Network Rail's Delivery Plan for Control Period 5

31 March 2014

Updated 30 April 2014 - pp 7,9,17,18,19

Updated 25 March 2015 - p 4

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Introduction

Purpose

This document, taken together with the Enhancements Delivery Plan document, sets out what we will deliver over Control Period 5 (CP5), from April 2014 to March 2019. This is the 'contract' against which ORR will measure our performance. It is also intended to assist train operators, funders and stakeholders to plan their businesses with a reasonable degree of assurance in CP5.

The outputs framework in CP5

The outputs framework for CP5 consists of regulated outputs which Network Rail must deliver, indicators which are used for monitoring purposes, and enablers which assess the capability of the company in both the short and long term.

The key difference in terms of regulation between outputs and indicators / enablers is that if Network Rail is likely to fail, or fails, to deliver an output, ORR would need to consider whether this amounts to a licence breach and ORR may take enforcement action.

A failure to deliver either an indicator or an enabler would not itself be considered a potential licence breach. However, either may indicate trends which provide some indication of Network Rail's likely future compliance with an output.

Network Rail's response to the Final Determination

Network Rail has accepted ORR's Final Determination. In reaching this decision, a key consideration was the Board's view of the deliverability of the regulated outputs, and especially the challenge of meeting the required performance outputs.

We are committed to delivering the end-CP5 train performance targets and embedding a culture of continuous improvement throughout our business. We will need support from the rest of the industry, governments and the ORR to achieve the end-CP5 performance targets. However, we do not expect to meet the England and Wales passenger train performance targets in the early years of CP5.

Key changes since the draft CP5 Delivery Plan

The key changes to the CP5 Delivery Plan compared to the draft are:

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- Revised performance forecasts informed by the development of performance plans with train operators and the change in expected outturn of CP4 performance
- The inclusion of a trajectory for track asset data quality which was not included in the draft Delivery Plan
- Changes to some of our asset management indicator numbers to reflect the further development of our plans.

We have also updated the CP5 Enhancements Delivery Plan to take account of further development work, our ongoing review of deliverability and responses to our consultation. Further detail of the scope of the changes made is provided in the CP5 Enhancements Delivery Plan.

Consultation

We consulted on our draft CP5 Delivery Plan documents. The key points made in the consultation process are summarised later in the document.

Change control and updates

This document will be updated on an annual basis to report progress and to update forecasts where appropriate.

Other documents

Network Rail also consulted, and is now publishing, the route-level efficiency benefit sharing (REBS) mechanism baselines, the route-level volume incentive baselines and the CP5 Policy for Use of Outperformance.

Update on 25 March 2015

Our programme for the five year CP5 period includes some 5,000 projects and, in some cases, our plans are evolving to reflect delivery challenges as well as the strong growth in passenger and train numbers that we continue to see. We are currently updating our Delivery Plan in response to the delivery challenges and opportunities presented by the strong growth and the needs of passengers, freight users and the wider economy. We will be providing a further update on those plans in the summer based on safe and sustainable delivery to meet the interests of customers and funders.

Regulated outputs

Outputs that, if Network Rail fails to deliver, ORR would consider whether this amounts to a licence breach and hence may take enforcement action.

Performance

Table 1: PPM - England & Wales and Scotland

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
England & Wales						
Actual / forecast	89.8%	91.0%	91.5%	92.3%	92.4%	92.5%
Target	92.6%	91.9%	92.1%	92.3%	92.4%	92.5%
Scotland						
Actual / forecast	91.1%	92.0%	92.0%	92.0%	92.0%	92.5%
Target	92.0%	92.0%	92.0%	92.0%	92.0%	92.5%

Commentary

The Public Performance Measure (PPM) shows the percentage of trains which arrive at their destination within five minutes of their scheduled arrival time (ten minutes for long distance services).

Network Rail has accepted ORR's Final Determination. In reaching this decision a key consideration was the Board's view of the deliverability of the regulated outputs, and especially the challenge of meeting the required performance outputs.

We are committed to delivering the end-CP5 train performance targets and embedding a culture of continuous improvement throughout our business. We will need support from the rest of the industry, governments and ORR to achieve the end-CP5 performance targets. However, we do not expect to meet the England and Wales passenger train performance targets in the early years of CP5.

Table 2: PPM - franchised TOCs

Train Operating Company	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	CP5 exit target
Franchised operators							
Abellio Greater Anglia	91.8%	92.3%	92.6%	92.7%	92.8%	92.8%	90% min
Arriva Trains Wales	93.1%	93.5%	94.0%	94.2%	94.4%	94.5%	90% min
c2c	96.6%	97.0%	97.1%	97.1%	97.0%	97.0%	90% min
Chiltern Railways	94.9%	94.9%	95.0%	95.0%	95.0%	95.0%	90% min
CrossCountry	86.9%	89.0%	90.0%	90.8%	90.8%	90.8%	90% min
East Coast	84.0%	86.0%	86.5%	87.0%	87.8%	88.0%	88% min
East Midlands Trains	91.3%	93.0%	93.2%	93.3%	93.3%	93.5%	90% min
First Capital Connect	86.1%	88.0%	89.2%	89.7%	89.7%	90.0%	90% min
First Great Western	87.8%	90.3%	91.1%	91.8%	91.9%	92.0%	90% min
FGW High Speed Services	-	*85.2%*	*86.4%*	*87.3%*	*87.6%*	*88.1%*	88% min
First ScotRail	91.1%	92.0%	92.0%	92.0.%	92.0%	92.5%	92.5% min
First TransPennine Express	90.3%	91.0%	91.5%	91.5%	92.0%	92.2%	90% min
London Midland	85.7%	87.0%	88.2%	89.5%	89.8%	90.0%	90% min
London Overground	96.2%	97.0%	97.0%	97.0%	97.0%	97.0%	90% min
Merseyrail	95.8%	96.0%	96.0%	96.1%	96.2%	96.3%	90% min
Northern	90.9%	91.4%	92.2%	92.9%	93.0%	93.1%	90% min
South West Trains	89.6%	92.0%	92.5%	93.0%	93.5%	94.0%	90% min
Southeastern	89.3%	90.5%	90.5%	90.5%	90.4%	90.8%	90% min
Southern	85.9%	87.8%	87.7%	89.8%	89.9%	90.0%	90% min
Virgin Trains	85.2%	85.5%	86.2%	87.0%	87.4%	88.0%	88% min

Commentary

Actual 2013/14 performance figures have been updated since the Delivery Plan was initially published to reflect the final end of year position.

For all but two franchised operators in England & Wales there is a regulated output to achieve 90 per cent PPM by the end of the control period. Virgin trains and East Coast have a dual PPM and CaSL target, with a target of 88 per cent PPM. The 88 per cent PPM minimum requirement also applies to First Great Western high speed services, in addition to the 90 per cent for all the services it runs.

The annual PPM trajectories at a train operator level have been established through jointly developing a Performance Strategy (PS) with each operator.

The first year target of each PS will be subject to scrutiny by ORR. Recognising that there will be variability around the achievement of PS targets, ORR has set a floor of 2 percentage points below the agreed PS PPM commitments for the first year targets. At this point, ORR may intervene. The year 1 PPM target for FCC is still not agreed; for FCC this table shows the Network Rail forecast.

The figures for the years beyond 2014/15 have been greyed-out to highlight the focus on the first year of the PSs.

Table 3: CaSL - England & Wales

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
England & Wales						
Actual / forecast	2.9%	2.4%	2.3%	2.2%	2.2%	2.2%
Target	-	2.2%	2.2%	2.2%	2.2%	2.2%

Commentary

CaSL (Cancellations and Significant Lateness) is a combined measure of punctuality and reliability. It is a percentage measure of scheduled passenger trains which are either cancelled (including those cancelled en route), miss one or more scheduled stops or arrive at their scheduled destination 30 or more minutes late.

Network Rail has accepted ORR's Final Determination. In reaching this decision a key consideration was the Board's view of the deliverability of the regulated outputs, and especially the challenge of meeting the required performance outputs.

We are committed to delivering the end-CP5 train performance targets and embedding a culture of continuous improvement throughout our business. We will need support from the rest of the industry, governments and ORR to achieve the end-CP5 performance targets. However, we do not expect to meet the England and Wales passenger train performance targets in the early years of CP5.

Table 4: CaSL - franchised TOCs

Train Operating Company	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	CP5 exit target
Franchised operators							
Abellio Greater Anglia	2.2%	1.6%	1.6%	1.6%	1.6%	1.6%	
Arriva Trains Wales	2.6%	2.5%	2.3%	2.2%	2.2%	2.1%	
c2c	1.5%	1.1%	1.1%	1.1%	1.2%	1.2%	
Chiltern Railways	1.6%	1.4%	1.4%	1.4%	1.4%	1.4%	
CrossCountry	5.2%	4.5%	4.2%	4.0%	4.0%	3.9%	
East Coast	5.9%	5.4%	5.1%	5.0%	5.0%	4.2%	4.2%
East Midlands Trains	2.6%	2.2%	2.1%	2.1%	2.1%	2.0%	
First Capital Connect	4.0%	3.0%	3.4%	3.4%	3.4%	3.3%	
First Great Western	3.4%	2.5%	2.3%	2.2%	2.1%	2.1%	
First ScotRail	2.1%	2.4%	2.4%	2.4%	2.4%	2.4%	
First TransPennine Express	4.8%	3.5%	3.6%	3.6%	3.5%	3.5%	
London Midland	3.6%	2.7%	2.6%	2.5%	2.5%	2.5%	
London Overground	1.9%	2.0%	1.8%	1.8%	1.8%	1.8%	
Merseyrail	1.7%	2.0%	2.0%	1.9%	1.9%	1.9%	
Northern	1.8%	1.9%	1.7%	1.6%	1.7%	1.6%	
South West Trains	3.0%	2.1%	1.9%	1.8%	1.7%	1.5%	
Southeastern	3.2%	2.5%	2.5%	2.5%	2.5%	2.5%	
Southern	4.6%	2.9%	2.8%	2.5%	2.4%	2.4%	
Virgin Trains	5.0%	4.0%	3.8%	3.8%	3.5%	2.9%	2.9%

Commentary

Actual 2013/14 performance figures have been updated since the Delivery Plan was initially published to reflect the final end of year position.

For two franchised operators, East Coast and Virgin, there is a regulated output to achieve a CaSL target at the end of CP5.

The annual CaSL trajectories at a train operator level have been established through jointly developing a Performance Strategy (PS) with each operator.

The first year target of each PS will be subject to scrutiny by ORR. Recognising that there will be variability around the achievement of PS targets, ORR has set a floor of 0.2 percentage points below the agreed PS CaSL commitments for the first year targets. At this point, ORR may intervene.

The figures for the years beyond 2014/15 have been greyed out to highlight the focus on the first year of the PS.

The First ScotRail forecast for 2014/15 is greyed out because First ScotRail CaSL is not subject to ORR regulation at all in CP5.

Table 5: Freight Delivery Metric - Network-wide

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Actual / forecast	93.5%*	92.5%	92.5%	92.5%	92.5%	92.5%
Target	-	92.5%	92.5%	92.5%	92.5%	92.5%

*MAA as of period 8. Network Rail does not currently forecast the year-end FDM value.

Commentary

Freight Delivery Metric (FDM) measures the percentage of freight trains arriving at their destination within 15 minutes of scheduled time. It only covers delay caused by Network Rail.

Network availability

Table 6: PDI-P - Network-wide

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	CP5 exit target
Actual / forecast	0.65	0.79	0.81	0.80	0.70	0.58	0.58
Target	0.63	-	-	-	-	-	0.58

Commentary

The Possession Disruption Index – Passenger (PDI–P) measures the level of disruption caused by possessions over a period of time.

Table 7: PDI-F - Network-wide

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	CP5 exit target
Actual / forecast	0.88	1.00	1.04	0.99	0.94	0.73	0.73
Target	1.00	-	-	-	-	-	0.73

Commentary

The Possession Disruption Index – Freight (PDI–F) measures the level of disruption caused by possessions over a period of time.

The Possession Indicator Report will be made publicly available periodically in CP5. The content of the Possession Indicator Report is as follows:

- Possession Disruption Index for passengers
- Possession Disruption Index for freight
- PDI-P and PDI-F by operator
- Working timetable compliance at weekends
- Rail replacement bus hours at weekends
- Late changes to possessions
- Number of planned disruption mitigating interventions
- Delay minutes due to possession overruns
- Cancellation minutes due to possession overruns
- Possession notification discount factor
- Planned versus unplanned Temporary Speed Restrictions

Asset Management

Table 8: SSM by category

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Category A (England & Wales)						
Actual / forecast	2.24	2.24	2.24	2.24	2.23	2.23
Target	2.48	2.24	2.24	2.24	2.23	2.23
Category B (England & Wales)						
Actual / forecast	2.34	2.34	2.33	2.33	2.33	2.32
Target	2.60	2.34	2.33	2.33	2.33	2.32
Category C (England & Wales)						
Actual / forecast	2.41	2.40	2.40	2.39	2.39	2.38
Target	2.65	2.40	2.40	2.39	2.39	2.38
Category D (England & Wales)						
Actual / forecast	2.40	2.40	2.39	2.39	2.38	2.38
Target	2.69	2.40	2.39	2.39	2.38	2.38
Category E (England & Wales)						
Actual / forecast	2.41	2.40	2.40	2.39	2.39	2.39
Target	2.74	2.40	2.40	2.39	2.39	2.39
Category F (England & Wales)						
Actual / forecast	2.48	2.48	2.47	2.47	2.46	2.46
Target	2.71	2.48	2.47	2.47	2.46	2.46
Scotland						
Actual / forecast	2.33	2.33	2.33	2.33	2.32	2.32
Target	2.39	2.33	2.33	2.33	2.32	2.32

Commentary

The Station Stewardship Measure (SSM) is an average condition score of stations in each of the station categories A to F in England & Wales, and across all stations in Scotland. A lower SSM score indicates a better station condition.

Table 9: AMEM by core group (Network-wide)

	CP5 SBP	2015/16	2017/18*
Asset Management Strategy & Planning			
Actual / forecast	65.8%	69.6%	72%
Target	-	-	72%
Asset Management Decision-Making			
Actual / forecast	58.7%	67.8%	72%
Target	-	-	72%
Lifecycle Delivery Activities			
Actual / forecast	69.2%	72.0%	72%
Target	-	-	72%
Asset Knowledge Enablers			
Actual / forecast	60.7%	69.7%	72%
Target	-	-	72%
Organisation & People Enablers			
Actual / forecast	67.3%	72.0%	72%
Target	-	-	72%
Risk & Review			
Actual / forecast	60.8%	68.0%	72%
Target	-	-	72%

*January 2018 output

Commentary

The Asset Management Excellence Model (AMEM) measures an organisation's asset management capability by assessing its maturity in a range of core asset management activities. A score of over 70% is needed to be in the excellent category.

Table 10: Asset data quality (track) Network-wide

	2014/15	2015/16	2016/17	2017/18
Plain line				
Actual / forecast	B3	B2	A2	A2
Target	-	-	-	A2
Switches and crossings				
Actual / forecast	B3	B2	A2	A2
Target	-	-	-	A2

Commentary

Asset data quality is assessed using confidence grading of data reliability (the process or 'governance' for producing the data: A to D scale) and a grading of accuracy and completeness (1 to 6).

In order to demonstrate a comparable year on year forecast of data governance (the alpha element of the Network Rail confidence grading methodology) this forecast has been measured against the level of governance that would represent A grade governance in 2017/18 for plain line and S&C track assets. The numeric measure of accuracy within the confidence grade is based upon a lowest value method of aggregating attribute level accuracy to a system level result. As such, the forecasted accuracy measure represents the lowest single result of any attribute that forms part of the system.

Asset data quality for signalling, telecomms, buildings, structures, and earthworks will be reported from the 2015 Delivery Plan onwards. Electrical power will be reported from the 2016 Delivery Plan onwards.

Table 11: ORBIS milestones

Milestone	Description	Target date	Progress
Track Linear Asset Decisions Support (LADS) will bring together disparate track data sources to enable NR to target work more efficiently	National roll-out complete	May 2014	
Signalling Signalling Decision Support (SDS) will bring together disparate signalling data sources to enable NR to target work more efficiently	Data specification complete, including for core data	January 2015	
	National roll-out complete	September 2015	
Electrification & Plant Electrification & Plant Decision Support (E&PDS) will bring together disparate E&P data sources to enable NR to target work more efficiently	Data specification complete, including for core data	April 2015	
	National roll-out complete	December 2015	
Structures Ellipse replaces CARRs (Civils Asset Register & Reporting system) as the master system for Civils Structures	Data specification complete, including for core data	June 2014	
	Asset hierarchies established and Ellipse designated as master system for Civils	June 2016	
Geographic and Infrastructure System (GEOGIS) decommissioned	GEOGIS will be replaced by strategic Asset Management Platform systems	December 2016	
Handheld - Fault and incident data capture app roll-out complete	The new app will allow maintenance staff to enter fault data into handheld devices and for this to be electronically transmitted to control centre staff	August 2014	

The ORBIS Programme (Offering Rail Better Information Services) is a major investment in asset management that is set to change the way in which asset information is collected, stored and utilised.

Indicators

Used for specific monitoring purposes to indicate trends which may raise concern about Network Rail's likely future compliance with a regulated output.

Performance

Table 12: PPM - open-access TOCs

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
First Hull Trains	82.0%	82.0%	84.0%	84.0%	84.0%	84.0%
Grand Central	80.7%	80.7%	84.0%	84.0%	84.0%	84.0%
Heathrow Express	93.8%	93.8%	93.8%	94.9%	95.3%	95.0%

Commentary

Actual 2013/14 performance figures have been updated since the Delivery Plan was initially published to reflect the final end of year position.
Performance forecasts have been developed with the main open access operators.

Table 13: CaSL - open-access TOCs

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
First Hull Trains	7.2%	6.7%	6.7%	6.7%	6.7%	6.7%
Grand Central	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
Heathrow Express	1.2%	1.3%	1.1%	1.0%	0.9%	0.8%

Commentary

Actual 2013/14 performance figures have been updated since the Delivery Plan was initially published to reflect the final end of year position.
Performance forecasts have been developed with the main open access operators.

Table 14: PPM - sector

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
London & South East	89.6%	91.0%	91.4%	92.3%	92.4%	92.5%
Regional	91.0%	91.6%	92.3%	93.0%	93.1%	93.2%
Long distance	86.9%	88.3%	89.1%	89.6%	90.0%	90.3%
Scotland	91.4%	92.0%	92.0%	92.0%	92.0%	92.5%

Commentary

Actual 2013/14 performance figures have been updated since the Delivery Plan was initially published to reflect the final end of year position.

Table 15: CaSL - sector

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
London & South East	3.1%	2.3%	2.2%	2.1%	2.1%	2.1%
Regional	2.3%	2.2%	2.0%	2.0%	2.0%	1.9%
Long distance	5.0%	4.0%	3.8%	3.7%	3.6%	3.4%
Scotland	2.1%	2.4%	2.4%	2.4%	2.4%	2.4%
Network-wide	2.9%	2.4%	2.3%	2.2%	2.2%	2.2%

Commentary

Actual 2013/14 performance figures have been updated since the Delivery Plan was initially published to reflect the final end of year position.

Table 16: Delay minutes - delays to franchised and non-franchised operators, England & Wales*

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Network Rail-on-TOC	7,610,000	6,740,000	6,450,000	6,150,000	6,050,000	6,070,000
TOC-on-self	3,100,000	3,120,000	3,000,000	2,900,000	2,800,000	2,750,000
TOC-on-TOC	1,505,000	1,420,000	1,400,000	1,350,000	1,350,000	1,300,000
England & Wales	12,210,000	11,290,000	10,850,000	10,400,000	10,200,000	10,120,000

*includes all delay to E&W-funded franchised operators, plus Hull Trains, Grand Central and Heathrow Express

Commentary

This is based on the current franchise map – remapping of franchises may alter the split between TOC-on-self and TOC-on-TOC delays. Actual 2013/14 performance figures have been updated since the Delivery Plan was initially published to reflect the final end of year position. Forecasts of performance indicators have been updated since the Delivery Plan was initially published to reflect the conclusion of the annual Performance planning process.

Table 17: Delay minutes - delays to franchised and non-franchised operators, Scotland*

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Network Rail-on-TOC	442,000	405,000	410,000	400,000	403,000	408,000
TOC-on-self	291,000	290,000	294,000	286,000	288,000	292,000
TOC-on-TOC	81,000	85,000	86,000	84,000	84,000	85,000
Scotland	814,000	780,000	790,000	770,000	775,000	785,000

*includes all delay to Scotland-funded franchised operators

Commentary

This is based on the current franchise map – remapping of franchises may alter the split between TOC-on-self and TOC-on-TOC delays. Actual 2013/14 performance figures have been updated since the Delivery Plan was initially published to reflect the final end of year position. Forecasts of performance indicators have been updated since the Delivery Plan was initially published to reflect the conclusion of the annual Performance planning process.

Table 18: Delay minutes - delays to franchised and non-franchised operators, Network-wide*

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Network Rail-on-TOC	8,050,000	7,150,000	6,850,000	6,550,000	6,450,000	6,500,000
TOC-on-self	3,390,000	3,410,000	3,300,000	3,200,000	3,100,000	3,050,000
TOC-on-TOC	1,590,000	1,510,000	1,500,000	1,425,000	1,400,000	1,400,000
Network-wide	13,030,000	12,050,000	11,650,000	11,150,000	10,950,000	10,950,000

*includes all delay to franchised operators, plus Hull Trains, Grand Central and Heathrow Express

Commentary

This is based on the current franchise map – remapping of franchises may alter the split between TOC-on-self and TOC-on-TOC delays. Actual 2013/14 performance figures have been updated since the Delivery Plan was initially published to reflect the final end of year position. Forecasts of performance indicators have been updated since the Delivery Plan was initially published to reflect the conclusion of the annual Performance planning process.

Table 19: Delay minutes - delays to franchised and non-franchised operators by sector*

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
London & South East	3,560,000	3,050,000	2,920,000	2,770,000	2,720,000	2,760,000
Regional	1,880,000	1,770,000	1,690,000	1,610,000	1,590,000	1,570,000
Long distance	2,170,000	1,920,000	1,840,000	1,770,000	1,750,000	1,750,000
Scotland	442,000	405,000	410,000	400,000	403,000	408,000

*includes all delay to franchised operators, plus Hull Trains, Grand Central and Heathrow Express

Commentary

Actual 2013/14 performance figures have been updated since the Delivery Plan was initially published to reflect the final end of year position.
Forecasts of performance indicators have been updated since the Delivery Plan was initially published to reflect the conclusion of the annual Performance planning process.

Table 20: Delay minutes - Network Rail caused delays to franchised and non-franchised operators by route*

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Anglia	600,000	550,000	535,000	530,000	520,000	620,000
East Midlands	330,000	305,000	290,000	290,000	280,000	280,000
Kent	745,000	640,000	640,000	640,000	645,000	625,000
London North Eastern	1,260,000	1,240,000	1,220,000	1,200,000	1,180,000	1,120,000
London North Western	1,815,000	1,680,000	1,630,000	1,590,000	1,560,000	1,550,000
Scotland	460,000	425,000	440,000	425,000	430,000	435,000
Sussex	800,000	685,000	635,000	545,000	545,000	545,000
Wales	300,000	280,000	270,000	260,000	260,000	250,000
Wessex	850,000	680,000	630,000	590,000	560,000	530,000
Western	910,000	740,000	670,000	640,000	660,000	720,000
Total	8,080,000	7,195,000	6,910,000	6,670,000	6,600,000	6,630,000

*includes all Network Rail caused delay to passenger operators including minor operators such as NEXUS, NYMR and London Underground.

Commentary

Actual 2013/14 performance figures have been updated since the Delivery Plan was initially published to reflect the final end of year position.
Forecasts of performance indicators have been updated since the Delivery Plan was initially published to reflect the conclusion of the annual Performance planning process

Table 21: Network Rail caused delay minutes - TOCs

Train Operating Company	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Franchised operators						
Abellio Greater Anglia	436,000	440,000	420,000	414,000	405,000	507,000
Arriva Trains Wales	329,000	300,000	288,000	277,000	275,000	266,000
c2c	36,000	28,000	32,000	32,000	30,000	30,000
Chiltern Railways	86,000	89,000	96,000	95,000	94,000	94,000
CrossCountry	531,000	468,000	420,000	394,000	394,000	394,000
East Coast	247,000	241,000	236,000	231,000	226,000	222,000
East Midlands Trains	296,000	261,000	256,000	250,000	245,000	241,000
First Capital Connect	408,000	347,000	340,000	333,000	326,000	320,000
First Great Western	844,000	683,000	603,000	575,000	599,000	657,000
First ScotRail	442,000	405,000	410,000	400,000	403,000	408,000
First TransPennine Express	276,000	254,000	249,000	244,000	239,000	235,000
London Midland	515,000	472,000	434,000	385,000	373,000	364,000
London Overground	79,000	79,000	78,000	77,000	76,000	76,000
Merseyrail	51,000	48,000	49,000	47,000	46,000	45,000
Northern	793,000	759,000	744,000	729,000	715,000	700,000
South West Trains	677,000	556,000	521,000	486,000	451,000	416,000
Southeastern	627,000	533,000	533,000	533,000	540,000	520,000
Southern	812,000	688,000	650,000	563,000	557,000	548,000
Virgin Trains	448,000	420,000	443,000	420,000	405,000	389,000
Open-access operators						
First Hull Trains	22,000	21,000	20,000	20,000	20,000	19,000
Grand Central	35,000	33,000	32,000	32,000	31,000	31,000
Heathrow Express	24,000	23,000	19,000	18,000	20,000	20,000

Commentary

Actual 2013/14 performance figures have been updated since the Delivery Plan was initially published to reflect the final end of year position.

Performance forecasts have been developed with each operator during the Performance Strategy planning process.

Table 22: Freight delay minutes per 100 train kilometres – Network-wide

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Actual / forecast	3.61	3.21	3.12	3.07	3.00	2.94

Commentary

Using the current relationship between freight delay and Freight Delivery Metric (FDM), this route-based forecast of freight delay minutes per 100 train kilometres supports achievement of FDM.

Train Service Reliability – Scotland KPI Package

We have developed a package of Scotland KPIs that are set out in the separate document titled 'Scotland KPI package'.

Asset management

Table 23: Light Maintenance Depot Stewardship Measure (LMDSM) - England & Wales, Scotland and Network-wide

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
England & Wales						
Actual / forecast	2.38	2.40	2.39	2.38	2.37	2.36
Scotland						
Actual / forecast	2.42	2.43	2.43	2.43	2.42	2.42
Network-wide						
Actual / forecast	2.39	2.41	2.40	2.39	2.38	2.37

The following pages contain the asset management indicator tables as follows:

- asset condition reliability
- asset condition sustainability
- renewal volumes
- maintenance volumes

The tables are presented in geographic sections as follows:

- Network-wide
- England & Wales
- Scotland
- Anglia
- East Midlands
- Kent
- London North Eastern
- London North Western
- Sussex
- Wales
- Wessex
- Western

Notes on asset condition reliability and sustainability measures

The asset reliability and sustainability tables in this section do not include forecasts for one measure: signalling power supply cable remaining life. This measure is shown greyed out in the tables. A major asset data collection exercise is underway around the country to collect information that will allow sustainability forecasts to be provided for this measure. This exercise for a number of routes has been completed and we are currently reviewing and analysing the data ready for modelling. The overall data collection exercise for the remaining routes is expected to be completed by mid-2014 with the sustainability forecasts following thereafter.

For the other measures, the values in the tables represent current forecasts, developed by our routes and supported by modelled predictions for the sustainability indicators. The forecasts take account of the latest period outturns on asset reliability and volume delivery, and the volume forecasts for CP5.

The following points should also be noted:

- Signalling: The forecast for signalling failures includes non-traction power supply failures which will be reported separately from the start of CP5.
- Electrification: The forecast for AC traction failures includes failures associated with new electrification schemes on lines currently not electrified.
- Earthworks: The earthworks reliability measure is assessed from earthworks failure data up to the middle of February 2014 and an extrapolation of the failure rates during this period of adverse weather to the end of CP4. The number of earthworks failures is subject to significant variation in response to the prevailing weather. In assessing the actual number of failures in CP5 against the five year rolling average, the prevailing weather conditions will be taken into account. The earthworks sustainability measure is assessed from earthworks examination data prior to the 2013/2014 winter adverse wet weather which caused significant degradation to the earthworks asset, particularly in southern England.
- Drainage: Forecasts for the drainage sustainability measures are provided for eight of the ten routes. We are developing our forecasts for these measures on Western and Wales routes, so the Network-wide and England & Wales forecasts have been based on the eight routes' forecasts. Our forecasts for Wales and Western will be available early in CP5.

Network-wide asset management indicators

Table 24: Network-wide asset condition reliability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Rail Breaks and Immediate Action defects per 100km	4.10	4.17	4.13	4.09	4.05	3.99
	Track geometry (Poor Track Geometry)	2.34%	2.32%	2.31%	2.30%	2.26%	2.25%
	Track failures (service affecting)	5,913	5,335	5,245	5,149	5,064	4,971
Signalling	Signalling failures (service affecting)	16,833	16,434	16,261	16,070	15,916	15,753
Telecoms	Telecoms failures (service affecting)	2,352	2,009	1,589	1,387	1,280	1,240
Electrical Power	AC traction power failures (service affecting)	929	1,051	1,087	1,149	1,217	1,263
	DC traction power failures (service affecting)	327	330	328	312	304	299
	Non traction operational power supply failures (service affecting)	500	560	576	558	535	514
Buildings	Buildings - Re-active Faults (2&24) (attention within 2hrs, fix within 24hrs) & (attention within 24hrs, fix within 7 days)	6,992	6,914	6,757	6,679	6,813	6,997
Structures	Number of open work items with a risk score ≥12	4,377	2,726	2,510	2,168	1,713	1,366
Earthworks	Earthwork failures	109	105	101	98	94	90
Points	Points failures (service affecting)	4,389	4,390	4,349	4,304	4,268	4,247

Table 25: Network-wide asset condition sustainability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Track - Used Life - Rail	49.4%	49.2%	49.2%	49.4%	49.6%	50.2%
	Track - Used Life - Switch & Crossings	52.7%	52.3%	51.5%	50.3%	49.7%	49.7%
	Track - Used Life - Sleepers	60.9%	61.1%	60.9%	61.4%	61.5%	62.3%
	Track - Used Life - Ballast	47.7%	47.7%	47.8%	48.0%	48.1%	48.7%
Signalling	Signalling Condition Index (SICA Remaining Life)	12.54	12.68	13.33	13.74	13.89	14.02
Telecoms	Telecoms - Remaining Life	65.2%	62.0%	57.3%	54.8%	52.6%	53.2%
Electrical Power	EP - Remaining Life - Conductor Rail	67.1%	65.8%	65.1%	64.9%	64.4%	63.9%
	EP - Remaining Life - Overhead Line Equipment (OLE)	59.4%	58.4%	57.7%	55.6%	55.2%	55.3%
	EP - Remaining Life - Signalling Power Cable						
Buildings	Stations - %age Remaining Life	39.0%	39.0%	37.3%	36.5%	35.7%	34.8%
	Light Maintenance Depot (LMD) - %age Remaining Life	45.4%	44.7%	44.1%	43.4%	42.7%	42.0%
Structures	Average condition of major deck elements	64.6	64.7	64.8	64.8	64.8	64.9
	Tunnel Condition Monitoring Index (TCMI)	83.1	83.4	83.7	84.0	84.3	84.6
Earthworks	Earthworks - Condition Banding	1.75	1.75	1.75	1.75	1.75	1.74
Drainage	Track Drainage - Condition Banding	1.69	1.70	1.73	1.73	1.72	1.70
	Earthwork/Structure Drainage - Condition Banding	1.70	1.71	1.72	1.73	1.72	1.73

Table 26: Network-wide track renewal volumes total

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	23	14	16	4	13	69
Complete Renewal	Track km	186	180	165	148	144	824
Complete (formation)	Track km	43	37	38	33	20	171
Rail Renewal	Track km	316	239	265	250	237	1,307
Single Rail	Track km	39	33	43	39	16	171
High Output							
Automated Ballast Cleaning (ABC)	Track km	134	183	213	200	126	856
Rail Sleeper Relay	Track km	157	190	220	120	0	687
Heavy Refurbishment	Track km	103	155	237	251	232	977
Refurbishment							
Heavy Refurbishment	Track km	65	88	72	65	58	349
Medium (concrete)	Track km	178	211	181	187	208	964
Medium (other)	Track km	160	146	207	196	147	856
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	106	92	98	50	41	387
Full Renewal	Point Ends	323	318	346	229	229	1,445
Refurbishment							
Heavy	Point Ends	265	337	444	435	316	1,797
Medium	Point Ends	401	429	479	408	368	2,085
Off Track							
Fencing	km	808	960	904	888	954	4,514
Slab track	Track km	0	0	0	1	0	1

Table 27: Network-wide track renewal volumes (route criticality 1)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	1	1
Complete Renewal	Track km	46	26	32	29	35	169
Complete (formation)	Track km	16	12	14	9	5	56
Rail Renewal	Track km	62	38	52	90	77	319
Single Rail	Track km	5	18	11	11	1	46
High Output							
Automated Ballast Cleaning (ABC)	Track km	63	122	144	72	115	517
Rail Sleeper Relay	Track km	100	140	21	79	0	340
Heavy Refurbishment	Track km	14	18	11	5	2	50
Refurbishment							
Heavy Refurbishment	Track km	21	21	8	14	9	74
Medium (concrete)	Track km	2	6	11	7	4	30
Medium (other)	Track km	0	2	1	0	0	3
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	14	10	14	13	8	59
Full Renewal	Point Ends	99	65	68	79	52	363
Refurbishment							
Heavy	Point Ends	32	27	39	52	40	190
Medium	Point Ends	40	66	43	32	37	218
Off Track							
Slab track	Track km	0	0	0	1	0	1

Table 28: Network-wide track renewal volumes (route criticality 2)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	44	63	50	42	35	234
Complete (formation)	Track km	14	15	8	3	6	45
Rail Renewal	Track km	85	64	40	48	39	276
Single Rail	Track km	11	8	15	13	4	52
High Output							
Automated Ballast Cleaning (ABC)	Track km	66	42	68	102	10	289
Rail Sleeper Relay	Track km	57	3	153	0	0	213
Heavy Refurbishment	Track km	2	44	63	26	55	191
Refurbishment							
Heavy Refurbishment	Track km	8	6	18	4	1	37
Medium (concrete)	Track km	29	15	17	15	20	95
Medium (other)	Track km	3	3	3	4	6	20
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	9	17	27	8	14	75
Full Renewal	Point Ends	112	120	168	78	106	584
Refurbishment							
Heavy	Point Ends	60	52	72	83	34	301
Medium	Point Ends	57	72	99	68	66	362
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 29: Network-wide track renewal volumes (route criticality 3)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	1	0	1	1	3
Complete Renewal	Track km	73	58	45	46	47	269
Complete (formation)	Track km	11	8	12	17	2	51
Rail Renewal	Track km	51	53	97	47	77	324
Single Rail	Track km	13	4	9	4	2	33
High Output							
Automated Ballast Cleaning (ABC)	Track km	5	2	0	25	1	33
Rail Sleeper Relay	Track km	0	25	18	41	0	83
Heavy Refurbishment	Track km	34	38	62	84	76	295
Refurbishment							
Heavy Refurbishment	Track km	11	34	11	13	13	82
Medium (concrete)	Track km	52	20	32	55	43	202
Medium (other)	Track km	51	48	53	29	13	194
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	46	16	18	7	4	90
Full Renewal	Point Ends	71	102	61	52	62	348
Refurbishment							
Heavy	Point Ends	88	112	160	128	158	646
Medium	Point Ends	160	106	125	108	142	641
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 30: Network-wide track renewal volumes (route criticality 4)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	1	2	1	3	3	9
Complete Renewal	Track km	16	12	20	8	13	69
Complete (formation)	Track km	2	2	2	5	6	16
Rail Renewal	Track km	55	57	44	34	26	216
Single Rail	Track km	7	1	5	8	5	26
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	17	0	0	0	17
Rail Sleeper Relay	Track km	0	22	26	0	0	49
Heavy Refurbishment	Track km	51	47	80	130	97	404
Refurbishment							
Heavy Refurbishment	Track km	14	15	18	28	13	88
Medium (concrete)	Track km	51	122	52	49	97	371
Medium (other)	Track km	37	36	91	63	37	264
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	17	32	14	10	7	79
Full Renewal	Point Ends	34	25	26	18	7	110
Refurbishment							
Heavy	Point Ends	58	108	131	53	47	397
Medium	Point Ends	55	107	118	87	63	430
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 31: Network-wide track renewal volumes (route criticality 5)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	22	11	15	0	8	55
Complete Renewal	Track km	7	20	17	24	15	83
Complete (formation)	Track km	0	0	2	0	1	3
Rail Renewal	Track km	64	27	32	31	18	172
Single Rail	Track km	3	2	3	2	4	15
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	2	0	0	2
Heavy Refurbishment	Track km	1	7	21	6	3	38
Refurbishment							
Heavy Refurbishment	Track km	12	11	16	8	21	68
Medium (concrete)	Track km	44	48	69	62	44	267
Medium (other)	Track km	69	57	60	100	90	375
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	20	18	25	13	8	84
Full Renewal	Point Ends	6	6	23	2	3	40
Refurbishment							
Heavy	Point Ends	27	38	42	119	37	263
Medium	Point Ends	50	51	70	111	47	329
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 32: Network-wide civils renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Structures							
Underbridges	m^2	121,031	143,479	158,339	139,675	125,297	687,821
Overbridges (incl BG3)	m^2	25,317	34,062	15,637	11,580	10,419	97,015
Tunnels	m^2	28,719	75,033	34,750	38,967	32,098	209,567
Culverts	m^2	2,099	3,459	3,785	3,422	2,925	15,689
Footbridges	m^2	2,007	2,681	3,488	3,998	2,225	14,400
Coastal & Estuary Defences	m	2,070	4,512	2,948	5,418	2,000	16,948
Retaining Walls	m^2	4,046	6,001	8,470	4,919	7,149	30,585
Earthworks	5-chain	3,178	3,108	3,052	3,548	3,193	16,077
Track Drainage							
Renewal	lm	7,343	6,453	6,363	6,199	6,158	32,516
Refurbishment	lm	32,509	32,613	32,525	32,550	32,601	162,797
New Build	lm	811	799	798	790	789	3,986
EW Drainage							
Renewal	lm	7,574	7,574	6,967	6,391	5,158	33,663
Refurbishment	lm	1,610	1,599	1,451	2,780	2,244	9,684
Maintenance	lm	24,066	25,383	22,573	25,630	23,568	121,219
New Build	lm	5,302	5,227	5,227	5,367	5,512	26,635
Franchised Stations							
Footbridges	m^2	5,244	5,794	4,727	3,530	2,058	21,353
Train Sheds	m^2	24,253	7,980	2,300	1,932	0	36,465
Canopies	m^2	26,649	19,752	19,948	8,807	12,650	87,806
Platforms	m^2	79,937	70,629	63,936	37,541	20,422	272,465
Buildings	m^2	6,669	3,863	3,492	7,615	1,947	23,586
Lifts & Escalators	No.	76	73	82	77	69	377

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Managed Stations							
Footbridges	m^2	0	0	0	0	0	0
Train Sheds	m^2	1,600	0	1,580	39,168	45,718	88,066
Canopies	m^2	5,930	1,193	6,559	624	1,325	15,631
Platforms	m^2	2,600	800	210	8,560	7,205	19,375
Buildings	m^2	5,874	5,815	2,049	21,444	3,071	38,253
Lifts & Escalators	No.	11	7	8	7	13	46
Light Maintenance Depots							
Buildings	m^2	67,000	6,946	3,001	2,128	451	79,526
Depot Shed	m^2	31,021	4,450	0	0	0	35,471
Lineside Buildings							
Buildings	m^2	18,969	3,292	2,857	2,684	2,684	30,486
MDU							
Buildings	m^2	22,216	8,257	8,244	7,910	56	46,683

Table 33: Network-wide signalling renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Full Conventional resignalling	SEUs	1,061	1,231	732	1,617	93	4,735
ERTMS resignalling	SEUs	0	2	115	146	868	1,131
Partial Conventional resignalling	SEUs	609	917	860	419	432	3,237
Targeted Component renewal	SEUs	145	87	104	92	149	578
Modular resignalling	SEUs	70	365	437	224	203	1,298
Level Crossings Renewals	No.	62	106	117	94	57	436

Table 34: Network–wide electrification and plant renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Contact Systems							
OLE Re-wiring	wire runs	37	49	80	55	39	260
Mid-life Refurbishment	wire runs	56	67	67	52	40	282
Structure Renewals	No.	113	157	201	65	99	636
Conductor rail							
Renewals	km	35	26	31	23	15	129
AC distribution							
HV Switchgear Renewal	No.	16	8	9	5	0	38
Booster Transformers	No.	21	22	8	8	6	65
DC distribution							
HV Switchgear Renewal	No.	2	36	3	9	3	53
HV Cables	km	40	20	18	26	21	125
LV Switchgear Renewal	No.	78	72	43	44	9	245
LV Cables	km	19	16	21	18	20	94
Transformer Rectifiers	No.	2	2	5	0	0	9
Fixed plant							
Signalling Power Cable Renewal	km	273	256	193	154	123	999
Principle Supply Point Renewal	No.	20	16	2	3	1	43
Rail Heating							
Points Heating Renewal	Point End	334	151	122	97	92	796

Table 35: Network-wide telecoms renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Station Information and Surveillance Systems							
Customer Information Systems	No.	188	749	953	505	170	2,565
Public Address	No.	2,385	4,060	4,471	1,839	1,061	13,816
CCTV	No.	273	2,426	2,132	526	268	5,625
Clocks	No.	57	27	105	38	14	241
Operational Comms							
PABX Concentrator	No. of Lines	1,929	1,079	137	725	766	4,635
Processor Controlled Concentrator	No. of Lines	142	206	103	0	49	500
Driver-Only Operation: CCTV	No.	67	11	41	109	38	266
Driver-Only Operation: Mirrors	No.	26	90	3	16	0	135
Public Emergency Telephone System	No.	1	3	34	26	11	75
Human Machine Interface Large	No.	5	12	10	5	6	38
Human Machine Interface Small	No.	1	0	0	0	0	1
Radio System	No.	3	0	0	0	0	3
Power Systems	No.	0	3	87	46	14	150

Table 36: Network-wide maintenance volumes

		Code	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Track	Plain Line Tamping (km)	MNT004	6,623	6,559	6,393	6,337	6,358	32,270
	Plain Line Stoneblowing (km)	MNT005	3,485	3,459	3,380	3,392	3,372	17,087
	Manual Wet Bed removal (bay)	MNT006	19,316	19,165	18,642	18,013	17,372	92,509
	Mechanical Wet bed removal (bay)	MNT012	10,458	10,371	10,281	9,654	9,135	49,899
	S&C Tamping (point end)	MNT007	4,546	4,461	4,426	4,356	4,367	22,157
	Rail Changing - Al-Thermic Weld - Standard Gap (weld)	MNT044	15,940	15,797	15,658	15,043	14,765	77,202
	Rail Changing - CWR - Renew (Defects) (rail yard)	MNT045	90,381	85,946	81,839	81,046	80,319	419,530
	Mechanical Reprofiling of Ballast (Mile)	MNT017	2,903	2,759	2,704	2,682	2,685	13,733
	Manual Reprofiling of Ballast (rail yard)	MNT020	1,668,566	1,589,434	1,545,546	1,530,761	1,470,261	7,804,567
	Replace Pads & Insulators (sleeper)	MNT029	467,838	451,500	437,995	426,000	416,158	2,199,490
	Manual Correction of PL Track Geometry (CWR) (track yard)	MNT036	1,163,289	1,131,622	1,078,811	1,033,237	1,019,309	5,426,268
	Manual Correction of PL Track Geometry (Jointed) (track yard)	MNT037	258,893	246,466	229,945	211,624	209,254	1,156,183
	S&C Renew Crossing (crossing)	MNT120	682	673	652	653	646	3,306
	S&C Maintenance (point end)	MNT122	434,251	432,957	432,452	431,809	431,606	2,163,075
	S&C Renew half set of Switches (H/S Switch)	MNT123	782	774	763	758	755	3,833
	S&C Stoneblowing (point end)	MNT124	891	982	1,089	1,059	1,053	5,075
	Rail grinding plain line (Mile)	MNT309	10,057	10,173	10,407	10,510	10,408	51,555
	Rail grinding S&C (point end)	MNT310	3,002	3,417	3,495	3,521	3,543	16,978
Off track	Fences & Boundary Walls (yard)	MNT072	984,458	1,017,879	1,012,635	1,024,951	1,053,376	5,093,299
	Drainage (Yard)	MNT073	947,126	947,117	947,101	947,042	947,211	4,735,596
	LX Management - Off Track (Each)	MNT075	17,642	17,642	17,642	17,642	17,642	88,208
	Vegetation Removal of Boundary Trees (No)	MNT081	41,441	40,601	40,761	40,914	41,084	204,801
	Vegetation Management by Train (Mile)	MNT082	9,143	9,147	9,044	8,940	8,940	45,215
	Vegetation Management Manual (Sq yard)	MNT170	4,483,211	4,934,380	5,385,561	5,836,688	6,287,977	26,927,797
	Vegetation Management Mechanised (Mile)	MNT171	2,276	2,361	2,422	2,470	2,495	12,022
Electrical Power	Maintain Conductor Rail (Various)	MNT206	47,641	47,641	47,489	47,263	47,114	237,147
	Maintain DC Traction Power Supplies (Each)	MNT209	33,773	33,909	34,051	34,146	34,256	170,135
	Maintain OHL Components (Various)	MNT211	191,345	196,328	201,245	213,215	219,550	1,021,682
	Maintain Points Heating (Each)	MNT212	132,792	140,160	140,160	140,272	140,552	693,935
	Maintain Signalling Power supplies (No.)	MNT213	39,319	41,790	41,790	41,790	41,790	206,480
Civils	Visual Examinations (Civils) (No.)	MNT226a	65,814	65,733	65,377	65,308	65,281	327,511
	Tunnel Examinations (No. minor elements)	MNT220	119,277	119,277	119,277	119,277	119,277	596,386
	Detailed Examinations (No.)	MNT221	11,038	10,934	11,532	11,454	11,346	56,305
	Underwater Examination (No.)	MNT222	1,661	1,206	1,386	1,729	1,207	7,189
	Ancillary Structure examination (No. detailed)	MNT223	788	1,508	1,537	1,482	1,088	6,403
	Hidden critical element examinations (No.)	MNT224	1,285	1,103	1,149	1,332	1,183	6,052
	Load carrying assessment (No. spans)	MNT225	12,377	10,542	11,147	12,602	11,659	58,327
Buildings	Visual examinations Buildings (each)	MNT226	14,133	14,103	13,890	13,844	14,147	70,117
	5 yearly examinations (each)	MNT227	1,047	1,100	1,367	1,434	1,037	5,985

England & Wales asset management indicators

Table 37: England & Wales asset condition reliability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Rail Breaks and Immediate Action defects per 100km	3.70	3.79	3.74	3.69	3.65	3.59
	Track geometry (Poor Track Geometry)	2.35%	2.32%	2.31%	2.30%	2.26%	2.25%
	Track failures (service affecting)	5,536	4,954	4,864	4,768	4,683	4,590
Signalling	Signalling failures (service affecting)	14,990	14,610	14,466	14,304	14,174	14,035
Telecoms	Telecoms failures (service affecting)	2,197	1,796	1,386	1,195	1,099	1,076
Electrical Power	AC traction power failures (service affecting)	794	965	1,001	1,055	1,109	1,144
	DC traction power failures (service affecting)	327	330	328	312	304	299
	Non traction operational power supply failures (service affecting)	458	518	535	518	496	476
Buildings	Buildings - Re-active Faults (2&24) (attention within 2hrs, fix within 24hrs) & (attention within 24hrs, fix within 7 days)	6,402	6,324	6,167	6,089	6,223	6,407
Structures	Number of open work items with a risk score ≥12	4,277	2,628	2,414	2,074	1,621	1,276
Earthworks	Earthwork failures	87	84	81	78	75	72
Points	Points failures (service affecting)	3,949	3,950	3,919	3,884	3,858	3,847

Table 38: England & Wales asset condition sustainability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Track - Used Life - Rail	47.7%	47.7%	47.7%	47.9%	48.0%	48.6%
	Track - Used Life - Switch & Crossings	53.2%	52.7%	51.9%	50.6%	49.9%	49.8%
	Track - Used Life - Sleepers	59.3%	59.5%	59.3%	59.8%	59.9%	60.7%
	Track - Used Life - Ballast	46.7%	46.5%	46.6%	46.8%	46.8%	47.4%
Signalling	Signalling Condition Index (SICA Remaining Life)	12.82	12.99	13.70	13.95	14.20	14.41
Telecoms	Telecoms - Remaining Life	65.0%	62.1%	57.6%	54.5%	52.9%	53.8%
Electrical Power	EP - Remaining Life - Conductor Rail	67.1%	65.8%	65.1%	64.9%	64.4%	63.9%
	EP - Remaining Life - Overhead Line Equipment (OLE)	58.6%	57.6%	57.0%	54.9%	54.6%	54.9%
	EP - Remaining Life - Signalling Power Cable						
Buildings	Stations - %age Remaining Life	39.5%	39.5%	37.8%	37.0%	36.1%	35.3%
	Light Maintenance Depot (LMD) - %age Remaining Life	45.6%	44.9%	44.1%	43.4%	42.7%	42.0%
Structures	Average condition of major deck elements	64.9	64.9	65.0	65.1	65.1	65.2
	Tunnel Condition Monitoring Index (TCMI)	83.0	83.3	83.6	83.9	84.2	84.5
Earthworks	Earthworks - Condition Banding	1.80	1.80	1.80	1.79	1.79	1.79
Drainage	Track Drainage - Condition Banding	1.61	1.62	1.65	1.65	1.64	1.62
	Earthwork/Structure Drainage - Condition Banding	1.80	1.82	1.83	1.84	1.82	1.82

Table 39: England & Wales track renewal volumes total

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	6	0	15	2	8	31
Complete Renewal	Track km	163	143	148	130	125	710
Complete (formation)	Track km	39	29	27	20	15	131
Rail Renewal	Track km	270	212	244	237	231	1,193
Single Rail	Track km	15	24	28	33	11	112
High Output							
Automated Ballast Cleaning (ABC)	Track km	134	183	198	146	119	781
Rail Sleeper Relay	Track km	157	190	149	120	0	616
Heavy Refurbishment	Track km	103	155	235	238	217	947
Refurbishment							
Heavy Refurbishment	Track km	57	80	63	57	54	310
Medium (concrete)	Track km	110	147	110	121	147	636
Medium (other)	Track km	90	112	174	154	117	647
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	99	81	94	50	41	365
Full Renewal	Point Ends	296	287	313	209	218	1,323
Refurbishment							
Heavy	Point Ends	235	307	411	409	313	1,675
Medium	Point Ends	337	364	407	356	312	1,776
Off Track							
Fencing	km	593	745	689	673	739	3,439
Slab track	Track km	0	0	0	1	0	1

Table 40: England & Wales track renewal volumes (route criticality 1)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	1	1
Complete Renewal	Track km	46	26	32	29	35	169
Complete (formation)	Track km	16	12	14	9	5	56
Rail Renewal	Track km	62	38	52	90	77	319
Single Rail	Track km	5	18	11	11	1	46
High Output							
Automated Ballast Cleaning (ABC)	Track km	63	122	144	72	115	517
Rail Sleeper Relay	Track km	100	140	21	79	0	340
Heavy Refurbishment	Track km	14	18	11	5	2	50
Refurbishment							
Heavy Refurbishment	Track km	21	21	8	14	9	74
Medium (concrete)	Track km	2	6	11	7	4	30
Medium (other)	Track km	0	2	1	0	0	3
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	14	10	14	13	8	59
Full Renewal	Point Ends	99	65	68	79	52	363
Refurbishment							
Heavy	Point Ends	32	27	39	52	40	190
Medium	Point Ends	40	66	43	32	37	218
Off Track							
Slab track	Track km	0	0	0	1	0	1

Table 41: England & Wales track renewal volumes (route criticality 2)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	36	41	41	30	26	175
Complete (formation)	Track km	11	10	4	2	3	30
Rail Renewal	Track km	81	56	39	48	37	261
Single Rail	Track km	5	4	13	13	3	37
High Output							
Automated Ballast Cleaning (ABC)	Track km	66	42	54	49	4	215
Rail Sleeper Relay	Track km	57	3	82	0	0	142
Heavy Refurbishment	Track km	2	44	63	26	45	181
Refurbishment							
Heavy Refurbishment	Track km	6	3	17	2	1	30
Medium (concrete)	Track km	28	15	17	15	20	94
Medium (other)	Track km	3	2	2	4	6	17
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	8	10	23	8	14	63
Full Renewal	Point Ends	95	94	153	61	106	509
Refurbishment							
Heavy	Point Ends	47	35	65	67	31	245
Medium	Point Ends	51	61	87	56	58	313
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 42: England & Wales track renewal volumes (route criticality 3)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	1	1
Complete Renewal	Track km	63	45	39	40	37	225
Complete (formation)	Track km	10	5	5	5	2	27
Rail Renewal	Track km	43	49	94	46	73	305
Single Rail	Track km	4	1	2	3	1	11
High Output							
Automated Ballast Cleaning (ABC)	Track km	5	2	0	25	0	32
Rail Sleeper Relay	Track km	0	25	18	41	0	83
Heavy Refurbishment	Track km	34	38	61	77	70	280
Refurbishment							
Heavy Refurbishment	Track km	6	30	9	8	11	64
Medium (concrete)	Track km	44	15	20	45	37	161
Medium (other)	Track km	26	47	48	26	11	158
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	41	12	18	7	4	81
Full Renewal	Point Ends	61	98	51	49	51	310
Refurbishment							
Heavy	Point Ends	76	105	142	124	158	605
Medium	Point Ends	147	95	118	93	127	580
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 43: England & Wales track renewal volumes (route criticality 4)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	1	0	0	2	3	5
Complete Renewal	Track km	11	11	18	8	11	59
Complete (formation)	Track km	2	2	2	4	5	14
Rail Renewal	Track km	53	51	44	33	25	206
Single Rail	Track km	1	1	2	4	2	10
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	17	0	0	0	17
Rail Sleeper Relay	Track km	0	22	26	0	0	49
Heavy Refurbishment	Track km	51	47	79	127	97	401
Refurbishment							
Heavy Refurbishment	Track km	13	15	12	27	11	79
Medium (concrete)	Track km	19	90	22	19	68	219
Medium (other)	Track km	34	35	87	61	37	253
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	16	32	14	10	7	78
Full Renewal	Point Ends	34	24	18	18	7	101
Refurbishment							
Heavy	Point Ends	56	102	124	47	47	376
Medium	Point Ends	55	101	100	67	49	372
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 44: England & Wales track renewal volumes (route criticality 5)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	6	0	15	0	3	23
Complete Renewal	Track km	6	19	17	24	15	82
Complete (formation)	Track km	0	0	2	0	1	3
Rail Renewal	Track km	31	17	15	21	18	103
Single Rail	Track km	1	1	1	2	4	8
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	2	0	0	2
Heavy Refurbishment	Track km	1	7	21	3	3	35
Refurbishment							
Heavy Refurbishment	Track km	10	10	16	6	21	63
Medium (concrete)	Track km	16	22	40	35	18	132
Medium (other)	Track km	28	25	36	64	64	217
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	20	18	25	13	8	84
Full Renewal	Point Ends	6	6	23	2	3	40
Refurbishment							
Heavy	Point Ends	24	38	41	119	37	259
Medium	Point Ends	44	41	60	108	40	293
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 45: England & Wales civils renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Structures							
Underbridges	m^2	106,953	122,370	133,673	112,597	107,366	582,959
Overbridges (incl BG3)	m^2	23,850	31,801	14,105	9,465	9,815	89,036
Tunnels	m^2	27,359	73,267	31,458	37,908	31,342	201,334
Culverts	m^2	1,838	2,686	3,192	3,023	2,596	13,335
Footbridges	m^2	1,504	2,260	2,567	3,789	1,520	11,641
Coastal & Estuary Defences	m	1,740	3,812	1,860	1,860	1,790	11,062
Retaining Walls	m^2	3,614	5,868	6,788	4,586	4,170	25,026
Earthworks	5-chain	2,748	2,669	2,567	3,091	2,757	13,830
Track Drainage							
Renewal	lm	7,343	6,453	6,363	6,199	6,158	32,516
Refurbishment	lm	32,509	32,613	32,525	32,550	32,601	162,797
New Build	lm	808	799	798	790	789	3,984
EW Drainage							
Renewal	lm	6,091	6,094	5,497	4,931	3,708	26,320
Refurbishment	lm	1,270	1,264	1,121	2,455	1,924	8,034
Maintenance	lm	21,150	22,477	19,677	22,744	20,692	106,739
New Build	lm	5,302	5,227	5,227	5,367	5,512	26,635
Franchised Stations							
Footbridges	m^2	4,968	5,122	4,311	2,872	1,798	19,071
Train Sheds	m^2	23,669	5,680	0	1,932	0	31,281
Canopies	m^2	17,976	19,523	18,228	8,794	12,637	77,158
Platforms	m^2	77,503	68,729	61,946	34,914	18,732	261,824
Buildings	m^2	6,116	3,290	2,759	5,430	1,714	19,309
Lifts & Escalators	No.	9	6	15	10	2	42

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Managed Stations							
Footbridges	m^2	0	0	0	0	0	0
Train Sheds	m^2	1,600	0	1,500	13,168	45,268	61,536
Canopies	m^2	5,930	1,193	6,559	600	1,325	15,607
Platforms	m^2	2,600	800	100	8,560	7,205	19,265
Buildings	m^2	5,554	5,550	2,027	21,444	2,896	37,471
Lifts & Escalators	No.	4	0	1	0	6	11
Light Maintenance Depots							
Buildings	m^2	66,101	6,946	3,001	2,128	1	78,177
Depot Shed	m^2	30,588	4,450	0	0	0	35,038
Lineside Buildings							
Buildings	m^2	18,704	3,027	2,592	2,419	2,419	29,161
MDU							
Buildings	m^2	22,160	8,201	8,188	7,854	0	46,403

Table 46: England & Wales signalling renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Full Conventional resignalling	SEUs	1,057	1,231	513	1,289	93	4,184
ERTMS resignalling	SEUs	0	2	115	146	868	1,131
Partial Conventional resignalling	SEUs	609	886	860	262	290	2,907
Targeted Component renewal	SEUs	141	79	78	91	142	532
Modular resignalling	SEUs	70	365	437	111	203	1,185
Level Crossings Renewals	No.	58	103	106	94	54	415

Table 47: England & Wales electrification and plant renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Contact Systems							
OLE Re-wiring	wire runs	36	48	79	54	39	256
Mid-life Refurbishment	wire runs	56	67	67	52	40	282
Structure Renewals	No.	113	154	198	60	95	621
Conductor rail							
Renewals	km	35	26	31	23	15	129
AC distribution							
HV Switchgear Renewal	No.	16	8	9	5	0	38
Booster Transformers	No.	21	20	6	7	5	59
DC distribution							
HV Switchgear Renewal	No.	2	36	3	9	3	53
HV Cables	km	40	20	18	26	21	125
LV Switchgear Renewal	No.	78	72	43	44	9	245
LV Cables	km	19	16	21	18	20	94
Transformer Rectifiers	No.	2	2	5	0	0	9
Fixed plant							
Signalling Power Cable Renewal	km	246	229	165	114	92	846
Principle Supply Point Renewal	No.	20	16	2	3	1	43
Rail Heating							
Points Heating Renewal	Point End	334	148	117	93	92	784

Table 48: England & Wales telecoms renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Station Information and Surveillance Systems							
Customer Information Systems	No.	174	742	953	445	170	2,485
Public Address	No.	975	4,017	3,841	1,827	1,061	11,721
CCTV	No.	253	2,426	2,132	526	268	5,605
Clocks	No.	57	27	105	25	14	228
Operational Comms							
PABX Concentrator	No. of Lines	1,300	997	137	543	66	3,043
Processor Controlled Concentrator	No. of Lines	141	206	103	0	49	499
Driver-Only Operation: CCTV	No.	67	0	31	102	38	238
Driver-Only Operation: Mirrors	No.	26	83	3	16	0	128
Public Emergency Telephone System	No.	1	0	34	26	11	72
Human Machine Interface Large	No.	5	12	10	5	6	38
Human Machine Interface Small	No.	1	0	0	0	0	1
Radio System	No.	3	0	0	0	0	3
Power Systems	No.	0	2	87	46	14	149

Table 49: England & Wales maintenance volumes

		Code	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Track	Plain Line Tamping (km)	MNT004	6,011	5,948	5,781	5,725	5,747	29,212
	Plain Line Stoneblowing (km)	MNT005	3,102	3,077	2,998	3,010	2,990	15,177
	Manual Wet Bed removal (bay)	MNT006	17,318	17,162	16,625	15,973	15,329	82,407
	Mechanical Wet bed removal (bay)	MNT012	9,766	9,675	9,578	8,936	8,407	46,362
	S&C Tamping (point end)	MNT007	4,147	4,062	4,027	3,957	3,968	20,161
	Rail Changing - Al-Thermic Weld - Standard Gap (weld)	MNT044	13,258	13,068	12,885	12,235	11,918	63,364
	Rail Changing - CWR - Renew (Defects) (rail yard)	MNT045	78,676	74,039	69,747	68,795	67,873	359,130
	Mechanical Reprofiling of Ballast (Mile)	MNT017	2,724	2,577	2,520	2,493	2,494	12,808
	Manual Reprofiling of Ballast (rail yard)	MNT020	1,547,015	1,466,746	1,421,614	1,403,854	1,342,208	7,181,436
	Replace Pads & Insulators (sleeper)	MNT029	379,838	363,500	349,995	338,000	328,158	1,759,490
	Manual Correction of PL Track Geometry (CWR) (track yard)	MNT036	1,072,244	1,039,805	991,002	944,321	930,114	4,977,486
	Manual Correction of PL Track Geometry (Jointed) (track yard)	MNT037	213,893	201,466	184,945	166,624	164,254	931,183
	S&C Renew Crossing (crossing)	MNT120	607	597	581	580	572	2,936
	S&C Maintenance (point end)	MNT122	399,408	398,942	399,741	398,091	397,669	1,993,851
	S&C Renew half set of Switches (H/S Switch)	MNT123	703	694	687	680	675	3,440
	S&C Stoneblowing (point end)	MNT124	822	913	1,020	990	984	4,728
	Rail grinding plain line (Mile)	MNT309	8,801	8,917	9,151	9,254	9,152	45,275
	Rail grinding S&C (point end)	MNT310	2,786	3,201	3,279	3,305	3,327	15,898
Off track	Fences & Boundary Walls (yard)	MNT072	794,702	828,305	823,275	835,850	864,356	4,146,488
	Drainage (Yard)	MNT073	795,220	795,363	795,505	795,647	795,789	3,977,524
	LX Management - Off Track (Each)	MNT075	14,793	14,793	14,793	14,793	14,793	73,963
	Vegetation Removal of Boundary Trees (No)	MNT081	28,294	27,465	27,635	27,804	27,974	139,171
	Vegetation Management by Train (Mile)	MNT082	7,965	7,970	7,868	7,765	7,765	39,333
	Vegetation Management Manual (Sq yard)	MNT170	4,311,911	4,763,224	5,214,536	5,665,849	6,117,162	26,072,683
	Vegetation Management Mechanised (Mile)	MNT171	2,249	2,334	2,395	2,443	2,468	11,891
Electrical Power	Maintain Conductor Rail (Various)	MNT206	47,641	47,641	47,489	47,263	47,114	237,147
	Maintain DC Traction Power Supplies (Each)	MNT209	33,773	33,909	34,051	34,146	34,256	170,135
	Maintain OHL Components (Various)	MNT211	149,345	151,577	153,743	165,713	165,683	786,060
	Maintain Points Heating (Each)	MNT212	124,245	131,613	131,613	131,725	132,005	651,203
	Maintain Signalling Power supplies (No.)	MNT213	33,004	35,475	35,475	35,475	35,475	174,902
Civils	Visual Examinations (Civils) (No.)	MNT226a	54,400	54,703	55,977	54,924	54,338	274,340
	Tunnel Examinations (No. minor elements)	MNT220	110,193	110,193	110,193	110,193	110,193	550,966
	Detailed Examinations (No.)	MNT221	9,271	9,279	8,247	9,153	9,604	45,555
	Underwater Examination (No.)	MNT222	1,509	1,124	1,293	1,577	1,125	6,628
	Ancillary Structure examination (No. detailed)	MNT223	542	1,305	1,294	1,272	874	5,287
	Hidden critical element examinations (No.)	MNT224	1,088	953	999	1,182	1,033	5,255
	Load carrying assessment (No. spans)	MNT225	10,967	9,255	9,974	10,903	10,055	51,154
Buildings	Visual examinations Buildings (each)	MNT226	12,814	12,889	12,842	12,788	12,896	64,229
	5 yearly examinations (each)	MNT227	709	620	654	697	623	3,303

Scotland asset management indicators

Table 50: Scotland asset condition reliability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Rail Breaks and Immediate Action defects per 100km	6.69	6.65	6.64	6.63	6.61	6.60
	Track geometry (Poor Track Geometry)	2.40%	2.40%	2.38%	2.35%	2.33%	2.30%
	Track failures (service affecting)	374	381	381	381	381	381
Signalling	Signalling failures (service affecting)	1,834	1,824	1,795	1,766	1,742	1,718
Telecoms	Telecoms failures (service affecting)	150	213	203	192	181	164
Electrical Power	AC traction power failures (service affecting)	139	86	86	94	108	119
	DC traction power failures (service affecting)	N/A	N/A	N/A	N/A	N/A	N/A
	Non traction operational power supply failures (service affecting)	42	42	41	40	39	38
Buildings	Buildings - Re-active Faults (2&24) (attention within 2hrs, fix within 24hrs) & (attention within 24hrs, fix within 7 days)	590	590	590	590	590	590
Structures	Number of open work items with a risk score ≥12	100	98	96	94	92	90
Earthworks	Earthwork failures	22	21	20	20	19	18
Points	Points failures (service affecting)	438	440	430	420	410	400

Table 51: Scotland asset condition sustainability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Track - Used Life - Rail	59.7%	58.8%	58.6%	59.0%	59.5%	60.5%
	Track - Used Life - Switch & Crossings	48.3%	48.3%	48.2%	47.8%	48.1%	49.1%
	Track - Used Life - Sleepers	70.8%	70.8%	70.9%	71.3%	71.7%	72.2%
	Track - Used Life - Ballast	53.9%	54.9%	55.3%	55.8%	56.2%	56.8%
Signalling	Signalling Condition Index (SICA Remaining Life)	11.50	10.57	10.56	12.35	11.97	11.44
Telecoms	Telecoms - Remaining Life	66.2%	61.2%	55.3%	56.5%	50.3%	49.6%
Electrical Power	EP - Remaining Life - Conductor Rail	N/A	N/A	N/A	N/A	N/A	N/A
	EP - Remaining Life - Overhead Line Equipment (OLE)	64.1%	62.9%	61.7%	59.4%	58.7%	58.0%
	EP - Remaining Life - Signalling Power Cable						
Buildings	Stations - %age Remaining Life	42.5%	42.5%	40.8%	39.9%	39.0%	38.2%
	Light Maintenance Depot (LMD) - %age Remaining Life	44.6%	44.1%	43.6%	43.1%	42.6%	42.2%
Structures	Average condition of major deck elements	63.0	62.9	62.8	62.8	62.7	62.6
	Tunnel Condition Monitoring Index (TCMI)	85.0	85.1	85.3	85.6	85.6	85.5
Earthworks	Earthworks - Condition Banding	1.55	1.55	1.55	1.54	1.54	1.54
Drainage	Track Drainage - Condition Banding	2.03	2.02	2.04	2.06	2.08	2.06
	Earthwork/Structure Drainage - Condition Banding	1.33	1.32	1.34	1.36	1.38	1.38

Table 52: Scotland track renewal volumes total

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	17	14	1	2	5	38
Complete Renewal	Track km	23	37	18	18	19	114
Complete (formation)	Track km	4	8	11	13	5	40
Rail Renewal	Track km	46	27	22	13	6	114
Single Rail	Track km	24	9	15	6	5	59
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	15	53	7	75
Rail Sleeper Relay	Track km	0	0	71	0	0	71
Heavy Refurbishment	Track km	0	0	2	13	15	30
Refurbishment							
Heavy Refurbishment	Track km	8	7	9	9	4	38
Medium (concrete)	Track km	68	63	71	65	61	329
Medium (other)	Track km	70	34	34	42	30	209
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	7	11	4	0	0	22
Full Renewal	Point Ends	27	31	33	20	11	122
Refurbishment							
Heavy	Point Ends	30	30	33	26	3	122
Medium	Point Ends	25	38	47	50	44	204
Off Track							
Fencing	km	215	215	215	215	215	1,075
Slab track	Track km	0	0	0	0	0	0

Table 53: Scotland track renewal volumes (route criticality 1)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	0	0	0	0	0
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	0	0	0	0	0	0
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	0	0	0	0	0	0
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	0	0	0
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	0	0	0	0	0	0
Medium	Point Ends	0	0	0	0	0	0
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 54: Scotland track renewal volumes (route criticality 2)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	8	22	9	12	8	59
Complete (formation)	Track km	2	5	3	1	3	14
Rail Renewal	Track km	3	8	2	0	1	15
Single Rail	Track km	7	4	2	0	1	14
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	15	53	6	73
Rail Sleeper Relay	Track km	0	0	71	0	0	71
Heavy Refurbishment	Track km	0	0	0	1	9	10
Refurbishment							
Heavy Refurbishment	Track km	1	3	1	2	0	7
Medium (concrete)	Track km	1	0	0	0	0	1
Medium (other)	Track km	1	0	0	1	1	3
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	1	7	4	0	0	12
Full Renewal	Point Ends	17	26	15	17	0	75
Refurbishment							
Heavy	Point Ends	13	17	7	16	3	56
Medium	Point Ends	6	11	12	12	8	49
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 55: Scotland track renewal volumes (route criticality 3)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	1	0	1	0	2
Complete Renewal	Track km	10	13	6	6	9	44
Complete (formation)	Track km	1	3	8	11	1	24
Rail Renewal	Track km	8	4	3	1	4	19
Single Rail	Track km	9	3	8	1	0	21
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	1	1
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	2	8	6	15
Refurbishment							
Heavy Refurbishment	Track km	5	3	2	5	2	17
Medium (concrete)	Track km	8	6	13	9	5	40
Medium (other)	Track km	25	1	5	3	2	36
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	5	4	0	0	0	9
Full Renewal	Point Ends	10	4	10	3	11	38
Refurbishment							
Heavy	Point Ends	12	7	18	4	0	41
Medium	Point Ends	13	11	7	15	15	61
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 56: Scotland track renewal volumes (route criticality 4)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	2	1	1	0	4
Complete Renewal	Track km	4	2	2	0	1	10
Complete (formation)	Track km	0	0	0	1	1	2
Rail Renewal	Track km	3	6	0	1	1	11
Single Rail	Track km	6	0	3	4	4	16
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	2	0	3
Refurbishment							
Heavy Refurbishment	Track km	0	0	6	0	2	9
Medium (concrete)	Track km	32	32	29	30	30	152
Medium (other)	Track km	3	1	4	2	1	11
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	1	0	0	0	0	1
Full Renewal	Point Ends	0	1	8	0	0	9
Refurbishment							
Heavy	Point Ends	2	6	7	6	0	21
Medium	Point Ends	0	6	18	20	14	58
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 57: Scotland track renewal volumes (route criticality 5)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	17	11	0	0	5	32
Complete Renewal	Track km	0	0	0	0	0	1
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	32	9	17	10	0	69
Single Rail	Track km	3	1	3	1	0	7
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	3	0	3
Refurbishment							
Heavy Refurbishment	Track km	2	1	0	1	0	5
Medium (concrete)	Track km	28	26	29	26	26	135
Medium (other)	Track km	41	31	25	36	26	159
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	0	0	0
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	3	0	1	0	0	4
Medium	Point Ends	6	10	10	3	7	36
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 58: Scotland civils renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Structures							
Underbridges	m^2	14,078	21,109	24,666	27,078	17,931	104,862
Overbridges (incl BG3)	m^2	1,467	2,261	1,532	2,115	604	7,979
Tunnels	m^2	1,360	1,766	3,292	1,059	756	8,233
Culverts	m^2	261	773	593	399	329	2,355
Footbridges	m^2	503	421	921	209	705	2,759
Coastal & Estuary Defences	m	330	700	1,088	3,558	210	5,886
Retaining Walls	m^2	432	133	1,682	333	2,979	5,559
Earthworks	5-chain	430	439	485	457	436	2,247
Track Drainage							
Renewal	lm	0	0	0	0	0	0
Refurbishment	lm	0	0	0	0	0	0
New Build	lm	3	0	0	0	0	3
EW Drainage							
Renewal	lm	1,483	1,480	1,470	1,460	1,450	7,343
Refurbishment	lm	340	335	330	325	320	1,650
Maintenance	lm	2,916	2,906	2,896	2,886	2,876	14,480
New Build	lm	0	0	0	0	0	0
Franchised Stations							
Footbridges	m^2	276	672	416	658	260	2,282
Train Sheds	m^2	584	2,300	2,300	0	0	5,184
Canopies	m^2	8,673	229	1,720	13	13	10,648
Platforms	m^2	2,434	1,900	1,990	2,627	1,690	10,641
Buildings	m^2	553	573	733	2,185	233	4,277
Lifts & Escalators	No.	67	67	67	67	67	335

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Managed Stations							
Footbridges	m^2	0	0	0	0	0	0
Train Sheds	m^2	0	0	80	26,000	450	26,530
Canopies	m^2	0	0	0	24	0	24
Platforms	m^2	0	0	110	0	0	110
Buildings	m^2	320	265	22	0	175	782
Lifts & Escalators	No.	7	7	7	7	7	35
Light Maintenance Depots							
Buildings	m^2	899	0	0	0	450	1,349
Depot Shed	m^2	433	0	0	0	0	433
Lineside Buildings							
Buildings	m^2	265	265	265	265	265	1,325
MDU							
Buildings	m^2	56	56	56	56	56	280

Table 59: Scotland signalling renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Full Conventional resignalling	SEUs	4	0	219	328	0	551
ERTMS resignalling	SEUs	0	0	0	0	0	0
Partial Conventional resignalling	SEUs	0	31	0	157	142	330
Targeted Component renewal	SEUs	4	8	26	1	7	46
Modular resignalling	SEUs	0	0	0	113	0	113
Level Crossings Renewals	No.	4	3	11	0	3	21

Table 60: Scotland electrification and plant renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Contact Systems							
OLE Re-wiring	wire runs	1	1	1	1	0	4
Mid-life Refurbishment	wire runs	0	0	0	0	0	0
Structure Renewals	No.	0	3	3	5	4	15
Conductor rail							
Renewals	km	0	0	0	0	0	0
AC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
Booster Transformers	No.	0	2	2	1	1	6
DC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
HV Cables	km	0	0	0	0	0	0
LV Switchgear Renewal	No.	0	0	0	0	0	0
LV Cables	km	0	0	0	0	0	0
Transformer Rectifiers	No.	0	0	0	0	0	0
Fixed plant							
Signalling Power Cable Renewal	km	27	27	28	40	31	153
Principle Supply Point Renewal	No.	0	0	0	0	0	0
Rail Heating							
Points Heating Renewal	Point End	0	3	5	4	0	12

Table 61: Scotland telecoms renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Station Information and Surveillance Systems							
Customer Information Systems	No.	14	6	0	60	0	80
Public Address	No.	1,410	43	630	12	0	2,095
CCTV	No.	20	0	0	0	0	20
Clocks	No.	0	0	0	13	0	13
Operational Comms							
PABX Concentrator	No. of Lines	629	82	0	182	700	1,593
Processor Controlled Concentrator	No. of Lines	1	0	0	0	0	1
Driver-Only Operation: CCTV	No.	0	11	10	7	0	28
Driver-Only Operation: Mirrors	No.	0	7	0	0	0	7
Public Emergency Telephone System	No.	0	3	0	0	0	3
Human Machine Interface Large	No.	0	0	0	0	0	0
Human Machine Interface Small	No.	0	0	0	0	0	0
Radio System	No.	0	0	0	0	0	0
Power Systems	No.	0	1	0	0	0	1

Table 62: Scotland maintenance volumes

		Code	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Track	Plain Line Tamping (km)	MNT004	612	612	612	612	612	3,058
	Plain Line Stoneblowing (km)	MNT005	382	382	382	382	382	1,910
	Manual Wet Bed removal (bay)	MNT006	1,998	2,004	2,016	2,040	2,043	10,101
	Mechanical Wet bed removal (bay)	MNT012	692	696	704	717	728	3,538
	S&C Tamping (point end)	MNT007	399	399	399	399	399	1,996
	Rail Changing - Al-Thermic Weld - Standard Gap (weld)	MNT044	2,682	2,728	2,773	2,808	2,847	13,838
	Rail Changing - CWR - Renew (Defects) (rail yard)	MNT045	11,705	11,906	12,092	12,251	12,446	60,400
	Mechanical Reprofiling of Ballast (Mile)	MNT017	179	182	184	188	191	924
	Manual Reprofiling of Ballast (rail yard)	MNT020	121,551	122,688	123,932	126,907	128,053	623,131
	Replace Pads & Insulators (sleeper)	MNT029	88,000	88,000	88,000	88,000	88,000	440,000
	Manual Correction of PL Track Geometry (CWR) (track yard)	MNT036	91,045	91,817	87,809	88,916	89,195	448,781
	Manual Correction of PL Track Geometry (Jointed) (track yard)	MNT037	45,000	45,000	45,000	45,000	45,000	225,000
	S&C Renew Crossing (crossing)	MNT120	76	75	72	73	74	371
	S&C Maintenance (point end)	MNT122	34,843	34,015	32,712	33,718	33,936	169,224
	S&C Renew half set of Switches (H/S Switch)	MNT123	79	79	76	78	80	393
	S&C Stoneblowing (point end)	MNT124	69	69	69	69	69	347
	Rail grinding plain line (Mile)	MNT309	1,256	1,256	1,256	1,256	1,256	6,280
	Rail grinding S&C (point end)	MNT310	216	216	216	216	216	1,080
Off track	Fences & Boundary Walls (yard)	MNT072	189,756	189,574	189,361	189,101	189,020	946,811
	Drainage (Yard)	MNT073	151,906	151,754	151,595	151,395	151,422	758,072
	LX Management - Off Track (Each)	MNT075	2,849	2,849	2,849	2,849	2,849	14,245
	Vegetation Removal of Boundary Trees (No)	MNT081	13,147	13,136	13,126	13,110	13,110	65,631
	Vegetation Management by Train (Mile)	MNT082	1,178	1,177	1,176	1,175	1,175	5,882
	Vegetation Management Manual (Sq yard)	MNT170	171,300	171,156	171,025	170,819	170,815	855,114
	Vegetation Management Mechanised (Mile)	MNT171	26	26	26	26	26	131
Electrical Power	Maintain Conductor Rail (Various)	MNT206	0	0	0	0	0	0
	Maintain DC Traction Power Supplies (Each)	MNT209	0	0	0	0	0	0
	Maintain OHL Components (Various)	MNT211	42,000	44,751	47,502	47,502	53,867	235,622
	Maintain Points Heating (Each)	MNT212	8,546	8,546	8,546	8,546	8,546	42,732
	Maintain Signalling Power supplies (No.)	MNT213	6,316	6,316	6,316	6,316	6,316	31,578
Civils	Visual Examinations (Civils) (No.)	MNT226a	11,414	11,030	9,400	10,384	10,943	53,171
	Tunnel Examinations (No.minor elements)	MNT220	9,084	9,084	9,084	9,084	9,084	45,420
	Detailed Examinations (No.)	MNT221	1,767	1,655	3,285	2,301	1,742	10,750
	Underwater Examination (No.)	MNT222	152	82	93	152	82	561
	Ancillary Structure examination (No. detailed)	MNT223	246	203	243	210	214	1,116
	Hidden critical element examinations (No.)	MNT224	197	150	150	150	150	797
	Load carrying assessment (No. spans)	MNT225	1,410	1,287	1,173	1,699	1,604	7,173
Buildings	Visual examinations Buildings (each)	MNT226	1,319	1,214	1,048	1,056	1,251	5,888
	5 yearly examinations (each)	MNT227	338	480	713	737	414	2,682

Anglia asset management indicators

Table 63: Anglia asset condition reliability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Rail Breaks and Immediate Action defects per 100km	5.49	5.49	5.49	5.49	5.49	5.49
	Track geometry (Poor Track Geometry)	2.71%	2.71%	2.71%	2.71%	2.71%	2.71%
	Track failures (service affecting)	779	740	723	705	688	670
Signalling	Signalling failures (service affecting)	1,395	1,375	1,363	1,351	1,339	1,327
Telecoms	Telecoms failures (service affecting)	421	193	183	167	162	160
Electrical Power	AC traction power failures (service affecting)	294	375	375	375	375	375
	DC traction power failures (service affecting)	2	4	4	4	4	4
	Non traction operational power supply failures (service affecting)	50	50	50	50	50	50
Buildings	Buildings - Re-active Faults (2&24) (attention within 2hrs, fix within 24hrs) & (attention within 24hrs, fix within 7 days)	767	793	793	793	793	793
Structures	Number of open work items with a risk score ≥12	143	80	75	70	65	60
Earthworks	Earthwork failures	5	5	4	4	4	4
Points	Points failures (service affecting)	359	330	332	334	337	340

Table 64: Anglia asset condition sustainability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Track - Used Life - Rail	46.9%	47.5%	47.0%	45.9%	47.2%	49.0%
	Track - Used Life - Switch & Crossings	58.1%	57.1%	55.8%	55.1%	54.7%	54.5%
	Track - Used Life - Sleepers	62.3%	63.3%	62.1%	60.4%	61.6%	63.3%
	Track - Used Life - Ballast	48.5%	46.4%	44.6%	45.0%	45.5%	46.9%
Signalling	Signalling Condition Index (SICA Remaining Life)	13.62	12.69	12.38	12.26	11.97	11.51
Telecoms	Telecoms - Remaining Life	59.2%	56.0%	52.6%	51.0%	45.8%	43.0%
Electrical Power	EP - Remaining Life - Conductor Rail	51.8%	50.8%	50.3%	49.6%	48.8%	48.1%
	EP - Remaining Life - Overhead Line Equipment (OLE)	50.9%	50.0%	50.8%	48.8%	49.0%	52.4%
	EP - Remaining Life - Signalling Power Cable						
Buildings	Stations - %age Remaining Life	38.0%	38.0%	36.7%	36.0%	35.4%	34.7%
	Light Maintenance Depot (LMD) - %age Remaining Life	29.6%	29.5%	29.3%	29.2%	29.1%	29.0%
Structures	Average condition of major deck elements	70.2	70.3	70.3	70.4	70.5	70.5
	Tunnel Condition Monitoring Index (TCMI)	82.8	82.6	82.5	82.4	82.2	82.1
Earthworks	Earthworks - Condition Banding	1.68	1.69	1.70	1.72	1.73	1.74
Drainage	Track Drainage - Condition Banding	2.50	2.46	2.42	2.38	2.34	2.30
	Earthwork/Structure Drainage - Condition Banding	2.30	2.26	2.22	2.18	2.14	2.10

Table 65: Anglia track renewal volumes total

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	18	18	16	15	15	82
Complete (formation)	Track km	4	4	1	0	3	12
Rail Renewal	Track km	27	17	9	9	3	65
Single Rail	Track km	3	1	1	1	1	5
High Output							
Automated Ballast Cleaning (ABC)	Track km	14	19	0	0	4	37
Rail Sleeper Relay	Track km	0	0	81	0	0	81
Heavy Refurbishment	Track km	0	66	49	25	19	159
Refurbishment							
Heavy Refurbishment	Track km	1	1	1	1	1	3
Medium (concrete)	Track km	9	9	8	8	2	35
Medium (other)	Track km	6	6	3	3	1	19
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	12	18	10	4	0	44
Full Renewal	Point Ends	47	39	38	40	28	192
Refurbishment							
Heavy	Point Ends	23	34	34	31	31	153
Medium	Point Ends	50	55	55	55	55	270
Off Track							
Fencing	km	52	48	47	46	45	237
Slab track	Track km	0	0	0	0	0	0

Table 66: Anglia track renewal volumes (route criticality 1)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	8	7	7	8	8	38
Complete (formation)	Track km	2	2	1	0	1	7
Rail Renewal	Track km	0	0	2	2	1	5
Single Rail	Track km	3	0	0	0	0	3
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	2	2	1	1	0	5
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	2	0	0	0	2
Full Renewal	Point Ends	10	9	10	11	8	47
Refurbishment							
Heavy	Point Ends	8	12	13	11	11	55
Medium	Point Ends	14	14	14	14	14	70
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 67: Anglia track renewal volumes (route criticality 2)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	7	6	7	5	6	31
Complete (formation)	Track km	2	1	0	0	1	4
Rail Renewal	Track km	7	3	1	1	0	12
Single Rail	Track km	0	1	1	1	1	2
High Output							
Automated Ballast Cleaning (ABC)	Track km	14	19	0	0	4	37
Rail Sleeper Relay	Track km	0	0	81	0	0	81
Heavy Refurbishment	Track km	0	38	49	15	13	115
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	4	4	4	4	1	17
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	5	4	0	0	9
Full Renewal	Point Ends	26	23	21	21	14	105
Refurbishment							
Heavy	Point Ends	6	10	9	9	9	42
Medium	Point Ends	15	15	15	16	16	77
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 68: Anglia track renewal volumes (route criticality 3)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	1	0	0	0	0	1
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	8	8	3	3	1	23
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	10	2	12
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	2	2	2	2	1	9
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	2	2	2	0	6
Full Renewal	Point Ends	5	4	4	5	3	22
Refurbishment							
Heavy	Point Ends	1	1	1	1	1	6
Medium	Point Ends	5	5	5	5	5	25
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 69: Anglia track renewal volumes (route criticality 4)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	2	1	1	1	1	7
Complete (formation)	Track km	0	1	0	0	0	1
Rail Renewal	Track km	10	6	3	3	1	23
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	28	0	0	4	32
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	1
Medium (concrete)	Track km	1	1	1	1	0	4
Medium (other)	Track km	3	3	2	2	1	11
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	2	2	2	0	6
Full Renewal	Point Ends	5	3	3	4	3	18
Refurbishment							
Heavy	Point Ends	8	11	11	10	10	50
Medium	Point Ends	11	11	11	10	10	53
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 70: Anglia track renewal volumes (route criticality 5)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	3	1	1	0	6
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	2	0	0	0	0	2
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	1	1	0	0	0	2
Medium (concrete)	Track km	0	0	0	0	0	0
Medium (other)	Track km	3	3	1	1	0	8
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	12	7	2	0	0	21
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	0	0	0	0	0	0
Medium	Point Ends	5	10	10	10	10	45
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 71: Anglia civils renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Structures							
Underbridges	m^2	3,092	8,174	6,789	1,374	2,485	21,914
Overbridges (incl BG3)	m^2	722	870	1,370	1,258	272	4,492
Tunnels	m^2	0	600	900	2,100	0	3,600
Culverts	m^2	98	98	1,545	1,545	1,369	4,655
Footbridges	m^2	288	288	180	180	180	1,116
Coastal & Estuary Defences	m	0	0	0	0	0	0
Retaining Walls	m^2	160	160	480	480	320	1,600
Earthworks	5-chain	211	205	165	266	204	1,051
Track Drainage							
Renewal	lm	1,254	364	275	110	69	2,072
Refurbishment	lm	0	104	16	41	92	254
New Build	lm	26	16	15	7	7	73
EW Drainage							
Renewal	lm	760	708	478	325	163	2,433
Refurbishment	lm	180	195	135	455	240	1,205
Maintenance	lm	760	200	40	778	673	2,450
New Build	lm	19	19	19	19	19	95
Franchised Stations							
Footbridges	m^2	656	0	0	0	0	656
Train Sheds	m^2	0	0	0	0	0	0
Canopies	m^2	150	291	0	0	0	441
Platforms	m^2	2,763	3,365	381	1,158	2,126	9,793
Buildings	m^2	401	200	88	703	0	1,392
Lifts & Escalators	No.	0	0	4	3	0	7

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Managed Stations							
Footbridges	m^2	0	0	0	0	0	0
Train Sheds	m^2	0	0	0	8,800	13,300	22,100
Canopies	m^2	1,600	0	130	0	0	1,730
Platforms	m^2	0	0	0	0	0	0
Buildings	m^2	1,095	5,100	0	20,663	0	26,858
Lifts & Escalators	No.	0	0	0	0	6	6
Light Maintenance Depots							
Buildings	m^2	1,101	1	1	1	1	1,105
Depot Shed	m^2	0	0	0	0	0	0
Lineside Buildings							
Buildings	m^2	0	225	0	0	0	225
MDU							
Buildings	m^2	0	0	0	0	0	0

Table 72: Anglia signalling renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Full Conventional resignalling	SEUs	0	0	11	43	45	99
ERTMS resignalling	SEUs	0	0	0	0	0	0
Partial Conventional resignalling	SEUs	0	0	119	42	20	182
Targeted Component renewal	SEUs	0	1	12	9	13	35
Modular resignalling	SEUs	0	154	0	0	22	176
Level Crossings Renewals	No.	0	11	30	30	7	78

Table 73: Anglia electrification and plant renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Contact Systems							
OLE Re-wiring	wire runs	10	22	53	40	26	151
Mid-life Refurbishment	wire runs	0	0	0	0	0	0
Structure Renewals	No.	100	141	108	47	83	479
Conductor rail							
Renewals	km	0	0	0	0	0	0
AC distribution							
HV Switchgear Renewal	No.	0	0	5	5	0	10
Booster Transformers	No.	3	3	3	3	4	16
DC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
HV Cables	km	0	0	0	0	0	0
LV Switchgear Renewal	No.	0	0	0	0	0	0
LV Cables	km	0	0	0	0	0	0
Transformer Rectifiers	No.	0	0	0	0	0	0
Fixed plant							
Signalling Power Cable Renewal	km	18	18	18	18	18	88
Principle Supply Point Renewal	No.	9	7	0	0	1	17
Rail Heating							
Points Heating Renewal	Point End	9	28	9	0	0	46

Table 74: Anglia telecoms renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Station Information and Surveillance Systems							
Customer Information Systems	No.	0	0	0	0	0	0
Public Address	No.	0	0	0	0	0	0
CCTV	No.	0	350	0	0	0	350
Clocks	No.	0	0	0	0	0	0
Operational Comms							
PABX Concentrator	No. of Lines	1,300	0	0	0	0	1,300
Processor Controlled Concentrator	No. of Lines	0	0	0	0	0	0
Driver-Only Operation: CCTV	No.	67	0	0	0	38	105
Driver-Only Operation: Mirrors	No.	26	0	0	0	0	26
Public Emergency Telephone System	No.	0	0	0	15	0	15
Human Machine Interface Large	No.	5	0	0	0	0	5
Human Machine Interface Small	No.	0	0	0	0	0	0
Radio System	No.	0	0	0	0	0	0
Power Systems	No.	0	0	0	22	0	22

Table 75: Anglia maintenance volumes

		Code	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Track	Plain Line Tamping (km)	MNT004	669	650	631	612	593	3,154
	Plain Line Stoneblowing (km)	MNT005	319	299	280	261	241	1,400
	Manual Wet Bed removal (bay)	MNT006	582	531	480	428	377	2,398
	Mechanical Wet bed removal (bay)	MNT012	895	744	593	441	290	2,963
	S&C Tamping (point end)	MNT007	219	208	196	185	173	980
	Rail Changing - Al-Thermic Weld - Standard Gap (weld)	MNT044	755	662	568	475	381	2,840
	Rail Changing - CWR - Renew (Defects) (rail yard)	MNT045	3,988	3,516	3,044	2,571	2,099	15,218
	Mechanical Reprofiling of Ballast (Mile)	MNT017	151	144	137	130	123	687
	Manual Reprofiling of Ballast (rail yard)	MNT020	55,224	52,942	50,659	48,377	46,094	253,295
	Replace Pads & Insulators (sleeper)	MNT029	58,849	55,755	52,660	49,566	46,471	263,300
	Manual Correction of PL Track Geometry (CWR) (track yard)	MNT036	56,495	49,974	43,454	36,933	30,412	217,268
	Manual Correction of PL Track Geometry (Jointed) (track yard)	MNT037	18,682	16,911	15,140	13,369	11,599	75,701
	S&C Renew Crossing (crossing)	MNT120	30	27	25	22	19	123
	S&C Maintenance (point end)	MNT122	31,347	31,347	31,347	31,346	31,346	156,733
	S&C Renew half set of Switches (H/S Switch)	MNT123	39	34	29	24	19	145
	S&C Stoneblowing (point end)	MNT124	119	111	103	94	86	513
	Rail grinding plain line (Mile)	MNT309	849	915	1,095	945	885	4,689
	Rail grinding S&C (point end)	MNT310	415	762	762	762	762	3,463
Off track	Fences & Boundary Walls (yard)	MNT072	23,393	23,407	23,422	23,436	23,450	117,108
	Drainage (Yard)	MNT073	145,084	145,084	145,084	145,084	145,084	725,420
	LX Management - Off Track (Each)	MNT075	1,118	1,118	1,118	1,118	1,118	5,590
	Vegetation Removal of Boundary Trees (No)	MNT081	1,417	1,230	1,044	858	672	5,221
	Vegetation Management by Train (Mile)	MNT082	1,273	1,273	1,273	1,273	1,273	6,365
	Vegetation Management Manual (Sq yard)	MNT170	160,127	161,132	162,137	163,142	164,147	810,685
	Vegetation Management Mechanised (Mile)	MNT171	329	329	329	329	329	1,645
Electrical Power	Maintain Conductor Rail (Various)	MNT206	40	40	40	40	40	200
	Maintain DC Traction Power Supplies (Each)	MNT209	35	35	35	35	35	175
	Maintain OHL Components (Various)	MNT211	32,400	32,400	32,400	32,400	32,400	161,999
	Maintain Points Heating (Each)	MNT212	14,454	14,454	14,454	14,454	14,454	72,270
	Maintain Signalling Power supplies (No.)	MNT213	1,542	1,542	1,542	1,542	1,542	7,711
Civils	Visual Examinations (Civils) (No.)	MNT226a	3,461	3,561	3,589	3,593	3,556	17,761
	Tunnel Examinations (No.minor elements)	MNT220	1,641	1,641	1,641	1,641	1,641	8,205
	Detailed Examinations (No.)	MNT221	696	624	580	559	634	3,092
	Underwater Examination (No.)	MNT222	265	130	88	284	132	899
	Ancillary Structure examination (No. detailed)	MNT223	9	158	130	73	61	431
	Hidden critical element examinations (No.)	MNT224	76	43	64	86	53	322
	Load carrying assessment (No. spans)	MNT225	1,161	821	1,126	1,431	1,253	5,792
Buildings	Visual examinations Buildings (each)	MNT226	789	834	816	846	843	4,128
	5 yearly examinations (each)	MNT227	136	91	109	79	93	508

East Midlands asset management indicators

Table 76: East Midlands asset condition reliability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Rail Breaks and Immediate Action defects per 100km	3.78	3.78	3.78	3.78	3.78	3.78
	Track geometry (Poor Track Geometry)	2.03%	2.20%	2.20%	2.20%	2.20%	2.20%
	Track failures (service affecting)	417	385	377	371	368	365
Signalling	Signalling failures (service affecting)	743	644	629	620	614	610
Telecoms	Telecoms failures (service affecting)	87	85	69	58	47	44
Electrical Power	AC traction power failures (service affecting)	64	124	149	153	154	149
	DC traction power failures (service affecting)	N/A	N/A	N/A	N/A	N/A	N/A
	Non traction operational power supply failures (service affecting)	35	39	40	39	38	37
Buildings	Buildings - Re-active Faults (2&24) (attention within 2hrs, fix within 24hrs) & (attention within 24hrs, fix within 7 days)	240	240	240	240	240	240
Structures	Number of open work items with a risk score ≥12	276	273	270	205	140	88
Earthworks	Earthwork failures	1	1	1	1	1	1
Points	Points failures (service affecting)	214	190	188	186	184	182

Table 77: East Midlands asset condition sustainability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Track - Used Life - Rail	52.1%	48.4%	48.7%	49.8%	50.0%	51.3%
	Track - Used Life - Switch & Crossings	45.7%	45.1%	44.3%	43.7%	42.9%	42.5%
	Track - Used Life - Sleepers	60.7%	57.9%	59.1%	60.7%	60.3%	62.1%
	Track - Used Life - Ballast	45.2%	46.7%	48.1%	47.3%	45.9%	47.6%
Signalling	Signalling Condition Index (SICA Remaining Life)	13.89	13.19	13.67	13.84	13.89	13.10
Telecoms	Telecoms - Remaining Life	65.1%	66.7%	62.1%	57.4%	55.5%	50.9%
Electrical Power	EP - Remaining Life - Conductor Rail	N/A	N/A	N/A	N/A	N/A	N/A
	EP - Remaining Life - Overhead Line Equipment (OLE)	55%	54.0%	53.0%	51.0%	50.0%	48.0%
	EP - Remaining Life - Signalling Power Cable						
Buildings	Stations - %age Remaining Life	46.6%	46.6%	44.1%	42.9%	41.6%	40.4%
	Light Maintenance Depot (LMD) - %age Remaining Life	58.5%	57.6%	56.8%	56.0%	55.1%	54.3%
Structures	Average condition of major deck elements	63.5	63.5	63.5	63.6	63.8	63.9
	Tunnel Condition Monitoring Index (TCMI)	82.9	83.5	84.1	84.7	85.3	85.9
Earthworks	Earthworks - Condition Banding	1.69	1.69	1.69	1.69	1.68	1.68
Drainage	Track Drainage - Condition Banding	1.23	1.20	1.30	1.30	1.30	1.29
	Earthwork/Structure Drainage - Condition Banding	1.23	1.20	1.30	1.30	1.30	1.29

Table 78: East Midlands track renewal volumes total

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	5	8	7	3	1	24
Complete (formation)	Track km	3	3	1	2	2	12
Rail Renewal	Track km	29	29	16	17	15	106
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	47	0	0	47
Rail Sleeper Relay	Track km	88	0	0	0	0	88
Heavy Refurbishment	Track km	0	0	2	68	0	69
Refurbishment							
Heavy Refurbishment	Track km	0	1	5	3	3	12
Medium (concrete)	Track km	7	8	9	8	2	34
Medium (other)	Track km	8	10	7	13	15	54
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	2	0	9	4	4	19
Full Renewal	Point Ends	21	14	21	21	24	101
Refurbishment							
Heavy	Point Ends	14	25	9	21	15	84
Medium	Point Ends	35	54	29	24	19	161
Off Track							
Fencing	km	28	36	46	50	46	206
Slab track	Track km	0	0	0	1	0	1

Table 79: East Midlands track renewal volumes (route criticality 1)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	2	4	6	2	1	14
Complete (formation)	Track km	2	1	1	1	1	5
Rail Renewal	Track km	5	4	5	9	2	26
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	14	0	0	14
Rail Sleeper Relay	Track km	31	0	0	0	0	31
Heavy Refurbishment	Track km	0	0	1	0	0	1
Refurbishment							
Heavy Refurbishment	Track km	0	1	4	1	1	7
Medium (concrete)	Track km	0	1	3	6	0	10
Medium (other)	Track km	0	2	0	0	0	2
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	2	0	4	0	0	6
Full Renewal	Point Ends	21	6	0	0	15	42
Refurbishment							
Heavy	Point Ends	5	8	0	0	11	24
Medium	Point Ends	14	28	0	0	4	46
Off Track							
Slab track	Track km	0	0	0	1	0	1

Table 80: East Midlands track renewal volumes (route criticality 2)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	3	4	1	1	0	10
Complete (formation)	Track km	1	2	0	1	0	5
Rail Renewal	Track km	22	9	0	2	10	43
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	33	0	0	33
Rail Sleeper Relay	Track km	57	0	0	0	0	57
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	1
Medium (concrete)	Track km	2	1	4	2	2	12
Medium (other)	Track km	1	1	0	2	4	8
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	1	0	0	1
Full Renewal	Point Ends	0	8	21	21	9	59
Refurbishment							
Heavy	Point Ends	3	5	9	21	4	42
Medium	Point Ends	16	11	24	12	9	72
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 81: East Midlands track renewal volumes (route criticality 3)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	0	0	0	0	0
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	0	0	1	0	0	1
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	1	0	0	0	0	1
Medium (other)	Track km	0	0	0	1	2	3
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	0	0	0
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	0	0	0	0	0	0
Medium	Point Ends	0	1	0	0	2	3
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 82: East Midlands track renewal volumes (route criticality 4)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	0	0	0	0	0
Complete (formation)	Track km	0	0	0	0	1	1
Rail Renewal	Track km	0	14	9	7	2	32
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	1	67	0	68
Refurbishment							
Heavy Refurbishment	Track km	0	0	1	2	0	3
Medium (concrete)	Track km	3	5	3	0	0	11
Medium (other)	Track km	4	6	7	8	7	31
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	4	0	0	4
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	6	1	0	0	0	7
Medium	Point Ends	5	2	0	6	0	13
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 83: East Midlands track renewal volumes (route criticality 5)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	0	0	0	0	0
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	2	1	0	0	1	4
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	1	1
Medium (concrete)	Track km	0	0	0	0	0	0
Medium (other)	Track km	3	0	0	2	3	9
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	4	4	8
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	0	11	0	0	0	11
Medium	Point Ends	0	12	5	6	4	27
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 84: East Midlands civils renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Structures							
Underbridges	m^2	10,648	9,895	8,980	10,448	7,529	47,501
Overbridges (incl BG3)	m^2	601	2,482	1,541	252	1,404	6,280
Tunnels	m^2	1,240	6,200	2,515	4,840	3,765	18,560
Culverts	m^2	0	38	153	75	75	341
Footbridges	m^2	160	298	64	149	44	716
Coastal & Estuary Defences	m	0	0	0	0	0	0
Retaining Walls	m^2	0	220	0	0	0	220
Earthworks	5-chain	182	177	198	252	218	1,025
Track Drainage							
Renewal	lm	0	0	0	0	0	0
Refurbishment	lm	0	0	0	0	0	0
New Build	lm	0	0	0	0	0	0
EW Drainage							
Renewal	lm	295	330	295	203	63	1,186
Refurbishment	lm	61	35	225	410	280	1,011
Maintenance	lm	6,089	5,917	5,797	6,079	6,099	29,980
New Build	lm	0	0	0	0	0	0
Franchised Stations							
Footbridges	m^2	80	145	230	45	0	500
Train Sheds	m^2	0	0	0	0	0	0
Canopies	m^2	840	528	600	40	0	2,008
Platforms	m^2	0	8,019	2,000	560	50	10,629
Buildings	m^2	0	100	1,201	0	0	1,301
Lifts & Escalators	No.	0	0	3	0	0	3

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Managed Stations							
Footbridges	m^2	0	0	0	0	0	0
Train Sheds	m^2	0	0	0	0	0	0
Canopies	m^2	0	0	0	0	0	0
Platforms	m^2	0	0	0	0	0	0
Buildings	m^2	0	0	0	0	0	0
Lifts & Escalators	No.	0	0	0	0	0	0
Light Maintenance Depots							
Buildings	m^2	5,000	5,000	3,000	0	0	13,000
Depot Shed	m^2	0	0	0	0	0	0
Lineside Buildings							
Buildings	m^2	30	40	65	0	0	135
MDU							
Buildings	m^2	160	0	0	200	0	360

Table 85: East Midlands signalling renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Full Conventional resignalling	SEUs	0	0	0	0	0	0
ERTMS resignalling	SEUs	0	0	0	0	0	0
Partial Conventional resignalling	SEUs	0	112	97	1	0	210
Targeted Component renewal	SEUs	0	9	10	9	9	36
Modular resignalling	SEUs	31	0	51	100	0	182
Level Crossings Renewals	No.	9	3	10	12	1	35

Table 86: East Midlands electrification and plant renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Contact Systems							
OLE Re-wiring	wire runs	0	0	0	0	0	0
Mid-life Refurbishment	wire runs	56	56	56	40	40	248
Structure Renewals	No.	7	7	7	7	7	36
Conductor rail							
Renewals	km	0	0	0	0	0	0
AC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
Booster Transformers	No.	1	1	1	1	1	5
DC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
HV Cables	km	0	0	0	0	0	0
LV Switchgear Renewal	No.	0	0	0	0	0	0
LV Cables	km	0	0	0	0	0	0
Transformer Rectifiers	No.	0	0	0	0	0	0
Fixed plant							
Signalling Power Cable Renewal	km	10	10	10	10	10	48
Principle Supply Point Renewal	No.	0	0	0	0	0	0
Rail Heating							
Points Heating Renewal	Point End	16	16	16	16	16	79

Table 87: East Midlands telecoms renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Station Information and Surveillance Systems							
Customer Information Systems	No.	0	0	0	0	5	5
Public Address	No.	0	0	88	0	0	88
CCTV	No.	0	268	197	0	20	485
Clocks	No.	0	9	0	0	4	13
Operational Comms							
PABX Concentrator	No. of Lines	0	0	0	0	0	0
Processor Controlled Concentrator	No. of Lines	0	0	0	0	0	0
Driver-Only Operation: CCTV	No.	0	0	0	0	0	0
Driver-Only Operation: Mirrors	No.	0	0	0	0	0	0
Public Emergency Telephone System	No.	0	0	5	0	8	13
Human Machine Interface Large	No.	0	0	0	0	0	0
Human Machine Interface Small	No.	0	0	0	0	0	0
Radio System	No.	0	0	0	0	0	0
Power Systems	No.	0	0	0	0	0	0

Table 88: East Midlands maintenance volumes

		Code	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Track	Plain Line Tamping (km)	MNT004	425	410	390	390	410	2,025
	Plain Line Stoneblowing (km)	MNT005	215	200	190	220	220	1,045
	Manual Wet Bed removal (bay)	MNT006	1,450	1,300	1,250	1,150	1,000	6,150
	Mechanical Wet bed removal (bay)	MNT012	650	750	800	850	1,000	4,050
	S&C Tamping (point end)	MNT007	230	230	220	220	230	1,130
	Rail Changing - Al-Thermic Weld - Standard Gap (weld)	MNT044	1,100	1,080	1,060	1,040	1,020	5,300
	Rail Changing - CWR - Renew (Defects) (rail yard)	MNT045	4,200	4,000	3,800	3,600	3,400	19,000
	Mechanical Reprofiling of Ballast (Mile)	MNT017	300	200	165	165	165	995
	Manual Reprofiling of Ballast (rail yard)	MNT020	110,000	110,000	110,000	110,000	110,000	550,000
	Replace Pads & Insulators (sleeper)	MNT029	15,000	15,000	15,000	15,000	15,000	75,000
	Manual Correction of PL Track Geometry (CWR) (track yard)	MNT036	88,875	86,000	84,000	82,000	80,000	420,875
	Manual Correction of PL Track Geometry (Jointed) (track yard)	MNT037	7,500	7,500	7,500	7,500	7,500	37,500
	S&C Renew Crossing (crossing)	MNT120	40	39	37	36	35	187
	S&C Maintenance (point end)	MNT122	25,000	25,000	25,000	25,000	25,000	125,000
	S&C Renew half set of Switches (H/S Switch)	MNT123	35	34	33	32	30	164
	S&C Stoneblowing (point end)	MNT124	80	80	80	80	80	400
	Rail grinding plain line (Mile)	MNT309	795	920	745	1,245	920	4,625
	Rail grinding S&C (point end)	MNT310	380	390	400	410	425	2,005
Off track	Fences & Boundary Walls (yard)	MNT072	66,440	101,115	97,228	110,901	97,106	472,790
	Drainage (Yard)	MNT073	40,000	40,000	40,000	40,000	40,000	200,000
	LX Management - Off Track (Each)	MNT075	966	966	966	966	966	4,830
	Vegetation Removal of Boundary Trees (No)	MNT081	500	500	500	500	500	2,500
	Vegetation Management by Train (Mile)	MNT082	1,500	1,500	1,500	1,500	1,500	7,500
	Vegetation Management Manual (Sq yard)	MNT170	176,000	176,000	176,000	176,000	176,000	880,000
	Vegetation Management Mechanised (Mile)	MNT171	160	160	160	160	160	800
Electrical Power	Maintain Conductor Rail (Various)	MNT206	0	0	0	0	0	0
	Maintain DC Traction Power Supplies (Each)	MNT209	0	0	0	0	0	0
	Maintain OHL Components (Various)	MNT211	5,708	5,708	5,708	5,708	5,708	28,540
	Maintain Points Heating (Each)	MNT212	8,670	8,670	8,670	8,670	8,670	43,350
	Maintain Signalling Power supplies (No.)	MNT213	1,542	1,542	1,542	1,542	1,542	7,710
Civils	Visual Examinations (Civils) (No.)	MNT226a	2,545	2,672	2,619	2,643	2,645	13,124
	Tunnel Examinations (No. minor elements)	MNT220	8,091	8,091	8,091	8,091	8,091	40,455
	Detailed Examinations (No.)	MNT221	397	314	346	322	320	1,699
	Underwater Examination (No.)	MNT222	102	44	52	102	44	344
	Ancillary Structure examination (No. detailed)	MNT223	76	8	12	35	67	198
	Hidden critical element examinations (No.)	MNT224	44	44	44	44	44	220
	Load carrying assessment (No. spans)	MNT225	550	363	481	568	585	2,547
Buildings	Visual examinations Buildings (each)	MNT226	879	880	875	879	881	4,394
	5 yearly examinations (each)	MNT227	24	23	31	24	22	124

Kent asset management indicators

Table 89: Kent asset condition reliability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Rail Breaks and Immediate Action defects per 100km	4.57	4.53	4.47	4.42	4.36	4.30
	Track geometry (Poor Track Geometry)	3.72%	3.55%	3.52%	3.48%	3.45%	3.41%
	Track failures (service affecting)	451	384	378	372	366	360
Signalling	Signalling failures (service affecting)	1,148	1,182	1,174	1,168	1,171	1,165
Telecoms	Telecoms failures (service affecting)	53	115	105	92	88	87
Electrical Power	AC traction power failures (service affecting)	5	7	3	3	2	2
	DC traction power failures (service affecting)	60	65	65	63	62	57
	Non traction operational power supply failures (service affecting)	28	28	28	28	25	25
Buildings	Buildings - Re-active Faults (2&24) (attention within 2hrs, fix within 24hrs) & (attention within 24hrs, fix within 7 days)	524	506	516	526	536	546
Structures	Number of open work items with a risk score ≥12	501	424	339	271	217	116
Earthworks	Earthwork failures	18	17	17	16	15	15
Points	Points failures (service affecting)	330	381	377	373	370	368

Table 90: Kent asset condition sustainability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Track - Used Life - Rail	49.1%	49.0%	49.4%	49.9%	50.3%	51.0%
	Track - Used Life - Switch & Crossings	56.3%	55.2%	54.4%	53.7%	54.5%	54.9%
	Track - Used Life - Sleepers	64.0%	64.4%	64.7%	64.8%	65.1%	65.5%
	Track - Used Life - Ballast	51.9%	52.4%	51.9%	51.4%	50.9%	50.5%
Signalling	Signalling Condition Index (SICA Remaining Life)	12.98	14.38	15.33	14.85	14.54	16.55
Telecoms	Telecoms - Remaining Life	55.6%	55.3%	53.3%	52.0%	53.3%	53.3%
Electrical Power	EP - Remaining Life - Conductor Rail	70.1%	69.0%	68.4%	68.3%	67.8%	67.3%
	EP - Remaining Life - Overhead Line Equipment (OLE)	73.1%	71.8%	70.5%	68.0%	67.2%	65.9%
	EP - Remaining Life - Signalling Power Cable						
Buildings	Stations - %age Remaining Life	36.2%	36.2%	34.8%	34.0%	33.3%	32.6%
	Light Maintenance Depot (LMD) - %age Remaining Life	43.4%	42.5%	41.7%	40.9%	40.0%	39.2%
Structures	Average condition of major deck elements	67.9	68.5	68.8	68.9	69.0	69.0
	Tunnel Condition Monitoring Index (TCMI)	84.2	84.0	83.8	83.6	83.4	83.2
Earthworks	Earthworks - Condition Banding	1.78	1.79	1.79	1.80	1.80	1.81
Drainage	Track Drainage - Condition Banding	1.19	1.20	1.20	1.20	1.20	1.20
	Earthwork/Structure Drainage - Condition Banding	1.53	1.50	1.50	1.50	1.50	1.60

Table 91: Kent track renewal volumes total

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	18	12	13	11	10	64
Complete (formation)	Track km	2	3	0	1	0	7
Rail Renewal	Track km	30	21	18	20	15	105
Single Rail	Track km	2	1	0	1	0	4
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	53	45	45	143
Refurbishment							
Heavy Refurbishment	Track km	11	11	11	4	4	40
Medium (concrete)	Track km	14	9	12	12	12	57
Medium (other)	Track km	2	1	4	4	4	15
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	4	0	2	0	0	6
Full Renewal	Point Ends	27	40	24	9	27	127
Refurbishment							
Heavy	Point Ends	32	20	29	25	20	126
Medium	Point Ends	34	29	68	21	10	162
Off Track							
Fencing	km	31	67	21	21	11	150
Slab track	Track km	0	0	0	0	0	1

Table 92: Kent track renewal volumes (route criticality 1)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	0	0	0	0	0
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	0	0	0	0	0	0
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	0	0	0	0	0	0
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	0	0	0
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	0	0	0	0	0	0
Medium	Point Ends	0	0	0	0	0	0
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 93: Kent track renewal volumes (route criticality 2)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	9	6	5	5	4	29
Complete (formation)	Track km	2	2	0	0	0	4
Rail Renewal	Track km	13	8	3	4	3	32
Single Rail	Track km	2	1	0	0	0	3
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	4	3	1	1	1	10
Medium (concrete)	Track km	3	5	3	3	3	17
Medium (other)	Track km	0	0	1	1	1	3
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	2	0	0	0	0	2
Full Renewal	Point Ends	22	0	4	0	0	26
Refurbishment							
Heavy	Point Ends	4	0	2	2	0	8
Medium	Point Ends	2	8	14	5	3	32
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 94: Kent track renewal volumes (route criticality 3)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	5	4	7	5	6	27
Complete (formation)	Track km	0	1	0	1	0	3
Rail Renewal	Track km	10	7	9	8	5	39
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	31	33	31	95
Refurbishment							
Heavy Refurbishment	Track km	2	4	1	1	1	9
Medium (concrete)	Track km	6	1	4	4	4	19
Medium (other)	Track km	2	0	1	1	1	5
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	2	0	0	2
Full Renewal	Point Ends	5	40	20	9	27	101
Refurbishment							
Heavy	Point Ends	16	8	20	16	10	70
Medium	Point Ends	21	12	23	6	4	66
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 95: Kent track renewal volumes (route criticality 4)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	3	1	1	1	1	7
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	8	5	6	8	7	34
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	21	12	14	48
Refurbishment							
Heavy Refurbishment	Track km	0	1	1	1	1	4
Medium (concrete)	Track km	5	1	4	4	4	17
Medium (other)	Track km	0	0	1	1	1	3
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	0	0	0
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	12	12	7	7	7	45
Medium	Point Ends	8	8	19	6	3	44
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 96: Kent track renewal volumes (route criticality 5)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	1	0	0	0	0	1
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	0	0	0	1	0	1
Single Rail	Track km	0	0	0	1	0	1
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	4	3	8	1	1	17
Medium (concrete)	Track km	0	1	1	1	1	4
Medium (other)	Track km	0	0	1	1	1	4
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	2	0	0	0	0	2
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	0	0	0	0	3	3
Medium	Point Ends	3	1	12	4	0	20
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 97: Kent civils renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Structures							
Underbridges	m^2	22,252	7,457	12,005	9,112	4,120	54,945
Overbridges (incl BG3)	m^2	194	625	797	692	349	2,658
Tunnels	m^2	10,300	35,100	5,500	11,500	3,000	65,400
Culverts	m^2	59	59	59	59	59	295
Footbridges	m^2	203	237	338	1,930	207	2,916
Coastal & Estuary Defences	m	700	700	700	700	700	3,500
Retaining Walls	m^2	517	517	517	517	517	2,585
Earthworks	5-chain	156	121	133	168	139	715
Track Drainage							
Renewal	lm	5,089	5,089	5,089	5,089	5,089	25,444
Refurbishment	lm	197	197	197	197	197	983
New Build	lm	682	682	682	682	682	3,411
EW Drainage							
Renewal	lm	380	360	154	542	133	1,568
Refurbishment	lm	78	35	21	7	30	171
Maintenance	lm	651	651	651	651	688	3,292
New Build	lm	0	0	0	0	0	0
Franchised Stations							
Footbridges	m^2	910	1,250	705	250	810	3,925
Train Sheds	m^2	0	0	0	0	0	0
Canopies	m^2	360	380	0	2,095	1,778	4,613
Platforms	m^2	2,929	4,184	2,135	3,215	4,950	17,413
Buildings	m^2	385	0	176	3,450	110	4,121
Lifts & Escalators	No.	0	0	0	2	0	2

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Managed Stations							
Footbridges	m^2	0	0	0	0	0	0
Train Sheds	m^2	0	0	0	0	0	0
Canopies	m^2	0	0	5,380	0	0	5,380
Platforms	m^2	0	700	0	0	0	700
Buildings	m^2	0	0	0	75	0	75
Lifts & Escalators	No.	0	0	0	0	0	0
Light Maintenance Depots							
Buildings	m^2	0	0	0	0	0	0
Depot Shed	m^2	0	0	0	0	0	0
Lineside Buildings							
Buildings	m^2	230	230	230	230	230	1,150
MDU							
Buildings	m^2	0	0	0	0	0	0

Table 98: Kent signalling renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Full Conventional resignalling	SEUs	0	281	0	0	0	281
ERTMS resignalling	SEUs	0	0	0	0	0	0
Partial Conventional resignalling	SEUs	0	22	47	68	93	230
Targeted Component renewal	SEUs	49	2	8	16	19	94
Modular resignalling	SEUs	0	0	0	0	0	0
Level Crossings Renewals	No.	2	15	5	0	1	23

Table 99: Kent electrification and plant renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Contact Systems							
OLE Re-wiring	wire runs	0	0	0	0	0	0
Mid-life Refurbishment	wire runs	0	0	0	1	0	1
Structure Renewals	No.	0	0	0	0	0	0
Conductor rail							
Renewals	km	16	7	14	8	2	47
AC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
Booster Transformers	No.	0	0	0	0	0	0
DC distribution							
HV Switchgear Renewal	No.	2	6	3	9	3	23
HV Cables	km	18	18	8	18	18	81
LV Switchgear Renewal	No.	36	44	14	15	0	109
LV Cables	km	10	7	13	10	12	52
Transformer Rectifiers	No.	2	1	5	0	0	8
Fixed plant							
Signalling Power Cable Renewal	km	9	3	4	3	3	22
Principle Supply Point Renewal	No.	0	0	0	0	0	0
Rail Heating							
Points Heating Renewal	Point End	21	0	24	24	6	75

Table 100: Kent telecoms renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Station Information and Surveillance Systems							
Customer Information Systems	No.	0	60	150	15	85	311
Public Address	No.	0	1,562	973	904	849	4,288
CCTV	No.	0	758	442	122	103	1,425
Clocks	No.	0	3	6	3	0	12
Operational Comms							
PABX Concentrator	No. of Lines	0	230	137	185	0	552
Processor Controlled Concentrator	No. of Lines	0	5	0	0	0	5
Driver-Only Operation: CCTV	No.	0	0	0	64	0	64
Driver-Only Operation: Mirrors	No.	0	0	0	11	0	11
Public Emergency Telephone System	No.	0	0	0	0	0	0
Human Machine Interface Large	No.	0	0	0	0	0	0
Human Machine Interface Small	No.	0	0	0	0	0	0
Radio System	No.	0	0	0	0	0	0
Power Systems	No.	0	2	0	0	0	2

Table 101: Kent maintenance volumes

		Code	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Track	Plain Line Tamping (km)	MNT004	460	459	455	454	452	2,280
	Plain Line Stoneblowing (km)	MNT005	238	245	251	251	243	1,228
	Manual Wet Bed removal (bay)	MNT006	856	833	812	780	757	4,038
	Mechanical Wet bed removal (bay)	MNT012	640	640	630	620	610	3,140
	S&C Tamping (point end)	MNT007	218	216	213	211	211	1,069
	Rail Changing - Al-Thermic Weld - Standard Gap (weld)	MNT044	1,610	1,590	1,540	1,510	1,500	7,750
	Rail Changing - CWR - Renew (Defects) (rail yard)	MNT045	7,515	7,150	6,830	6,550	6,300	34,345
	Mechanical Reprofiling of Ballast (Mile)	MNT017	89	103	119	134	149	594
	Manual Reprofiling of Ballast (rail yard)	MNT020	284,000	277,000	275,000	268,000	267,000	1,371,000
	Replace Pads & Insulators (sleeper)	MNT029	10,400	9,900	9,900	9,900	9,900	50,000
	Manual Correction of PL Track Geometry (CWR) (track yard)	MNT036	94,584	92,334	87,184	83,334	80,484	437,920
	Manual Correction of PL Track Geometry (Jointed) (track yard)	MNT037	5,600	5,350	4,500	4,450	4,100	24,000
	S&C Renew Crossing (crossing)	MNT120	70	65	61	60	59	315
	S&C Maintenance (point end)	MNT122	24,344	24,344	24,344	24,344	24,344	121,720
	S&C Renew half set of Switches (H/S Switch)	MNT123	67	65	63	60	59	314
	S&C Stoneblowing (point end)	MNT124	46	50	50	54	56	256
	Rail grinding plain line (Mile)	MNT309	518	383	482	335	468	2,186
	Rail grinding S&C (point end)	MNT310	180	180	240	240	240	1,080
Off track	Fences & Boundary Walls (yard)	MNT072	24,449	24,449	24,269	24,269	24,269	121,705
	Drainage (Yard)	MNT073	27,046	27,046	27,046	27,046	27,046	135,230
	LX Management - Off Track (Each)	MNT075	730	730	730	730	730	3,650
	Vegetation Removal of Boundary Trees (No)	MNT081	1,636	1,688	1,788	1,888	1,988	8,988
	Vegetation Management by Train (Mile)	MNT082	2,208	2,208	2,208	2,208	2,208	11,040
	Vegetation Management Manual (Sq yard)	MNT170	209,703	209,703	209,703	209,703	209,703	1,048,515
	Vegetation Management Mechanised (Mile)	MNT171	107	172	212	240	244	975
Electrical Power	Maintain Conductor Rail (Various)	MNT206	15,281	15,281	15,281	15,281	15,281	76,405
	Maintain DC Traction Power Supplies (Each)	MNT209	4,575	4,631	4,663	4,663	4,663	23,195
	Maintain OHL Components (Various)	MNT211	123	123	123	123	123	615
	Maintain Points Heating (Each)	MNT212	7,753	7,753	7,753	7,753	7,753	38,765
	Maintain Signalling Power supplies (No.)	MNT213	4,186	4,186	4,186	4,186	4,186	20,930
Civils	Visual Examinations (Civils) (No.)	MNT226a	4,808	4,890	5,006	5,008	4,921	24,633
	Tunnel Examinations (No. minor elements)	MNT220	11,250	11,250	11,250	11,250	11,250	56,250
	Detailed Examinations (No.)	MNT221	650	568	452	450	537	2,657
	Underwater Examination (No.)	MNT222	34	37	145	34	37	287
	Ancillary Structure examination (No. detailed)	MNT223	13	31	280	193	50	567
	Hidden critical element examinations (No.)	MNT224	142	100	67	134	130	573
	Load carrying assessment (No spans)	MNT225	1,213	1,213	1,217	1,215	1,213	6,071
Buildings	Visual examinations Buildings (each)	MNT226	162	168	172	151	165	818
	5 yearly examinations (each)	MNT227	57	43	37	31	40	208

London North Eastern asset management indicators

Table 102: London North Eastern asset condition reliability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Rail Breaks and Immediate Action defects per 100km	4.38	4.45	4.40	4.25	4.15	4.00
	Track geometry (Poor Track Geometry)	2.52%	2.30%	2.30%	2.30%	2.20%	2.20%
	Track failures (service affecting)	1,497	1,205	1,193	1,181	1,172	1,166
Signalling	Signalling failures (service affecting)	3,413	3,001	2,972	2,954	2,923	2,908
Telecoms	Telecoms failures (service affecting)	260	356	310	274	239	230
Electrical Power	AC traction power failures (service affecting)	161	193	192	190	194	207
	DC traction power failures (service affecting)	16	8	8	8	8	8
	Non traction operational power supply failures (service affecting)	98	96	95	94	93	93
Buildings	Buildings - Re-active Faults (2&24) (attention within 2hrs, fix within 24hrs) & (attention within 24hrs, fix within 7 days)	1,000	947	947	947	947	947
Structures	Number of open work items with a risk score ≥12	564	551	538	460	265	187
Earthworks	Earthwork failures	8	8	8	8	7	7
Points	Points failures (service affecting)	721	772	764	756	750	746

Table 103: London North Eastern asset condition sustainability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Track - Used Life - Rail	52.5%	52.5%	51.1%	50.6%	50.5%	51.1%
	Track - Used Life - Switch & Crossings	56.1%	54.7%	53.1%	50.9%	49.6%	49.0%
	Track - Used Life - Sleepers	62.1%	62.2%	60.5%	60.6%	60.9%	61.9%
	Track - Used Life - Ballast	49.7%	49.1%	49.1%	48.7%	48.8%	49.7%
Signalling	Signalling Condition Index (SICA Remaining Life)	12.09	11.26	12.03	12.18	11.75	12.64
Telecoms	Telecoms - Remaining Life	66.1%	63.6%	57.5%	52.9%	51.4%	47.3%
Electrical Power	EP - Remaining Life - Conductor Rail	N/A	N/A	N/A	N/A	N/A	N/A
	EP - Remaining Life - Overhead Line Equipment (OLE)	60.3%	59.1%	58.0%	55.7%	55.1%	54.0%
	EP - Remaining Life - Signalling Power Cable						
Buildings	Stations - %age Remaining Life	43.1%	43.1%	40.5%	39.2%	37.9%	36.6%
	Light Maintenance Depot (LMD) - %age Remaining Life	54.0%	53.3%	52.6%	51.9%	51.2%	50.5%
Structures	Average condition of major deck elements	63.9	63.9	64.1	64.2	64.1	64.2
	Tunnel Condition Monitoring Index (TCMI)	82.6	83.1	83.7	84.2	84.7	85.3
Earthworks	Earthworks - Condition Banding	1.70	1.71	1.71	1.71	1.72	1.72
Drainage	Track Drainage - Condition Banding	1.35	1.40	1.50	1.50	1.50	1.45
	Earthwork/Structure Drainage - Condition Banding	1.53	1.50	1.50	1.50	1.50	1.54

Table 104: London North Eastern track renewal volumes total

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	24	24	40	27	19	134
Complete (formation)	Track km	3	1	3	2	1	10
Rail Renewal	Track km	67	65	71	60	56	319
Single Rail	Track km	2	0	21	25	5	53
High Output							
Automated Ballast Cleaning (ABC)	Track km	39	35	45	53	25	197
Rail Sleeper Relay	Track km	0	133	27	0	0	160
Heavy Refurbishment	Track km	59	48	42	41	69	259
Refurbishment							
Heavy Refurbishment	Track km	15	18	13	15	16	77
Medium (concrete)	Track km	34	30	7	17	0	88
Medium (other)	Track km	0	39	78	39	39	195
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	22	22	21	20	24	109
Full Renewal	Point Ends	56	49	55	43	52	255
Refurbishment							
Heavy	Point Ends	94	90	120	89	28	421
Medium	Point Ends	56	62	71	78	63	330
Off Track							
Fencing	km	149	230	208	190	279	1,056
Slab track	Track km	0	0	0	0	0	0

Table 105: London North Eastern track renewal volumes (route criticality 1)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	8	7	7	0	2	24
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	21	25	27	25	12	109
Single Rail	Track km	0	0	11	11	1	22
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	13	25	4	25	67
Rail Sleeper Relay	Track km	0	112	21	0	0	134
Heavy Refurbishment	Track km	0	1	0	4	0	5
Refurbishment							
Heavy Refurbishment	Track km	13	2	0	1	0	16
Medium (concrete)	Track km	0	4	7	0	0	11
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	4	4	4	4	6	22
Full Renewal	Point Ends	35	28	18	30	15	126
Refurbishment							
Heavy	Point Ends	17	7	16	16	0	56
Medium	Point Ends	8	10	20	0	0	38
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 106: London North Eastern track renewal volumes (route criticality 2)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	3	7	5	0	15
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	25	27	25	23	6	107
Single Rail	Track km	1	0	11	11	1	23
High Output							
Automated Ballast Cleaning (ABC)	Track km	39	21	20	49	0	130
Rail Sleeper Relay	Track km	0	3	1	0	0	4
Heavy Refurbishment	Track km	1	0	0	0	20	21
Refurbishment							
Heavy Refurbishment	Track km	0	0	13	0	0	13
Medium (concrete)	Track km	17	0	0	0	0	17
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	4	4	4	4	6	22
Full Renewal	Point Ends	9	9	28	5	21	72
Refurbishment							
Heavy	Point Ends	19	11	12	13	3	58
Medium	Point Ends	9	17	10	10	19	65
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 107: London North Eastern track renewal volumes (route criticality 3)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	16	13	10	9	2	51
Complete (formation)	Track km	2	1	2	2	0	7
Rail Renewal	Track km	2	6	15	12	26	61
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	10	2	0	0	12
Heavy Refurbishment	Track km	33	34	10	11	0	89
Refurbishment							
Heavy Refurbishment	Track km	2	15	0	0	2	20
Medium (concrete)	Track km	17	0	0	0	0	17
Medium (other)	Track km	0	39	39	0	0	78
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	4	4	4	4	4	20
Full Renewal	Point Ends	10	9	4	8	13	44
Refurbishment							
Heavy	Point Ends	33	23	31	39	4	130
Medium	Point Ends	10	6	18	20	15	69
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 108: London North Eastern track renewal volumes (route criticality 4)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	0	5	0	2	8
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	12	5	2	0	6	25
Single Rail	Track km	1	0	0	4	0	4
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	7	1	0	0	9
Heavy Refurbishment	Track km	24	13	18	25	49	128
Refurbishment							
Heavy Refurbishment	Track km	1	0	0	14	1	16
Medium (concrete)	Track km	0	26	0	0	0	27
Medium (other)	Track km	0	0	39	0	0	39
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	4	4	5	4	4	21
Full Renewal	Point Ends	0	3	5	0	0	8
Refurbishment							
Heavy	Point Ends	25	43	47	1	1	117
Medium	Point Ends	24	24	7	24	15	94
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 109: London North Eastern track renewal volumes (route criticality 5)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	0	11	13	12	37
Complete (formation)	Track km	0	0	2	0	1	3
Rail Renewal	Track km	7	1	2	0	6	16
Single Rail	Track km	0	0	0	0	4	4
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	2	0	0	2
Heavy Refurbishment	Track km	1	0	14	1	0	16
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	12	13
Medium (concrete)	Track km	0	0	0	17	0	17
Medium (other)	Track km	0	0	0	39	39	78
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	6	6	4	4	4	24
Full Renewal	Point Ends	2	0	0	0	3	5
Refurbishment							
Heavy	Point Ends	0	6	14	20	20	60
Medium	Point Ends	5	5	16	24	14	64
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 110: London North Eastern civils renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Structures							
Underbridges	m^2	22,671	33,641	37,626	32,423	19,470	145,830
Overbridges (incl BG3)	m^2	5,965	2,859	4,826	1,532	2,219	17,401
Tunnels	m^2	20	4,270	2,315	3,300	8,520	18,425
Culverts	m^2	306	950	278	80	75	1,689
Footbridges	m^2	176	273	658	210	44	1,361
Coastal & Estuary Defences	m	0	0	0	0	0	0
Retaining Walls	m^2	0	2,521	2,520	0	0	5,041
Earthworks	5-chain	511	607	515	740	637	3,010
Track Drainage							
Renewal	lm	0	0	0	0	0	0
Refurbishment	lm	0	0	0	0	0	0
New Build	lm	0	0	0	0	0	0
EW Drainage							
Renewal	lm	1,656	1,170	1,154	871	746	5,596
Refurbishment	lm	110	170	122	926	946	2,274
Maintenance	lm	7,879	9,676	8,313	10,060	7,988	43,914
New Build	lm	0	0	0	0	0	0
Franchised Stations							
Footbridges	m^2	1,172	302	698	60	0	2,232
Train Sheds	m^2	18,450	0	0	0	0	18,450
Canopies	m^2	5,580	253	250	60	8,815	14,958
Platforms	m^2	7,832	2,343	16,620	1,113	2,979	30,887
Buildings	m^2	1,420	1,249	1,243	872	922	5,706
Lifts & Escalators	No.	1	0	0	0	0	1

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Managed Stations							
Footbridges	m^2	0	0	0	0	0	0
Train Sheds	m^2	1,600	0	0	0	10,000	11,600
Canopies	m^2	0	0	0	0	0	0
Platforms	m^2	0	0	0	2,960	1,605	4,565
Buildings	m^2	0	450	663	0	0	1,113
Lifts & Escalators	No.	0	0	0	0	0	0
Light Maintenance Depots							
Buildings	m^2	0	418	0	0	0	418
Depot Shed	m^2	0	0	0	0	0	0
Lineside Buildings							
Buildings	m^2	255	343	108	0	0	706
MDU							
Buildings	m^2	22,000	8,201	8,188	7,654	0	46,043

Table 111: London North Eastern signalling renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Full Conventional resignalling	SEUs	0	425	135	124	49	733
ERTMS resignalling	SEUs	0	0	0	0	690	690
Partial Conventional resignalling	SEUs	1	27	181	19	99	326
Targeted Component renewal	SEUs	7	25	17	31	47	127
Modular resignalling	SEUs	0	79	28	0	0	107
Level Crossings Renewals	No.	10	43	26	12	12	103

Table 112: London North Eastern electrification and plant renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Contact Systems							
OLE Re-wiring	wire runs	26	26	26	14	13	105
Mid-life Refurbishment	wire runs	0	0	0	0	0	0
Structure Renewals	No.	2	2	2	2	2	10
Conductor rail							
Renewals	km	0	0	0	0	0	0
AC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
Booster Transformers	No.	0	0	0	0	0	0
DC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
HV Cables	km	0	0	0	0	0	0
LV Switchgear Renewal	No.	0	0	0	0	0	0
LV Cables	km	0	0	0	0	0	0
Transformer Rectifiers	No.	0	0	0	0	0	0
Fixed plant							
Signalling Power Cable Renewal	km	31	31	31	31	31	155
Principle Supply Point Renewal	No.	0	1	1	1	0	3
Rail Heating							
Points Heating Renewal	Point End	65	38	33	25	44	205

Table 113: London North Eastern telecoms renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Station Information and Surveillance Systems							
Customer Information Systems	No.	174	160	0	8	0	342
Public Address	No.	593	0	0	0	0	593
CCTV	No.	0	0	0	0	0	0
Clocks	No.	57	2	19	1	0	79
Operational Comms							
PABX Concentrator	No. of Lines	0	0	0	0	0	0
Processor Controlled Concentrator	No. of Lines	79	0	103	0	0	182
Driver-Only Operation: CCTV	No.	0	0	31	0	0	31
Driver-Only Operation: Mirrors	No.	0	0	3	0	0	3
Public Emergency Telephone System	No.	1	0	11	10	4	26
Human Machine Interface Large	No.	0	0	0	0	0	0
Human Machine Interface Small	No.	1	0	0	0	0	1
Radio System	No.	3	0	0	0	0	3
Power Systems	No.	0	0	1	3	8	12

Table 114: London North Eastern maintenance volumes

		Code	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Track	Plain Line Tamping (km)	MNT004	1,280	1,242	1,122	1,102	1,111	5,857
	Plain Line Stoneblowing (km)	MNT005	909	909	909	909	909	4,545
	Manual Wet Bed removal (bay)	MNT006	4,500	4,500	4,000	3,500	3,000	19,500
	Mechanical Wet bed removal (bay)	MNT012	2,500	2,500	2,500	2,000	1,500	11,000
	S&C Tamping (point end)	MNT007	870	870	870	870	870	4,350
	Rail Changing - Al-Thermic Weld - Standard Gap (weld)	MNT044	3,500	3,500	3,500	3,000	2,800	16,300
	Rail Changing - CWR - Renew (Defects) (rail yard)	MNT045	23,000	20,000	17,000	17,000	17,000	94,000
	Mechanical Reprofiling of Ballast (Mile)	MNT017	444	444	444	444	444	2,220
	Manual Reprofiling of Ballast (rail yard)	MNT020	300,000	275,000	250,000	250,000	200,000	1,275,000
	Replace Pads & Insulators (sleeper)	MNT029	47,359	46,457	45,958	45,782	45,835	231,391
	Manual Correction of PL Track Geometry (CWR) (track yard)	MNT036	250,000	250,000	225,000	200,000	200,000	1,125,000
	Manual Correction of PL Track Geometry (Jointed) (track yard)	MNT037	25,000	25,000	25,000	25,000	25,000	125,000
	S&C Renew Crossing (crossing)	MNT120	123	123	115	115	110	586
	S&C Maintenance (point end)	MNT122	75,000	75,000	75,000	75,000	75,000	375,000
	S&C Renew half set of Switches (H/S Switch)	MNT123	120	120	120	120	120	600
	S&C Stoneblowing (point end)	MNT124	50	110	220	220	220	820
	Rail grinding plain line (Mile)	MNT309	2,567	2,567	2,567	2,567	2,567	12,835
	Rail grinding S&C (point end)	MNT310	256	300	300	300	300	1,456
Off track	Fences & Boundary Walls (yard)	MNT072	250,000	250,000	250,000	250,000	250,000	1,250,000
	Drainage (Yard)	MNT073	140,000	140,000	140,000	140,000	140,000	700,000
	LX Management - Off Track (Each)	MNT075	4,100	4,100	4,100	4,100	4,100	20,500
	Vegetation Removal of Boundary Trees (No)	MNT081	1,500	1,500	1,500	1,500	1,500	7,500
	Vegetation Management by Train (Mile)	MNT082	50	50	50	50	50	250
	Vegetation Management Manual (Sq yard)	MNT170	800,000	800,000	800,000	800,000	800,000	4,000,000
	Vegetation Management Mechanised (Mile)	MNT171	369	369	369	369	369	1,845
Electrical Power	Maintain Conductor Rail (Various)	MNT206	50	50	50	50	50	250
	Maintain DC Traction Power Supplies (Each)	MNT209	0	0	0	0	0	0
	Maintain OHL Components (Various)	MNT211	45,300	45,300	45,300	45,300	45,300	226,500
	Maintain Points Heating (Each)	MNT212	29,500	29,500	29,500	29,500	29,500	147,500
	Maintain Signalling Power supplies (No.)	MNT213	6,500	6,500	6,500	6,500	6,500	32,500
Civils	Visual Examinations (Civils) (No.)	MNT226a	8,600	8,548	8,847	8,952	8,674	43,621
	Tunnel Examinations (No minor elements)	MNT220	27,895	27,895	27,895	27,895	27,895	139,475
	Detailed Examinations (No.)	MNT221	1,335	1,545	1,238	1,133	1,411	6,662
	Underwater Examination (No.)	MNT222	174	130	117	174	130	725
	Ancillary Structure examination (No. detailed)	MNT223	61	172	35	34	66	368
	Hidden critical element examinations (No.)	MNT224	153	150	150	150	150	753
	Load carrying assessment (No. spans)	MNT225	1,727	1,366	1,090	1,761	1,444	7,388
Buildings	Visual examinations Buildings (each)	MNT226	3,537	3,534	3,515	3,538	3,537	17,661
	5 yearly examinations (each)	MNT227	93	93	95	91	92	464

London North Western asset management indicators

Table 115: London North Western asset condition reliability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Rail Breaks and Immediate Action defects per 100km	2.89	2.83	2.78	2.74	2.70	2.62
	Track geometry (Poor Track Geometry)	1.75%	1.76%	1.77%	1.78%	1.79%	1.80%
	Track failures (service affecting)	765	779	774	751	729	695
Signalling	Signalling failures (service affecting)	3,880	4,009	3,940	3,837	3,774	3,686
Telecoms	Telecoms failures (service affecting)	199	255	219	201	195	190
Electrical Power	AC traction power failures (service affecting)	250	249	258	269	268	268
	DC traction power failures (service affecting)	62	58	56	52	50	48
	Non traction operational power supply failures (service affecting)	104	154	147	143	140	138
Buildings	Buildings - Re-active Faults (2&24) (attention within 2hrs, fix within 24hrs) & (attention within 24hrs, fix within 7 days)	1,775	1,680	1,680	1,680	1,680	1,680
Structures	Number of open work items with a risk score ≥12	1,723	500	475	450	425	400
Earthworks	Earthwork failures	18	18	17	16	16	15
Points	Points failures (service affecting)	1,043	1,091	1,071	1,056	1,043	1,029

Table 116: London North Western asset condition sustainability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Track - Used Life - Rail	41.8%	42.2%	42.5%	43.2%	43.8%	44.7%
	Track - Used Life - Switch & Crossings	46.5%	47.5%	48.2%	48.1%	47.4%	47.4%
	Track - Used Life - Sleepers	51.9%	52.2%	52.5%	53.7%	54.7%	56.1%
	Track - Used Life - Ballast	38.9%	39.2%	39.7%	40.8%	41.9%	43.3%
Signalling	Signalling Condition Index (SICA Remaining Life)	12.76	12.43	12.59	12.50	12.94	12.22
Telecoms	Telecoms - Remaining Life	67.1%	61.9%	57.6%	52.4%	48.8%	60.5%
Electrical Power	EP - Remaining Life - Conductor Rail	62.6%	60.7%	59.8%	58.5%	57.6%	56.8%
	EP - Remaining Life - Overhead Line Equipment (OLE)	60.7%	59.6%	58.5%	56.3%	55.7%	55.3%
	EP - Remaining Life - Signalling Power Cable						
Buildings	Stations - %age Remaining Life	39.9%	39.9%	38.7%	38.2%	37.6%	37.0%
	Light Maintenance Depot (LMD) - %age Remaining Life	59.9%	59.0%	58.2%	57.4%	56.5%	55.7%
Structures	Average condition of major deck elements	64.6	64.6	64.6	64.6	64.7	64.7
	Tunnel Condition Monitoring Index (TCMI)	82.2	82.8	83.3	83.8	84.3	84.9
Earthworks	Earthworks - Condition Banding	1.85	1.85	1.84	1.83	1.82	1.81
Drainage	Track Drainage - Condition Banding	1.30	1.30	1.30	1.30	1.30	1.30
	Earthwork/Structure Drainage - Condition Banding	1.70	1.70	1.70	1.70	1.70	1.70

Table 117: London North Western track renewal volumes total

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	1	1
Complete Renewal	Track km	25	25	23	32	29	135
Complete (formation)	Track km	16	14	16	11	6	63
Rail Renewal	Track km	53	35	61	73	78	299
Single Rail	Track km	2	18	0	0	0	20
High Output							
Automated Ballast Cleaning (ABC)	Track km	47	94	35	15	21	212
Rail Sleeper Relay	Track km	69	27	0	0	0	96
Heavy Refurbishment	Track km	14	20	10	7	12	63
Refurbishment							
Heavy Refurbishment	Track km	15	25	11	15	11	77
Medium (concrete)	Track km	8	45	21	20	53	147
Medium (other)	Track km	17	0	24	32	0	74
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	10	4	14	9	10	47
Full Renewal	Point Ends	47	42	61	47	39	236
Refurbishment							
Heavy	Point Ends	4	33	95	140	141	413
Medium	Point Ends	82	82	83	83	83	413
Off Track							
Fencing	km	91	91	91	91	91	455
Slab track	Track km	0	0	0	0	0	0

Table 118: London North Western track renewal volumes (route criticality 1)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	18	8	10	11	12	59
Complete (formation)	Track km	11	9	11	7	3	41
Rail Renewal	Track km	30	3	13	49	57	151
Single Rail	Track km	1	18	0	0	0	19
High Output							
Automated Ballast Cleaning (ABC)	Track km	46	94	35	15	21	211
Rail Sleeper Relay	Track km	69	27	0	0	0	96
Heavy Refurbishment	Track km	14	17	10	0	2	44
Refurbishment							
Heavy Refurbishment	Track km	8	19	4	12	8	51
Medium (concrete)	Track km	0	0	0	0	4	4
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	8	4	6	9	2	29
Full Renewal	Point Ends	32	15	26	38	10	121
Refurbishment							
Heavy	Point Ends	2	0	10	13	18	43
Medium	Point Ends	0	0	0	0	0	0
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 119: London North Western track renewal volumes (route criticality 2)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	5	9	8	6	8	35
Complete (formation)	Track km	4	4	3	0	0	11
Rail Renewal	Track km	5	0	0	10	9	24
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	2	0	0	0	0	2
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	1	0	2	1	0	4
Medium (concrete)	Track km	0	0	0	0	0	0
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	6	0	8	14
Full Renewal	Point Ends	4	12	28	0	25	69
Refurbishment							
Heavy	Point Ends	0	0	6	0	0	6
Medium	Point Ends	0	0	0	0	0	0
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 120: London North Western track renewal volumes (route criticality 3)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	1	1
Complete Renewal	Track km	1	2	5	11	6	25
Complete (formation)	Track km	1	1	0	0	0	2
Rail Renewal	Track km	1	18	39	5	8	71
Single Rail	Track km	0	0	0	0	0	1
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	2	0	7	4	13
Refurbishment							
Heavy Refurbishment	Track km	0	1	0	0	0	1
Medium (concrete)	Track km	8	0	0	20	0	28
Medium (other)	Track km	17	0	0	16	0	33
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	1	0	1	0	0	2
Full Renewal	Point Ends	2	13	6	9	4	34
Refurbishment							
Heavy	Point Ends	2	13	49	47	123	234
Medium	Point Ends	82	39	39	39	83	282
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 121: London North Western track renewal volumes (route criticality 4)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	1	1	0	1	3	7
Complete (formation)	Track km	0	1	2	4	3	9
Rail Renewal	Track km	8	8	7	0	0	23
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	6	6
Refurbishment							
Heavy Refurbishment	Track km	6	6	4	2	3	21
Medium (concrete)	Track km	0	45	0	0	49	94
Medium (other)	Track km	0	0	12	16	0	28
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	1	0	0	0	0	1
Full Renewal	Point Ends	5	2	0	0	0	7
Refurbishment							
Heavy	Point Ends	0	20	24	0	0	44
Medium	Point Ends	0	43	44	0	0	87
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 122: London North Western track renewal volumes (route criticality 5)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	5	0	3	0	9
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	9	7	2	9	4	31
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	0	0	21	0	0	21
Medium (other)	Track km	0	0	12	0	0	12
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	0	0	0
Full Renewal	Point Ends	4	0	0	0	0	4
Refurbishment							
Heavy	Point Ends	0	0	6	80	0	86
Medium	Point Ends	0	0	0	44	0	44
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 123: London North Western civils renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Structures							
Underbridges	m^2	22,540	32,692	38,912	38,912	38,912	171,968
Overbridges (incl BG3)	m^2	10,882	5,315	3,165	3,165	3,165	25,692
Tunnels	m^2	11,063	18,939	6,587	6,587	6,587	49,763
Culverts	m^2	158	666	365	365	365	1,919
Footbridges	m^2	308	303	559	559	559	2,288
Coastal & Estuary Defences	m	990	1,212	860	860	860	4,782
Retaining Walls	m^2	1,955	743	2,241	2,241	2,241	9,421
Earthworks	5-chain	625	496	628	766	722	3,237
Track Drainage							
Renewal	lm	0	0	0	0	0	0
Refurbishment	lm	0	0	0	0	0	0
New Build	lm	0	0	0	0	0	0
EW Drainage							
Renewal	lm	0	0	0	0	0	-
Refurbishment	lm	0	0	0	0	0	-
Maintenance	lm	0	0	0	0	0	-
New Build	lm	0	0	0	0	0	0
Franchised Stations							
Footbridges	m^2	449	376	691	1,112	88	2,716
Train Sheds	m^2	1,219	600	0	0	0	1,819
Canopies	m^2	1,477	706	3,027	125	0	5,335
Platforms	m^2	25,402	16,000	13,855	1,700	1,241	58,198
Buildings	m^2	0	60	50	0	677	787
Lifts & Escalators	No.	0	0	0	0	0	-

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Managed Stations							
Footbridges	m^2	0	0	0	0	0	0
Train Sheds	m^2	0	0	1,500	0	0	1,500
Canopies	m^2	0	0	0	0	0	0
Platforms	m^2	0	0	0	0	0	0
Buildings	m^2	0	0	0	0	0	0
Lifts & Escalators	No.	0	0	0	0	0	0
Light Maintenance Depots							
Buildings	m^2	0	0	0	0	0	-
Depot Shed	m^2	0	0	0	0	0	0
Lineside Buildings							
Buildings	m^2	0	0	0	0	0	-
MDU							
Buildings	m^2	0	0	0	0	0	-

Table 124: London North Western signalling renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Full Conventional resignalling	SEUs	372	359	256	547	0	1,533
ERTMS resignalling	SEUs	0	0	0	0	0	0
Partial Conventional resignalling	SEUs	17	61	113	51	2	243
Targeted Component renewal	SEUs	7	16	7	7	4	42
Modular resignalling	SEUs	39	0	11	11	144	205
Level Crossings Renewals	No.	4	10	3	2	8	27

Table 125: London North Western electrification and plant renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Contact Systems							
OLE Re-wiring	wire runs	0	0	0	0	0	0
Mid-life Refurbishment	wire runs	0	11	11	11	0	33
Structure Renewals	No.	4	3	80	3	3	93
Conductor rail							
Renewals	km	0	6	3	1	0	10
AC distribution							
HV Switchgear Renewal	No.	16	8	4	0	0	28
Booster Transformers	No.	17	16	2	3	0	38
DC distribution							
HV Switchgear Renewal	No.	0	1	0	0	0	1
HV Cables	km	2	2	2	7	2	17
LV Switchgear Renewal	No.	0	0	0	0	0	0
LV Cables	km	1	1	1	1	1	4
Transformer Rectifiers	No.	0	0	0	0	0	0
Fixed plant							
Signalling Power Cable Renewal	km	78	93	52	4	4	231
Principle Supply Point Renewal	No.	4	2	1	0	0	7
Rail Heating							
Points Heating Renewal	Point End	62	25	8	8	8	111

Table 126: London North Western telecom renewals volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Station Information and Surveillance Systems							
Customer Information Systems	No.	0	30	188	103	61	382
Public Address	No.	0	747	1,026	34	51	1,858
CCTV	No.	0	402	249	99	0	749
Clocks	No.	0	9	40	21	10	80
Operational Comms							
PABX Concentrator	No. of Lines	0	0	0	0	0	0
Processor Controlled Concentrator	No. of Lines	0	201	0	0	0	201
Driver-Only Operation: CCTV	No.	0	0	0	4	0	4
Driver-Only Operation: Mirrors	No.	0	83	0	0	0	83
Public Emergency Telephone System	No.	0	0	0	0	0	0
Human Machine Interface Large	No.	0	0	10	0	0	10
Human Machine Interface Small	No.	0	0	0	0	0	0
Radio System	No.	0	0	0	0	0	0
Power Systems	No.	0	0	76	0	0	76

Table 127: London North Western maintenance volumes

		Code	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Track	Plain Line Tamping (km)	MNT004	1,625	1,629	1,633	1,638	1,645	8,171
	Plain Line Stoneblowing (km)	MNT005	771	773	777	778	780	3,879
	Manual Wet Bed removal (bay)	MNT006	5,023	5,029	5,055	5,066	5,106	25,279
	Mechanical Wet bed removal (bay)	MNT012	1,895	1,907	1,925	1,946	1,967	9,640
	S&C Tamping (point end)	MNT007	1,131	1,075	1,110	1,076	1,089	5,482
	Rail Changing - Al-Thermic Weld - Standard Gap (weld)	MNT044	2,042	2,042	2,042	2,042	2,042	10,212
	Rail Changing - CWR - Renew (Defects) (rail yard)	MNT045	13,553	13,553	13,553	13,553	13,553	67,765
	Mechanical Reprofiling of Ballast (Mile)	MNT017	890	891	895	895	899	4,470
	Manual Reprofiling of Ballast (rail yard)	MNT020	371,354	364,328	356,478	348,001	339,637	1,779,798
	Replace Pads & Insulators (sleeper)	MNT029	98,086	91,444	86,213	81,700	78,691	436,133
	Manual Correction of PL Track Geometry (CWR) (track yard)	MNT036	317,068	309,825	303,543	298,282	297,446	1,526,164
	Manual Correction of PL Track Geometry (Jointed) (track yard)	MNT037	0	0	0	0	0	0
	S&C Renew Crossing (crossing)	MNT120	178	177	179	181	183	897
	S&C Maintenance (point end)	MNT122	135,341	134,826	135,575	134,004	133,527	673,273
	S&C Renew half set of Switches (H/S Switch)	MNT123	225	226	227	228	229	1,136
	S&C Stoneblowing (point end)	MNT124	63	93	93	63	63	374
	Rail grinding plain line (Mile)	MNT309	2,374	2,374	2,374	2,374	2,374	11,870
	Rail grinding S&C (point end)	MNT310	257	271	279	295	302	1,404
Off track	Fences & Boundary Walls (yard)	MNT072	202,038	201,990	202,051	201,986	245,256	1,053,321
	Drainage (Yard)	MNT073	182,138	182,281	182,423	182,565	182,707	912,114
	LX Management - Off Track (Each)	MNT075	2,348	2,348	2,348	2,348	2,348	11,742
	Vegetation Removal of Boundary Trees (No)	MNT081	7,398	7,654	7,910	8,165	8,421	39,548
	Vegetation Management by Train (Mile)	MNT082	5	5	6	6	6	28
	Vegetation Management Manual (Sq yard)	MNT170	631,656	1,081,964	1,532,271	1,982,579	2,432,887	7,661,357
	Vegetation Management Mechanised (Mile)	MNT171	158	178	199	219	240	994
Electrical Power	Maintain Conductor Rail (Various)	MNT206	2,048	2,048	2,048	2,048	2,048	10,240
	Maintain DC Traction Power Supplies (Each)	MNT209	17,539	17,539	17,539	17,539	17,539	87,695
	Maintain OHL Components (Various)	MNT211	65,445	67,677	69,843	69,813	69,783	342,561
	Maintain Points Heating (Each)	MNT212	23,453	23,453	23,453	23,453	23,453	117,265
	Maintain Signalling Power supplies (No.)	MNT213	10,072	10,072	10,072	10,072	10,072	50,360
Civils	Visual Examinations (Civils) (No.)	MNT226a	13,042	12,480	12,697	12,389	12,318	62,926
	Tunnel Examinations (No. minor elements)	MNT220	31,111	31,111	31,111	31,111	31,111	155,556
	Detailed Examinations (No.)	MNT221	1,797	2,359	2,142	2,450	2,521	11,269
	Underwater Examination (No.)	MNT222	356	350	350	350	350	1,756
	Ancillary Structure examination (No. detailed)	MNT223	139	463	287	287	287	1,463
	Hidden critical element examinations (No.)	MNT224	304	400	400	400	400	1,904
	Load carrying assessment (No. spans)	MNT225	3,452	2,895	3,185	2,698	2,648	14,878
Buildings	Visual examinations Buildings (each)	MNT226	3,239	3,223	3,218	3,190	3,222	16,092
	5 yearly examinations (each)	MNT227	155	169	176	204	172	876

Sussex asset management indicators

Table 128: Sussex asset condition reliability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Rail Breaks and Immediate Action defects per 100km	3.77	4.72	4.63	4.45	4.45	4.27
	Track geometry (Poor Track Geometry)	4.40%	4.52%	4.48%	4.44%	4.40%	4.37%
	Track failures (service affecting)	208	250	249	249	248	248
Signalling	Signalling failures (service affecting)	897	890	885	880	875	868
Telecoms	Telecoms failures (service affecting)	121	108	97	88	67	67
Electrical Power	AC traction power failures (service affecting)	N/A	N/A	N/A	N/A	N/A	N/A
	DC traction power failures (service affecting)	60	74	74	74	74	74
	Non traction operational power supply failures (service affecting)	28	25	25	25	25	25
Buildings	Buildings - Re-active Faults (2&24) (attention within 2hrs, fix within 24hrs) & (attention within 24hrs, fix within 7 days)	750	850	700	550	600	650
Structures	Number of open work items with a risk score ≥12	90	85	75	65	60	56
Earthworks	Earthwork failures	6	6	6	6	5	5
Points	Points failures (service affecting)	258	235	235	230	225	225

Table 129: Sussex asset condition sustainability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Track - Used Life - Rail	56.2%	56.2%	56.3%	56.2%	56.1%	55.9%
	Track - Used Life - Switch & Crossings	70.4%	70.5%	70.1%	70.1%	71.1%	70.8%
	Track - Used Life - Sleepers	69.8%	70.2%	70.8%	70.8%	70.8%	70.8%
	Track - Used Life - Ballast	59.5%	59.9%	60.2%	59.5%	58.8%	58.0%
Signalling	Signalling Condition Index (SICA Remaining Life)	13.54	13.15	13.87	13.20	12.78	15.39
Telecoms	Telecoms - Remaining Life	52.4%	52.4%	51.0%	50.3%	50.8%	49.0%
Electrical Power	EP - Remaining Life - Conductor Rail	61.0%	59.7%	59.1%	58.4%	57.7%	56.9%
	EP - Remaining Life - Overhead Line Equipment (OLE)	N/A	N/A	N/A	N/A	N/A	N/A
	EP - Remaining Life - Signalling Power Cable						
Buildings	Stations - %age Remaining Life	39.6%	39.6%	37.8%	36.9%	36.1%	35.2%
	Light Maintenance Depot (LMD) - %age Remaining Life	37.7%	37.0%	36.4%	35.7%	35.1%	34.4%
Structures	Average condition of major deck elements	67.7	68.0	68.0	67.8	67.0	66.9
	Tunnel Condition Monitoring Index (TCMI)	84.5	84.0	83.5	83.0	82.5	82.0
Earthworks	Earthworks - Condition Banding	1.74	1.74	1.74	1.74	1.74	1.74
Drainage	Track Drainage - Condition Banding	2.70	2.80	2.90	3.00	2.90	2.80
	Earthwork/Structure Drainage - Condition Banding	2.10	2.30	2.50	2.70	2.60	2.50

Table 130: Sussex track renewal volumes total

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	10	9	9	9	10	48
Complete (formation)	Track km	2	1	1	2	1	7
Rail Renewal	Track km	15	15	15	15	15	75
Single Rail	Track km	2	2	2	2	2	10
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	6	0	53	45	45	148
Refurbishment							
Heavy Refurbishment	Track km	1	1	1	1	1	5
Medium (concrete)	Track km	2	2	2	2	2	10
Medium (other)	Track km	9	9	9	9	9	45
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	3	3	3	3	3	15
Full Renewal	Point Ends	17	19	17	0	21	74
Refurbishment							
Heavy	Point Ends	15	15	16	15	13	74
Medium	Point Ends	21	21	21	21	20	104
Off Track							
Fencing	km	20	20	20	20	20	101
Slab track	Track km	0	0	0	0	0	0

Table 131: Sussex track renewal volumes (route criticality 1)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	0	0	0	0	0
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	0	0	0	0	0	0
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	0	0	0	0	0	0
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	0	0	0
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	0	0	0	0	0	0
Medium	Point Ends	0	0	0	0	0	0
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 132: Sussex track renewal volumes (route criticality 2)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	7	7	7	6	6	31
Complete (formation)	Track km	1	1	1	1	1	5
Rail Renewal	Track km	7	7	7	7	7	36
Single Rail	Track km	2	2	2	2	2	8
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	2	2	5	5	5	18
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	2	2	2	2	2	10
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	2	0	3	0	0	5
Full Renewal	Point Ends	17	19	17	0	21	74
Refurbishment							
Heavy	Point Ends	11	6	8	8	8	41
Medium	Point Ends	8	10	10	10	10	48
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 133: Sussex track renewal volumes (route criticality 3)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	2	1	0	2	1	6
Complete (formation)	Track km	0	0	0	0	0	1
Rail Renewal	Track km	1	1	1	1	1	4
Single Rail	Track km	0	0	0	0	0	1
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	2	5	5	5	18
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	2
Medium (concrete)	Track km	0	0	0	0	0	0
Medium (other)	Track km	2	2	2	2	2	10
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	0	0	0
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	3	2	3	3	2	13
Medium	Point Ends	5	5	5	5	5	25
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 134: Sussex track renewal volumes (route criticality 4)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	2	1	1	2	1	7
Complete (formation)	Track km	0	0	0	0	0	1
Rail Renewal	Track km	4	4	4	4	4	21
Single Rail	Track km	0	0	0	0	0	1
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	4	4	9	9	9	35
Refurbishment							
Heavy Refurbishment	Track km	1	1	1	1	1	3
Medium (concrete)	Track km	0	0	0	0	0	0
Medium (other)	Track km	6	6	6	6	6	31
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	1	3	0	3	3	10
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	1	3	2	2	2	10
Medium	Point Ends	4	4	4	4	4	20
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 135: Sussex track renewal volumes (route criticality 5)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	1	2	0	2	4
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	3	3	3	3	3	14
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	1	1	1	1	4
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	0	0	0	0	0	0
Medium (other)	Track km	1	1	1	1	1	3
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	0	0	0
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	0	4	3	2	1	10
Medium	Point Ends	4	2	2	2	1	11
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 136: Sussex civils renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Structures							
Underbridges	m^2	528	6,793	6,158	1,177	8,959	23,615
Overbridges (incl BG3)	m^2	2,074	17,775	0	300	510	20,659
Tunnels	m^2	260	0	1,850	3,340	2,500	7,950
Culverts	m^2	0	0	0	0	0	-
Footbridges	m^2	100	392	271	250	107	1,120
Coastal & Estuary Defences	m	0	0	0	0	0	0
Retaining Walls	m^2	0	0	500	0	0	500
Earthworks	5-chain	114	134	129	112	102	591
Track Drainage							
Renewal	lm	0	0	0	0	0	0
Refurbishment	lm	0	0	0	0	0	0
New Build	lm	0	0	0	0	0	0
EW Drainage							
Renewal	lm	63	241	155	105	130	694
Refurbishment	lm	210	206	190	130	90	826
Maintenance	lm	89	49	49	49	49	287
New Build	lm	0	0	0	0	0	0
Franchised Stations							
Footbridges	m^2	510	2,738	1,149	860	160	5,417
Train Sheds	m^2	0	0	0	1,132	0	1,132
Canopies	m^2	2,520	5,620	3,100	885	194	12,319
Platforms	m^2	3,551	18,330	7,335	10,456	0	39,672
Buildings	m^2	0	0	0	0	0	0
Lifts & Escalators	No.	0	0	6	2	0	8

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Managed Stations							
Footbridges	m^2	0	0	0	0	0	0
Train Sheds	m^2	0	0	0	4,368	15,968	20,336
Canopies	m^2	0	1,049	1,049	0	0	2,098
Platforms	m^2	2,500	0	0	5,500	5,500	13,500
Buildings	m^2	730	0	160	706	990	2,586
Lifts & Escalators	No.	0	0	1	0	0	1
Light Maintenance Depots							
Buildings	m^2	0	0	0	0	0	0
Depot Shed	m^2	3,700	3,700	0	0	0	7,400
Lineside Buildings							
Buildings	m^2	2,009	2,009	2,009	2,009	2,009	10,045
MDU							
Buildings	m^2	0	0	0	0	0	0

Table 137: Sussex signalling renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Full Conventional resignalling	SEUs	228	0	0	154	0	382
ERTMS resignalling	SEUs	0	0	0	0	0	0
Partial Conventional resignalling	SEUs	0	74	4	27	31	136
Targeted Component renewal	SEUs	1	19	8	6	36	70
Modular resignalling	SEUs	0	0	0	0	0	0
Level Crossings Renewals	No.	1	4	13	8	3	29

Table 138: Sussex electrification and plant renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Contact Systems							
OLE Re-wiring	wire runs	0	0	0	0	0	0
Mid-life Refurbishment	wire runs	0	0	0	0	0	0
Structure Renewals	No.	0	0	0	0	0	0
Conductor rail							
Renewals	km	7	2	2	2	1	13
AC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
Booster Transformers	No.	0	0	0	0	0	0
DC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
HV Cables	km	18	0	0	0	0	18
LV Switchgear Renewal	No.	33	19	20	20	0	92
LV Cables	km	3	3	1	1	1	9
Transformer Rectifiers	No.	0	0	0	0	0	0
Fixed plant							
Signalling Power Cable Renewal	km	40	4	0	12	0	56
Principle Supply Point Renewal	No.	4	6	0	2	0	12
Rail Heating							
Points Heating Renewal	Point End	18	18	18	18	18	90

Table 139: Sussex telecoms renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Station Information and Surveillance Systems							
Customer Information Systems	No.	0	128	70	47	0	245
Public Address	No.	0	864	503	183	161	1,711
CCTV	No.	0	648	752	290	50	1,740
Clocks	No.	0	0	40	0	0	40
Operational Comms							
PABX Concentrator	No. of Lines	0	767	0	0	0	767
Processor Controlled Concentrator	No. of Lines	62	0	0	0	0	62
Driver-Only Operation: CCTV	No.	0	0	0	34	0	34
Driver-Only Operation: Mirrors	No.	0	0	0	5	0	5
Public Emergency Telephone System	No.	0	0	0	0	0	0
Human Machine Interface Large	No.	0	12	0	0	0	12
Human Machine Interface Small	No.	0	0	0	0	0	0
Radio System	No.	0	0	0	0	0	0
Power Systems	No.	0	0	0	0	0	0

Table 140: Sussex maintenance volumes

		Code	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Track	Plain Line Tamping (km)	MNT004	267	267	267	267	267	1,336
	Plain Line Stoneblowing (km)	MNT005	160	160	105	105	105	635
	Manual Wet Bed removal (bay)	MNT006	180	180	180	180	180	900
	Mechanical Wet bed removal (bay)	MNT012	606	604	600	599	610	3,019
	S&C Tamping (point end)	MNT007	282	282	275	270	270	1,379
	Rail Changing - Al-Thermic Weld - Standard Gap (weld)	MNT044	759	763	763	767	773	3,825
	Rail Changing - CWR - Renew (Defects) (rail yard)	MNT045	5,295	5,295	5,295	5,295	5,295	26,475
	Mechanical Reprofiling of Ballast (Mile)	MNT017	92	93	93	93	97	468
	Manual Reprofiling of Ballast (rail yard)	MNT020	85,000	85,000	85,000	85,000	85,000	425,000
	Replace Pads & Insulators (sleeper)	MNT029	52,000	46,800	42,120	37,908	34,117	212,945
	Manual Correction of PL Track Geometry (CWR) (track yard)	MNT036	85,100	80,000	75,050	70,000	68,000	378,150
	Manual Correction of PL Track Geometry (Jointed) (track yard)	MNT037	2,000	1,800	1,600	1,400	1,200	8,000
	S&C Renew Crossing (crossing)	MNT120	38	38	38	38	38	190
	S&C Maintenance (point end)	MNT122	2,871	2,800	2,730	2,592	2,527	13,520
	S&C Renew half set of Switches (H/S Switch)	MNT123	40	40	40	41	43	204
	S&C Stoneblowing (point end)	MNT124	50	50	50	50	50	250
	Rail grinding plain line (Mile)	MNT309	266	266	266	266	266	1,330
	Rail grinding S&C (point end)	MNT310	168	168	168	168	168	840
Off track	Fences & Boundary Walls (yard)	MNT072	33,091	33,053	33,014	32,967	32,984	165,109
	Drainage (Yard)	MNT073	20,000	20,000	20,000	20,000	20,000	100,000
	LX Management - Off Track (Each)	MNT075	749	749	749	749	749	3,745
	Vegetation Removal of Boundary Trees (No)	MNT081	700	700	700	700	700	3,500
	Vegetation Management by Train (Mile)	MNT082	700	700	700	700	700	3,500
	Vegetation Management Manual (Sq yard)	MNT170	220,000	220,000	220,000	220,000	220,000	1,100,000
	Vegetation Management Mechanised (Mile)	MNT171	70	70	70	70	70	350
Electrical Power	Maintain Conductor Rail (Various)	MNT206	15,222	15,222	15,070	14,844	14,695	75,053
	Maintain DC Traction Power Supplies (Each)	MNT209	4,064	4,064	4,064	4,064	4,064	20,320
	Maintain OHL Components (Various)	MNT211	0	0	0	0	0	0
	Maintain Points Heating (Each)	MNT212	9,370	9,370	9,370	9,370	9,370	46,850
	Maintain Signalling Power supplies (No.)	MNT213	1,618	1,618	1,618	1,618	1,618	8,090
Civils	Visual Examinations (Civils) (No.)	MNT226a	1,710	1,802	1,793	1,823	1,826	8,954
	Tunnel Examinations (No. minor elements)	MNT220	6,088	6,088	6,088	6,088	6,088	30,440
	Detailed Examinations (No.)	MNT221	375	283	380	262	259	1,559
	Underwater Examination (No.)	MNT222	25	38	100	78	38	279
	Ancillary Structure examination (No. detailed))	MNT223	14	32	202	56	44	348
	Hidden critical element examinations (No.)	MNT224	34	54	62	53	46	249
	Load carrying assessment (No. spans)	MNT225	365	296	354	499	371	1,885
Buildings	Visual examinations Buildings (each)	MNT226	887	887	884	884	885	4,427
	5 yearly examinations (each)	MNT227	37	35	38	38	37	185

Wales asset management indicators

Table 141: Wales asset condition reliability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Rail Breaks and Immediate Action defects per 100km	2.16	2.16	2.16	2.16	2.16	2.16
	Track geometry (Poor Track Geometry)	1.53%	1.58%	1.58%	1.58%	1.58%	1.58%
	Track failures (service affecting)	159	139	132	130	130	130
Signalling	Signalling failures (service affecting)	872	885	888	870	850	847
Telecoms	Telecoms failures (service affecting)	149	222	181	144	131	129
Electrical Power	AC traction power failures (service affecting)	-	-	-	-	8	35
	DC traction power failures (service affecting)	N/A	N/A	N/A	N/A	N/A	N/A
	Non traction operational power supply failures (service affecting)	28	28	28	28	28	28
Buildings	Buildings - Re-active Faults (2&24) (attention within 2hrs, fix within 24hrs) & (attention within 24hrs, fix within 7 days)	279	232	216	227	251	295
Structures	Number of open work items with a risk score ≥12	446	265	246	211	161	133
Earthworks	Earthwork failures	6	6	6	6	6	5
Points	Points failures (service affecting)	181	169	167	166	165	164

Table 142: Wales asset condition sustainability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Track - Used Life - Rail	52.9%	54.0%	55.3%	56.1%	56.8%	57.1%
	Track - Used Life - Switch & Crossings	53.5%	50.2%	46.9%	42.0%	40.7%	40.5%
	Track - Used Life - Sleepers	69.9%	71.0%	72.2%	72.9%	73.2%	73.4%
	Track - Used Life - Ballast	53.5%	54.3%	54.8%	55.2%	55.5%	56.2%
Signalling	Signalling Condition Index (SICA Remaining Life)	13.81	17.36	16.50	18.34	17.98	17.11
Telecoms	Telecoms - Remaining Life	78.0%	72.5%	66.6%	60.9%	57.7%	52.0%
Electrical Power	EP - Remaining Life - Conductor Rail	N/A	N/A	N/A	N/A	N/A	N/A
	EP - Remaining Life - Overhead Line Equipment (OLE)	N/A	N/A	N/A	N/A	N/A	N/A
	EP - Remaining Life - Signalling Power Cable						
Buildings	Stations - %age Remaining Life	31.4%	31.4%	30.4%	29.9%	29.3%	28.8%
	Light Maintenance Depot (LMD) - %age Remaining Life	44.8%	44.0%	43.1%	42.3%	41.5%	40.6%
Structures	Average condition of major deck elements	61.6	61.6	61.5	61.5	61.5	61.6
	Tunnel Condition Monitoring Index (TCMI)	81.8	82.2	82.5	82.9	83.2	83.5
Earthworks	Earthworks - Condition Banding	2.02	2.01	2.00	1.99	1.98	1.97
Drainage	Track Drainage - Condition Banding						
	Earthwork/Structure Drainage - Condition Banding						

Table 143: Wales track renewal volumes total

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	13	0	0	13
Complete Renewal	Track km	11	0	1	0	4	16
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	4	7	7	7	6	31
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	17	0	0	0	17
Rail Sleeper Relay	Track km	0	0	41	0	0	41
Heavy Refurbishment	Track km	0	7	19	0	0	26
Refurbishment							
Heavy Refurbishment	Track km	10	18	18	18	18	80
Medium (concrete)	Track km	20	20	20	20	20	100
Medium (other)	Track km	20	20	20	20	20	100
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	36	27	25	4	0	92
Full Renewal	Point Ends	24	21	25	4	0	74
Refurbishment							
Heavy	Point Ends	35	33	42	41	37	188
Medium	Point Ends	24	24	26	27	23	124
Off Track							
Fencing	km	132	148	136	136	136	687
Slab track	Track km	0	0	0	0	0	0

Table 144: Wales track renewal volumes (route criticality 1)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	0	0	0	0	0
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	0	0	0	0	0	0
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	0	0	0	0	0	0
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	0	0	0
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	0	0	0	0	0	0
Medium	Point Ends	0	0	0	0	0	0
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 145: Wales track renewal volumes (route criticality 2)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	0	0	0	0	0
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	0	0	0	0	0	0
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	0	0	0	0	0	0
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	0	0	0
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	0	0	0	0	0	0
Medium	Point Ends	0	0	0	0	0	0
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 146: Wales track renewal volumes (route criticality 3)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	11	0	1	0	4	16
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	0	2	2	2	2	8
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	16	0	0	16
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	5	5	5	6	21
Medium (concrete)	Track km	7	7	7	7	7	35
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	35	4	6	0	0	45
Full Renewal	Point Ends	0	0	2	0	0	2
Refurbishment							
Heavy	Point Ends	19	23	13	11	12	78
Medium	Point Ends	5	9	12	12	7	45
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 147: Wales track renewal volumes (route criticality 4)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	0	0	0	0	0
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	2	3	2	3	2	12
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	17	0	0	0	17
Rail Sleeper Relay	Track km	0	0	25	0	0	25
Heavy Refurbishment	Track km	0	0	15	0	0	15
Refurbishment							
Heavy Refurbishment	Track km	5	8	5	8	6	31
Medium (concrete)	Track km	7	7	7	7	7	35
Medium (other)	Track km	10	10	10	10	10	50
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	1	18	0	0	0	19
Full Renewal	Point Ends	24	15	0	2	0	41
Refurbishment							
Heavy	Point Ends	0	3	12	15	12	42
Medium	Point Ends	0	5	7	7	7	26
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 148: Wales track renewal volumes (route criticality 5)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	13	0	0	13
Complete Renewal	Track km	0	0	0	0	0	0
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	2	2	3	2	2	11
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	7	4	0	0	11
Refurbishment							
Heavy Refurbishment	Track km	5	5	8	5	6	28
Medium (concrete)	Track km	6	6	6	6	6	30
Medium (other)	Track km	10	10	10	10	10	50
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	5	19	4	0	28
Full Renewal	Point Ends	0	6	23	2	0	31
Refurbishment							
Heavy	Point Ends	16	7	17	15	13	68
Medium	Point Ends	19	10	8	8	8	53
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 149: Wales civils renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Structures							
Underbridges	m^2	6,540	7,870	9,650	7,650	7,600	39,310
Overbridges (incl BG3)	m^2	2,100	710	720	720	720	4,970
Tunnels	m^2	600	2,100	2,100	2,100	2,100	9,000
Culverts	m^2	284	284	284	284	284	1,420
Footbridges	m^2	30	190	120	190	120	650
Coastal & Estuary Defences	m	50	200	300	300	200	1,050
Retaining Walls	m^2	530	530	530	530	530	2,650
Earthworks	5-chain	285	282	280	278	282	1,408
Track Drainage							
Renewal	lm	0	0	0	0	0	0
Refurbishment	lm	6,312	6,312	6,312	6,312	6,312	31,560
New Build	lm	0	0	0	0	0	0
EW Drainage							
Renewal	lm	500	513	833	851	858	3,556
Refurbishment	lm	231	216	266	261	176	1,150
Maintenance	lm	2,228	2,366	2,063	2,142	2,169	10,968
New Build	lm	0	0	0	0	0	0
Franchised Stations							
Footbridges	m^2	626	151	495	475	545	2,292
Train Sheds	m^2	0	5,080	0	800	0	5,880
Canopies	m^2	3,197	1,504	3,816	3,489	1,570	13,576
Platforms	m^2	818	2,347	1,974	2,302	478	7,919
Buildings	m^2	438	605	1	405	5	1,454
Lifts & Escalators	No.	0	1	0	0	2	3

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Managed Stations							
Footbridges	m^2	0	0	0	0	0	0
Train Sheds	m^2	0	0	0	0	0	0
Canopies	m^2	0	0	0	0	0	0
Platforms	m^2	0	0	0	0	0	0
Buildings	m^2	0	0	0	0	0	0
Lifts & Escalators	No.	0	0	0	0	0	0
Light Maintenance Depots							
Buildings	m^2	60,000	0	0	0	0	60,000
Depot Shed	m^2	0	750	0	0	0	750
Lineside Buildings							
Buildings	m^2	1,000	0	0	0	0	1,000
MDU							
Buildings	m^2	0	0	0	0	0	0

Table 150: Wales signalling renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Full Conventional resignalling	SEUs	364	48	112	26	0	550
ERTMS resignalling	SEUs	0	2	0	0	0	2
Partial Conventional resignalling	SEUs	0	0	0	6	0	6
Targeted Component renewal	SEUs	0	0	0	0	0	0
Modular resignalling	SEUs	0	132	323	0	0	455
Level Crossings Renewals	No.	6	6	13	3	2	30

Table 151: Wales electrification and plant renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Contact Systems							
OLE Re-wiring	wire runs	0	0	0	0	0	0
Mid-life Refurbishment	wire runs	0	0	0	0	0	0
Structure Renewals	No.	0	0	0	0	0	0
Conductor rail							
Renewals	km	0	0	0	0	0	0
AC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
Booster Transformers	No.	0	0	0	0	0	0
DC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
HV Cables	km	0	0	0	0	0	0
LV Switchgear Renewal	No.	0	0	0	0	0	0
LV Cables	km	0	0	0	0	0	0
Transformer Rectifiers	No.	0	0	0	0	0	0
Fixed plant							
Signalling Power Cable Renewal	km	0	0	0	0	0	0
Principle Supply Point Renewal	No.	3	0	0	0	0	3
Rail Heating							
Points Heating Renewal	Point End	6	4	0	2	0	12

Table 152: Wales telecoms renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Station Information and Surveillance Systems							
Customer Information Systems	No.	0	0	6	0	20	26
Public Address	No.	0	0	22	0	0	22
CCTV	No.	0	0	0	0	95	95
Clocks	No.	0	0	0	0	0	0
Operational Comms							
PABX Concentrator	No. of Lines	0	0	0	0	0	0
Processor Controlled Concentrator	No. of Lines	0	0	0	0	0	0
Driver-Only Operation: CCTV	No.	0	0	0	0	0	0
Driver-Only Operation: Mirrors	No.	0	0	0	0	0	0
Public Emergency Telephone System	No.	0	0	3	0	0	3
Human Machine Interface Large	No.	0	0	0	0	0	0
Human Machine Interface Small	No.	0	0	0	0	0	0
Radio System	No.	0	0	0	0	0	0
Power Systems	No.	0	0	8	10	0	18

Table 153: Wales maintenance volumes

		Code	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Track	Plain Line Tamping (km)	MNT004	130	130	130	130	130	650
	Plain Line Stoneblowing (km)	MNT005	127	127	127	127	127	633
	Manual Wet Bed removal (bay)	MNT006	1,584	1,584	1,584	1,584	1,584	7,919
	Mechanical Wet bed removal (bay)	MNT012	0	0	0	0	0	0
	S&C Tamping (point end)	MNT007	265	265	265	265	265	1,325
	Rail Changing - Al-Thermic Weld - Standard Gap (weld)	MNT044	838	838	838	838	838	4,188
	Rail Changing - CWR - Renew (Defects) (rail yard)	MNT045	4,041	4,041	4,041	4,041	4,041	20,203
	Mechanical Reprofiling of Ballast (Mile)	MNT017	179	179	179	179	179	895
	Manual Reprofiling of Ballast (rail yard)	MNT020	59,039	30,079	30,079	30,079	30,079	179,353
	Replace Pads & Insulators (sleeper)	MNT029	18,144	18,144	18,144	18,144	18,144	90,721
	Manual Correction of PL Track Geometry (CWR) (track yard)	MNT036	25,540	16,290	16,290	16,290	16,290	90,700
	Manual Correction of PL Track Geometry (Jointed) (track yard)	MNT037	52,800	52,800	52,800	52,800	52,800	264,001
	S&C Renew Crossing (crossing)	MNT120	0	0	0	0	0	0
	S&C Maintenance (point end)	MNT122	37,793	37,793	37,793	37,793	37,793	188,965
	S&C Renew half set of Switches (H/S Switch)	MNT123	21	21	21	21	21	105
	S&C Stoneblowing (point end)	MNT124	116	116	116	116	116	580
	Rail grinding plain line (Mile)	MNT309	230	230	230	230	230	1,150
	Rail grinding S&C (point end)	MNT310	300	300	300	300	300	1,500
Off track	Fences & Boundary Walls (yard)	MNT072	67,000	66,000	65,000	64,000	63,000	325,001
	Drainage (Yard)	MNT073	20,427	20,427	20,427	20,427	20,427	102,135
	LX Management - Off Track (Each)	MNT075	1,493	1,493	1,493	1,493	1,493	7,466
	Vegetation Removal of Boundary Trees (No)	MNT081	2,000	2,000	2,000	2,000	2,000	9,999
	Vegetation Management by Train (Mile)	MNT082	0	0	0	0	0	0
	Vegetation Management Manual (Sq yard)	MNT170	336,010	336,010	336,010	336,010	336,010	1,680,051
	Vegetation Management Mechanised (Mile)	MNT171	751	751	751	751	751	3,756
Electrical Power	Maintain Conductor Rail (Various)	MNT206	0	0	0	0	0	0
	Maintain DC Traction Power Supplies (Each)	MNT209	0	30	30	30	30	120
	Maintain OHL Components (Various)	MNT211	0	0	0	12,000	12,000	24,000
	Maintain Points Heating (Each)	MNT212	0	7,368	7,368	7,480	7,760	29,976
	Maintain Signalling Power supplies (No.)	MNT213	0	2,471	2,471	2,471	2,471	9,884
Civils	Visual Examinations (Civils) (No.)	MNT226a	7,905	8,002	8,485	8,041	8,140	40,571
	Tunnel Examinations (No. minor elements)	MNT220	8,016	8,016	8,016	8,016	8,016	40,080
	Detailed Examinations (No.)	MNT221	1,862	1,765	1,282	1,726	1,627	8,260
	Underwater Examination (No.)	MNT222	235	180	116	242	180	953
	Ancillary Structure examination (No. detailed)	MNT223	20	177	7	217	67	488
	Hidden critical element examinations (No.)	MNT224	147	25	75	148	43	438
	Load carrying assessment (No. spans)	MNT225	915	792	983	993	783	4,466
Buildings	Visual examinations Buildings (each)	MNT226	345	355	342	331	342	1,715
	5 yearly examinations (each)	MNT227	65	55	68	79	68	335

Wessex asset management indicators

Table 154: Wessex asset condition reliability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Rail Breaks and Immediate Action defects per 100km	3.72	3.72	3.72	3.72	3.72	3.72
	Track geometry (Poor Track Geometry)	3.40%	3.34%	3.28%	3.22%	3.16%	3.10%
	Track failures (service affecting)	873	800	775	750	725	700
Signalling	Signalling failures (service affecting)	1,168	1,193	1,198	1,195	1,185	1,212
Telecoms	Telecoms failures (service affecting)	523	240	103	73	72	71
Electrical Power	AC traction power failures (service affecting)	-	-	-	4	4	4
	DC traction power failures (service affecting)	120	125	125	120	120	112
	Non traction operational power supply failures (service affecting)	55	55	55	55	55	55
Buildings	Buildings - Re-active Faults (2&24) (attention within 2hrs, fix within 24hrs) & (attention within 24hrs, fix within 7 days)	482	456	456	456	456	456
Structures	Number of open work items with a risk score ≥12	374	300	251	202	153	104
Earthworks	Earthwork failures	6	6	6	6	6	5
Points	Points failures (service affecting)	320	296	297	297	298	297

Table 155: Wessex asset condition sustainability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Track - Used Life - Rail	45.9%	45.7%	45.9%	46.0%	46.2%	46.3%
	Track - Used Life - Switch & Crossings	56.7%	56.0%	53.2%	49.9%	48.9%	48.8%
	Track - Used Life - Sleepers	62.2%	61.9%	61.1%	61.0%	60.6%	60.6%
	Track - Used Life - Ballast	50.6%	50.1%	48.9%	48.6%	48.0%	48.3%
Signalling	Signalling Condition Index (SICA Remaining Life)	12.29	12.10	11.40	11.40	14.10	13.80
Telecoms	Telecoms - Remaining Life	51.0%	47.5%	42.9%	50.2%	60.2%	68.1%
Electrical Power	EP - Remaining Life - Conductor Rail	68.4%	66.9%	66.2%	66.8%	66.7%	66.6%
	EP - Remaining Life - Overhead Line Equipment (OLE)	N/A	N/A	N/A	N/A	N/A	N/A
	EP - Remaining Life - Signalling Power Cable						
Buildings	Stations - %age Remaining Life	36.2%	36.2%	34.6%	33.7%	32.9%	32.0%
	Light Maintenance Depot (LMD) - %age Remaining Life	44.5%	43.7%	42.9%	42.1%	41.3%	40.4%
Structures	Average condition of major deck elements	66.7	66.8	66.9	67.1	67.2	67.4
	Tunnel Condition Monitoring Index (TCMI)	82.9	82.9	82.9	82.9	82.9	82.9
Earthworks	Earthworks - Condition Banding	1.69	1.69	1.70	1.71	1.72	1.73
Drainage	Track Drainage - Condition Banding	1.70	1.70	1.70	1.70	1.70	1.70
	Earthwork/Structure Drainage - Condition Banding	1.70	1.90	1.90	1.90	1.90	1.90

Table 156: Wessex track renewal volumes total

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	6	0	1	0	0	7
Complete Renewal	Track km	22	31	21	13	13	100
Complete (formation)	Track km	6	2	2	0	1	11
Rail Renewal	Track km	26	5	30	18	26	106
Single Rail	Track km	3	1	2	2	2	9
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	30	0	0	0	30
Heavy Refurbishment	Track km	24	14	8	7	27	80
Refurbishment							
Heavy Refurbishment	Track km	2	6	4	1	1	14
Medium (concrete)	Track km	2	7	14	18	36	77
Medium (other)	Track km	1	2	1	7	2	14
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	4	6	10	6	0	26
Full Renewal	Point Ends	43	17	20	12	7	99
Refurbishment							
Heavy	Point Ends	6	40	38	27	28	139
Medium	Point Ends	39	27	25	2	12	105
Off Track							
Fencing	km	37	47	61	55	45	245
Slab track	Track km	0	0	0	0	0	0

Table 157: Wessex track renewal volumes (route criticality 1)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	0	0	0	0	0	0
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	0	0	0	0	0	0
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	0	0	0	0	0	0
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	0	0	0
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	0	0	0	0	0	0
Medium	Point Ends	0	0	0	0	0	0
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 158: Wessex track renewal volumes (route criticality 2)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	4	6	7	2	3	21
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	2	0	1	0	0	3
Single Rail	Track km	0	0	0	0	0	0
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	6	2	0	3	11
Refurbishment							
Heavy Refurbishment	Track km	1	0	1	0	0	2
Medium (concrete)	Track km	0	0	2	2	8	12
Medium (other)	Track km	0	0	0	0	0	0
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	5	4	0	9
Full Renewal	Point Ends	17	0	10	7	4	38
Refurbishment							
Heavy	Point Ends	4	3	6	14	8	35
Medium	Point Ends	34	0	3	2	0	39
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 159: Wessex track renewal volumes (route criticality 3)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	11	14	6	8	9	49
Complete (formation)	Track km	4	2	1	0	1	9
Rail Renewal	Track km	16	3	19	9	26	72
Single Rail	Track km	3	1	1	2	0	6
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	15	0	0	0	15
Heavy Refurbishment	Track km	1	1	6	5	22	34
Refurbishment							
Heavy Refurbishment	Track km	1	5	3	1	1	11
Medium (concrete)	Track km	2	3	5	11	24	44
Medium (other)	Track km	0	1	1	0	0	2
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	2	3	1	0	5
Full Renewal	Point Ends	26	17	1	4	4	51
Refurbishment							
Heavy	Point Ends	0	30	16	6	5	57
Medium	Point Ends	5	22	7	0	9	42
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 160: Wessex track renewal volumes (route criticality 4)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	3	5	8	2	1	21
Complete (formation)	Track km	1	0	0	0	0	1
Rail Renewal	Track km	5	2	7	5	1	21
Single Rail	Track km	0	0	2	0	1	2
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	15	0	0	0	15
Heavy Refurbishment	Track km	23	7	1	2	3	35
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	0	0	4	3	4	11
Medium (other)	Track km	0	0	0	7	2	9
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	4	5	3	1	0	12
Full Renewal	Point Ends	0	0	9	1	0	10
Refurbishment							
Heavy	Point Ends	2	4	16	7	15	44
Medium	Point Ends	0	1	5	0	3	9
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 161: Wessex track renewal volumes (route criticality 5)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	6	0	1	0	0	7
Complete Renewal	Track km	4	5	0	1	0	10
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	4	0	3	4	0	10
Single Rail	Track km	0	0	0	0	1	1
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	1	0	0	0	1
Medium (concrete)	Track km	0	5	3	2	0	9
Medium (other)	Track km	1	1	1	0	0	3
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	1	0	1
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	0	3	0	0	0	3
Medium	Point Ends	0	4	11	0	0	15
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 162: Wessex civils renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Structures							
Underbridges	m^2	7,472	7,833	7,653	5,004	5,508	33,470
Overbridges (incl BG3)	m^2	77	454	450	588	325	1,894
Tunnels	m^2	1,768	1,672	6,708	1,736	1,736	13,620
Culverts	m^2	423	493	423	423	353	2,115
Footbridges	m^2	199	181	217	240	186	1,023
Coastal & Estuary Defences	m	0	1,700	0	0	0	1,700
Retaining Walls	m^2	302	463	0	778	562	2,105
Earthworks	5-chain	162	169	174	171	148	825
Track Drainage							
Renewal	lm	1,000	1,000	1,000	1,000	1,000	5,000
Refurbishment	lm	26,000	26,000	26,000	26,000	26,000	130,000
New Build	lm	100	100	100	100	100	500
EW Drainage							
Renewal	lm	308	480	828	528	463	2,606
Refurbishment	lm	60	70	0	115	10	255
Maintenance	lm	2,621	2,608	2,608	2,748	2,956	13,540
New Build	lm	5,283	5,208	5,208	5,348	5,493	26,540
Franchised Stations							
Footbridges	m^2	120	0	343	0	195	658
Train Sheds	m^2	0	0	0	0	0	0
Canopies	m^2	1,523	5,647	6,063	2,100	280	15,613
Platforms	m^2	33,608	12,783	16,588	14,410	6,908	84,297
Buildings	m^2	0	0	0	0	0	0
Lifts & Escalators	No.	3	3	0	0	0	6

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Managed Stations							
Footbridges	m^2	0	0	0	0	0	0
Train Sheds	m^2	0	0	0	0	0	0
Canopies	m^2	4,330	0	0	0	0	4,330
Platforms	m^2	0	0	0	0	0	0
Buildings	m^2	3,729	0	0	0	0	3,729
Lifts & Escalators	No.	3	0	0	0	0	3
Light Maintenance Depots							
Buildings	m^2	0	1,527	0	965	0	2,492
Depot Shed	m^2	0	0	0	0	0	0
Lineside Buildings							
Buildings	m^2	15,180	180	180	180	180	15,900
MDU							
Buildings	m^2	0	0	0	0	0	0

Table 163: Wessex signalling renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Full Conventional resignalling	SEUs	93	0	0	395	0	488
ERTMS resignalling	SEUs	0	0	0	0	0	0
Partial Conventional resignalling	SEUs	0	5	29	48	45	127
Targeted Component renewal	SEUs	1	3	11	7	10	33
Modular resignalling	SEUs	0	0	24	0	0	24
Level Crossings Renewals	No.	10	2	4	25	15	56

Table 164: Wessex electrification and plant renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Contact Systems							
OLE Re-wiring	wire runs	0	0	0	0	0	0
Mid-life Refurbishment	wire runs	0	0	0	0	0	0
Structure Renewals	No.	0	0	0	0	0	0
Conductor rail							
Renewals	km	12	12	12	12	12	59
AC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
Booster Transformers	No.	0	0	0	0	0	0
DC distribution							
HV Switchgear Renewal	No.	0	29	0	0	0	29
HV Cables	km	2	0	7	0	0	9
LV Switchgear Renewal	No.	9	9	9	9	9	44
LV Cables	km	6	6	6	6	6	29
Transformer Rectifiers	No.	0	1	0	0	0	1
Fixed plant							
Signalling Power Cable Renewal	km	6	6	6	6	6	29
Principle Supply Point Renewal	No.	0	0	0	0	0	1
Rail Heating							
Points Heating Renewal	Point End	120	0	0	0	0	121

Table 165: Wessex telecoms renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Station Information and Surveillance Systems							
Customer Information Systems	No.	0	364	540	263	0	1,167
Public Address	No.	0	844	1,218	684	0	2,746
CCTV	No.	0	0	492	0	0	492
Clocks	No.	0	0	0	0	0	0
Operational Comms							
PABX Concentrator	No. of Lines	0	0	0	0	66	66
Processor Controlled Concentrator	No. of Lines	0	0	0	0	49	49
Driver-Only Operation: CCTV	No.	0	0	0	0	0	0
Driver-Only Operation: Mirrors	No.	0	0	0	0	0	0
Public Emergency Telephone System	No.	0	0	8	0	0	8
Human Machine Interface Large	No.	0	0	0	0	6	6
Human Machine Interface Small	No.	0	0	0	0	0	0
Radio System	No.	0	0	0	0	0	0
Power Systems	No.	0	0	0	0	6	6

Table 166: Wessex maintenance volumes

		Code	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Track	Plain Line Tamping (km)	MNT004	753	753	726	698	698	3,628
	Plain Line Stoneblowing (km)	MNT005	168	168	168	168	168	842
	Manual Wet Bed removal (bay)	MNT006	725	725	725	725	725	3,625
	Mechanical Wet bed removal (bay)	MNT012	1,430	1,430	1,430	1,430	1,430	7,150
	S&C Tamping (point end)	MNT007	396	396	378	360	360	1,890
	Rail Changing - Al-Thermic Weld - Standard Gap (weld)	MNT044	1,104	1,104	1,104	1,104	1,104	5,520
	Rail Changing - CWR - Renew (Defects) (rail yard)	MNT045	8,685	8,685	8,685	8,685	8,685	43,425
	Mechanical Reprofiling of Ballast (Mile)	MNT017	253	253	253	253	253	1,265
	Manual Reprofiling of Ballast (rail yard)	MNT020	127,000	127,000	127,000	127,000	127,000	635,000
	Replace Pads & Insulators (sleeper)	MNT029	80,000	80,000	80,000	80,000	80,000	400,000
	Manual Correction of PL Track Geometry (CWR) (track yard)	MNT036	79,982	79,982	79,982	79,982	79,982	399,910
	Manual Correction of PL Track Geometry (Jointed) (track yard)	MNT037	36,300	36,300	33,000	29,700	29,700	165,000
	S&C Renew Crossing (crossing)	MNT120	79	79	79	79	79	395
	S&C Maintenance (point end)	MNT122	25,312	25,312	25,312	25,312	25,312	126,560
	S&C Renew half set of Switches (H/S Switch)	MNT123	88	88	88	88	88	440
	S&C Stoneblowing (point end)	MNT124	120	120	120	120	120	600
	Rail grinding plain line (Mile)	MNT309	420	500	600	600	600	2,720
	Rail grinding S&C (point end)	MNT310	230	230	230	230	230	1,150
Off track	Fences & Boundary Walls (yard)	MNT072	55,245	55,245	55,245	55,245	55,245	276,225
	Drainage (Yard)	MNT073	144,085	144,085	144,085	144,085	144,085	720,425
	LX Management - Off Track (Each)	MNT075	1,399	1,399	1,399	1,399	1,399	6,995
	Vegetation Removal of Boundary Trees (No)	MNT081	9,888	9,888	9,888	9,888	9,888	49,440
	Vegetation Management by Train (Mile)	MNT082	2,204	2,204	2,101	1,998	1,998	10,505
	Vegetation Management Manual (Sq yard)	MNT170	361,388	361,388	361,388	361,388	361,388	1,806,940
	Vegetation Management Mechanised (Mile)	MNT171	47	47	47	47	47	236
Electrical Power	Maintain Conductor Rail (Various)	MNT206	15,000	15,000	15,000	15,000	15,000	74,999
	Maintain DC Traction Power Supplies (Each)	MNT209	7,560	7,610	7,720	7,815	7,925	38,630
	Maintain OHL Components (Various)	MNT211	0	0	0	0	0	0
	Maintain Points Heating (Each)	MNT212	13,205	13,205	13,205	13,205	13,205	66,027
	Maintain Signalling Power supplies (No.)	MNT213	1,199	1,199	1,199	1,199	1,199	5,997
Civils	Visual Examinations (Civils) (No.)	MNT226a	4,130	4,180	4,069	4,183	4,145	20,707
	Tunnel Examinations (No. minor elements)	MNT220	3,605	3,605	3,605	3,605	3,605	18,025
	Detailed Examinations (No.)	MNT221	614	563	674	560	598	3,009
	Underwater Examination (No.)	MNT222	85	85	182	85	85	522
	Ancillary Structure examination (No. detailed)	MNT223	3	69	236	99	74	481
	Hidden critical element examinations (No.)	MNT224	102	47	44	80	82	355
	Load carrying assessment (No. spans)	MNT225	729	591	620	820	840	3,600
Buildings	Visual examinations Buildings (each)	MNT226	1,173	1,204	1,216	1,166	1,212	5,971
	5 yearly examinations (each)	MNT227	74	43	31	81	35	264

Western asset management indicators

Table 167: Western asset condition reliability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Rail Breaks and Immediate Action defects per 100km	3.61	4.10	3.95	3.95	3.90	3.90
	Track geometry (Poor Track Geometry)	2.06%	2.20%	2.20%	2.10%	2.05%	2.00%
	Track failures (service affecting)	365	297	293	288	291	294
Signalling	Signalling failures (service affecting)	1,492	1,430	1,417	1,430	1,443	1,412
Telecoms	Telecoms failures (service affecting)	376	223	119	98	98	98
Electrical Power	AC traction power failures (service affecting)	11	17	24	61	104	104
	DC traction power failures (service affecting)	N/A	N/A	N/A	N/A	N/A	N/A
	Non traction operational power supply failures (service affecting)	32	43	67	56	42	25
Buildings	Buildings - Re-active Faults (2&24) (attention within 2hrs, fix within 24hrs) & (attention within 24hrs, fix within 7 days)	585	620	620	670	720	800
Structures	Number of open work items with a risk score ≥12	160	150	145	140	135	132
Earthworks	Earthwork failures	18	17	16	16	15	15
Points	Points failures (service affecting)	525	486	487	486	486	495

Table 168: Western asset condition sustainability

Principal Asset	Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Track	Track - Used Life - Rail	43.0%	43.1%	43.3%	43.9%	41.7%	40.9%
	Track - Used Life - Switch & Crossings	50.6%	51.0%	50.1%	49.3%	48.4%	48.5%
	Track - Used Life - Sleepers	50.4%	50.9%	51.3%	52.3%	50.1%	49.6%
	Track - Used Life - Ballast	42.0%	41.1%	41.9%	41.9%	40.5%	38.8%
Signalling	Signalling Condition Index (SICA Remaining Life)	9.74	11.57	14.69	15.36	14.48	13.84
Telecoms	Telecoms - Remaining Life	80.6%	78.2%	71.8%	65.3%	59.1%	53.6%
Electrical Power	EP - Remaining Life - Conductor Rail	N/A	N/A	N/A	N/A	N/A	N/A
	EP - Remaining Life - Overhead Line Equipment (OLE)	76.8%	75.4%	74.0%	71.3%	70.4%	69.0%
	EP - Remaining Life - Signalling Power Cable						
Buildings	Stations - %age Remaining Life	34.6%	34.6%	32.8%	31.9%	31.0%	30.1%
	Light Maintenance Depot (LMD) - %age Remaining Life	37.1%	36.4%	35.7%	35.1%	34.4%	33.7%
Structures	Average condition of major deck elements	60.0	59.9	60.0	60.1	60.2	60.3
	Tunnel Condition Monitoring Index (TCMI)	84.6	84.6	84.6	84.6	84.6	84.6
Earthworks	Earthworks - Condition Banding	1.99	1.96	1.93	1.92	1.91	1.90
Drainage	Track Drainage - Condition Banding						
	Earthwork/Structure Drainage - Condition Banding						

Table 169: Western track renewal volumes total

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	1	0	1	2	7	11
Complete Renewal	Track km	29	17	18	20	24	108
Complete (formation)	Track km	3	0	2	2	1	9
Rail Renewal	Track km	17	17	17	17	17	87
Single Rail	Track km	3	3	3	3	2	12
High Output							
Automated Ballast Cleaning (ABC)	Track km	34	19	71	78	69	270
Rail Sleeper Relay	Track km	0	0	0	120	0	120
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	2	0	0	0	0	2
Medium (concrete)	Track km	14	18	18	18	20	88
Medium (other)	Track km	26	26	27	26	27	132
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	6	1	0	0	0	7
Full Renewal	Point Ends	14	46	52	33	20	165
Refurbishment							
Heavy	Point Ends	12	17	28	20	0	77
Medium	Point Ends	35	37	54	47	39	212
Off Track							
Fencing	km	54	58	60	64	66	302
Slab track	Track km	0	0	0	0	0	0

Table 170: Western track renewal volumes (route criticality 1)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	1	1
Complete Renewal	Track km	11	0	3	9	11	34
Complete (formation)	Track km	1	0	0	0	1	3
Rail Renewal	Track km	5	5	6	6	5	27
Single Rail	Track km	1	1	1	1	1	3
High Output							
Automated Ballast Cleaning (ABC)	Track km	17	15	71	53	69	226
Rail Sleeper Relay	Track km	0	0	0	79	0	79
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	1	0	0	0	0	1
Medium (concrete)	Track km	0	0	0	0	0	0
Medium (other)	Track km	0	0	1	0	0	1
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	0	0	0
Full Renewal	Point Ends	1	7	14	0	4	26
Refurbishment							
Heavy	Point Ends	0	0	0	12	0	12
Medium	Point Ends	4	14	9	18	19	64
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 171: Western track renewal volumes (route criticality 2)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	0
Complete Renewal	Track km	2	0	0	1	0	3
Complete (formation)	Track km	1	0	0	0	0	1
Rail Renewal	Track km	1	1	1	1	1	5
Single Rail	Track km	1	1	1	1	1	3
High Output							
Automated Ballast Cleaning (ABC)	Track km	12	1	0	0	0	13
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	0	2	2	2	3	9
Medium (other)	Track km	1	1	1	1	1	5
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	1	0	0	0	1
Full Renewal	Point Ends	0	23	24	7	12	66
Refurbishment							
Heavy	Point Ends	0	0	14	0	0	14
Medium	Point Ends	1	0	14	3	1	19
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 172: Western track renewal volumes (route criticality 3)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	0	0	0	1
Complete Renewal	Track km	15	11	11	5	9	52
Complete (formation)	Track km	1	0	2	2	0	5
Rail Renewal	Track km	5	5	5	5	5	25
Single Rail	Track km	1	1	1	1	1	3
High Output							
Automated Ballast Cleaning (ABC)	Track km	5	2	0	25	0	32
Rail Sleeper Relay	Track km	0	0	0	41	0	41
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	1	0	0	0	0	1
Medium (concrete)	Track km	1	2	2	2	2	9
Medium (other)	Track km	5	5	5	5	6	26
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	1	0	0	0	0	1
Full Renewal	Point Ends	13	15	14	14	0	56
Refurbishment							
Heavy	Point Ends	2	5	8	1	0	16
Medium	Point Ends	19	18	16	6	6	65
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 173: Western track renewal volumes (route criticality 4)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	1	0	0	2	3	5
Complete Renewal	Track km	0	1	1	0	1	3
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	3	3	3	3	3	15
Single Rail	Track km	1	1	1	1	1	3
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	3	4	4	4	4	19
Medium (other)	Track km	10	10	10	10	10	50
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	5	0	0	0	0	5
Full Renewal	Point Ends	0	1	0	12	4	17
Refurbishment							
Heavy	Point Ends	2	5	5	5	0	17
Medium	Point Ends	3	4	8	10	10	35
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 174: Western track renewal volumes (route criticality 5)

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain Line							
Conventional							
Steel Relay	Track km	0	0	1	0	3	4
Complete Renewal	Track km	1	5	3	5	2	16
Complete (formation)	Track km	0	0	0	0	0	0
Rail Renewal	Track km	3	3	3	3	3	14
Single Rail	Track km	1	1	1	1	0	2
High Output							
Automated Ballast Cleaning (ABC)	Track km	0	0	0	0	0	0
Rail Sleeper Relay	Track km	0	0	0	0	0	0
Heavy Refurbishment	Track km	0	0	0	0	0	0
Refurbishment							
Heavy Refurbishment	Track km	0	0	0	0	0	0
Medium (concrete)	Track km	10	10	10	10	11	51
Medium (other)	Track km	10	10	10	10	10	50
Switches & Crossings							
S&C delivered							
Abandonment	Point Ends	0	0	0	0	0	0
Full Renewal	Point Ends	0	0	0	0	0	0
Refurbishment							
Heavy	Point Ends	8	7	1	2	0	18
Medium	Point Ends	8	1	7	10	3	29
Off Track							
Slab track	Track km	0	0	0	0	0	0

Table 175: Western civils renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Structures							
Underbridges	m^2	11,211	8,015	5,901	6,497	12,783	44,407
Overbridges (incl BG3)	m^2	1,235	711	1,236	958	850	4,990
Tunnels	m^2	2,108	4,386	2,983	2,405	3,134	15,016
Culverts	m^2	510	98	85	192	16	901
Footbridges	m^2	40	98	160	81	73	452
Coastal & Estuary Defences	m	0	0	0	0	30	30
Retaining Walls	m^2	150	714	0	40	0	904
Earthworks	5-chain	502	478	345	338	305	1,968
Track Drainage							
Renewal	lm	0	0	0	0	0	0
Refurbishment	lm	0	0	0	0	0	0
New Build	lm	0	0	0	0	0	0
EW Drainage							
Renewal	lm	2,129	2,292	1,600	1,507	1,154	8,683
Refurbishment	lm	340	337	162	152	152	1,142
Maintenance	lm	833	1,011	157	238	70	2,309
New Build	lm	0	0	0	0	0	0
Franchised Stations							
Footbridges	m^2	445	160	0	70	0	675
Train Sheds	m^2	4,000	0	0	0	0	4,000
Canopies	m^2	2,329	4,594	1,372	0	0	8,295
Platforms	m^2	600	1,358	1,058	0	0	3,016
Buildings	m^2	3,472	1,076	0	0	0	4,548
Lifts & Escalators	No.	5	2	2	3	0	12

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Managed Stations							
Footbridges	m^2	0	0	0	0	0	0
Train Sheds	m^2	0	0	0	0	6,000	6,000
Canopies	m^2	0	144	0	600	1,325	2,069
Platforms	m^2	100	100	100	100	100	500
Buildings	m^2	0	0	1,204	0	1,906	3,110
Lifts & Escalators	No.	1	0	0	0	0	1
Light Maintenance Depots							
Buildings	m^2	0	0	0	1,162	0	1,162
Depot Shed	m^2	26,888	0	0	0	0	26,888
Lineside Buildings							
Buildings	m^2	0	0	0	0	0	0
MDU							
Buildings	m^2	0	0	0	0	0	0

Table 176: Western signalling renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Full Conventional resignalling	SEUs	0	118	0	0	0	118
ERTMS resignalling	SEUs	0	0	115	146	179	439
Partial Conventional resignalling	SEUs	591	585	271	0	0	1,447
Targeted Component renewal	SEUs	76	4	4	4	4	94
Modular resignalling	SEUs	0	0	0	0	37	37
Level Crossings Renewals	No.	16	9	2	2	5	34

Table 177: Western electrification and plant renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Contact Systems							
OLE Re-wiring	wire runs	0	0	0	0	0	0
Mid-life Refurbishment	wire runs	0	0	0	0	0	0
Structure Renewals	No.	0	1	1	1	0	3
Conductor rail							
Renewals	km	0	0	0	0	0	0
AC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
Booster Transformers	No.	0	0	0	0	0	0
DC distribution							
HV Switchgear Renewal	No.	0	0	0	0	0	0
HV Cables	km	0	0	0	0	0	0
LV Switchgear Renewal	No.	0	0	0	0	0	0
LV Cables	km	0	0	0	0	0	0
Transformer Rectifiers	No.	0	0	0	0	0	0
Fixed plant							
Signalling Power Cable Renewal	km	55	66	45	32	21	218
Principle Supply Point Renewal	No.	0	0	0	0	0	0
Rail Heating							
Points Heating Renewal	Point End	17	19	9	0	0	45

Table 178: Western telecoms renewal volumes

		2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Station Information and Surveillance Systems							
Customer Information Systems	No.	0	0	0	8	0	8
Public Address	No.	382	0	11	22	0	415
CCTV	No.	253	0	0	16	0	269
Clocks	No.	0	4	0	0	0	4
Operational Comms							
PABX Concentrator	No. of Lines	0	0	0	358	0	358
Processor Controlled Concentrator	No. of Lines	0	0	0	0	0	0
Driver-Only Operation: CCTV	No.	0	0	0	0	0	0
Driver-Only Operation: Mirrors	No.	0	0	0	0	0	0
Public Emergency Telephone System	No.	0	0	7	0	0	7
Human Machine Interface Large	No.	0	0	0	5	0	5
Human Machine Interface Small	No.	0	0	0	0	0	0
Radio System	No.	0	0	0	0	0	0
Power Systems	No.	0	0	2	11	0	13

Table 179: Western maintenance volumes

		Code	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Track	Plain Line Tamping (km)	MNT004	402	408	427	434	441	2,112
	Plain Line Stoneblowing (km)	MNT005	196	196	191	191	196	970
	Manual Wet Bed removal (bay)	MNT006	2,419	2,480	2,540	2,560	2,600	12,599
	Mechanical Wet bed removal (bay)	MNT012	1,150	1,100	1,100	1,050	1,000	5,400
	S&C Tamping (point end)	MNT007	536	520	500	500	500	2,556
	Rail Changing - Al-Thermic Weld - Standard Gap (weld)	MNT044	1,550	1,490	1,470	1,460	1,460	7,430
	Rail Changing - CWR - Renew (Defects) (rail yard)	MNT045	8,400	7,800	7,500	7,500	7,500	38,700
	Mechanical Reprofiling of Ballast (Mile)	MNT017	325	270	235	200	185	1,215
	Manual Reprofiling of Ballast (rail yard)	MNT020	155,398	145,398	137,398	137,398	137,398	712,990
	Replace Pads & Insulators (sleeper)	MNT029	0	0	0	0	0	0
	Manual Correction of PL Track Geometry (CWR) (track yard)	MNT036	74,600	75,400	76,500	77,500	77,500	381,500
	Manual Correction of PL Track Geometry (Jointed) (track yard)	MNT037	66,011	55,805	45,405	32,405	32,355	231,981
	S&C Renew Crossing (crossing)	MNT120	49	49	47	49	49	243
	S&C Maintenance (point end)	MNT122	42,400	42,520	42,640	42,700	42,820	213,080
	S&C Renew half set of Switches (H/S Switch)	MNT123	68	66	66	66	66	332
	S&C Stoneblowing (point end)	MNT124	178	183	188	193	193	935
	Rail grinding plain line (Mile)	MNT309	782	762	792	692	842	3,870
	Rail grinding S&C (point end)	MNT310	600	600	600	600	600	3,000
Off track	Fences & Boundary Walls (yard)	MNT072	73,046	73,046	73,046	73,046	73,046	365,230
	Drainage (Yard)	MNT073	76,440	76,440	76,440	76,440	76,440	382,200
	LX Management - Off Track (Each)	MNT075	1,889	1,889	1,889	1,889	1,889	9,445
	Vegetation Removal of Boundary Trees (No)	MNT081	3,255	2,305	2,305	2,305	2,305	12,475
	Vegetation Management by Train (Mile)	MNT082	25	30	30	30	30	145
	Vegetation Management Manual (Sq yard)	MNT170	1,417,027	1,417,027	1,417,027	1,417,027	1,417,027	7,085,135
	Vegetation Management Mechanised (Mile)	MNT171	258	258	258	258	258	1,290
Electrical Power	Maintain Conductor Rail (Various)	MNT206	0	0	0	0	0	0
	Maintain DC Traction Power Supplies (Each)	MNT209	0	0	0	0	0	0
	Maintain OHL Components (Various)	MNT211	369	369	369	369	369	1,845
	Maintain Points Heating (Each)	MNT212	17,840	17,840	17,840	17,840	17,840	89,200
	Maintain Signalling Power supplies (No.)	MNT213	6,344	6,344	6,344	6,344	6,344	31,720
Civils	Visual Examinations (Civils) (No.)	MNT226a	8,199	8,568	8,872	8,292	8,113	42,044
	Tunnel Examinations (No. minor elements)	MNT220	12,496	12,496	12,496	12,496	12,496	62,480
	Detailed Examinations (No.)	MNT221	1,545	1,259	1,154	1,692	1,698	7,348
	Underwater Examination (No.)	MNT222	233	130	143	228	129	863
	Ancillary Structure examination (No. detailed)	MNT223	207	195	105	278	158	943
	Hidden critical element examinations (No.)	MNT224	86	90	93	87	85	441
	Load carrying assessment (No. spans)	MNT225	855	918	918	918	918	4,527
Buildings	Visual examinations Buildings (each)	MNT226	1,803	1,804	1,804	1,803	1,809	9,023
	5 yearly examinations (each)	MNT227	68	68	69	70	64	339

Asset management – Intelligent Infrastructure

During CP5 we will continue with our Intelligent Infrastructure programme, fitting remote condition monitoring (RCM) equipment to a range of our assets. During CP4 we have established a national strategic approach for RCM, including the implementation of an enterprise IT system which is highly scalable and configurable for a range of RCM applications. Some 30,000 assets have been fitted with RCM in CP4, including points, track circuits, signalling power supplies and points heating systems.

The CP5 programme is structured in a series of phases:

Phase 3a: Continuation of existing project Phase 3; further fitment of RCM equipment to operationally critical points and track circuits and relocatable equipment buildings.

Phase 4: Development and implementation of RCM for other asset types that are not currently monitored. The scope includes fitment of equipment to 100% of the following asset types:

- Level Crossings (automatic barriers)
- SSI interlockings
- Signalling Power Supplies – for new Crossrail assets only
- HPSS points.

In addition, this phase includes the development of a "generic logger" to further our strategy for a "plug and play" solution for RCM.

Phase 5: Extension of the RCM programme to other asset disciplines including civils and telecoms. The scope of this phase is not yet defined.

Phase 6: Delivery of an earth monitoring RCM system for track circuit location cases to enable the elimination of site testing for earth leakage from low voltage busbars. This phase is dependent on the successful development of a low cost solution which is currently being progressed through our innovation process.

CP5 milestones

2014/15
April - Authority for Phase 4
June - IM Platform upgrade

2015/16
March – Completion of Phase 3a
April - Phase 5 plan definition
June - Advanced analytics of stored data to provide long term trend analysis of asset condition
November - Authority for Phase 5
December - confirm technical feasibility of equipment for track circuit busbar (Ph 6)

2016/17
June - Authority for Phase 6
September - Complete Phase 4

2017/18
December - Complete Phase 5

2018/19
Dec - Complete Phase 6 initial rollout (will continue into CP6)

Table 180: Asset fitment volumes – Intelligent Infrastructure

Asset	2014/15	2015/16	2016/17	2017/18	2018/19	CP5	Asset pop	% fitted in CP5
Phase 3a								
Points	1,600	-	-	-	-	1,600	22,000	7%
Track Circuits	4,500	-	-	-	-	4,500	40,000	11%
Other	600	-	-	-	-	600		
Phase 4								
HPSS Points	200	400	-	-	-	600	600	100%
Level Crossings (auto)	-	500	700	-	-	1,200	1,200	100%
SSI	250	250	-	-	-	500	500	100%
Signalling Power	50	100	-	-	-	150	new assets	n/a
Generic Loggers	200	200	200	200	200	1,000		n/a

Asset management – AMEM-lite

The AMEM-lite method for assessing asset management capability by route is currently in joint development with ORR. This new approach allows us to either measure every aspect of route capability or drill into specific areas of interest in some detail.

We are currently undertaking a series of route baselines using the new AMEM-lite tool. These baselines will help us refine our intended future development programme nationally, and at route level.

Environment

Sustainable development (SD) plan

We are developing a company wide, integrated plan for SD to be finalised within the first year of CP5. This plan will set out how we intend to deliver the SD strategy that was published as part of our Strategic Business Plan submission. This SD plan will cover a much wider range of objectives, projects, initiatives, and performance indicators than are covered below. It should be noted that the plan will include how we will embed SD within the lifecycle of our programmes and projects during CP5.

We will publish a document that summarises the key commitments made in the SD plan within the first year of CP5, and then report our progress against it in a manner to be agreed with ORR.

Scope 1 & 2 non-traction carbon dioxide emissions

Table 181: England & Wales

	CP4 exit*	2014/15*	2015/16*	2016/17*	2017/18*	2018/19*
CO2 e / tonnes						
Business as usual	227,534	222,960	223,924	223,345	222,424	221,881
NR target	-	217,621	214,977	210,735	206,293	202,226

*Network Rail forecast

Table 182: Scotland

	CP4 exit*	2014/15*	2015/16*	2016/17*	2017/18*	2018/19*
CO2 e / tonnes						
Business as usual	30,714	29,957	29,939	29,732	29,747	29,823
NR target	-	29,220	28,712	28,013	27,536	27,112

*Network Rail forecast

Table 183: Network-wide

	CP4 exit*	2014/15*	2015/16*	2016/17*	2017/18*	2018/19*
CO2 e / tonnes						
Business as usual	258,247	252,916	253,863	253,077	252,171	251,704
NR target	-	246,840	243,689	238,748	233,829	229,338

*Network Rail forecast

N.B. Emissions factors used are 2013 Government conversion factors for company reporting' produced by Defra / DECC http://www.ukconversionfactorscarbonsmart.co.uk/ . Forecasts cover our existing scope 1 & 2 carbon dioxide emissions arising from use of gas, electricity and road vehicle fuels. The forecasts do not include any forecast or target for electricity used for rail services (traction). Whilst Network Rail does supply electricity to some engineering trains, these services are operated by other organisations and consumption is therefore not directly controlled by Network Rail (i.e. a scope 3 emission for Network Rail).

The 'NR target' forecasts represent our proposed efficiency profiles for CP5 and equate to an 11% reduction in our carbon footprint by the end of CP5, assuming no change to the carbon intensity of energy that we procure. The NR target forecasts should be compared against the 'business as usual' forecasts which represent our expected performance based on planned changes to numbers or types of energy consuming assets and activities in CP5. Thus the target equates to a 9% reduction against our business as usual performance.

We are currently developing an energy policy and supporting action plan that will deliver this target through a range of energy efficiency and low carbon initiatives. This policy and plan will also include performance indicators for, and actions to collaborate with industry partners on, the efficiency of traction power supply and consumption. This energy action plan will be summarised in our SD plan (see above).

Carbon intensity

As part of the energy action plan in development, we will include interventions to reduce the carbon intensity of our energy supply. This will cover both our discrete use of low carbon generation facilities, as well as a clear approach to engaging and influencing our energy supply chain to reduce the longer term carbon intensity of the energy they generate and provide.

We have recently agreed a ten year contract with EDF Energy for traction electricity which commences October 2014 and is 100% nuclear from EDF's eight nuclear power stations. This is independent of carbon-producing fossil fuels and is in line with our aim to reduce carbon emissions whilst increasing the number of trains and the size of the network. We are in the process of tendering for a new supply contract for electricity for our buildings, stations and operational assets which will also commence in October 2014. Bidders will be assessed on the carbon intensity of their generation as part of the tender award process, and the contract will allow the inclusion of renewable generation opportunities if economically viable.

Embodied carbon

We are finalising our approach to measure and reduce measure embodied carbon within our infrastructure investment processes. This will include draft guidance, to be finalised in March 2014, that:

- Sets out the criteria to select suitable projects for employing this approach
- Details how to use the designated tool to calculate and reduce embodied carbon
- Outlines the process to capture the outcomes and learning

We are actively supporting a RSSB research project to develop an enhanced whole life cycle carbon tool for the rail industry which we will use when the project is completed. In the meanwhile we have secured funding to trial an alternative measurement tool for three projects from April.

Sustainable development (SD) KPIs

As part of our SD plan (see above) we will develop a comprehensive suite of key performance indicators and supporting performance indicators through the course of CP5. However as a minimum we will measure and publically report against the following key performance indicators in CP5.

Table 184: SD KPIs

KPI	Definition
Waste	Total waste production by treatment option (landfill; waste to energy; recycle; reuse)
Embodied carbon	Proportion of major projects using a methodology to measure and reduce the carbon embodied in new infrastructure
Carbon Emissions	Scope 1 & 2 non-traction carbon dioxide emissions (scope as per forecast above)
Carbon Reduction Commitment footprint	Total CO2e emissions from the electricity and gas we procure at our manned sites
Environmental Incidents	Environmental incidents that exceed the threshold for regulatory reporting by category: significant; notable; and minor reportable
Sites of Specific Scientific Interest (SSSIs)	Condition of the SSSIs that we own and manage
Diversity & Inclusion	Breakdown of employees by key indicators of diversity
Charity of choice fundraising	Cash and in kind value fundraised by Network Rail (£) by category: gifts in kind from stations; matched funding; workplace funding; other initiatives
Volunteer leave	Number of employees participating in volunteer leave and total number of days given

N.B. In addition to the above key performance indicators, there are a range of safety indicators which we regularly publish and share with ORR. These are therefore not included here.

Indicators to be reported

The following tables set out the indicators that we will report on, from the March 2015 update of the CP5 Delivery Plan onwards.

Train service reliability – PPM

Table 185: PPM by sub-operator

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Abellio Greater Anglia						
GE Outer	-	-	-	-	-	-
Intercity	-	-	-	-	-	-
Rural	-	-	-	-	-	-
Southend and metro	-	-	-	-	-	-
Stansted Express	-	-	-	-	-	-
WA inner and GE inner	-	-	-	-	-	-
WA outer excluding Stansted Express	-	-	-	-	-	-
Arriva Trains Wales						
Regional and interurban	-	-	-	-	-	-
Valley lines	-	-	-	-	-	-
c2c						
Whole TOC	-	-	-	-	-	-
Chiltern Railways						
Met and Wycombe	-	-	-	-	-	-
London - Birmingham / Oxford and branches	-	-	-	-	-	-
CrossCountry						
South West - North / East Scotland, Manchester - Bournemouth, Newcastle - Reading and Manchester - Bristol	-	-	-	-	-	-
Nottingham - Cardiff and Birmingham - Stansted airport	-	-	-	-	-	-
East Coast						
Anglo - Scottish services	-	-	-	-	-	-
London - Leeds and north East (including Lincoln)	-	-	-	-	-	-
East Midlands Trains						
Long Distance (including Liverpool - Norwich)	-	-	-	-	-	-
Regional	-	-	-	-	-	-
First Capital Connect						
Great Northern	-	-	-	-	-	-
Thameslink	-	-	-	-	-	-

PPM by sub-operator contd.

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
First Great Western						
High speed	-	-	-	-	-	-
London and Thames Valley	-	-	-	-	-	-
West	-	-	-	-	-	-
First ScotRail						
Strathclyde	-	-	-	-	-	-
East coast suburban	-	-	-	-	-	-
Express	-	-	-	-	-	-
Rural	-	-	-	-	-	-
First TransPennine Express						
North TransPennine	-	-	-	-	-	-
South TransPennine	-	-	-	-	-	-
North West TransPennine	-	-	-	-	-	-
London Midland						
LSE	-	-	-	-	-	-
Regional	-	-	-	-	-	-
London Overground						
East London Railways (including West Croydon services)	-	-	-	-	-	-
North London Railways (including London – Watford)	-	-	-	-	-	-
Merseyrail						
Northern line	-	-	-	-	-	-
Wirral line	-	-	-	-	-	-
Northern						
Lancashire and Cumbria	-	-	-	-	-	-
Manchester and Liverpool	-	-	-	-	-	-
South and East Yorkshire	-	-	-	-	-	-
Tyne, Tees and Wear	-	-	-	-	-	-
West and north Yorkshire	-	-	-	-	-	-
South West Trains						
Mainline	-	-	-	-	-	-
Other rural	-	-	-	-	-	-
Suburban (including Waterloo – Basingstoke terminators, Farnham/Alton services)	-	-	-	-	-	-

PPM by sub-operator contd.

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Southeastern						
Mainline and high speed	-	-	-	-	-	-
Metro (including other rural)	-	-	-	-	-	-
Southern						
Gatwick express	-	-	-	-	-	-
South London metro	-	-	-	-	-	-
Sussex coast (including Rugby - Brighton and other rural)	-	-	-	-	-	-
Virgin Trains						
Anglo – Scottish services	-	-	-	-	-	-
London – North West	-	-	-	-	-	-
London – West Midlands	-	-	-	-	-	-

- Actual figures will be required for the previous full years, from 2015-2016 delivery plan onwards

*First Great Western high speed services are required to exit CP5 with a minimum 88% PPM output

Train service reliability – CaSL

Table 186: CaSL by sub-operator

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Abellio Greater Anglia						
GE Outer	-	-	-	-	-	-
Intercity	-	-	-	-	-	-
Rural	-	-	-	-	-	-
Southend and metro	-	-	-	-	-	-
Stansted Express	-	-	-	-	-	-
WA inner and GE inner	-	-	-	-	-	-
WA outer excluding Stansted Express	-	-	-	-	-	-
Arriva Trains Wales						
Regional and interurban	-	-	-	-	-	-
Valley lines	-	-	-	-	-	-
c2c						
Whole TOC	-	-	-	-	-	-
Chiltern Railways						
Met and Wycombe	-	-	-	-	-	-
London - Birmingham / Oxford and branches	-	-	-	-	-	-
CrossCountry						
South West - North / East Scotland, Manchester - Bournemouth, Newcastle - Reading and Manchester - Bristol	-	-	-	-	-	-
Nottingham - Cardiff and Birmingham - Stansted airport	-	-	-	-	-	-
East Coast						
Anglo - Scottish services	-	-	-	-	-	-
London - Leeds and north East (including Lincoln)	-	-	-	-	-	-
East Midlands Trains						
Long Distance (including Liverpool - Norwich)	-	-	-	-	-	-
Regional	-	-	-	-	-	-
First Capital Connect						
Great Northern	-	-	-	-	-	-
Thameslink	-	-	-	-	-	-

CaSL by sub-operator contd.

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
First Great Western						
High speed	-	-	-	-	-	-
London and Thames Valley	-	-	-	-	-	-
West	-	-	-	-	-	-
First ScotRail						
Strathclyde	-	-	-	-	-	-
East coast suburban	-	-	-	-	-	-
Express	-	-	-	-	-	-
Rural	-	-	-	-	-	-
First TransPennine Express						
North TransPennine	-	-	-	-	-	-
South TransPennine	-	-	-	-	-	-
North West TransPennine	-	-	-	-	-	-
London Midland						
LSE	-	-	-	-	-	-
Regional	-	-	-	-	-	-
London Overground						
East London Railways (including West Croydon services)	-	-	-	-	-	-
North London Railways (including London – Watford)	-	-	-	-	-	-
Merseyrail						
Northern line	-	-	-	-	-	-
Wirral line	-	-	-	-	-	-
Northern						
Lancashire and Cumbria	-	-	-	-	-	-
Manchester and Liverpool	-	-	-	-	-	-
South and East Yorkshire	-	-	-	-	-	-
Tyne, Tees and Wear	-	-	-	-	-	-
West and north Yorkshire	-	-	-	-	-	-
South West Trains						
Mainline	-	-	-	-	-	-
Other rural	-	-	-	-	-	-
Suburban (including Waterloo – Basingstoke terminators, Farnham/Alton services)	-	-	-	-	-	-

CaSL by sub-operator contd.

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Southeastern						
Mainline and high speed	-	-	-	-	-	-
Metro (including other rural)	-	-	-	-	-	-
Southern						
Gatwick express	-	-	-	-	-	-
South London metro	-	-	-	-	-	-
Sussex coast (including Rugby - Brighton and other rural)	-	-	-	-	-	-
Virgin Trains						
Anglo – Scottish services	-	-	-	-	-	-
London – North West	-	-	-	-	-	-
London – West Midlands	-	-	-	-	-	-

- Actual figures will be required for the previous full years, from 2015-2016 Delivery Plan onwards

Train service reliability – Freight Delivery Metric

Table 187: Freight Delivery Metric by strategic freight corridor

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
SFC01 - Scotland	-	-	-	-	-	-
SFC02 - Scotland to North West/Daventry/West Mids	-	-	-	-	-	-
SFC03 - Scotland to Tyne/Tees/Yorks/East Mids	-	-	-	-	-	-
SFC04 - Felixstowe/Thameside to Mids/North West/Scotland	-	-	-	-	-	-
SFC05 - Felixstowe/ Thameside to Yorks	-	-	-	-	-	-
SFC06 - Immingham/Tyne to Yorks/Mids	-	-	-	-	-	-
SFC07 - Southampton to West Mids/ North West	-	-	-	-	-	-
SFC08 - South Wales to London	-	-	-	-	-	-
SFC09 - South Wales to West Mids/ North West	-	-	-	-	-	-
SFC10 - Somerset to London / South East	-	-	-	-	-	-
SFC11 - East Mids/Peak Forest to London/South East	-	-	-	-	-	-
SFC12 - Channel Tunnel to Daventry/West Mids/Wembley	-	-	-	-	-	-
SFC901 – Yorks local	-	-	-	-	-	-
SFC902 - Southampton to Yorks	-	-	-	-	-	-
SFC903 - South Wales to North East	-	-	-	-	-	-
SFC904 - South Wales and West Locals	-	-	-	-	-	-
SFC905 - North West and Cross Pennines	-	-	-	-	-	-
SFC906 - South East Local	-	-	-	-	-	-
SFC907 - Mids Local	-	-	-	-	-	-
SFC908- Mail Traffic	-	-	-	-	-	-

- Actual figures will be required for the previous full years, from the 2015-2016 delivery plan onwards

Train service reliability – Right time performance

Table 188: Right time performance by sector

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
London & South East	-	-	-	-	-	-
Regional	-	-	-	-	-	-
Long distance	-	-	-	-	-	-
England & Wales (total)	-	-	-	-	-	-
Scotland	-	-	-	-	-	-
Network-wide	-	-	-	-	-	-

- Actual figures will be required for the previous full years, from the 2015-2016 Delivery Plan onwards

Table 189: Right time performance - TOCs

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Franchised operators	-	-	-	-	-	-
Abellio Greater Anglia	-	-	-	-	-	-
Arriva Trains Wales	-	-	-	-	-	-
c2c	-	-	-	-	-	-
Chiltern Railways	-	-	-	-	-	-
CrossCountry	-	-	-	-	-	-
East Coast	-	-	-	-	-	-
East Midlands Trains	-	-	-	-	-	-
First Capital Connect	-	-	-	-	-	-
First Great Western	-	-	-	-	-	-
First ScotRail	-	-	-	-	-	-
First TransPennine Express	-	-	-	-	-	-
London Midland	-	-	-	-	-	-
London Overground	-	-	-	-	-	-
Merseyrail	-	-	-	-	-	-
Northern	-	-	-	-	-	-
South West Trains	-	-	-	-	-	-
Southeastern	-	-	-	-	-	-
Southern	-	-	-	-	-	-
Virgin Trains	-	-	-	-	-	-
Non-franchised operators	-	-	-	-	-	-
First Hull Trains	-	-	-	-	-	-
Grand Central	-	-	-	-	-	-
Heathrow Express	-	-	-	-	-	-

This table reflects the current franchise regime. All changes to franchises should be reflected in future delivery plans

-Actual figures will be required for the previous full years, from the 2015-2016 delivery plan onwards

Train service reliability – average lateness

Table 190: Average lateness by sector

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
London & South East	-	-	-	-	-	-
Regional	-	-	-	-	-	-
Long distance	-	-	-	-	-	-
England & Wales (total)	-	-	-	-	-	-
Scotland	-	-	-	-	-	-
Network-wide	-	-	-	-	-	-

-Actual figures will be required for the previous full years, from the 2015-2016 delivery plan onwards

Table 191: Average lateness - TOCs

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Franchised operators						
Abellio Greater Anglia	-	-	-	-	-	-
Arriva Trains Wales	-	-	-	-	-	-
c2c	-	-	-	-	-	-
Chiltern Railways	-	-	-	-	-	-
CrossCountry	-	-	-	-	-	-
East Coast	-	-	-	-	-	-
East Midlands Trains	-	-	-	-	-	-
First Capital Connect	-	-	-	-	-	-
First Great Western	-	-	-	-	-	-
First ScotRail	-	-	-	-	-	-
First TransPennine Express	-	-	-	-	-	-
London Midland	-	-	-	-	-	-
London Overground	-	-	-	-	-	-
Merseyrail	-	-	-	-	-	-
Northern	-	-	-	-	-	-
South West Trains	-	-	-	-	-	-
Southeastern	-	-	-	-	-	-
Southern	-	-	-	-	-	-
Virgin Trains	-	-	-	-	-	-
Non-franchised operators	-	-	-	-	-	-
First Hull Trains	-	-	-	-	-	-
Grand Central	-	-	-	-	-	-

This table reflects the current franchise regime. All changes to franchises should be reflected in future delivery plans

-Actual figures will be required for the previous full years, from the 2015-2016 delivery plan onwards

Journey time (average speed)

Table 192: Journey time by sector

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
London & South East	-	-	-	-	-	-
Regional	-	-	-	-	-	-
Long distance	-	-	-	-	-	-
England & Wales (total)	-	-	-	-	-	-
Scotland	-	-	-	-	-	-
Network-wide	-	-	-	-	-	-

-Actual figures will be required for the previous full years, from the 2015-2016 delivery plan onwards

Table 193: Journey time - TOCs

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Franchised operators						
Abellio Greater Anglia	-	-	-	-	-	-
Arriva Trains Wales	-	-	-	-	-	-
c2c	-	-	-	-	-	-
Chiltern Railways	-	-	-	-	-	-
CrossCountry	-	-	-	-	-	-
East Coast	-	-	-	-	-	-
East Midlands Trains	-	-	-	-	-	-
First Capital Connect	-	-	-	-	-	-
First Great Western	-	-	-	-	-	-
First ScotRail	-	-	-	-	-	-
First TransPennine Express	-	-	-	-	-	-
London Midland	-	-	-	-	-	-
London Overground	-	-	-	-	-	-
Merseyrail	-	-	-	-	-	-
Northern	-	-	-	-	-	-
South West Trains	-	-	-	-	-	-
Southeastern	-	-	-	-	-	-
Southern	-	-	-	-	-	-
Virgin Trains	-	-	-	-	-	-
Non-franchised operators	-	-	-	-	-	-
First Hull Trains	-	-	-	-	-	-
Grand Central	-	-	-	-	-	-

This table reflects the current franchise regime. All changes to franchises should be reflected in future delivery plans

Journey time improvements

Network Rail is committed to identifying and delivering improvements in journey time where it is value for money. This requires a process of ongoing engagement with funders and customers to identify and develop these opportunities. This process was piloted in Scotland during CP4 and will continue in CP5. We are always looking for opportunities to improve the process and will work with stakeholders to ensure it identifies all possible journey time improvements. This process is supported by the publication of the journey time metric.

Cross-border service availability

A list of incidents where at least one cross-border route (between England and Scotland) was not available will be reported from the March 2015 Delivery Plan update onwards.

Enablers

Used to assess the company's capability to deliver future improvements in outputs and/or efficiency, within and beyond Control Period 5.

Programme management capability

Network Rail recognises the impact our project and programme management capability has on the successful and efficient delivery of capital works and the operation of the railway. In order to understand better these capabilities and future requirements, we are undertaking a P3M3 (Project, Programme, and Portfolio Management Maturity Model) assessment. P3M3 will allow us to understand better our strengths and weaknesses and assess capabilities that need additional development in order to deliver CP5 successfully, focusing business improvement initiatives on those areas that will realise tangible value.

The initial P3M3 assessment plan is divided into two phases:

- Phase 1 : assessment of Infrastructure Projects and Network Strategy & Planning
- Phase 2 : Operational Routes, Asset Management and Group Business Services (GBS)

Table 194: Programme management capability milestones

Milestone	Description	Date
Start Phase 1 P3M3 Assessment	Appoint assessors, agree assessment strategy, train business leads and issue survey.	January 2014 Completed
Commence development of improvement plans for Phase 1	Complete P3M3 assessment, agree focus areas and commence business improvement planning.	April 2014
Agree Phase 1 P3M3 improvement measures with ORR	Agree the improvement monitoring mechanism with business and ORR based on the business improvement plans developed.	June 2014
Integrate Phase 1 improvement plans into existing change programme	Embed the agreed improvement plans into business as usual activities in the devolved organisations.	June 2014
Start Phase 2 P3M3 Assessment	Appoint assessor/s, agree assessment strategy and issue survey	January 2015
Complete Phase 2 P3M3 Assessment	Complete the P3M3 assessment of routes and GBS.	December 2015

Customer service maturity

Network Rail is committed to improving customer service in CP5.

A Customer Service Maturity Measure (CSMM) has been developed which includes satisfaction measures and also enables Network Rail to track its capability to deliver. The national framework has been influenced by the RM3 safety maturity model approach, and allows sufficient flexibility to deliver measures that are appropriate to route and customer needs, whilst retaining enough consistency to enable a national picture to be retained.

The framework includes measures identified as significantly impacting customer satisfaction levels either from the annual customer satisfaction survey or directly from customers during the CSMM consultation process that Network Rail has undertaken.

The development of the framework has been shaped in collaboration with our customers and route teams. This CSMM consultation has provided a consistent framework of measures, which also enables customer and route customisation by including certain measures that are reflective of local needs. It also recognises the needs of non-lead, as well as lead, customers.

Each attribute will be measured on a scale of 1 to 5 and will be measured quarterly, allowing an up to date and consistent picture of customer satisfaction to be provided. The current annual Customer Satisfaction Survey, which will continue to be a cornerstone of the maturity measure, is to be supplemented by a new bi-monthly pulse check whereby a sample of respondents will score a small number of measures to understand the direction of travel from one survey to the next.

Table 195 provides an overview of the measures being adopted. An indicative national benchmark of the starting position (as at the beginning of CP5) has been created. Given that many of the measures are new and that there will be further development with customers and routes (including calibration) during 2014, the indicative benchmark has been set conservatively.

Over the next year, routes will continue to collaborate with customers to develop each maturity score, based on the national framework. This will provide confirmed route baselines by March 2015 and enable both a refresh of the national indicative baseline, and the provision of a trajectory with a confirmed CP5 exit improvement target.

Next Steps:	
March 2014	CP5 Delivery Plan published, providing detailed maturity measure and indicative baseline
April to September 2014	Further consultation and collaboration with customers to develop route maturity score and identify specific local requirements; confirm calibration and measurement approach.
September/October 2014	Network Rail endorsement of maturity measure for route implementation.
By end December 2014	Population of route maturity measures and baseline
By March 2015	CP5 exit improvement by route; national baseline reviewed and finalised; national CP5 exit improvement and trajectory confirmed.
From April 2015	Route maturity measures go live.

Table 195: Draft Customer Service Measures

Attribute	Measured By	1	2	3	4	5
DELIVERY						
Always puts safety first	Grand Mean within Surveys	1.0 - 1.9	2.0 - 2.9	3.0 - 3.9	4.0 - 4.4	4.5 and above
Delivery Commitments - 'delivering what we say we will'	*To be agreed at a Route by Route level - example potential measure;* Project Delivery	Target missed and MAA deteriorating by more than 1%	Targets missed and MAA deteriorating by less than 1%	Targets met and MAA stable	Targets met and MAA improving by less than 1%	Targets met and MAA improving by more than 1%
Delivery Commitments - 'delivering what we say we will'	*To be agreed at a Route by Route level - example potential measure;* PDI-P / PDI-F	Target missed and MAA deteriorating by more than 1%	Targets missed and MAA deteriorating by less than 1%	Targets met and MAA stable	Targets met and MAA improving by less than 1%	Targets met and MAA improving by more than 1%
Delivery Commitments - 'delivering what we say we will'	*To be agreed at a Route by Route level - example potential measure;* Improved train regulation	Target missed and MAA deteriorating by more than 1%	Targets missed and MAA deteriorating by less than 1%	Targets met and MAA stable	Targets met and MAA improving by less than 1%	Targets met and MAA improving by more than 1%
Delivery Commitments - 'delivering what we say we will'	*To be agreed at a Route by Route level - example potential measure;* Reduced repeat infrastructure failures	Target missed and MAA deteriorating by more than 1%	Targets missed and MAA deteriorating by less than 1%	Targets met and MAA stable	Targets met and MAA improving by less than 1%	Targets met and MAA improving by more than 1%
Delivery Commitments - 'delivering what we say we will'	*To be agreed at a Route by Route level - example potential measure;* TDA correct first time	Target missed and MAA deteriorating by more than 1%	Targets missed and MAA deteriorating by less than 1%	Targets met and MAA stable	Targets met and MAA improving by less than 1%	Targets met and MAA improving by more than 1%
Delivery Commitments - 'delivering what we say we will'	*To be agreed at a Route by Route level - example potential measure;* Reduced late change to timetables	Target missed and MAA deteriorating by more than 1%	Targets missed and MAA deteriorating by less than 1%	Targets met and MAA stable	Targets met and MAA improving by less than 1%	Targets met and MAA improving by more than 1%
Passenger Satisfaction	Overall Satisfaction in NPS	Below 75% NPS	Below 75 - 79.9%	Above 80 - 84.9%	85 - 89.9%	90%
Freight End User Satisfaction	National Overall Satisfaction - Grand Mean in Survey	1.0 - 1.9	2.0 - 2.9	3.0 - 3.9	4.0 - 4.4	4.5 and above
Managed Stations	NPS score for Managed Stations	Below 75%	75.0% - 79.9%	80% - 84.9%	85% - 89.9%	90% and above

Overall train service performance	PPM & CASL or PPRP targets	Neither PPM or CaSL met	Either PPM or CaSL met (but other failed)	PPM and CaSL both met (but neither exceeded)	Either PPM or CaSL exceeded (but other not)	PPM and CaSL both exceeded
POLICY CONTEXT						
Capacity allocation process	Measures to be agreed by Route but could include: ● Timetables at D40 and TW12 available ● Trains correct in downstream systems first time	D-40 or TW-12 not met	D-40 and TW-12 met but greater than 10% Publication Failures	D-40 and TW-12 met but greater than 5% Publication Failures	D-40 and TW-12 met but greater than 1% Publication Failures	D-40 and TW-12 met and zero Publication Failures
Incorporates lead and non-lead customer metrics in Route reporting	Inclusion in Network Rail executive reporting of Customer Delivery Metrics	No metrics reported	Metrics reported annually or for lead customers only	Metrics reported quarterly for lead customers only	Metrics reported quarterly for all customers	Metrics reported 4 weekly for all customers
ORGANISING						
Demonstrates effectiveness in communicating with customers	Grand Mean within Survey	1.0 - 1.9	2.0 - 2.9	3.0 - 3.9	4.0 - 4.4	4.5 and above
Responsiveness to customer needs	Response times to customers on specific requests. Could include: ● Landlord's Consent ● Vehicle Change ● General Requests ● Supplemental TACs	Response times not measured	Response times in place but not met	Response times in place and met Response times worsening	Response times in place and met Response times stable	Response times in place and met Response times improving
Communicates customer views within the organisation	Evidence of framework for understanding and briefing customer issues and requirements - including induction for new staff	No structured communication of customer issues	Ad hoc structured communication on customer issues	Customer issues communicated as part of Management Cascade briefings	Customer issues communicated in Management Cascade briefings plus customer briefing forums twice a year	As 4, plus quarterly customer briefing forums, including delivery by customers

EQUIPPING						
Capability to learn as an organisation	Grand Mean within Surveys	1.0 - 1.9	2.0 - 2.9	3.0 - 3.9	4.0 - 4.4	4.5 and above
Customer Driven	Customer Objectives for Network Rail staff	Very limited customer objectives	Designated customer facing staff have a customer objective	Designated customer service staff have personal customer objective agreed collaboratively with customers	All designated staff have a personal customer objective	All designated staff have personal customer objective, agreed collaboratively with customers
Planning and Performance Review Programme	PPRP jointly developed and signed	PPRP not adopted	PPRP adopted but Performance Strategy not agreed to timescales	PPRP adopted and agreed with all customers to agreed timescales	PPRP adopted and signed by all customers to agreed timescales At least 90% of outputs delivered	PPRP adopted and signed by all customers to agreed timescales All outputs delivered
SUPPORTING NEEDS AND DEVELOPMENT						
Focus on long term needs	Plans for the life of the current and future Control Periods are consulted and are fit for purpose	No plans exist beyond high level current Control Period targets	Some collaboration with customers of plans for current Control Period exist, but nothing exists for future Control Periods	Collaboration with all customers for current Control Period but little or no plans exist for future Control Periods	Collaboration with all customers for current Control Period and plans jointly under development for future Control Periods	Fit for purpose plans exist for current and future Control Periods and drive regulated outputs rather than the other way around.
Responding to customers' needs via commitments in Account Plans	We align with customers to support their business needs through an Account Plan.	No account plans in place	Account Plans with lead customers with some aligned goals and include some Network Rail delivery commitment.	Account Plans with all customers with some aligned goals and some Network Rail delivery commitment.	Account Plans jointly developed with all customers with aligned goals	Account Plans for all customers with aligned goals, an agreed programme and jointly signed, with a track record (2 successive years) of delivery
Provides customers with opportunities for collaboration	Evidence of collaboration with customers (both lead and non-lead) to identify, evaluate and implement improvements. Could include; ● Joint seasonal mitigation plans ● JSIP ● Others agreed locally	No real collaboration exists. Correspondence limited to phone and e-mail	Joint ad hoc meetings are held	Structured meetings are planned but limited collaborative plans exist	Routine planned meetings to collaborate on joint plans take place but collaboration begins part way through	All plans are jointly developed from the start and are signed off and collaboration is routine

Customer differentiation - evidence of working with customers to deliver their bespoke needs	To be agreed at a Route by Route level in collaboration with customers	To be agreed at a Route by Route level in collaboration with customers	To be agreed at a Route by Route level in collaboration with customers	To be agreed at a Route by Route level in collaboration with customers	To be agreed at a Route by Route level in collaboration with customers	To be agreed at a Route by Route level in collaboration with customers

Consultation

Consultation

Network Rail published its draft Delivery Plan suite of documents for consultation on December 18 2013. We received 36 responses to the consultation. These can be split into broad categories and are set out below:

Statutory Rail bodies:

- Department for Transport
- Transport Scotland
- ORR
- Transport for London
- Association of Train Operating Companies

Train Operating Companies

- Cross Country
- Northern Rail
- East Coast
- First Great Western
- First Transpennine Express
- First Capital Connect
- Southern
- Southeastern

Local authorities and Passenger Transport Executives

- Broxbourne Council
- Suffolk County Council
- Hertfordshire County Council
- Stoke City Council
- Cumbria County Council
- Nottingham City Council
- Centro
- Metro
- South Yorkshire Passenger Transport Executive (SYTPE)

Railway representative or user groups

- Rail Freight Group
- TravelWatch East Midlands
- Railfuture
- East West Rail Consortium Project Board
- Edenbridge & District Rail Travellers' Association
- Harborough Rail Users
- East Sussex Rail Alliance

Other groups and individuals

- Newark Business Club
- Two responses from individuals

Key themes in the consultation responses

The majority of the issues raised by respondents concerned the Enhancement Delivery Plan. Most respondents had project-specific comments.

The DfT raised a number of issues:

- Electric spine: DfT has expressed concern that the description of the Electric Spine in the enhancement plan as a development programme is inconsistent with the HLOS. Network Rail has, through discussions with DfT, prioritised some elements of the electric spine works for delivery in CP5, whilst stating that a number of elements would undergo development work in CP5 to inform delivery in CP6. This was deemed to be a more deliverable scope of works. In its response, DfT has reiterated its original HLOS requirement for full delivery in CP5. We are working with DfT and ORR to understand the remit for the electric spine works and will then need to assess the deliverability of the specification. We will then update the definition of the Electric Spine if necessary.
- Project scope and outputs - DfT has raised more detailed issues on a number of projects There is to be a series of tripartite meetings (ORR, NR, DfT) to address the points raised and the overall affordability issue.

Transport Scotland raised concerns in its consultation response that there is inadequate commitment in the plan to improve journey times beyond major enhancements and that some aspects of the Enhancements Delivery Plan give 'a sense of dilution' of Network Rail's commitment to deliver the outputs specified in the HLOS. We are working with Transport Scotland to address these concerns.

As well as comments on individual enhancement schemes, train operators' concerns related primarily to the deliverability of our performance plans and our capital expenditure programme. We are continuing to review our key deliverability risks, focussing on the key dimensions of volume of work, phasing of work, and resource supply capacity.

Key assumptions

The CP5 Delivery Plan sets out forecasts for the next five years. Forecasting of the measures over this time period inevitably requires assumptions to be made about key factors which, if our assumptions turn out be inaccurate, could have a material impact on the actual level of outputs delivered. Set out below are the key assumptions that underpin our forecasts.

Key assumptions	
Safety	Our plans meet our legal duties in terms of safety.
General	
Legislation	Our plans assume no major changes in legislation.
HS2	Our plans do not take account of the impact of High Speed 2 (HS2) on the network. HS2 could have a significant impact on our plans for CP5 and the longer term. The HS2 programme is insufficiently developed to enable us to reflect its impacts in our forecasts. The HS2 construction programme could materially impact on reliability, capacity and network availability during construction, particularly on the LNW and Western routes.
Fares policy	Our demand and traffic forecasts were based on an assumption of RPI+1% fares policy. The Chancellor's 5 December 2013 Autumn Statement stated that regulated fares will, next year, rise in line with inflation, not at RPI+1% as assumed. Any impact of these fares policy change is not reflected in our plans.
Franchises	The outputs procured through the franchising process will be consistent with the outputs specified in the Final Determination. The framework will allow for alignment of our incentives with those of our customers "to do the right thing" between us from a whole industry perspective in terms of the outputs to be delivered and trade-offs in terms of access, performance, capacity and cost. There are no further changes to the franchise map than those already committed to such as Crossrail and the splitting of the Scottish franchise into two. Our plans assume the published re-franchising timescales. All targets/indicators are published based on the current franchise map. The franchise map targets will be adjusted accordingly in future delivery plans.
Weather patterns	For the purposes of asset and system performance planning, we have used the same assumptions relating to weather as those adopted for this year's Performance Planning Reform Programme (PPRP) process. In high level terms, this is based on an average impact of severe weather on performance as experienced over the last five years (2008/09 - 2012/13).
Performance	
Traffic growth	Our performance forecasts assume levels of traffic consistent with those included in the Strategic Business Plan in January 2013. This assumes continued growth in the demand for passenger and freight services. This will translate into an increase of 10 per cent in passenger vehicle kilometres during CP5 and a 22 per cent increase in freight tonne kilometres over the same period.
Timetable changes	Timetable structure and allowances remain as per the December 2013 timetable except for the following known changes: • Thameslink timetable structure as specified by DfT for December 2018 • First TransPennine Express fifth train service across the Pennines will be introduced in May 2014 • re-cast of trans-Pennine services in 2016/17 • Crossrail starts operation in 2018/19.

Train operator resources	The forecasts assume that any changes in crew resources and rolling stock resources and reliability do not impact on the level of performance delivered. Where appropriate we have assumed new rolling stock will improve overall fleet reliability.
Delay minutes	Delay minute numbers in this delivery plan are based on the current industry definition of delay, which includes all attributed delay minutes.
PPM and delays per incident (DPI)	The forecasts generally assume the existing relationship between delay minutes and PPM does not worsen.
Enhancements programme	We have the flexibility to profile the delivery programme (in agreement with our stakeholders) of key enhancements in order to maximise value for money. In the CP5 Enhancements Delivery Plan document, each enhancement project has set out the relevant key assumptions and interdependencies for that project.
PDI forecasts	
Third party access	We have excluded an assessment of the impact of the third party funded activity on our network as we do not have a robust view of CP5 activity. Further, the activity levels in CP4 were not representative due to the impact of the Olympics and the specific economic conditions.
Volume /activity levels	The PDI forecasting assumes the relationship between volumes and activity levels in CP5 is the same as in CP4.
Maintenance activity	Disruption to passengers and freight services from planned maintenance activities will be broadly maintained at CP4 levels.
Level of disruption	In CP5, passenger and freight services are likely to experience broadly the same levels of disruption from planned engineering work carried out in the same geographical areas as in CP4.
Efficiency	Efficiency gains from the access management process in CP4 will continue in CP5
Asset management	
Asset policies	Our asset policies will be subject to continuous improvement through CP5. Our maintenance and renewal volume plans may change to reflect these developments in asset policies and as a consequence of improved asset information.
Civils adjustment mechanism	Our plans for our civils assets (including volumes, unit rates and efficiency profiles) for years three to five of the control period will continue to develop and be confirmed as part of the civils adjustment mechanism prior to April 2016.
AMEM	Our forecast scores assume no significant re-baselining within the AMEM assessment tool.
Reliability and sustainability forecasts	Our forecasts for some of these measures will be updated to reflect improvements in data quality through the control period.
Rollover	Our plans assume that rollover of certain works deferred from CP4 will be agreed with ORR. These volumes are not included within this delivery plan.

Track volumes	Our track plans continue to develop as part of our overarching track renewals improvement programme and, as part of this programme, we are reviewing the benefits of smoothing some volumes related to our high-output activity through the control period. As this review will not conclude before publication of this document, it is expected that some re-phasing of high output track volumes will occur after publication.
Supply chain	Our supply chain partners have the required capacity and capability to deliver our plans, including management of scarce skills e.g. for electrification schemes. We have a contracting framework with our supply partners that will enable productivity benefits to be realised and that our work banks are sufficiently stable and visible to enable our supply partners to innovate.
Maintenance	Our forecast maintenance volumes do not reflect the impact of initiatives already in progress such as risk-based maintenance and PLPR. Development of these initiatives will lead to material changes to some of our maintenance volumes during the control period.