site inspections some Network Rail staff showed good awareness of HAVS, although during one inspection, a contractor's staff using a hydraulic breaker were unable to demonstrate good understanding of daily limits.
- 2.15 We also found during one inspection that contractors carrying out shot blasting, repair and painting works had no process in place for repeat RPE (respiratory protective equipment) fit testing.
- 2.16 We will continue to look for evidence that central policies are being applied consistently.

3. Train service performance

Scotland performance

- 3.1 We are holding Network Rail Scotland to account for delivery of its regulated performance targets throughout CP5. The PPM MAA for the franchises let by the Scottish Government (ScotRail and Caledonian Sleeper) was 89.5% at the end of Period 7 2016-17, 2.5 percentage points (pp) below the year-end regulatory target of 92% and 0.7pp worse than at the same time last year.



- 3.2 Industrial action and associated staff shortages and other issues affecting the ScotRail part of the Alliance have had some impact on performance, but after making an allowance for these, we estimate that performance would still be 1.8pp below target.
- 3.3 The closure of Glasgow Queen Street station was well managed and the station re-opened in August as planned. The closure impacted performance by decreasing resilience, meaning that there was an increase in reactionary delay during this period. However since the re-opening the Alliance has advised us that resilience has not increased to the extent that it had anticipated.

- 3.4 In general, the trend in delay causing incidents is flat or declining in Scotland. However delays caused by those incidents are increasing. Across the industry, delay per incident (DPI) has been increasing in recent years, and Network Rail has described reducing DPI as one of its 'must wins'. Both TOCs and Network Rail must work together at a local level to reduce it. Network Rail needs to improve its incident response, improving its performance against 'time to site time to fix' metrics. TOCs must provide adequate traincrew resource so the train service can recover more quickly and both Network Rail and the TOCs must have effective contingency plans
- 3.5 Network Rail has a mix of short and long term initiatives to improve incident response, including increasing incident response staff resource and exploring technology such as the 'Incident Management System'. It is also looking at ways of improving its system operator capability, through timetable amendments, traffic management and reviewing [train regulation](#) policies.
- 3.6 Network Rail Scotland has stated that performance in 2015-16 was affected by:
- severe weather which caused significant flooding in the Carlisle area;
 - two derailments that occurred within possessions; and
 - the closure of the Forth Road Bridge.

The impact of these events will drop out of the MAA calculation in the next few months of this year, which should produce an improvement. Resolution of the summer's industrial relations issues will have a similar effect.

- 3.7 Network Rail Scotland has adjusted its year-end PPM MAA target from 92% to 91%. We are concerned that it is now forecasting that it will not meet its year-end PPM MAA target but note that it has committed to recovering performance and to that end the Alliance has published a performance improvement plan. The plan identifies specific actions that it believes are required to deliver improved performance and the tables below provide an overview of these actions.

The performance improvement plan

3.8 On 20 October 2016 the ScotRail Alliance published a performance improvement plan aimed at delivering improvements in infrastructure, operations and fleet areas. The latter category falls primarily to the train operators, but both infrastructure and operations are very much issues for Network Rail Scotland and its plans in these areas are listed in the tables below.

Infrastructure improvement

Action Plan	Description
Asset Improvement Plan	An £8m rolling annual programme to replace and/or enhance key pieces of critical railway infrastructure.
Edinburgh & Borders Infrastructure Improvement Plan	A specific action plan to tackle localised infrastructure issues in and around Edinburgh and down into the Borders.
Glasgow & West Infrastructure Improvement Plan	A specific action plan to tackle localised infrastructure issues in and around Glasgow and the West of Scotland.
Lanarkshire Infrastructure Improvement Plan	A specific action plan to tackle localised infrastructure issues in and around Lanarkshire.
Perth, Dundee and Tayside Improvement Plan	A specific action plan to tackle localised infrastructure issues in and around Perth, Dundee and across Tayside.
Trespass Prevention Plan	A multi-agency approach to reducing the number of people trespassing on the railway.

Operational improvement

Action Plan	Description
Timetable and Golden Trains Action Plan	A plan to examine – and address - those trains and areas of the timetable that have the greatest impact on overall performance, including timetable adjustments and golden trains ² .
Operational Planning Action Plan	Working with staff and trade unions to ensure that Network Rail is making the best use of its systems and people.
On-Time Railway Action Plan	An internal staff campaign to ensure that all activities are aligned to delivering a railway that runs on time.

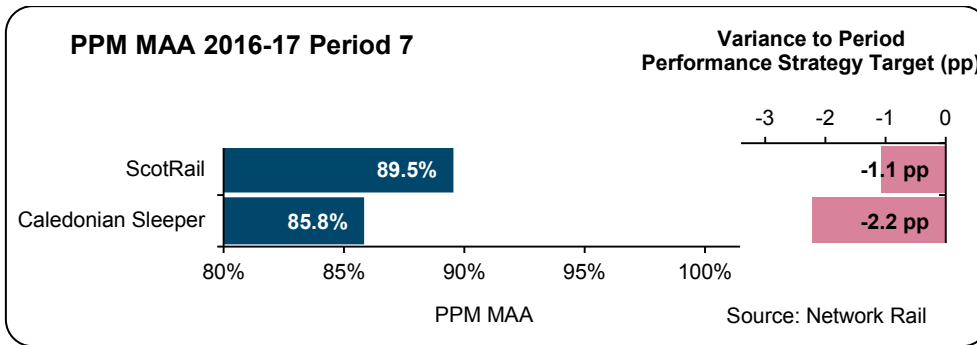
3.9 To fully understand the steps Network Rail Scotland is taking to ensure that performance recovers to targeted levels, we have carried out a detailed review of the performance improvement plan. We have concluded that delivery of 91% PPM is stretching but achievable. We are also encouraged by assurance from Network Rail Scotland that its improvement plan is designed to deliver longer term benefits and aims to put in place measures that will help achieve 92% PPM MAA by the end of 2017-18.

3.10 We will continue to monitor performance in Scotland closely and engage with the ScotRail Alliance to obtain assurance that all elements of its performance improvement plan are being delivered and having the impact predicted. We may consider formal regulatory intervention if the Alliance fails to deliver its plan.

Performance at TOC level

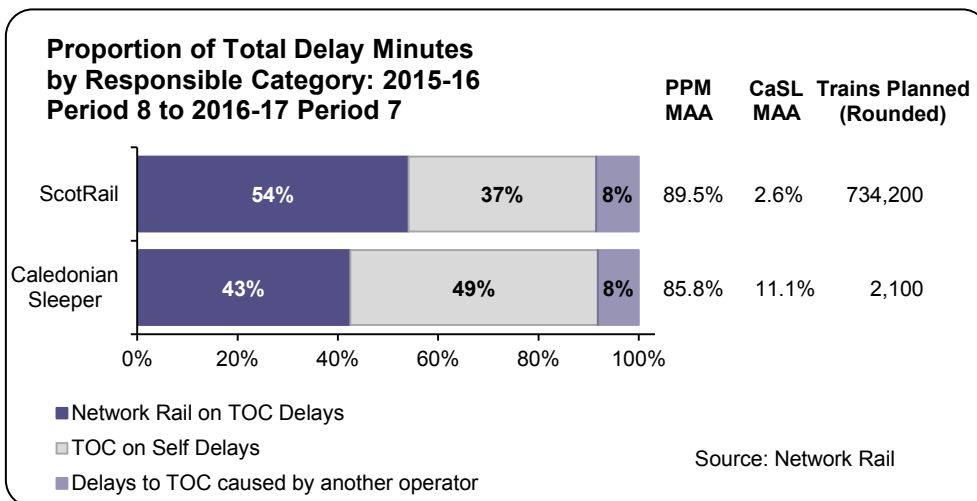
3.11 Both ScotRail and Caledonian Sleeper are performing below target but the latest data suggests that after adjusting for reasons outside Network Rail Scotland's reasonable control, ScotRail's performance would be within the threshold specified in the CP5 determination, i.e. better than 90%. The position for Caledonian Sleeper is less clear but, as stated above Network Rail Scotland is forecasting that ScotRail and Caledonian Sleeper performance would outturn the year at 91% and 89.7% PPM respectively.

² ScotRail describe Golden Trains as those trains that, if delayed, have the biggest impact on the rest of the network



Delay minutes

3.12 At the end of period 7, Network Rail Scotland was responsible for 54% of ScotRail delay minutes and 43% of Caledonian Sleeper delay minutes. The remaining delay minutes were caused by the operators themselves and by other operators.



Freight

3.13 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 the period 7 for the Scotland Strategic Freight Corridor was 96.5%, 4.0pp ahead of the national annual target of 92.5%.

4. Asset management

Delivery

- 4.1 Maintaining and renewing the network is fundamental to Network Rail's responsibilities. Regular maintenance counters the effects of wear and ageing to keep the assets safe and performing as intended. But eventually they do have to be renewed when it becomes uneconomic or impractical to maintain them any longer.
- 4.2 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 and subsequent updates, so we monitor the actual volume of work delivered to understand whether Network Rail is doing enough to sustain the network.

Renewals

- 4.3 During the first year of CP5 (2014-15) the volume of renewals projects completed by Network Rail Scotland was significantly less than planned. The situation improved last year to finish on or ahead of plan, but we were concerned that a significant proportion of the renewals spend planned for 2015-16 was deferred to future years, particularly in signalling, which are often multi-year projects.
- 4.4 Delivery has continued ahead of plan so far this year, except for plain line renewals, which are 4% down, due to lost production by the high output track renewal fleet. All overhead line renewals planned for the year have been completed early. [Underbridge](#) renewals are 66% ahead of plan, following completion of projects deferred at the end of last year due to bad weather. Earthworks renewals are 41% ahead of plan as a result of favourable access allowing projects to be completed early. Network Rail Scotland is forecasting to complete the year close to plan overall other than in signalling, because the Scotland Accelerated National Operating Strategy (SANOS) South scheme is now due for completion next year.
- 4.5 The cost of the renewals work delivered so far this year was £4m (2%) more than budgeted, and Network Rail Scotland is forecasting for this to widen to £14m (4%) by the end of the year.

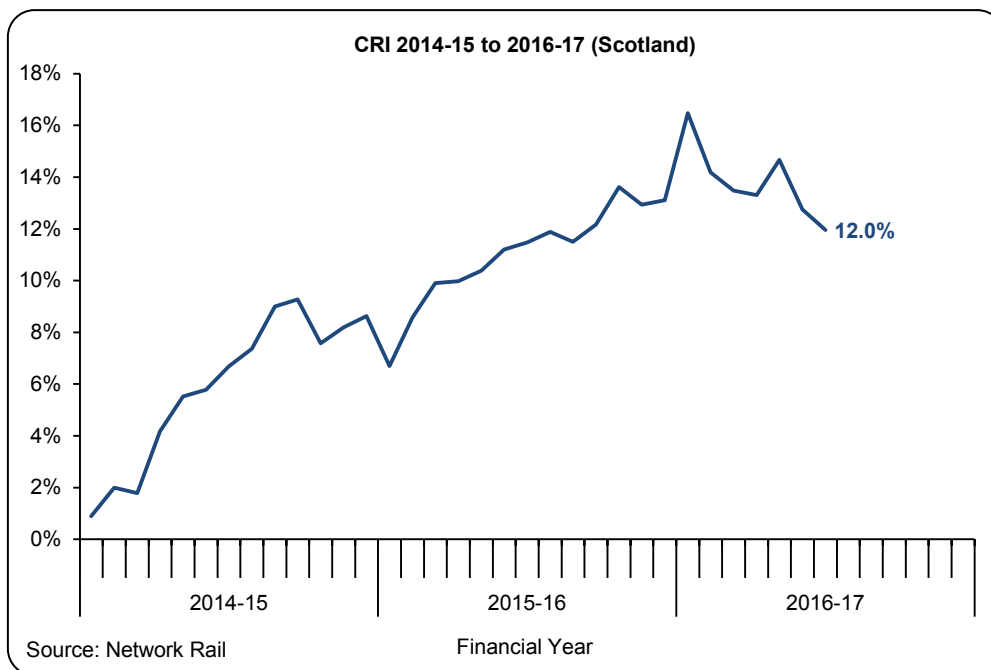
Maintenance

- 4.6 Maintenance delivery is broadly on plan overall so far this year, although there continues to be significant variability. For example, in track maintenance, [wet bed removal](#), re-profiling of ballast and replacement of pads and insulators are ahead of plan, but [tamping](#), [stoneblowing](#), and correction of track geometry, are all behind plan. In electrification, maintenance of DC traction supplies, points heaters and

signalling power supplies are all well ahead of plan, but maintenance of overhead line components is behind plan. The cost of maintenance delivery so far this year is close to budget, and Network Rail Scotland forecasts that to continue through to the end of the year.

Asset Performance

4.7 During the first 2 years of CP5, Network Rail Scotland succeeded in reducing the incidence of service-affecting asset failures, with the [Composite Reliability Index \(CRI\)](#) showing a 13.1% improvement relative to the end of CP4, which was well ahead of plan. So far this year asset performance has plateaued, with CRI falling to 12.0%, and Network Rail Scotland is forecasting CRI to fall further to 11.3% by the end of the year.



4.8 Telecoms continues to perform less well (following the rollout of GSM-R) than at the end of CP4, contributing -2.4% to CRI. Network Rail Scotland is forecasting telecoms performance to begin to recover later this year. Signalling performance has deteriorated markedly since the beginning of the year, reversing the gains made during the last two years, and contributing -0.8% to CRI.

ORBIS milestones

4.9 ORBIS stands for *Offering Rail Better Information Services*. 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 out-dated asset information systems, and providing improved decision support tools. For CP5 we set specific milestones to help ensure it delivers all the benefits expected.

4.10 Network Rail was unable to achieve its June 2016 milestone for replacing the existing *Civils Asset Register and Reporting System (CARRS)* with a new asset management system for civils structures known as CSAMS based on Ellipse, an asset management software tool. As a result of delay associated with upgrading to the latest version of Ellipse, CSAMS will not be available before the beginning of the winter programme of asset inspections, so Network Rail is now aiming to launch it in May 2017. The delay is being taken as an opportunity to enhance the capability of CSAMS, for example, enabling engineers to compare individual assets with the portfolio of similar assets. From our preview of the system, we anticipate it will be a major step forward.

Deferred renewals

4.11 Last year Network Rail reduced the volume of renewals work it planned to deliver during the remainder of CP5 due to affordability. To assess what impact this will have on the network we have liaised with Network Rail's route teams to understand how their plans have been affected, and to see items that have been deferred or de-scoped. Our findings broadly agree with Network Rail's central review. We expect some adverse effect on asset condition and asset performance across the network, and we foresee a need for greater reliance on other safety controls in order to maintain asset safety.

5. Developing the network

5.1 Network Rail Scotland is responsible for completing over £1 billion of enhancement projects in CP5. This section provides an update on our reviews and progress on each project.

ORR reviews

5.2 As set out on our website alongside the [previous Monitor](#), ORR instigated several reviews of Network Rail Scotland's project delivery, following the company's own reports of estimate increases and risks to the delivery of key milestones. This section of the monitor sets out progress for these reviews. We have also briefed the Scotland Rural Economy and Connectivity committee on progress in a written statement.

5.3 We have been working on these reviews since the last Monitor. Our review to determine the efficient costs for Aberdeen to Inverness is now complete and we have progressed actions with the Edinburgh to Glasgow Improvements programme. Progress with these reviews is outlined in the project progress section.

5.4 We have also completed our review of Network Rail's implementation of its [Enhancements Improvement Programme](#) (EIP) in Scotland. The EIP was its response to the issues we found that led to us finding the organisation in breach of its licence. We have been monitoring Network Rail's progress in delivering the EIP since October 2015 and we have provided a view of Network Rail's overall progress with the EIP in the [Great Britain Monitor](#).

5.5 The objective of our review of EIP implementation in Scotland was to determine if implementation is on plan, given the current issues with Scotland projects. We reviewed the implementation of three workstreams, where we expect to see evidence of implementation in the portfolio.

5.6 We found implementation of project portfolio monitoring in Scotland was in line with England and Wales. A new reporting system has been developed, which has the full buy-in of Network Rail Scotland. Subsequent to our review, the Network Rail Scotland projects team is now leading on roll-out of the new system which is now being used at senior level meetings. However, progress with the other two workstreams reviewed did not meet our expectations with the improvements implemented slower than in England and Wales.

5.7 On clienting and governance of the enhancement portfolio, Network Rail Scotland and Transport Scotland are working together on a memorandum of understanding

(MOU) setting out respective responsibilities for enhancements. A similar arrangement has been agreed between Network Rail and the Department for Transport (DfT) for England and Wales enhancements.

5.8 The early versions of Network Rail's peer review schedule (implemented as part of its stage gate assurance workstream) did not include any Scotland projects, despite the importance of EGIP in particular to Scotland stakeholders. Network Rail has now added EGIP, with a peer review programmed for February 2017 and is planning to add further Scotland reviews to the schedule.

5.9 A recent review of Scotland enhancement projects, commissioned by Transport Scotland, identified several areas where Network Rail Scotland can improve its enhancements capability. This report repeated many of the concerns we raised when we found Network Rail in licence breach in October 2015, regarding its planning and management of enhancement projects, which strengthens the need for the EIP to be effectively implemented, embedded in the business and the benefits realised. The issues we raised in our investigation, which are consistent with the report, include:

- late delivery of project milestones;
- cost escalation during project development;
- no standard process for the management of complex cross-industry programmes; and
- lack of portfolio management.

Project progress

Edinburgh Glasgow Improvements Programme (EGIP)

5.10 Network Rail Scotland is making good progress with some parts of EGIP. The Edinburgh Gateway station project continues to progress on budget and to programme. Also the Queen Street slab track renewal was delivered ahead of schedule and there has been good progress made with the signalling and civils scope elements of EGIP.

5.11 However the project completion milestones for Key Outputs 1, 3 and 4 (electrification, journey time improvements and Queen Street station upgrade respectively) are all now at risk and Network Rail Scotland has confirmed it will miss its obligation to provide an electric service on the Edinburgh to Glasgow line by December 2016. The risk to the Queen Street station upgrade is due to timescales associated with the approval of the Transport and Works (Scotland) order. This is an issue outside Network Rail's control.

- 5.12 We wrote to Network Rail Scotland requesting the improvements it was making to bring the programme back on schedule. In response, it set out that it has begun to demonstrate improved reporting, progress and productivity on EGIP following the estimate increases and slippages reported earlier in the year. These improvements have come about due to changes to the delivery organisation and key personnel and the additional engineering access the project negotiated. We will continue to challenge Network Rail Scotland to demonstrate how it will recover the programme and manage forecast costs to ensure affordability across the portfolio.
- 5.13 Over 2015 and 2016 EGIP has continued to forecast major cost increases and the overall budget remains at risk. This is due to ongoing uncertainty over emerging land issues relating to Queen Street station and additional scope elements to achieve electrification compliance with current legislation and standards has also added costs. Network Rail Scotland's assertion is that it attempted to keep costs down by saying the new specification to meet current standards is high and asking whether it could risk assess things in order to obtain a derogation. However, due to time pressures it said it decided to comply with the current standards.
- 5.14 ORR's aim is to ensure that Network Rail delivers an electrification system that is capable of being constructed, operated, maintained and used in accordance with its duties under health and safety legislation. In some circumstances the dimensions set out in legislation cannot easily be achieved without grossly disproportionate expenditure. In these cases, the duty holder needs to carry out a site specific risk assessment to identify the alternative controls which could be put in place to mitigate the risk. We did not find evidence that Network Rail Scotland sought to use the flexibility in our approach to electrical clearances, something which would have necessitated more robust planning on Network Rail Scotland's part.
- 5.15 We are currently reviewing changes to the EGIP target price and we expect to conclude this work in December.

Scotland Rolling Programme of Electrification (RPE)

- 5.16 Rutherglen and Coatbridge Electrification was authorised with conditions in 2014 to allow electric passenger trains to start running on the line. It is making steady progress towards meeting its final compliance objectives. Shotts Line Electrification advance works are progressing to schedule with the majority of bridge parapet and reconstructions now complete. A third phase has recently begun work and a depot established at the Foundry Road, Cleland site. Stirling – Dunblane – Alloa GRIP 4 design work has successfully completed and the project is beginning a phased contracting strategy to mitigate risks associated with detailed design and advance works. An appropriate engineering access strategy has been agreed with operators.

- 5.17 Both Shotts and SDA are adhering to their schedules, with neither currently reporting a risk to the GRIP 6 regulatory milestone.
- 5.18 During 2015 and 2016 the RPE estimate increased significantly beyond the ORR's initial assessment of the efficient cost made in early 2014. The cause was the same electrification compliance issue that has been a major cost-driver on Network Rail's electrification schemes in CP5. Shott's budget remains at risk due to a number of emerging risk factors including mining remediation, land risk, access arrangements and further compliance issues. The forecast cost for SDA is also at risk due to an additional number of non-compliant structures being identified on the route that are being investigated for suitable solutions. We share Transport Scotland's concerns regarding the procurement strategy on the project and continue to seek assurance from Network Rail Scotland that it is the best possible method for successful delivery. We will review overall procurement strategy on both Shotts and SDA as part of the 2017 efficiency review.

Aberdeen to Inverness Improvements Phase 1

- 5.19 The project is making good progress with surveys almost complete, advance works on plan and detailed design work packages underway. The project will be ready to begin delivering the main works once Network Rail Scotland has agreed the re-phasing of the outputs with Transport Scotland.
- 5.20 Network Rail Scotland is proposing a further phasing of the delivery outputs for Aberdeen to Inverness with a revised completion date of September 2019. This is six months later than the current completion date milestone (March 2019) and into the first year of CP6. The re-phased delivery approach anticipates delivery outside CP5 and will require the agreement of both Transport Scotland and operators. Network Rail Scotland considers this the most efficient approach for further improvements in CP6. We fully support a collaborative approach between Network Rail Scotland and Transport Scotland to identify the optimal scope to deliver Phase 1 and 2 outputs in as timely and cost-effective manner as possible. Until this proposal is approved however we view the existing milestone of March 2019 for project completion as being at risk.
- 5.21 During 2016, the forecast cost for Aberdeen to Inverness increased considerably with little notice to both Transport Scotland and ORR. This was primarily due to increased engineering compliance work for track and civils and additional scope to accommodate freight access rights. We completed an efficiency review of the Aberdeen to Inverness project in September 2016 and have now set the efficient cost for this project that will form the project efficient baseline against which Network Rail's performance will be measured. We expect Network Rail Scotland to make every effort to deliver efficiencies and outperform the efficient cost baseline and we will hold the company to account for delivery.

Highland Mainline Journey Time Improvements

- 5.22 Highland Mainline has suffered from slow development progress to date, with two revised development milestones in CP5 and as yet no fixed scope. A recent risk assessment has however provided a degree of confidence that the project can deliver its outputs by the regulatory milestone of March 2019.
- 5.23 The project cost estimate however remains stable and Network Rail Scotland has taken advantage of timetabling opportunities enabled by the ScotRail Alliance to develop a high-level scope and estimate that will deliver the journey time improvements via a small number of limited infrastructure interventions. This represents a significant efficiency on the initial estimates for the project and demonstrates the value of a collaborative, system-based approach to enhancements. The Alliance and Transport Scotland are currently exploring further efficient scope options to deliver additional outputs as part of the broader Highland Enhancements Programme. We will carry out an efficiency review of Highland Mainline costs once detailed design work has been completed and a robust estimate for the project has been developed.

6. Expenditure and finance

Overall financial performance

6.1 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 secondly by considering our regulatory performance measure (FPM).

Expenditure and financial performance

Table 1: Income and expenditure for Scotland in 2016-17 – a simple comparison of Network Rail income and expenditure

£m	Period 6 2016-17			Full year forecast		
	Budget	Actual	Variance b/(w)	Budget	Forecast	Variance b/(w)
Turnover	318	318	0	691	689	-2
Schedule 4	-22	-20	2	-45	-46	-1
Schedule 8	1	0	0	-2	-2	0
Operations	-21	-22	-1	-45	-47	-2
Support ³	-46	-40	6	-96	-93	3
Maintenance	-55	-53	2	-121	-122	-1
Capex – Renewals	-186	-179	7	-389	-377	12
Capex - Enhancements	-129	-151	-22	-266	-317	-51
Financing costs	-67	-66	1	-156	-157	-1
Total	-207	-213	-5	-429	-472	-43

6.2 For the full year, the forecast overspend is £43m. This is largely because of £51m higher costs on the EGIP and rolling programme of electrification enhancement projects, £50m of this has been recognised as underperformance. This is offset by a £12m underspend on renewals.

6.3 The renewals underspend of £12m, forecast for the full year, is due to the lower volumes of work in Scotland that are forecast not to be delivered in 2016-17 (£26m) offset by an underperformance in Scotland of £14m on the volumes that are forecast to be delivered. This underperformance is largely due to cancelled possessions leading to increases in High Output unit rates.

³ This includes traction electricity, industry costs and business rates.

Regulatory financial performance

6.4 We also use our regulatory performance measure to monitor Network Rail's performance against our CP5 Final Determination. The steps in our calculation are shown in Table 2 below. This measure provides a better calculation of Network Rail's performance because it:

- excludes certain types of income and expenditure that are not as controllable by Network Rail. These include network grant, fixed track access charges, traction electricity income and costs and business rates;
- ensures that Network Rail does not benefit by simply delaying work to a later date as it is just a timing difference, i.e. the work still needs to be done in the future;
- we adjust the out/under performance on renewals and enhancements to be consistent with our RAB roll forward policy. We do this by limiting the financial reward/penalty to generally 25% of the under/overperformance. For example in Table 2 below, the gross renewals underperformance for the first six periods is £4m, so we limit it to 25% by deducting 75% in the line "Capex adjustment – Renewals", i.e. £3m = £4m x 75%; and
- Network Rail should not benefit by not delivering its outputs, so we adjust for the value of the output not delivered.

6.5 We currently expect Network Rail to underperform the regulatory financial performance measure in Scotland by around £82m in 2016-17 as shown in Table 2 below. This is because:

- its financial performance for the full year is expected to be £21m adverse to Network Rail's own budget. This is largely because, compared to its own budget, it has underperformed on renewals (£4m) and enhancements (£12m). The gross numbers, before taking into account the 25% sharing mechanism, are £14m and £50m;
- Network Rail's 2016-17 budget is itself £56m higher than our PR13 determination. This is due to lower than planned cumulative efficiencies and higher unit costs than assumed; and
- Network Rail anticipates that there will be £5m of adjustments for missed regulatory outputs for Scotland in 2016-17. We will review this at the end of the year.

Table 2: FPM for Scotland in 2016-17 – a comparison of the income and expenditure used in our FPM calculation

£m	Period 6 2016-17					2016-17 Full year forecast ⁴				
	Budget	Actual	Variance b/(w)	FPM neutral incl. timing b/(w)	(Under)/out performance	Budget	Actual	Variance b/(w)	FPM neutral incl. timing b/(w)	(Under)/out performance
Turnover	52	52	0	0	0	113	111	-2	0	-2
Schedule 4	-22	-20	2	0	2	-45	-46	-1	1	-2
Schedule 8	0	0	0	0	0	-2	-2	0	0	0
Operations	-21	-22	-1	0	-1	-45	-47	-2	0	-2
Support – excluding rates & industry costs	-27	-21	6	6	0	-55	-52	3	1	2
Maintenance	-55	-53	2	2	0	-121	-122	-1	0	-1
Capex - Renewals	-186	-179	7	11	-4	-389	-377	12	26	-14
Capex adjustment - Renewals					3					10
Renewals net of Adjustments					-1					-4
Capex - Enhancements	-129	-151	-22	1	-23	-266	-317	-51	0	-50
Capex adjustment - Enhancements					18					38
Enhancements net of Adjustments					-5					-12
Capex - Net Total					-6					-16
Financial performance measure compared to Network Rail budget					-6					-21
Less: Network Rail budget compared to PR13					-29					-56
Less: Adjustments for missed regulatory outputs					0					-5
Total financial performance measure (FPM)					-36					-82

⁴ The financial underperformance for the control period to date (i.e. for the two and a half years to end of 2016-17) is expected to be -£154m.

Network Rail's debt, RAB and borrowing

6.6 Network Rail's debt attributable to Scotland as at the end of period 6 was £3,793m, which is £22m lower than budget. At the end of 2016-17 debt is expected to be £31m higher than budget mainly because enhancement expenditure is £51m higher than budget (mostly attributable to EGIP), offset by £12m lower renewals expenditure than assumed (mostly attributable to lower track and signalling renewals expenditure) and £10m lower debt caused by working capital movements.

Table 3: Net debt and borrowings for Scotland in 2016-17

£m	Period 6 2016-17			Full Year 2016-17		
	Budget	Actual	Variance b/(w)	Budget	Forecast	Variance b/(w)
Net Debt	3,815	3,793	22	4,034	4,065	-31
Closing RAB	5,874	5,892	18	6,051	6,066	15
Gearing (net debt/RAB)	65.0%	64.4%	0.6%	66.7%	67.0%	-0.3%

6.7 The Regulatory Asset Base (RAB) of £5,892m is £18m higher than budget to end of period 6, and forecast to be £6,066m, £15m higher than budget at the end of the year. This is also mainly due to the impact of EGIP.

6.8 Network Rail's latest business plan for Scotland includes financial headroom of £0.1bn, i.e. it thinks it will not need to use that amount of the borrowing facility. The main financial risks to this forecast include the costs of renewals and enhancements, delivery of efficiency initiatives, movements in interest rates and cash collateral balances and inflation.

Expenditure (excluding central unit cost allocations)

6.9 Central unit costs, such as various HQ costs and some property, are allocated to the routes. In 2015-16, these central costs of £1.5bn in Great Britain, came to approximately 16% of the total route expenditure. These include traction electricity costs which are recovered through income, business rates and other industry costs as well as centrally managed capital projects such as IT, ORBIS and Plant & Machinery.

6.10 Earlier tables show figures after these allocations. But to be more comparable with other routes, Table 4 looks at the Scotland route's expenditure comparable to Network Rail's budget before the allocation of central unit costs.

Table 4: Scotland Expenditure compared to budget – before allocation of central costs in Q1-2 2016-17

£m	Period 6 2016-17				Full year forecast			
	Budget	Actual	Variance	Variance (%)	Budget	Forecast	Variance	Variance (%)
Operations	-21	-22	-1	5%	-44	-46	-2	5%
Support	-2	-2	0	-	-5	-3	2	4%
Maintenance	-52	-52	0	-	-115	-116	-1	9%
Renewals	-162	-164	-2	1%	-344	-338	6	-2%
Enhancements	-133	-149	-16	11%	-278	-326	-48	17%
Total	-370	-389	-19	5%	-786	-829	-43	5%



© Crown copyright 2016

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit nationalarchives.gov.uk/doc/open-government-licence/version/3 or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk.

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

This publication is available at orr.gov.uk

Any enquiries regarding this publication should be sent to us at orr.gov.uk