

Strategic Business Plan for England & Wales

January 2013

Foreword

Network Rail is part of a successful industry, carrying record numbers of passengers and freight traffic, safely and reliably. As a consequence customer satisfaction is at record levels.

This success brings with it both challenges and opportunities. We must continue to improve customer satisfaction and meet the rise in demand, while getting the right balance between performance, capacity and cost. And we have a responsibility to continue to deliver greater efficiencies and reduce public subsidy.

Part of our response to these challenges has been to evolve Network Rail into a more accountable, open and innovative organisation. Through closer collaboration with our partners we are better placed to deliver exceptional service for passengers and freight customers. But this transformation is not yet complete, and over the coming years will continue to improve our business and our role in the industry.

The aim of the rail industry is to place the railway at the centre of a transport system which drives economic growth. This was supported by the Command Paper and the HLOS published last year. Our plans for CP5 will deliver the HLOS; reducing safety risk, providing capacity to drive economic growth, maintaining record levels of performance, reducing carbon emissions and reducing the level of subsidy required by the rail industry.

Network Rail exists to deliver outstanding value for taxpayers and customers. This includes identifying where savings can be made and where investment can safeguard long-term efficiencies. Consequently we have conducted significant work on the condition of our assets. This has shown us that the age of our structures coupled with decades of underinvestment means that these assets are not sufficiently resilient.

Furthermore, their age makes them more vulnerable to extreme weather – which is becoming more frequent. It will take two control periods to address

and means greater spend on structures than assumed in the Initial Industry Plan (IIP). However, ignoring the issue would lead to higher costs in the future.

Our Strategic Business Plan for CP5 comes as the result of considerably deeper analysis than CP4. In line with our new devolved structure, routes and supporting functions have led the creation of the business plan in their areas, with review and challenge by the centre. Therefore our plans are more robust than ever before, including clear outcomes and initiatives.

To deliver our plans we have begun changes to the way we work, with devolution, alliancing and greater accountability at all levels of the business. We also need changes to the environment we work in. We need a regulatory framework that provides the flexibility and incentives to work with our customers to make trade offs between performance, capacity and cost so that we can deliver better value for money to the industry's customers and funders. And to do so we must earn the trust of our stakeholders to have confidence that we can deliver a better value for money railway if these changes are made.

We want to outperform our settlement and deliver greater savings. So we will continue to explore new ways of working to deliver greater efficiencies and generate greater revenue, in particular through the work of the Rail Delivery Group.

This is an ambitious plan. It is one that commits the company to deliver a better railway and better value to funders and customers in CP5, whilst transforming itself to be able to deliver a longer term vision for the company and the railway to generate outstanding value for taxpayers and customers.

David Higgins, Chief Executive

Key messages

This document is our Strategic Business Plan for England & Wales for the five year period from April 2014 to March 2019 (known as Control Period 5 or CP5) and beyond. It sets out what we need to do as a business to meet the needs of customers and other stakeholders. It is also a critical input into the Office of Rail Regulation's (ORR) periodic review for CP5 in response to Government's High Level Output Specification (HLOS).

The plan is based on a huge amount of work throughout the business focused on improving value for money and service. Our plan starts with a clear view of Network Rail's vision as well as the industry's vision for the railway and it provides a clear line of sight to our objectives for CP5 and beyond.

While we were preparing the plan, we carried out a major change through which we have moved from a functional organisation to a devolved organisation based around ten route businesses. This change means that our plans are based much more on detailed bottom up analysis with greater ownership by the routes and supporting functions which are going to be responsible for their delivery. As part of the process there has also been an extensive and iterative process of review and challenge by the central teams.

The information and analysis upon which the plan is based has improved considerably during CP4. These changes mean that we are in a better position than ever before to know what needs to be done to meet the needs of customers and other stakeholders. As with any good plan the detail will inevitably continue to be improved and refined over the coming years.

The plan has been developed in consultation with the rest of the industry at a national level through the Planning Oversight Group and the Rail Delivery Group. It has also been developed locally with train operators as well as through increasing collaboration with suppliers. Further development of the plan and its successful delivery will require continued improvement in the way we work with operators and suppliers as we develop our plans.

Since Network Rail's creation, the industry has made huge progress in improving service and value for money. Building on progress in CP4, this plan aims to meet the requirements of customers and other stakeholders. As such, it aims to deliver the HLOS outputs and other commitments safely, sustainably and efficiently. During CP5 we plan to:

- deliver continuous improvement in safety, particularly reducing risk at level crossings
- enhance the capacity and capability of the railway, with a plan developed with train operators to deliver 20 per cent more morning peak seats into central London and 32 per cent more peak seats into major regional cities during CP5
- focus on reducing the variability in train service reliability and plan to deliver performance of 92.5 per cent PPM by the end of CP5
- deliver efficiency savings of 18 per cent by the end of CP5.

These outputs are important not just for customers but also for the wider economy and our analysis indicates that the benefits to the nation of our planned enhancements are likely to be several times the cost of those enhancements.

In delivering these outputs, we must continue to be honest about the remaining challenges and recognise that there are significant improvements that we can make in the coming years. The key challenges include:

- having a continued focus on safety so that we remain one of the safest railways in Europe while improving workforce safety
- the huge growth in the demand for rail services since privatisation which is set to continue. As the network becomes increasingly full, particularly in peak periods, the rail industry must be able to make balanced and evidence-based choices between providing increased capacity, improving punctuality and driving down costs
- managing today the Victorian legacy of a railway that was substantially built in the century before last. This has been illustrated by a number of bridges and earthworks that have failed in the recent past and by the impact of extreme weather on our network. Our plan is to address the past under investment in these assets over the next two control periods
- sustainable levels of maintenance to deliver a safe and resilient railway. Delivering the necessary inspection, maintenance, renewal and enhancement activities requires a realistic level of access to the railway which must be balanced with running trains for passengers and freight users whenever possible
- improvements being delivered through increasing investment in research and development together with technology to further modernise the railway as well as ongoing investment in our people who are critical to the successful delivery of our plans
- continuing to look for further opportunities to reduce costs and deliver improved value for money, while recognising that additional investment will be necessary if we are to address the remaining legacy issues and provide for further growth.

The railway needs a constructive periodic review process with a robust outcome which we believe should include:

- an outcome from the CP5 Periodic Review which recognises the opportunities and challenges faced by the industry
- a CP5 Delivery Plan, based on ORR's outputs and funding determination, which we are confident is deliverable and enables us to focus on delivering and exceeding our targets
- avoiding a hiatus at the start of the next control period in which we need to revise our plans substantially
- a regulatory framework that is clear, simple, flexible and focused on enabling people both in Network Rail and the rest of the industry to work collaboratively and to outperform expectations.

We are very aware that our plans include higher costs than were assumed by Government. However, these plans also provide for substantial investment to address the remaining areas of underinvestment from previous decades; to modernise the railway reducing its future running costs; and to provide further capacity to allow for growth. We must avoid simply cutting costs instead of achieving real lasting improvements in efficiency. Trying to reduce costs too fast and without the necessary investment would increase the risk of under performance in delivering the planned outputs.

The cost of our planned enhancements is higher than we assumed in the Initial Industry Plan. This is partly because of an increase in the cost of some schemes such as the Great western electrification but is mainly due to change in requirements for additional capacity or other enhancements.

Over the next few months, ORR will review our plans in detail. We expect ORR to be challenging in seeking value for money for taxpayers and railway users. We welcome this challenge, and will be transparent about the assumptions and evidence underlying our plans so that the review can be focused on getting the right outcome for the railway.

Our Strategic Business Plan for England & Wales

This Strategic Business Plan (SBP) sets out our plans to deliver better service and value for money for customers and taxpayers. It therefore includes details of our vision for the business in support of the industry's vision for the railway.

The SBP is also our response to the Secretary of State's High Level Output Specification (HLOS) and is our submission to ORR to inform their draft determination as part of the Periodic Review 2013 of our revenue requirement for the five years from 2014 to 2019. There is a separate SBP for Scotland that sets out our plans for Scotland our response to Scottish Ministers' HLOS.

The SBP sets out our outputs, activities and expenditure for the next control period consistent with our vision and with the HLOS for England & Wales. The SBP also includes longer-term projections of activities and expenditure that reflect our approach to managing the network on a sustainable, whole-life cost basis.

The SBP has been created through a process of developing our plans at a route and functional level consistent with the achievement of overall corporate goals and delivery of the outputs required by the HLOS. The key building blocks of the SBP are therefore these route and functional plans. We have also published these plans.

There are a number of other supporting documents which are detailed at the end of this document. Supporting documents associated with each element of the plan are referenced on the relevant pages.

The SBP has been developed in collaboration with our industry partners. The plan reflects discussions with operators and we believe it meets their reasonable requirements. The industry's response to the HLOS is set out in the Industry Strategic Business Plan, a companion document to Network Rail's SBP. The development of the Industry SBP has been managed by Planning Oversight Group and overseen by the Rail Delivery Group. We would like to thank all our industry partners for their engagement and commitment to producing the Industry Strategic Business Plan.

Page	Section	Content
6	Strategic Direction Statement	This section sets out our role, purpose and vision in the context of a longer-term vision for the railway
17	Transforming Network Rail	This section sets out the strategic themes, their outcomes and the key initiatives that will transform our company and deliver our vision for the company and the industry
30	Activity and expenditure plans	This section sets out our forecasts of activity and expenditure for the remainder of CP4, for CP5 and the longer-term
61	Outputs	This section sets out the forecast of outputs we plan to deliver for the rest of CP4 and CP5
71	Deliverability, risks and assumptions	This section sets out our assessment of the deliverability of our plan, the key assumptions we have made and analysis of the level of risk and uncertainty surrounding our forecasts
77	Financing and funding	This section sets out how we intend to finance the plan and revenue required to fund the plan
85	Next steps	This section sets out the further development of our plans and the next steps in the periodic review process

Strategic Direction Statement

This section sets out Network Rail's Strategic Direction Statement, and places our role in the context of the broader long-term industry vision for the railway. It covers:

- The framework for developing our vision 7
- Historic and future performance 8
- The future external environment 9
- The prospects for rail 10
- The industry vision for the railway 11
- Reflects opportunities in the plan 12
- The company's purpose, role and vision 13
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The following section contains further details on the key outcomes grouped by strategic theme

There is a coherent planning framework for the railway and for Network Rail

The railway comprises long-life assets that need to be planned as a system, based on an understanding of the longer term opportunities for each market and the external factors which may affect them. We, with the industry, need a common understanding of the external environment and the future uncertainties, at both a macro and market level. This will allow us and the industry to develop an appropriate vision and strategy that can better withstand a range of possible scenarios focused on the needs of customers and other stakeholders.

The business has evolved in the last decade and we are now well placed to plan for the further improvement in the railway. In particular, improved information, devolution of accountability to ten routes and continued centralisation of activities only where this adds value results in more robust and deliverable plans as well as greater opportunity for closer collaboration with train operators and suppliers.

The industry's long term planning framework continues to evolve in response to the needs of its customers and the wider economy as well as to the maturity of the industry.

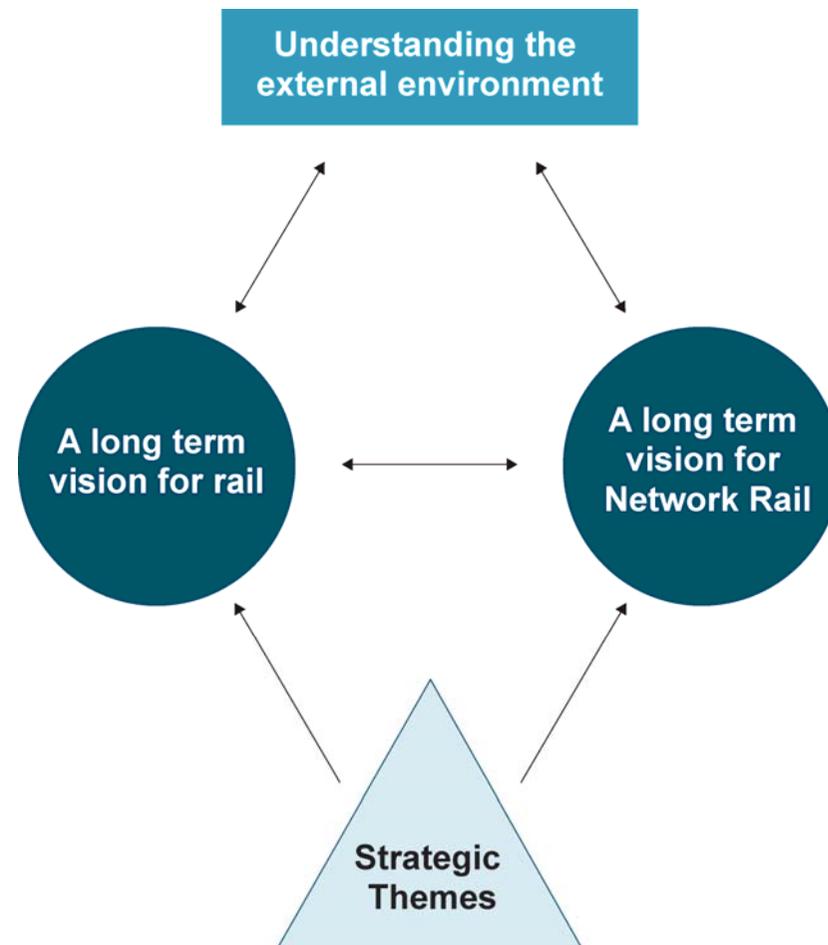
The industry published Planning Ahead in 2010 that set out a long term vision for the rail network. This publication was developed by Planning Oversight Group (POG) and informed by the programme of route utilisation strategies (RUSs). The longer term forecasts of growth and proposed strategies developed in the RUS programme also underpinned the Initial Industry Plans (IIP). These were published in September 2011 to inform Governments in the development of their High Level Output Specifications (HLOS). The levels of growth to be accommodated in the HLOSs are consistent with the industry's longer term growth forecasts set out in the IIPs.

The Rail Delivery Group now oversees the work of POG, which continues to provide the focus for the long term planning of the industry and draw together the perspectives from various industry partners and various planning processes. These processes include our own long term planning of the network at a market and route level, major project development and the franchising process.

Having taken stock of where we are as a business, and having assessed the external environment, we have defined our purpose, role, and vision. These are complementary to the industry's vision for rail.

Having determined our vision, we identified the longer term outcomes necessary to deliver our vision and our contribution to the industry's vision for rail. We have grouped these outcomes into a framework of strategic themes.

The following pages outline how the railway is performing today before explaining elements of this planning framework in more detail.



The railway today is a high performing one and we will continue to improve it

The GB railway has delivered unprecedented growth, carrying record levels of traffic, and at record levels of performance and safety. This has resulted in record levels of customer satisfaction. At the same time the industry has halved the subsidy required from Governments.

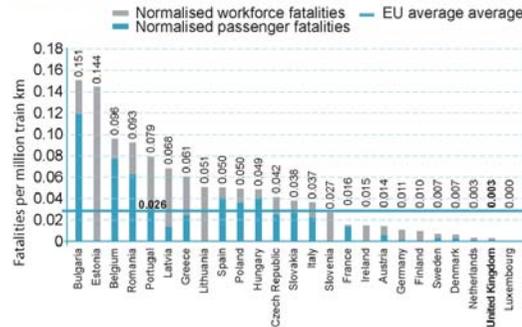
This success has placed rail at the centre of the Governments' strategy for a dynamic, sustainable transport system that helps drive economic growth and competitiveness.

The publication of the High Level Output Specifications and Statements of Funds Available in 2012 committed significant investment in Control Period 5 in the rail network.

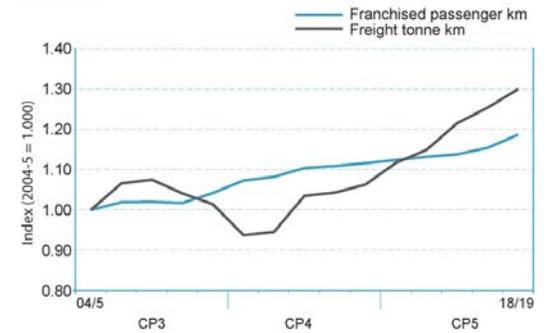
This vote of confidence in rail is built on an impressive track record. The rail network today:

- is the second safest railway in Europe, and is significantly safer than road and comparable with air transport
- carries more trains than ever before, with ten per cent more train kilometres than 2004/05 and three per cent more freight moved over the same time period
- delivers more trains to their destinations on time, with punctuality (PPM) improving from 83.6 per cent in 2004/05 to 91.6 per cent in 2011/12
- delivers improved asset performance with greater reliability and sustainability; for example, broken rails have fallen from 322 in 2004/05 to 125 in 2011/12
- is increasingly more efficient; we delivered a 27 per cent efficiency improvement in CP3 and a further 20 per cent in CP4. We have reduced our operating and maintenance costs per vehicle kilometre by 46 per cent between 2003/04 and 2011/12.

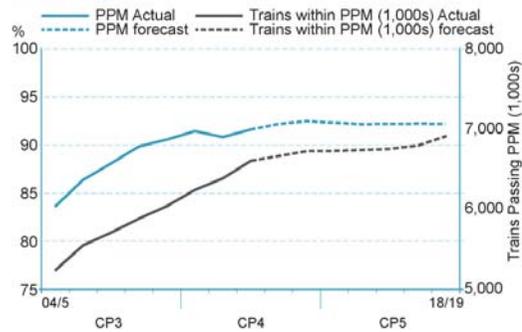
Fatalities



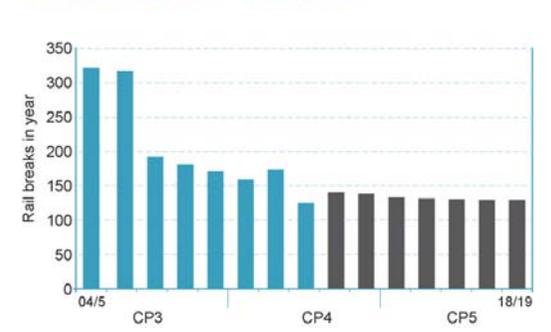
Traffic



Punctuality



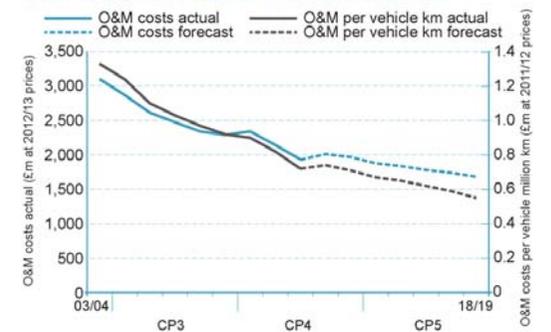
Asset stewardship – rail breaks



Efficiency



Operating and maintenance unit costs



Our environment will continue to evolve and we need to evolve with it

Customer expectations will continue to rise

- the railway is a service industry, with different markets and different customer needs. All of them, passengers or freight customers, will expect services to improve, to reduce the hassle and complexity of using the railway. This applies all the way through their experience, from the planning of their journey and buying a ticket through to using the service, to leaving the system to their onward destination. Accessible, timely and accurate information is key at all stages of this experience
- the industry must continue to focus on the needs of its customers, and continue to improve the experience of using the railway system including information, the experience at stations, and the travel experience on trains. For freight customers, the railway must be part of a seamless and reliable system to get goods to market. Our plans are driven by the needs of our customers

Technology will transform delivery and the way customers interface with the railway

- the proliferation of smart phones and mobile devices over the last decade has set a trend for increased real time interaction from consumers that looks set to continue. This is resulting in demands for new information systems and smart ticketing
- innovation is changing the day-to-day operation of the railways, with consolidation of signalling activities, increased metering of energy consumption, and frontline devices such as the new lookout operated warning system – improving safety to staff working on the railway
- our new operating strategy introduces new systems and innovative operating centres. This will reduce the frontline operations workforce of 5,600 to less than 1,500 by migrating operational management from over 800 disparate locations to 14 modern operating centres. Migration will be staggered so the levels of redundancies will be kept to a minimum through staff retirements, leavers and utilisation of staff at other locations where possible

There will be an increased level of transparency

- there has been an increase focus on transparency, particularly for services that use public financial resources. The Government has set out a clear transparency agenda to help promote higher quality and more efficient services, choice and accountability
- we are currently making more and more information on our operations publicly available
- we have recently restructured our project delivery function; Infrastructure Projects (IP), and we are currently seeking to improve how we contest or open up projects to third party deliverers. This will increase transparency, contestability, and consequently efficiency of our project delivery
- transparency is also critical to improving how we work internally. To help us achieve our goal of everyone home safe every day, we are taking a variety of steps to encourage our staff and contractors to challenge and report unsafe behaviour

The move towards increased localism will continue

- in the last decade significant responsibility has been devolved to Scotland and Wales – with potentially much further responsibility to be devolved following the 2014 Scottish independence referendum
- with the 2011 Localism Bill in England & Wales there are now further freedoms and flexibilities for local government to take decisions locally. A similar trend is also observable in the private sector with consumers placing greater value on local produce than in previous years
- to provide the service that our customers and stakeholders want, we will also need to take a more localised approach to the way we operate. This journey has already begun, with us devolving much of our decision making to a route level, to bring us closer to our regional stakeholders
- supporting the organisational changes driven by devolution, we are in the process of co-locating many activities which will remain at the centre, in purpose built office accommodation in Milton Keynes
- closer working with customers and delivery partners is leading to a sharper focus on the needs of local stakeholders

The climate will continue to change

- we will seek to understand and optimise our resilience to extreme weather events and climate change. We will provide climate change scenarios to help the regulator understand the basis for our resourcing requirements and to protect the value of our assets
- in recent years governments have introduced a suite of measures aimed at improving energy efficiency and reducing carbon emissions. There is a greater national recognition that we all have a role to play in delivering positive environmental outcomes
- Network Rail has a key role to play in reducing carbon and improving the environment. Not only through promoting rail freight growth, but also through the efficiency of our operations

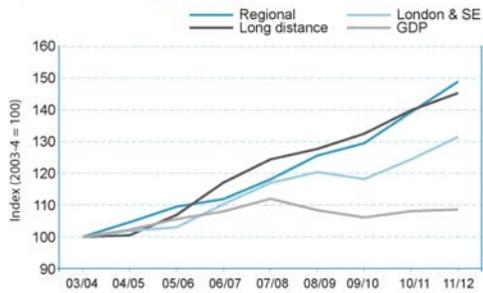
Customers and funders expect greater value for money

- we have made significant reductions in the cost of running the railway. Growing demand will increase revenue, which can be re-invested in the railway and reduce the level of subsidy required to run the railway
- investment in capacity and service quality will be required for rail to meet future demand, and government funding will continue to be required to achieve this. The industry must continue to improve the value for money to customers and funders in order to justify this continued investment in rail
- the industry must better understand and make more explicit the trade offs to be made between performance, capacity and cost. Seeking to continually improve performance on a capacity constrained network is unlikely to offer value for money in the long term. Choices also need to be made as to how capacity is used including service frequency, journey times, and operating hours. The industry needs to balance the outcomes for passengers, freight customers and taxpayers. Government has a role in making high level choices and the industry would seek to inform these choices. Detailed choices are best made at a more local level

The prospects for rail are good

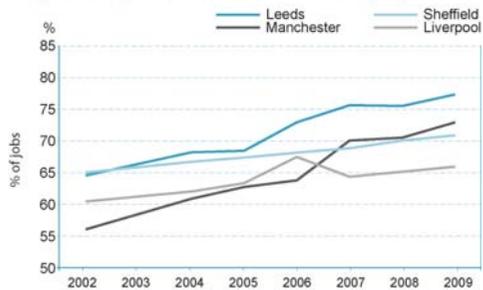
Demand for rail services has increased dramatically over recent years and is forecast to nearly double over the course of the next 25 years. This anticipated growth is supported by underlying trends in the economy and passenger markets favouring rail, which are set to continue in the longer term. Rail is ideally and best placed to respond to this growth, as economic and environmental priorities and trends in the market play to rail's core strengths, that is, moving large volumes of goods and passengers over long distances, and between and into city centres and their catchments.

GDP and rail passenger km



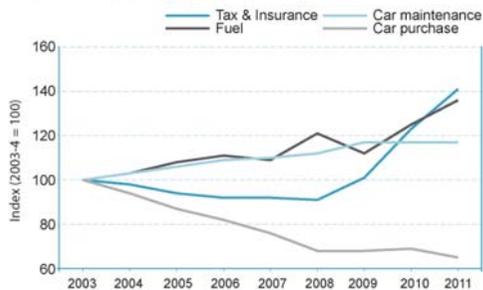
Whilst economic growth has, at best, been broadly flat since 2007, the demand for rail has continued to grow strongly across all passenger markets.

City centre jobs in office-based employment



The employment base in our large regional cities is changing, increasing the demand for rail commuter services from catchment areas. The trend towards a more knowledge based economy in our large cities will also generate additional business trips.

Cost of motoring (real terms)



In the last few years the purchasing cost of cars has declined but running costs have increased, especially the cost of fuel and insurance.

Connecting the knowledge-based economy

The top cities for knowledge-based jobs are all on the core rail network

These cities account for over half of all knowledge-based jobs, and have more than twice the proportion of knowledge based jobs compared to the rest of the country (19% vs 9%)



The industry has developed a long term vision for rail

The rail industry today

A railway today that:

- is one of the safest in Europe
- has customer satisfaction at 83 per cent
- is running more trains than ever before, with 14 per cent more train kilometres than 2003/04 and a 62 per cent increase in freight moved since privatisation
- the highest ever levels of performance
- has seen Government support nearly halved in real terms since 2006/07

By 2019

A railway by the end of CP5 that:

- continues to be one of the safest in Europe, reducing risk at level crossings by eight per cent in CP5
- is delivering 20 per cent more seats into central London during peak hours, and 32 per cent into large regional cities in England & Wales. By the end of CP5, (moving 225 million more passengers per year)
- is maintaining record levels of performance, with expected PPM of 92.5 per cent
- delivers continuous improvement in customer satisfaction
- delivers a step change in connectivity between regional centres e.g. six fast trains and up to a ten minute reduction in journey time between Manchester and Leeds
- transforms the nature of the rail network, with over 3,000 track kilometres more electrified railway and the completion of major enhancements to the network including Birmingham New Street, the Intercity Express Programme, Thameslink, Crossrail, Reading, and Edinburgh Glasgow Improvements Programme.
- contributes to a lower carbon economy, reducing CO₂ emissions per passenger by 37 per cent
- removes the equivalent of one million lorry journeys off the road per year with freight tonne kilometres forecast to increase by 22 per cent
- is more efficient. Overall industry subsidy will reduce from 7.0 pence per passenger kilometre in 2014 to between 4.7 pence and 5.3 pence per passenger kilometre

The longer term

By 2035 the industry aspires to deliver:

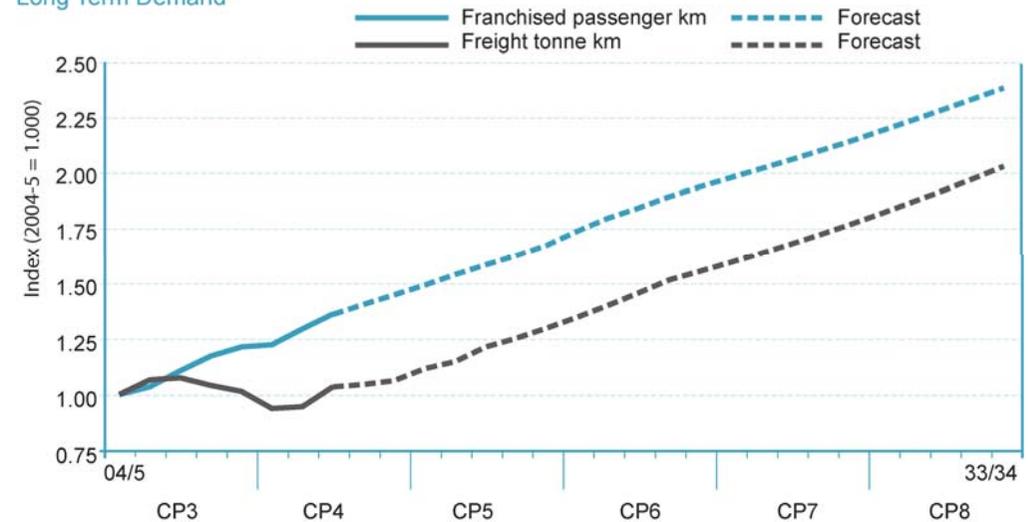
- levels of reliability and safety that are among the best in the world
- passenger satisfaction of at least 90 per cent
- capacity to accommodate twice as many passengers as today, including capacity provided by HS2
- improvements in the product offer for freight customers
- a financially sustainable railway through improved efficiency and revenue generation
- a greater reduction in CO₂ emissions

Long term planning is vital to the industry, its delivery partners, and funders. The development of a clear long term vision enables efficient planning, facilitates efficient short to medium term investment decisions as well as ensuring an efficient and sustainable railway for future generations. Planning Oversight Group (POG) published in the Long Term Planning Framework a longer term vision of the industry.

The industry is committed to increasing rail's significant contribution to Great Britain's economic, social, and environmental welfare. Compared to other transport modes, rail is best placed to respond to growth, as economic and environmental trends in the market play to rail's core strength of moving large volumes of goods and passengers over long distances, and between and into city centres.

While in the shorter term growth may fluctuate year on year, in the longer term we forecast strong and steady growth rates.

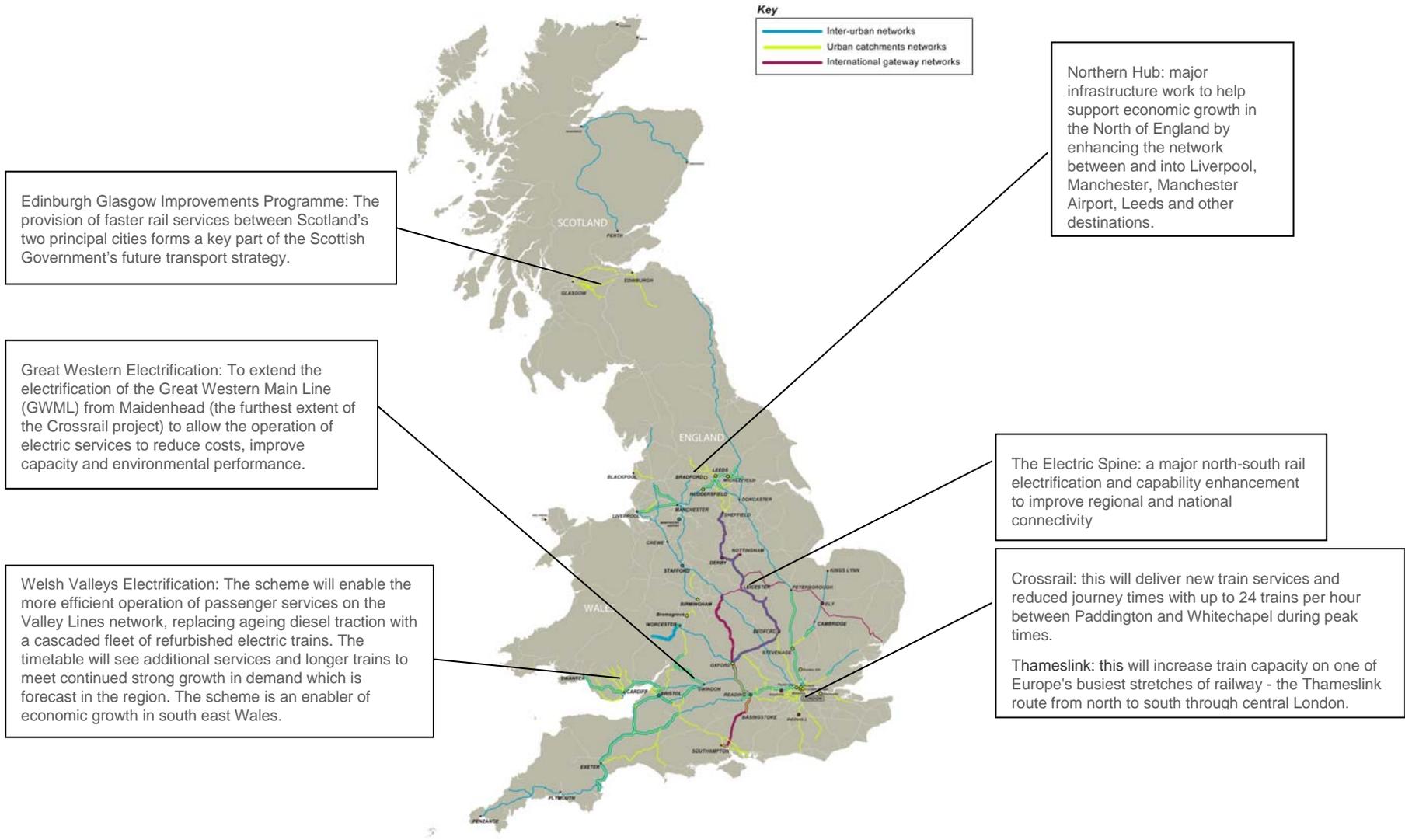
Long Term Demand



The Industry Strategic Business Plans set out in more detail the industry's view of the longer term prospects for the key rail markets

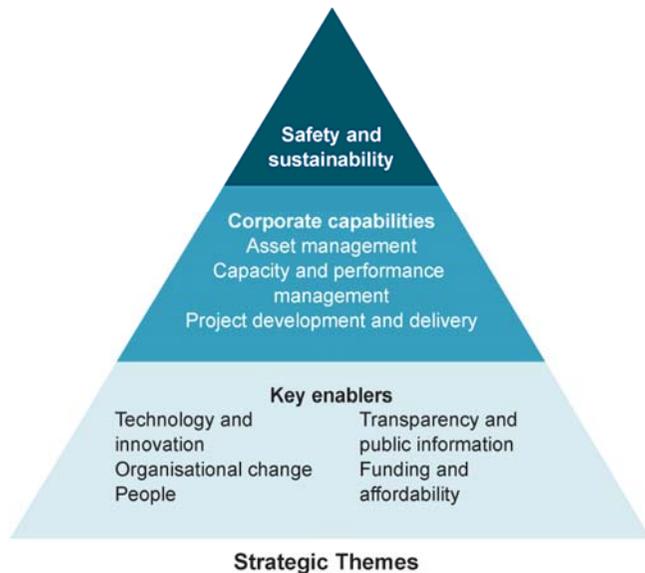
Our plans for CP5 reflect these opportunities

Improvements in the networks identified by the Eddington Transport Study are key to supporting economic growth. The critical networks are urban areas and their catchments, key inter-urban corridors and connections to international gateways, both passenger and freight. Our enhancement plans for CP5 will make substantial improvements to these networks.



We have developed a fresh vision for Network Rail

Our purpose (Why we exist)	To generate outstanding value for taxpayers and customers			
Our role (What we do)	A better railway for a better Britain			
Our vision (What we want to be)	To be a trusted leader in the rail industry			
Our strategy (How we're going to do it)	To work with our partners and use our full potential to improve safety, reliability, capacity and value for customers and tax payers			
Our behaviours (How we need to work)	Customer driven	Accountable	Challenging	Collaborative

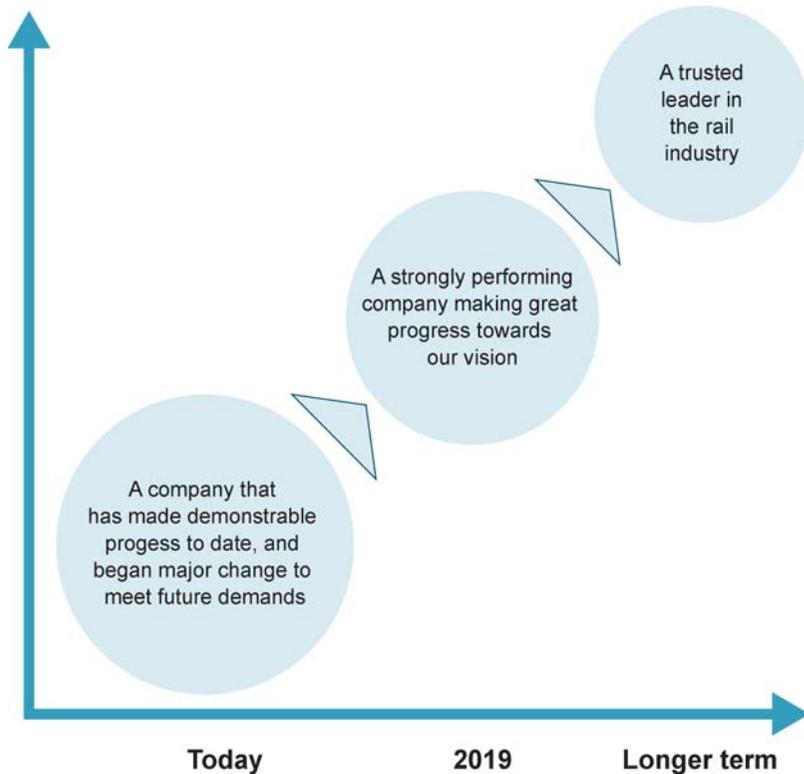


In the context of a changing external environment, and supporting the industry's vision, we have defined our purpose and role.

- Our key purpose is to generate outstanding value for taxpayers and customers
- We will do this by delivering a better railway for a better Britain – a railway that is safer, more reliable, with greater capacity and efficiency operating in a Britain that has a thriving, sustainable, low-carbon and balanced economy with better connections between people and jobs
- We recognise that we will only be able to do so through collaboration with the rest of the industry, and leading where appropriate
- We will achieve this by working with our partners and using our full potential to improve safety, reliability, capacity and value for customers and taxpayers
- We will do this by unlocking the potential and expertise of our people, and those who work for the passenger and freight operating companies, to take us to the next level of performance
- We aim to move from the centralised, compliance driven mindset which was necessary in Network Rail's first decade, to a more judgement-led, risk-based, locally responsive culture which can respond flexibly to the changed environment we now face
- So, the behaviours that will guide our work will be: customer driven; accountable, transparent and accessible; challenging, both of ourselves and each other; and collaborative in the way we work with the rest of the industry.
- To show our employees how their work helps deliver our strategy we have identified a number of key outcomes we need to achieve and we have grouped these outcomes under ten strategic themes.

It will take at least a decade to deliver our vision and we expect to make significant progress in the next five year period.

Realising the potential of our people to deliver the vision



Our vision requires a culture that empowers our people to realise their full potential.

To show how they contribute to our vision we have created a roadmap to delivery based on long term outcomes. This is supported by shorter term outcomes to be delivered by 2019, the end of Control Period 5. This will help measure our progress.

We have already put in place the foundations for change:

- We have re-structured our company to provide a sharper focus on our customers and to provide clearer accountabilities across the company. Everyone understands who their customers are.
- We have simplified what it means to act safely while at work. We are applying this principle of simplification to all areas of activity and are developing 100 Executive Rules which will replace the previous 1,650 standards.
- We are developing new ways of working with our customers and delivery partners, exploring opportunities to exploit win-win situations and share financially in our mutual success.

By the end of Control Period 5 we aim to have all the major building blocks in place to deliver our vision. If we achieve this we will have made great progress.

We have defined the outcomes required to deliver our vision

Strategic theme	Key 2019 outcomes	Longer term outcomes
Safety	<ul style="list-style-type: none"> Eliminate all fatalities and major injuries with a 50 per cent reduction in train accident risk. 	<ul style="list-style-type: none"> Everyone goes home safe every day.
Sustainability	<ul style="list-style-type: none"> Implementing our Sustainable Development strategy including climate scenarios in our asset policies and investment decisions. 	<ul style="list-style-type: none"> Rail is recognised as central to a sustainable UK economy – driving economic growth, supporting social opportunities and a greener environment. Network Rail as a strong and prosperous business through good management of our economic, environment and social impacts.
Asset management	<ul style="list-style-type: none"> A benchmark against which organisations throughout the world assess their own asset management capabilities. Enhanced Asset Information: real-time system-wide infrastructure information enabling greater network capacity exploitation and improved traffic management. 	<ul style="list-style-type: none"> First rate cross-industry asset management processes. Modern asset information and other industry systems.
Capacity and performance management	<ul style="list-style-type: none"> Operating the railway on a day-to-day basis consistent with our planned outputs. Short and longer term decision processes make balanced choices between cost, capacity, performance, availability and other outputs. 	<ul style="list-style-type: none"> Performance, capacity, availability and other outputs optimised as part of balanced long term decision making process taking account of cost, user benefit and wider benefits.
Project development and delivery	<ul style="list-style-type: none"> We are delivering a step change in whole life, whole system capability through better project delivery. We are delivering demonstrated value from working in partnership with both our train operators and our suppliers. Infrastructure Projects is winning business in competition. 	<ul style="list-style-type: none"> Infrastructure Projects are significant partner to HS2. Recognised by stakeholders and customers as being the best rail infrastructure project delivery organisation in the UK.
Technology and innovation	<ul style="list-style-type: none"> Improved real time communication with customers and other stakeholders. Commencement of the implementation of European-compliant railway control systems including: GWML, ECML(S), Thameslink core. Network Rail's technical strategy is leading an R&D programme that is integrated with our supply chain. Investment in technology development is at global industry levels. 	<ul style="list-style-type: none"> Passengers interface with the railway in real time through multiple channels. European-compliant railway control system in place on 20 per cent of the network by 2024, including: GWML, ECML(S), MML, Thameslink core and High Land Mainline. Our sustained investment in technology development, in partnership with the rest of the rail industry, is transforming the railway system.
Organisational change	<ul style="list-style-type: none"> Network Rail is devolved to align with customers and is benefiting from improved system operator capability. Potential creation of an infrastructure concession. Network Rail is a group of business units trading with each other and our customers/suppliers. A well established, transparent, joint risk and benefit sharing partnership model for each operator and/or route, appropriate for the specific circumstances, including major projects. Integrated category-based supply chain, using our economic scale and engineering knowledge. 	<ul style="list-style-type: none"> Network Rail is a group of business units trading with each other and our customers/suppliers. The group includes most or all current routes providing critical mass and all critical network nodes/routes. The group also includes the System Operator, telecoms and power businesses, consultancy business and other international interests as well as systems technology leadership. Established partnership models are now mature. Integrated category-based supply chain, using our economic scale and engineering knowledge.
People	<ul style="list-style-type: none"> Our long term requirements fulfilled by a clearly defined and communicated talent proposition and resourcing strategy Succession planning and career management fully embedded and owned by the business units. A more open, diverse and inclusive organisation that is a great place to work. 	<ul style="list-style-type: none"> Recognised as a leading employer with built in succession.
Transparency and public information	<ul style="list-style-type: none"> Network Rail is seen as an open and accessible organisation that understands, and helps others to understand, the issues shaping the future of the railway. 	<ul style="list-style-type: none"> Network Rail has earned the credibility to be a trusted leader in the industry.
Funding and affordability	<ul style="list-style-type: none"> Delivered CP5 outputs sustainably and efficiently and plans in place for CP6. Route-based CP6 output and expenditure plans as part of longer term strategy for the network that reflects whole-life optimal approach with clarity about choices and trade-offs. Benchmarking demonstrates relative efficiency. A sustainable funding and financing strategy including clarity on the approach to funding legacy costs and future investment. Mechanisms for raising third party capital developed. 	<ul style="list-style-type: none"> Benchmarking demonstrates relative efficiency. Independent finance raised within the Group. The railway generates funds for further investment.

We will report our progress against the strategic themes

The rest of this document sets out how we will deliver the outcomes for CP5 and beyond. We have also developed a “report card” which will be the basis for reporting our progress against these strategic themes during CP5. We have simplified the language of these themes so that we can provide effective, broad public communication of our progress. This simplified language is set out in the table below and in our separate document “A better railway for a better Britain”.

Key theme	Our commitment
Everyone home safe everyday	By putting safety at the heart of how we design, manage and maintain our railway we will reduce safety risks for passengers, the public and our workforce not just in the next five years but for generations to come.
Reliable infrastructure	We will go from being world class in taking care of our track to becoming a world leader in the management of all our assets.
Reliable timetables	We will continue to transform how we timetable and operate the railway, enabling us to deliver a better service for all.
The biggest investment since the Victorian era	We will deliver the biggest capacity increase on the railway for 100 years, benefiting people and businesses across Britain.
A technology enabled future	Investing in technology will transform our knowledge of the railway making us better at targeting when, where and how we improve it.
A customer focused organisation	Structuring our organisation to give clearer accountability to local people who best understand the needs of our customers will help us become a more flexible, collaborative company.
Investing in our people	We will create an environment that promotes accountability, opportunity and diversity. This will help us to become an employer of choice.
Opening up	We will become an open and accessible organisation which understands, and helps others to understand, the issues shaping the future of the railway.
A railway fit for the future	By placing sustainability at the heart of everything we do, we will make our business more efficient, protect the value of our assets, and deliver a railway fit for future generations.
Reducing public subsidy	We will continue to reduce public subsidy of the railway.

For further details see the supporting document A better railway for a better Britain

Transforming Network Rail

As part of the Strategic Direction Statement this section contains further detail on the key outcomes, grouped by strategic themes, that we believe as a company are required to deliver our longer-term vision. It covers:

– Safety	18
– Sustainability	19
– Asset management	20
– Capacity and performance management	21
– Project development and delivery	22
– Technology and innovation	23
– Organisational change	24
– People	25
– Transparency and public information	26
– Funding and affordability	27
– Managing change by strategic theme	28
– Managing risk by strategic theme	29

Safety

Today, the railway is the safest it has ever been and is one of the safest in the world. This is a fundamental part of our success and the reason that more and more people want to travel by train. As we mature as a business our safety culture is also maturing. Not only by designing new systems, but also educating people about dangers and giving them the knowledge to change their behaviour.

We will never allow there to be a trade-off between safety and any part of running the railway.

Our vision for safety is that “We will work together so everyone returns home safely at the end of every day”.

Key to achieving our vision will be our ability to drive an inclusive and mature safety culture across the business. To this end, we have developed a series of safety commitments which form the basis of our safety strategy.

Our strategy is much broader than just putting in place safety systems. It includes educating the public about the dangers posed by the railway, giving our employees the knowledge to change the way they work and embedding a culture that encourages open and honest reporting, enabling us to find better ways of working in the future.

We have introduced 11 Lifesaving Rules to our employees to get rid of fatal and life-changing injuries. And we will follow this up by streamlining and reducing our 1,650 safety standards. These are really important steps. We believe that by using our common sense, trusting each other, and showing expert judgment in the way we assess and manage risks, we'll make the railway safer.

This will also have much wider benefits: encouraging innovation and creating a business where ideas are valued, where people feel included and where safety is seen as a driver of good performance.

We will also put safety at the heart of our asset policies and our investment decisions. The lowest whole life cost of our assets will include our ability to build, operate, maintain and renew them in a safer manner.

We will do everything we can to raise public awareness of level crossings— particularly amongst young people. Over 2010-12 we have reduced risk at level crossings by 20 per cent and in 2012 we had no enforcement action (against an average of four per year). In CP5 we will continue our programme to address risk at level crossings. Whenever possible, we are committed to removing level crossings. Where we cannot do so, we will work with local communities and other partners to make them safer.

The health and wellbeing of our people is critical to our success. We will put in place a detailed strategy which goes beyond traditional occupational health and which aims to improve the wellbeing of our people so they can maximise their contribution to our future.

Our new safety commitments

We will

Leadership	Assets	Rules
Hold each other accountable for safety.	Put safety first when we design, manage and maintain our equipment and assets.	Follow the Lifesaving Rules. Have simple, clear and practical standards and processes.
Culture	Risk	Skills and Equipment
Not shy away from challenging each other. Report any unsafe activities when we come across them.	Look for new ways of making the railways safer. Report any unsafe assets and equipment we find.	Have the skills and training we need to work safely. Use the right tools, equipment and facilities for each job.
	Communications	Wellbeing
	Remove or reduce risks wherever possible. Work with our industry colleagues to tackle the risks we share.	Help each other improve our health and well-being



Key 2019 outcome(s)	Key longer term outcome(s)
<ul style="list-style-type: none"> Eliminate all fatalities and major injuries. 50 per cent reduction in train accident risk. Eight per cent reduction in risk at level crossings. 	<ul style="list-style-type: none"> Everyone goes home safe every day.

Key initiatives

- Safety Leadership and Culture Change – We will develop an inclusive and mature safety culture by achieving a change in key behaviours across our organisation. The behaviours demonstrated when such a culture is in place include: providing clear and simple rules whilst trusting people to use their expertise in a responsible way; being risk-aware: encouraging open discussions about risks; actively identifying and reporting risks in a blame-free environment; aiming to continually improve rather than control. The culture change will be achieved primarily through carefully tailored communications and training for all our staff as well as dedicated intranet groups and live forums. Our first communications campaign launched 11 Lifesaving Rules which cover the most fundamental safety issues.
- Safer trackside working – we will invest £100 million in new equipment to ensure our people remain safe when working trackside. This will include protecting our employees when they are working when trains are running.

- Level crossings – in CP5 we will continue our programme to reduce risk at level crossings. We will focus our efforts on achieving the most cost effective risk reduction, closing crossings where possible and ensuring the public understand the risks of unsafe use of crossings.
- Executive Rules Programme – Our working regime will be simplified with the introduction of approximately 100 Executive Rules which will replace the current 1650 standards. These rules will be accompanied by concise means of compliance. For any employee, supplier or contractor, the new working regime will clearly specify the expectations that are placed on them. The risk of incidents caused by conflicting information or expectations will be greatly reduced. This initiative is also a key enabler to unlocking the full potential of DIME and devolution.

For further details see the Transforming Safety and Wellbeing supporting document

Sustainability

By placing sustainability at the heart of everything we do, we will make our business more efficient, protect the value of our assets, and deliver a railway fit for future generations

Good management of our economic, social and environmental impact makes for a strong and prosperous business.

We recognise the role that the railway can play in helping to tackle climate change. Using low carbon energy sources will help the Governments achieve targets of an 80 per cent reduction in emissions by 2050. We will also reduce emissions by ending the dominance of diesel trains as we electrify large parts of the rail network.

The efficient use of energy also has significant financial benefits. By investing with our partners in new train technology such as regenerative braking and energy metering we can enable the industry to become more energy efficient, thereby reducing costs.

Public transport also plays an important social role. It links communities, makes it possible for people to travel longer distances to find jobs, and provides vital freedom to thousands of people. The railway that we build, therefore, must provide accessible and inclusive provision for all.

In some areas we have big challenges ahead. Many of our assets are over 100 years old and it is important that we adapt infrastructure and operations to make them more resilient to future changes in the climate. As we have seen, global weather patterns are changing and it is our job to adapt our plans to meet the challenge posed by its effect on the railway. Therefore we need sustained investment in long-term adaptation and evolution of our infrastructure and we are committed to only make decisions which are for the long term good of our railway and our country.

We have set out a strategy through which sustainable development will help us deliver a railway fit for the future. We will:

- **Deliver outstanding value** for money to taxpayers and customers
- Make efficient use of **natural resources**, innovate with sustainable materials, and reduce, reuse or recycle any waste
- Be **energy efficient** across our infrastructure, operations, and across the rail industry as a whole
- Use **low carbon energy** sources to minimise rail's carbon footprint
- Make our network and our operations resilient to future changes in the climate
- **Manage our land** sustainably, enhancing its ecological diversity, and increasing its economic and social value
- **Protect land, air and water from pollution and other negative impacts**
- Improve the **accessibility and inclusivity** of stations and rail services, enabling more people to enjoy rail travel
- Make a lasting positive **contribution to our neighbours** and the communities we serve
- Respect the **rights of our employees** and those working in our supply chain
- Work together so that everyone returns **home safely** at the end of every day
- **Invest in our people** and develop their skills and talents within a culture of diversity, inclusion and mutual respect.

Key 2019 outcomes – We will have made progress towards:

- Implementing our Sustainable Development strategy
- A 14 per cent reduction in the carbon intensity of our electricity supply
- Reducing our total carbon emissions
- Investing in energy efficient assets
- Including climate scenarios in our asset policies and investment decisions
- Investing in our people so Network Rail becomes a great place to work

Key longer term outcomes – We will have achieved:

- Rail is recognised as central to a sustainable UK economy – driving economic growth, supporting social opportunities and a greener environment.
- Network Rail as a strong and prosperous business through good management of our economic, environment and social impacts.
- Sustained community support recognises the importance of rail
- Network Rail as a great place to work

Key initiatives

- Sustainability Interventions – We will develop delivery improvement plans across our business functions that work with Network Rail's existing processes and systems. This approach will enable sustainability principles to be embedded into our day to day operations so that sustainability becomes 'business as usual' rather than an additional work stream or a 'bolt on'. Through our improvement plans we will look to continually improve and share learning across our business.
- Sustainability Competency Development – we will build capabilities and skills across our work force to enable our people to do their jobs and use their expertise towards building a sustainable future.

- Culture Change and Leadership – We will extend the principles of the Safety Leadership and Culture Change programme to sustainable development to work towards an involving culture. The behaviours demonstrated when such a culture is in place include: trusting people to use their expertise in a responsible way and aiming to continually improve rather than control.
- Climate adaptation – We will amend our asset policies and investment processes to enable account to be taken of climate change projects. This will protect the value of our assets in future and will be an essential component of whole-life costing.

For further details see the Sustainable Development Strategy supporting document

Asset management

We are one of the largest asset management companies in Europe, with infrastructure comprising around 30,000 bridges, 2,500 stations and 20,000 miles of track. In delivering our vision we will need to possess first rate asset management capability. We intend to be respected world-wide as the pre-eminent source of railway systems innovation and best practice, both within and outside of the rail industry.

We are currently in the process of putting in place the systems that will enable a step-change improvement in our asset management capabilities. They include the creation of a 'line of sight', aligning decisions that need to be taken at national level with those best taken locally. It enables us to deliver the same level of sustained performance at a reduced expenditure and provides transparency to our funders and stakeholders that the work we do is balanced for the benefit of our customers and represents value for money for taxpayers.

We have to be realistic about the challenge that the age of our infrastructure poses to our asset management. In some cases we have only recently begun to grasp the scale of the problems. For example, our knowledge of our bridges and structures has dramatically improved in the last 12 months, and our plans are now more realistic. As we improve our knowledge and capabilities we will refine our plans accordingly.

To deliver a safe and sustainable railway, we need to accept that change and challenge to the status quo are good things. So we are devolving decision making and accountability within the business to route teams. We are also working with our partners to decide how to manage the railway – because they know more about how the resilience of the network affects passengers and freight users.

Asset Management Services organisation exists to set asset policies and provide assurance; to provide essential services to the Routes (information, energy, telecoms); and to support internal and external customers in achieving optimum performance from the rail infrastructure.

Key 2019 outcome(s)	Key longer term outcome(s)
<ul style="list-style-type: none"> We will be a benchmark against which organisations throughout the world assess their own asset management capabilities. Enhanced Asset Information: real-time system-wide infrastructure information enabling greater network capacity exploitation and improved traffic management. 	<ul style="list-style-type: none"> First rate cross-industry asset management processes. Modern asset information and other industry systems.

Key initiatives

- Asset Management Improvement Programme (AMIP) – our intention is to attain best practice status against UK equivalents by 2014. We are building on our established strengths in delivering projects and managing the supply chain by embedding whole life cost principles in our decision making and improving the asset management competency of our staff. Some of our initiatives have longer lead times, for example, overhauling our asset information systems and applying them to improve our risk based decision making.
- Offering Rail Better Information Services (ORBIS) – this is an asset information-led programme that enables improvements in railway efficiency, safety and capacity by changing the way in which we collect, store and utilise asset information. ORBIS's three principal objectives are: to establish a sustainable and trusted information base; align information to business processes, and maintain the linkage between fixed, topological, topographical, document and vehicle information types. ORBIS makes capturing information easier to do, through deployment of handheld devices and advanced train-borne systems, optimises decision-making through provision of integrated information and decision-support tooling, and optimises work management through better exploitation of geospatial information and elimination of paperwork.

- Asset Management Services (AMS) are being transformed to create a more efficient and customer-focused organisation. This will enable us to help our internal and external customers deliver greater value for money from their investments. This long term plan reflects the breadth and depth of the cultural change that the programme aims to deliver. A key objective is to develop and implement a plan to achieve the necessary change in AMS staff behaviours.
- Intelligent Infrastructure – Remote Condition Monitoring (RCM) technology makes it possible to detect asset degradation and to intervene before individual assets fail. Therefore it enables us to maintain our infrastructure in a more reliable way and at a lower cost. In part, these benefits are delivered by enabling a migration from a frequency based maintenance regime to maintaining assets based on their condition as measured by RCM devices. RCM technology can be applied to equipment that is located on fixed infrastructure to monitor the condition of this as well as equipment that is located on rolling stock to measure the condition of fixed infrastructure and vice versa. We started implementing this technology during CP4 and we will expand the use of it in CP5 across the areas of signalling, electrification and plant and telecoms.
- Risk Based Maintenance will allow us to further refine our maintenance tasks and intervals. This will allow us to apply improved asset knowledge to quantify the most cost-effective levels of reliability and risk, from which we will optimise our maintenance regimes.

For further details see the Asset Management Capability supporting document

Capacity and performance management

We have a duty to passengers and freight users to get the most out of our infrastructure. To do this we have to balance their requirements for frequency, journey time, speed, stopping patterns and performance with efficient access for both maintenance and renewal, to optimise the economic use of capacity and manage costs.

We also have a duty to our funders to make sure that we make the most efficient use of what we have, if we are to ask for greater infrastructure investment.

Against this challenge, we have to operate an increasingly busy network, in real time, responding to incidents to keep trains running to plan. In the last decade Britain has been Europe's fastest growing railway with passenger numbers up by 43 per cent and freight by almost 60 per cent, creating one of the busiest mixed traffic railways in the world.

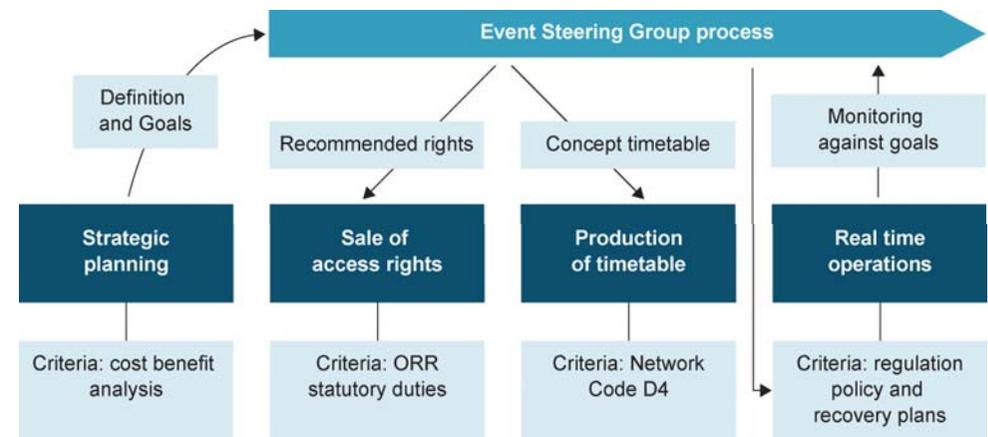
Delivering the required outputs will provide a number of challenges, and at times trade-offs will need to be made, both in planning the timetable and delivering the service. We will develop better measures of capacity to help inform these decisions.

Currently the planning process has recognised sub-processes. Each stage is effectively a constrained optimisation where the previous stage is taken as a given or re-opened. There are also 'gaps' between the different stages where the context of previous decisions can be lost.

We are therefore working towards a more joined up approach to system-wide capacity and performance management. There will be clear line of sight for how goals and decisions pass from longer-term strategic planning through to daily operations on the ground.

We are introducing several changes to achieve closer alignment between the planning stages:

- Long Term Planning Process (LTPP);
- expansion of the Event Steering Groups (ESG) for major timetable change;
- introduction of a Sale of Access Rights Panel;
- improvements to information and tools for planning and real time operation.



Key 2019 outcome(s)

- Operating the railway on a day-to-day basis consistent with our planned outputs.
- Short and longer term decision processes make balanced choices between cost, capacity, performance, availability and other outputs.

Key longer term outcome(s)

- Performance, capacity, availability and other outputs optimised as part of balanced long term decision making process taking account of cost, user benefit and wider benefits.

Key initiatives

- Traffic Management – Implementing a modern traffic management system will reduce our costs whilst improving performance. It may also enable us to accommodate more trains. This automated technology allows the productivity of individual operators to be doubled and provides an improved capability for managing punctuality and disruptions. It enables enhancements in train regulating decisions and recovery plans as well as in the provision of information to the travelling public during delay. Improving our capability for managing disruptions will allow us to reduce the timetable contingency provision or to shorten journey time.
- The Long Term Planning Process (LTPP) – This will improve the planning process through for example stronger links to asset management and a greater focus on options which go beyond incremental changes to the existing network. The programme is made up of three stages: market studies for passenger, freight demand; cross-boundary analysis and individual Route studies. We have begun implementing the LTPP and expect that outputs will be completed in time to inform the Initial Industry Plan for CP6.

- Operating Strategy – This is a long term programme which will consolidate signalling from over 800 dispersed locations into fourteen modern rail operating centres. This will allow us to reduce our frontline operations workforce from 5,600 to less than 1,500 in the longer term and deliver significant savings in operating costs. The removal of mechanical signalling on many rural routes, together with the new traffic management system, will also lead to increased capacity through 24/7 availability. This will generate new revenue opportunities especially for freight services. It will also allow for additional services at the end of the day and at weekends.
- Industry Access Planning Improvement (IAPI) – The Programme will change the way in which access to the rail network for maintenance and renewals is planned, managed and delivered. This will reduce costs and enable improvements in capacity, performance, safety and customer service.

For further details see the Capacity and Performance Planning Framework supporting document

Project development and delivery

Achievement of our vision will require a major capital investment programme to meet passenger and freight demand. It will need to be delivered whilst demonstrating increased value for money, and minimising the impact on the running of the operational railway. We will build on the successful completion in CP4 of a significant portfolio of works, including Thameslink KO1, Kings Cross Station, FTN/GSMR, Airdrie to Bathgate, and major track renewals and signalling upgrades.

For CP5, an ambitious programme of work is planned that includes:

- Thameslink KO2
- Crossrail and Reading
- Electrification of the Western, Midland Main, and Trans-Pennine lines
- Northern Hub
- Station Redevelopment of Birmingham New Street, Waterloo, and Kings Cross
- The Intercity Express Programme (IEP)
- Edinburgh to Glasgow Improvements Programme

This programme will require us to further improve our capability to effectively and efficiently design, develop, integrate and deliver major projects, programmes and renewals. It will require an innovative approach to delivery, earlier and stronger collaboration with our supply chain, and a change in our approach to the specification and packaging of projects.

We will create an effective clienting capability to support our devolved route structure and facilitate good specification and integration of the delivery works with our operations activity, and closer alignment with our freight and passenger train operating customers.

Our ambition

Our ambition is to be the best rail infrastructure project delivery organisation in the UK.

We will be a rail infrastructure solution developer, integrator and deliverer; whilst also offering additional support services to our clients such as engineering design and asset protection.

Key 2019 outcome(s)

- We are delivering a step change in whole life, whole system capability through better project delivery.
- We are delivering demonstrated value from working in partnership with both our train operators and our suppliers.
- Infrastructure Projects is winning business in competition.

What we have done so far

- Last year we embarked on an ambitious change programme to create an organisation that can provide an effective and efficient customer focussed delivery capability and provide outstanding value.
- We revised our capital project organisation by establishing customer-focused internal project delivery business units in the form of regional organisations matched to routes. We have retained national delivery teams and programmes where there was value in keeping specialist skills and a pan route focus:

Regions	National Programmes
Western and Wales (including Crossrail)	Track renewals
Southern	Signalling
Central	Thameslink
Scotland and the North East	FTN/GSMR

- We launched a series of pilot project alliances which will help inform and test our revised customer and supply chain engagement approaches, assuring capability improvements.
- We created a Network Rail International Consultancy business to enable the sale of consultancy services covering the full range of Network Rail's capabilities and enable us to gain insights from engaging internationally.
- In parallel with the delivery organisation changes, we have started the development process of establishing clienting capabilities within the devolved routes, and centrally to support the effective engagement of either the revised capital delivery organisation (IP) or the external supply chain as appropriate.
- A number of pilot projects have been initiated to test new ways of working, and to help build the clienting capability

Key longer term outcome(s)

- Infrastructure Projects are significant partner to HS2.
- Recognised by stakeholders and customers as being the best rail infrastructure project delivery organisation in the UK.

We are working to create

- A further devolved organisation with clear interfaces both with the Network Rail client organisation and the central Network Rail business. Transparency over costs and value adding services will have been achieved.
- A simplified but robust delivery operating model that provides:
 - Effective governance and assurance
 - Improved project delivery
 - Improved efficiency
 - Improved people capability
- An intelligent client capability with an appropriate relationship with the delivery organization to enable efficient delivery of renewals and enhancements

Achieving ISO11000 'Collaborative Business Relationships Accredited Company' was a key step in our commitment to our supply chain

Key Initiatives

- Track Delivery Efficiency programme
- Introduction of a new Quality Management framework
- Simplification of systems and processes
- A comprehensive programme of supplier engagement events
- Ten point people capability work stream

Achieving ISO9000 and ISO14001 is our next step in creating a consistent and efficient framework for managing the cost of quality and driving out change efficiency benefits

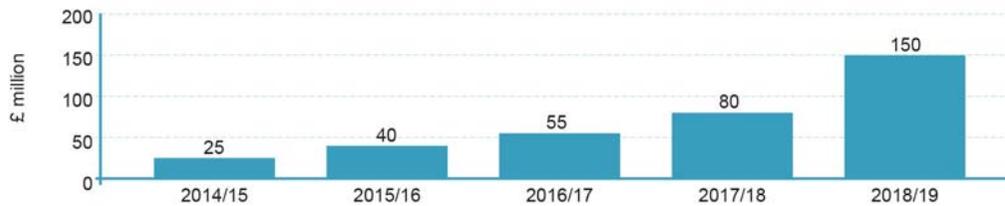
For further details see the Project Development and Delivery supporting document

Technology and innovation

In recent years, Network Rail has increased the level of research and development (R&D) investment to approximately one per cent of turnover – while we only reported R&D expenditure of £2 million in the 2012 Annual Report and Accounts, this figure is based on more detailed analysis of the R&D costs embedded in our projects. Benchmarking reveals that across all sectors, the UK invests at 1.7 per cent; the EU target is three per cent and the global average is 3.6 per cent (based on the Engineering UK 2012 report).

Plans are being developed to increase the R&D spend during CP5, rising to an additional £150 million in the final year of CP5 (which includes the £10 million per year HLOS funding). On the basis that the embedded investment continues, R&D increases to over three per cent of turnover. We would also look to leverage other sources of investment and we would work with the rest of the industry through the Technical Strategy Leadership Group to get the best industry value from the investment. This will be achieved in incremental steps as shown below:

R&D spend



The high level business case for this increase in investment lies in the success to date of the return on investment achieved in CP4 on projects that have run through our innovation process. The benefits ratio stands at 11:1. As the scale of activity increases and as the portfolio expands to include a broader mix of projects, the expectation is that this ratio will fall. Based on industry benchmarks, a long term ratio of 5:1 is realistic (to date over 200 projects have run through the

innovation process). A detailed business case, based on forecast benefits from a complete R&D programme, will be developed by mid 2013 and we will provide an interim submission to ORR in April to inform the draft determinations.

We are developing a Network Rail Technical Strategy (NRTS). This first NRTS builds on the work of the industry's Rail Technical Strategy. Following a consultation process, a version of this will be finalised by June 2013. Beyond this date, the NRTS will be integrated into the Network Rail CP5 Delivery Plan.

The purpose of the NRTS is to identify the technical barriers to achieving our corporate objectives and identify R&D activities that will allow us to overcome these. With this Strategy in place, technology will be able to function as a key driver for our business.

Technologies are continuing to converge across the traditional spaces of engineering and information technology, and as we continue to invest in areas such as intelligent systems, this convergence will become more prevalent. Consumer technologies are becoming common within industrialised environments and there is a continual need to explore and understand the benefits of these technologies and what they can offer to the rail industry. R&D investment will be critical as we continue to evolve our technical and information systems strategies

A key outcome of the NRTS is expected to be an increase in R&D activity with a fully defined R&D programme. In terms of process, there will be an inter-dependency between three business drivers; business strategy, the technical strategy and the product strategies. As such, the R&D programme will be integrated with our supply chain.

The Technical Strategy introduces and applies the universally applied concept of Technology Readiness Levels (TRLs) to assess the state of technology maturity. Two gateways will be introduced, to assess Concept and Implementation readiness. Once through the implementation gateway, a technology will be deemed ready to be deployed into an appropriate project under GRIP Process Management. The forecast of technologies achieving implementation ready status will be collated into a Technology Cycle Plan with forecast timing and benefits. This will feed into the business planning process, which in turn will also feed back into the technology planning process, as business priorities change.

Key 2019 outcome(s)

- Improved real time communication with customers and other stakeholders.
- Commencement of the implementation of European-compliant Railway control systems including: GWML, ECML(S), Thameslink core.
- Network Rail's technical strategy is leading an R&D programme that is integrated with our supply chain. Investment in technology development is at global industry levels.

Longer term outcome(s)

- Passengers interface with the railway in real time through multiple channels.
- European-compliant railway control system in place on 20 per cent of the network by 2024, including: GWML, ECML(S), MML, Thameslink core and Highland Main Line.
- Our sustained investment in technology development, in partnership with the rest of the rail industry, is transforming the railway system.

Key initiatives

- University Partnerships for progression of long-term strategic R&D themes, including Intelligent Railway, Asset Management modelling, Data Management and Integration and Infrastructure Systems (e.g. track bed sub-structure and switches and crossings).
- Network Rail Telecom (NRT) technology group will bring together asset vision, technology capabilities and determine the physical process to capture user requirements. A harmonised R&D strategy will detail the link to delivery on the network defining overall performance, functionality and capability required of the equipment and systems. Product strategy, asset life and intervention cycles are also taken a step further from policy level as part of the link to service. CP5 will have a strong focus on technological innovation to deliver improvements within all telecom technologies so as to improve service, increase efficiencies and overcome obsolescence.

- Investments in technology integration programmes to maximise the application of R&D benefits into the business.
- High leverage opportunities in the rail sector and beyond will be pursued, such as Autonomous Intelligent Systems, and the Technology Strategy Board co-funded call for Accelerating Innovation in Rail (AIR). This would include participation and leadership of the Transport Systems Catapult and the UNIFE Shift2Rail Joint Technology Initiative in Europe.

For further details see the Technical Strategy supporting document, the Rail Technical Strategy and the forthcoming Network Rail Technical Strategy

Organisational change

Over the past few years, the rail industry has undergone a period of intense change. This change is far from over, but a number of new structures are in place.

To meet the challenges ahead the industry has set up and formalised the Rail Delivery Group, (RDG), whose purpose is to provide leadership on cross-industry issues.

Within Network Rail we have devolved decision making down to route level, allowing for closer collaboration with train operators in delivering services for passengers and freight users, and avoiding a 'one size fits all' approach across the network. This change had already resulted in much greater bottom up robustness and local ownership of our plans.

Devolution has allowed us to form alliances with our partners, bringing the operation of the trains and the running of the track closer together. Various forms of alliance have now been established across the country, depending on local needs, for example the close alliance with South West Trains and an alliance is being discussed in Scotland which will tie in with the ScotRail refranchise in 2015. Through the re-franchising process we will be working with train operators to identify opportunities to improve services for passengers.

Devolution and alliancing are already leading to changes in behaviours at a local level. For example, there is evidence of improved focus on local trade offs and choices. There are also signs of closer collaboration between operators and the local route teams based on an improving mutual understanding of the challenges and opportunities facing the different businesses.

Even in a devolved structure with strong alliances there are important activities which need to be carried out centrally either for network reasons or to exploit scale economies and the benefits of standardisation. The development and transparency of our system operator activities is therefore critical and this builds on the progress described above in relation to capacity and performance management.

As noted under project development and delivery, we have also created an infrastructure projects business to create greater focus on efficient delivery while improving the discipline specifying the outputs that are required of this part of the organisation.

We are investigating the possibilities of letting an infrastructure concession to manage part of our network while retaining a focus on the network through improvement of our system operator activities. Clearly this would be a major change and all concerned would need to be assured that any incremental benefits are sufficiently worthwhile.

This is not the end of the development of Network Rail. We will continue to look at how we can improve our business and the way we work with our partners. Our aim is to develop a smarter, more effective workforce and a much closer relationship with our supply chain. This will help us to meet the challenge of our efficiency targets and ensure that Network Rail is an excellent company to work for and work with.

While we recognise that the changing industry structure and the structure of the business is no panacea, the industry and the business needs a period of stability to deliver real change and the necessary focus on these wider initiatives.

Key 2019 outcome(s)

- Network Rail is devolved to align with customers and is benefiting from improved system operator capability.
- Potential creation of infrastructure concession.
- Network Rail is a group of business units trading with each other and our customers/suppliers.
- A well established, transparent, joint risk and benefit sharing partnership model for each operator and/or route, appropriate for the specific circumstances, including major projects.
- Integrated category-based supply chain, using our economic scale and engineering knowledge.

Key longer term outcome(s)

- Network Rail is a group of business units trading with each other and our customers/suppliers.
- The group includes most or all current routes providing critical mass and all critical network nodes/routes.
- The group also includes the system operator, telecoms and power businesses, consultancy business and other international interests as well as systems technology leadership.
- Established partnership models are now mature.
- Integrated category-based supply chain, using our economic scale and engineering knowledge.

Key initiatives

- Alliancing – Alliances are agreements with train operating companies that align behaviours through shared incentives and objectives. Different forms of alliance arrangement will be appropriate for different parts of the railway and we are working with operators and governments on these opportunities. We expect alliances to gain in importance as refranchising provides a significant opportunity for establishing new alliances.
- Devolution – During CP4, we undertook a major change programme to devolve decision making and management accountability to local geographic routes. Devolution will drive improvements in efficiency throughout CP5. Maximising these opportunities also requires that we focus on the role of the "centre" including the way in which it supports devolved routes or other business units and holds them to account for delivery of corporate commitments.

- System operator – Network Rail already carries out the system operator role of maintaining fair treatment for all operators and ensuring the seamless planning and operation of the network. As accountabilities are moved to routes with stronger local alliances, we are seeking to make our system operator functions more transparent, joined-up and strategic.
- Concessions – We are exploring the possibility of selling a form of 'infrastructure concession' for part of our network. If this goes ahead, the earliest that a concession could be let would be mid-CP5.

For further details see our Corporate Services functional plan.

People

Network Rail is defined by its people. We will continue to develop an environment that allows our people to use their full potential to contribute to the achievement of our vision for the railway and for Network Rail.

Key to transforming Network Rail as a company will be improving the way we trust, value and support our people. We will continue to develop as a great place to work that promotes accountability and gives opportunity. By supporting our people we aim to become a major employer of choice in the UK.

We have a very significant change and efficiency agenda to manage in CP5. We will work closely with our employees and trade unions to manage this change in the business.

There are three key enabling initiatives supported by the HR function that respond to the challenge:

- constructive industrial relations with our trade unions,
- robust talent management and succession planning
- continuing the development of an open, inclusive and diverse culture.

Key to delivery of the above is the capability of our people managers, and the associated tools they have to do their jobs, facilitated through excellent HR practices, to make it happen.

Industrial relations

Our approach is to work collaboratively with the trade unions in transforming our people capability. We will also agree the introduction of appropriate mechanisms for achieving headcount reductions (with agreement on securing reductions through voluntary means a priority). Fostering open relationships based on trust and mutual understanding of priorities, constructive dialogue, and combined action planning is the spirit behind the creation of our working relationships with the trade unions. Discussion and consultation as early as possible gives the greatest opportunity for success.

Talent management and succession planning

The Network Rail change agenda requires people to have the capability to deliver the change. It is the knowledge of our leaders and managers and their behaviours which will motivate others to excel and are therefore key drivers for success. In practical terms, this means we need the right people in place, the right 'pipelines' to put them into suitable positions and the right processes and attraction mediums to get them there in the first place.

The critical outputs regarding talent management and succession planning to achieve the above are:

- rigorous performance and potential calibration of our people by line managers
- the building of key role 'pipelines' that deliver realistic readiness for succession
- creation of pools of capability to close gaps in key risk areas

Diversity and inclusion

Openness, inclusivity and diversity are at the heart of the people strategy and cultural change agenda for Network Rail. We are seeking to create the right foundations for delivering diversity and inclusion as a core principle in a coherent and consistent manner across the business. CP5 will in this context see us:

- nurturing the changes and improvements we want exemplified in the organisation
- supporting the high performance cultures visible in world class industries
- using our influence to integrate diversity and inclusion internally and externally. This will enhance the range of people who see the rail industry as an attractive career proposition and supplement our talent management to ensure that there are transparent opportunities, deployment and that decisions are based on merit,
- collaborating with a range of diverse stakeholder groups and,
- achieving efficiency, effectiveness and excellence.

Key 2019 outcome(s)

- Our long term requirements fulfilled by a clearly defined and communicated talent proposition and resourcing strategy
- Succession planning and career management fully embedded and owned by the business units.
- A more open, diverse and inclusive organisation that is a great place to work.

Key longer term outcome(s)

- Recognised as a leading employer with built-in succession.

Key initiatives

- Executive Committee reviews our succession plans twice a year;
- A rigorous and consistent approach to succession and talent planning being implemented across all business areas
- Graduates, MSCs and apprentices remain a core talent pipeline for us through CP5
- Accelerated Leaders' Workshop (High Potential programme) being developed;
- Line manager capability work stream
- Key skills gaps in innovation and engineering addressed

- National Centre Milton Keynes: The Quadrant – The Quadrant brings together 3,000 of our staff in a specifically designed national centre. This co-location encourages communication, a shared culture and enables us to deliver outputs in a more effective and efficient way.
- Training and awareness programme to develop inclusive behaviours to support diversity
- Targeting our major recruitment activities (graduates, apprentices etc) to improve diversity
- Developing partnerships with external diversity expert bodies (e.g. Disability Forum, Nil by Mouth and Stonewall)
- Developing in partnership with our trade union partners a managed exit strategy that optimises voluntary redundancies

For further details see the People Strategy supporting document

Transparency and public information

We realise that for most people the rail industry is confusing and in the past we have been seen as unaccountable. We have not explained enough about why and how the industry operates, where the money goes and the issues shaping the future of the industry.

We will work with the industry and our stakeholders to reach a level of transparency which strikes the right balance between openness in the public interest, and good business sense. In doing so we will use the following principles:

- **Alignment:** we want transparency to be part of how we engage the outside world in what we do, why we do it, and how we're performing. We will focus first on being more transparent in key areas. We also think that we can align what we do in this area with activity in other parts of the industry, particularly where this will make more sense to our audiences.
- **Engagement:** getting out to talk to people will be part of the way we work, and we will make sure that we listen to what people want to know about us and what we do. This will help us make what we offer more relevant and informative. And we will work hard to get better at providing information in response to specific queries or requests.
- **Improvement:** we will always seek to do more, never claiming that we are "transparent enough". This will include improving and expanding what we already publish in certain areas, as we did earlier this year with our 2011-12 regulatory accounts. We will take more visible ownership of our information and data when it is in the public domain, driving better understanding of what we do and making ourselves more accountable.
- **Simplification:** we will make our information and data easier to find, easier to understand and easier to use by providing the appropriate context, removing superfluous and out-of-date material, and aggregating it where we can, as we have done with ten years' worth of our annual return data.

In June 2012 we began our voluntary transparency scheme, through which we publish information that adds to the world's understanding of us and how we work. It currently includes information about the state of level crossings, the progress of our high profile projects, discussions at our board meetings, and our executive and non-executive directors' business expenses, as well as a facility for people to suggest the information they'd like to see. It will grow over time, taking account of the feedback we get, and dialogue with our external stakeholders.

We have worked with the rest of the industry to make available more detailed information about the performance of train services than ever before. We now publish public performance measure (PPM) statistics down to service group level and right time statistics to sector level. We will do more on right time in the near future, and plan to explore opportunities in other areas of the railway's work.

Others are starting to realise the benefits of us opening up our data. Real time feeds from our operational systems are being used by developers to power websites and smart phone apps showing the progress of trains and enabling journey planning. Data about the disruption to road journeys our works on the railway may cause is now available for the first time through the roadworks.org and roadworkscotland.org websites, and will be used in apps and in sat nav devices. We are exploring a range of similar opportunities, working with bodies in- and outside the industry.

The progress of these and other initiatives will be underpinned by an internal culture based on openness, responsiveness and accountability: we know we need to improve our ways of working and efficiency to realise the exciting possibilities transparency and accessibility present for the future.

Our ultimate aim is to enable people outside Network Rail to find out what they want to know about us more easily, and to feel empowered to ask where information is not currently available. We take many difficult decisions every day, and we see this as an excellent opportunity to improve understanding of why we take them and how they underpin our vision for the future of the railway.

Key 2019 outcome(s)

- Network Rail is seen as an open and accessible organisation which understands, and helps others to understand, the issues shaping the future of the railway.

Key longer term outcome(s)

- Network Rail has earned the credibility to be a trusted leader in the industry.

Key initiatives

- Proactive publication of information and data through the transparency portal on our website
- Improved handling of queries and requests for our information
- Regular engagement with our stakeholders and others to ensure we better understand what they want to know about us, when, and how.
- Through the National Task Force sub-group on transparency, co-ordinating how the industry tells a joined up story.

For further details see the Network Rail website for the information now being published

Funding and affordability

Our aim is to create a financially sustainable railway which is managed by financially sustainable and independent businesses. The five years up to 2019 are key – they will define our success.

At present, the majority of the funding for rail comes from a combination of fares and taxes. And in recent years, successive governments have made the decision to balance more of that funding towards passengers, users of the railway.

While Network Rail is not directly responsible for fares, income from fares does help to fund the major investment projects we have underway to meet capacity. It is our responsibility to continue to seek efficiencies and offer value for money for these investments.

The need for improved efficiency, does not take away from the fact that everyday we learn more about the railway and about the challenges in front of us. We would fail the public if we allowed short term savings at the expense of higher long term costs. We cannot afford to make the mistake of allowing another period of underinvestment in the nation's critical infrastructure.

We will continue to strive for further savings beyond those in our plan to achieve better value for money and to deliver a more affordable railway.

We are keen to explore different ways of charging which can improve the sustainability of railway finances and we believe that this debate should be concluded before the start of the next regulatory review.

Over the last few years, we have carried out a wide range of benchmarking with other organisations, particularly European railways. This has enabled us to identify opportunities to achieve savings. We will continue to develop our benchmarking activities so that we are better able to demonstrate our relative efficiency to other railways and to continue identifying opportunities for improvement.

We are a capital intensive company; delivering the railway that customers and governments want requires significant investment. This means that it is vital to achieving our vision that we remain attractive to investors so that we are able to raise the finance required to enable such investment.

We will continue to raise finance in the most efficient means available to us. In order for us to do so, we need a stable regulatory regime which not only allows us to recover our forecast costs, but also provides a degree of flexibility should material risks occur.

We will work with ORR and Governments to explore opportunities for introducing risk capital as we believe this is likely to be in the interest of taxpayers and users as it would deliver better value for money in the longer term and result in a more readily understood business model with better regulatory incentives.

While we understand the reasons for the adjusted weighted average cost of capital (WACC) approach in CP5, the funding provided is not consistent with the underlying risk that Network Rail is managing. It is important that a full WACC approach is adopted in future control periods.

Key 2019 outcome(s)	Key longer term outcome(s)
<ul style="list-style-type: none"> • Delivered CP5 outputs sustainably and efficiently and plans in place for CP6. • Route-based CP6 output and expenditure plan as part of longer term strategy for the network. • Plan is evidence-based and reflects whole-life optimal approach with clarity about choices and tradeoffs. • Benchmarking with other railways demonstrates relative efficiency. • A sustainable funding and financing strategy including clarity on the approach to funding legacy costs and future investment. • Mechanisms for raising third party capital developed. 	<ul style="list-style-type: none"> • Benchmarking demonstrates relative efficiency. • Independent finance raised within the Group. • The railway generates funds for further investment.

Key initiatives

- Deliver CP5 outputs sustainably and efficiently and plans in place for CP6.
- Route-based CP6 output and expenditure plans as part of longer term strategy for the network that reflects whole-system whole-life optimal approach with clarity about choices and tradeoffs.
- Benchmarking demonstrates relative efficiency.
- A sustainable funding and financing strategy including clarity on the approach to funding legacy costs and future investment.
- Mechanisms for raising third party capital developed.

- During CP5, we will continue the existing debt programme to enable access to the widest possible sources of funding at the lowest possible cost. While there are no current plans to raise debt without the benefit of the financial indemnity mechanism in CP5, we will keep this under review with ORR and governments.
- As part of PR18, we will work with ORR and government to have a funding framework based on the full cost of capital in future control periods.
- In advance of PR18 we intend to conclude a thorough review with the rest of the industry of the appropriate charging regimes.

We are co-ordinating major change based on our strategic themes

Network Rail has adopted a portfolio management approach to ensure alignment of our change programmes to our line of sight and to create better governance and visibility on the scale, risk and cost of change at an organisational level.

Change to date

In the past two years we have delivered major change across Network Rail:

- Devolved ten routes in the space of twelve months – 24,000 staff involved
- Re-shaped Infrastructure Projects to enable a greater commercial focus – 5,000 staff involved
- Created an alliance with South West Trains – 2,000 staff involved with significant changes required to our internal processes
- Relocated our operating centre from various offices to a purpose built centre in Milton Keynes – 3,000 staff directly involved.

The current portfolio includes over 200 programmes and projects. Further change will be delivered primarily through the relevant business units, particularly the routes. Some further changes will require stronger co-ordination or support at a network level.

Future change programmes

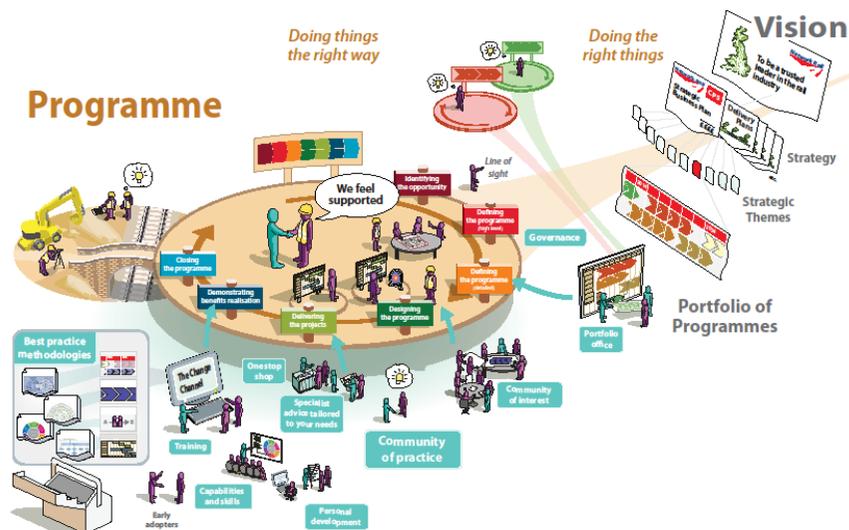
This is only the beginning of the change we are making to deliver our vision. The next two years and CP5 will see an even greater scale of change to achieve our strategy, this will include:

- The corporate centre will adopt a service model tailored for a devolved organisation – 5,000 staff involved
- Our safety leadership programme will deliver significant cultural change – every employee directly involved
- The Executive Rules programme will change the way we work to drive further safety improvements – every employee involved with almost 1,000 standards reviewed
- Further work with investment projects and alliances to build on relationships with customers – potentially every employee involved
- Significant investments in asset information will transform the way we make decisions in managing our assets – at least 13,000 staff involved
- Implementation of our operating strategy and our access planning arrangements will significantly improve the way we operate the network – 22,000 train movements every day
- A significant portfolio of people capability programmes will complement the safety leadership programme to provide Network Rail with the staff required to deliver our vision – every employee directly involved.

Enhancing our capability

The way to meet the challenge set by delivering this increased volume of change is to significantly increase our capability to do change. We will achieve this in two ways:

- Doing the right things – using portfolio management to balance and sequence changes in a way which supports the most important initiatives. We will use the portfolio management cycle to manage our change. Any amendments to the portfolio will be carefully managed to avoid, or minimise, detrimental impacts on our existing plans.
- Doing things the right way – embedding good practice through a centre of excellence, for example introducing methodologies, governance, knowledge sharing, risk and resource management. We will demonstrate this through increased programme management maturity and improvements in delivery security (our metric for assessing the health of a change programme).



Further details have been provided to ORR in the Business Change functional plan

We are managing risks based on our strategic themes

Setting top down objectives across the company provides a clear line of sight throughout the business to our strategic themes, outcomes and vision. In order to secure delivery of our outcomes we need a robust assessment of the risks to achieving the underpinning objectives. The ongoing management of risk linked to objectives is to be undertaken across the business using the Enterprise Risk Management framework.

Enterprise Risk Management

Enterprise Risk Management is the consistent approach to managing all of our significant business risks to increase the likelihood of meeting our objectives and outcomes. Key steps taken to implement ERM across the business include:

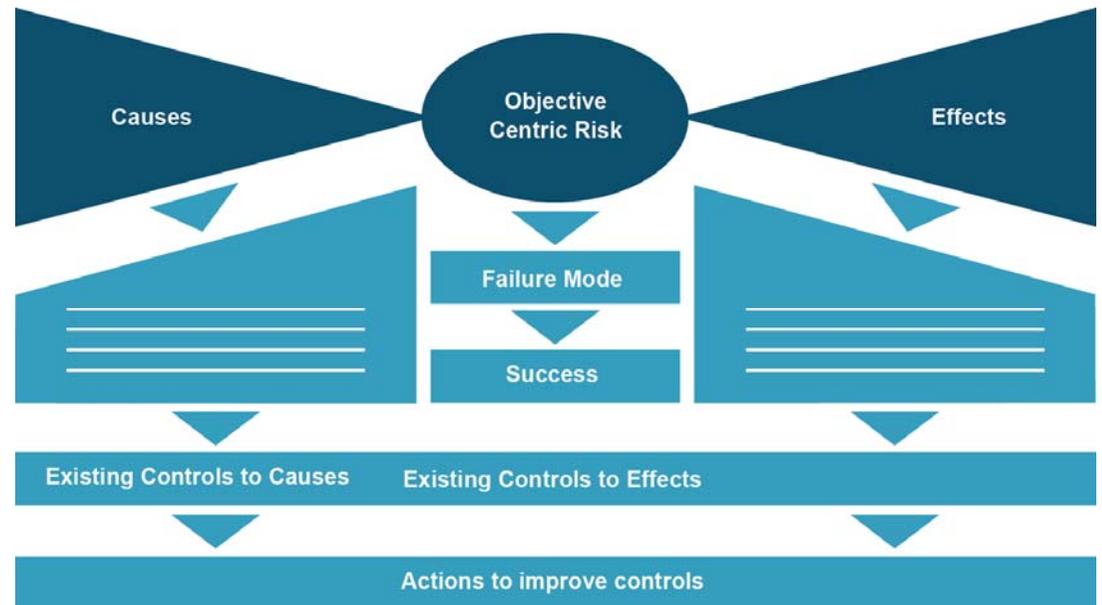
- A corporate risk map being developed with input from all Executive Directors based on risks to 2019 outcomes and strategic themes
- Individual risk maps are being developed within key business units linked to 2019 outcomes and strategic themes
- The Risk Review Group has been established to challenge, to inform and to improve continuously the risk management process
- Improved, regular risk reporting to the Board and to the Audit & Risk Committee
- Risk management is being informed by the results of Internal Audit reports and other internal and external assurance information

In CP5 there will be a significant level of change across the business through a network of programmes linked to our strategic themes. As with any change programme there is increased risk during and after the change period. We are managing the change programme risk profile through our ERM framework.



Bow Tie

We are improving our risk management through the objective centred “Bow Tie” approach. This methodology identifies the direct relationship between objectives, outcomes, causes and consequences. Controls are used to display what measures we have in place to control the risk. The Bow Tie method requires us to specify the success criteria and outcomes we are aiming for as well as the failure mode or event that we are trying to avoid.



Further details have been provided to ORR in a supporting document on risk management

Activity and expenditure plans

This section sets out our forecasts of activity and expenditure for the remainder of CP4, for CP5 and beyond. It covers:

– The process for developing our plans	31
– A summary of overall expenditure	32
– Breakdown of expenditure by activity	33-50
– The Property plan	51
– Other single till income	52
– Schedule 4 and 8	53
– Industry costs	54
– Efficiency and benchmarking	55-57
– Comparison to IIP and Advice to Ministers	58
– The CP4 Delivery Plan Update	59
– Summary of route expenditure and efficiency	60

The SBP is the next stage in the development of our plans for CP5

In the context of our longer term vision, the SBP is the next milestone in the development of Network Rail’s plans for CP5. The SBP has been informed by the continuing improvement in our asset management capability, our long term planning of the network, the evolution of the industry’s structure with the creation of the Rail Delivery Group, devolution within Network Rail to a route-based structure and the creation of new ways of working through alliances and partnering between Network Rail and its delivery partners.

Key milestones in the development of the Strategic Business Plan

<p>Sep 2011 Initial Industry Plan published. Sets out industry’s preferred plan for CP5 for enhancing the railway. Includes Network Rail’s initial view of expenditure and efficiency for CP5.</p>	<p>Nov 2011 Devolution implemented. Network Rail creates ten devolved routes led by Route Managing Directors.</p>	<p>Mar 2012 ORR publishes Advice to Ministers on level of expenditure and efficiency for Network Rail’s core operating, maintenance and renewals costs. Does not consider potential enhancements or their potential impact on the core network.</p>	<p>Jun / Jul 2012 DfT and Transport Scotland publish their High Level Output Specifications (HLOSs) and Statement of Funds Available (SoFAs).</p>	<p>Jan 2013 Network Rail publishes the SBP setting out how, with industry, it will deliver the HLOS outputs efficiently and sustainably.</p>
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Maintaining a long term plan

We have continued to refine our long run view of activity and expenditure forecasts through top down modelling of our asset policies. We continue to improve our understanding of our assets with better asset information systems and development of our asset management capability. Our forecasts need to be constantly updated in light of these improvements and as our view of the future environment changes such as traffic growth and climate change. We recognise there is still further improvement required in our asset management capability. In particular, our policy and plans for structures and earthworks during CP4 have evolved as we understand better the condition of the assets. We did not establish a sustainable level of funding for these assets in CP4 during the last periodic review.

Making further efficiency savings

We will continue to deliver further efficiency savings in CP5. We have carried out a wide range of benchmarking with other rail infrastructure companies and non-rail organisations which has helped us to identify areas where we can achieve further savings. A number of our proposed savings will require consultation with our people and our stakeholders before we reach a conclusion on implementation. The work of the Rail Delivery Group has also informed our view of efficiency opportunities included in the SBP.

Developing route based plans

Since the publication of the IIP, Network Rail has devolved most of its asset management accountabilities to route-based business units. During 2012 our plans for CP5 have been developed “bottom up” by these business units. These plans have been through a number of iterations of submission and review to ensure they deliver the required outputs sustainably (through validation against the top down modelling), efficiently and affordably (through financial target setting and challenge to overall submissions by a central review team).

Prior to the publication of the HLOS we developed route based baseline asset management plans. Once the HLOS was published routes were issued specifications as to the outputs required at a route level to deliver the HLOS outputs. Plans were developed against these specifications, seeking to understand the impact of the HLOS on the baseline plans. Our review of these submissions identified a material difference between the top down modelling of our plans for CP5 and the consolidated view from the route submissions. In order to align the top down modelling and bottom up plans, we issued financial targets for each route and function. We have reviewed these submissions against our top down modelling to assure ourselves the revised plans are consistent with our policies and are sustainable.

In describing route plans as “bottom up”, they are strategic plans rather than delivery plans that are based fully on workbanks for the whole of CP5. We have used centrally developed evidence to validate these plans, including activity volumes (with centrally developed models and policies), unit costs (which have centrally validated by Infrastructure Projects and Asset Management Services) and efficiencies (which incorporate national initiatives based on benchmarking conducted centrally). Each route and supporting function also has its own analysis underpinning the plans which are part of the ongoing management of the business. Recognising that we are still in transition to route based plans, we will continue to improve our route analysis as we move towards publication of the CP5 Delivery Plan. The improvement in information and local ownership has already resulted in much more robust route-based plans.

Developing our enhancements plan

Network Rail’s long term planning process provides us with a comprehensive examination of future demand in the passenger and freight markets, and options to accommodate this demand. This is a collaborative process with industry stakeholders. This work has informed the longer term vision for the railway and the plan for CP5 put forward in the IIP. Much of what was proposed in the IIP was incorporated into the DfT’s HLOS and we continue to develop those proposals. There were schemes specified in the HLOS that have not been identified and developed through the industry planning processes and we have had limited time to understand these proposals. A number of schemes specified in the HLOS therefore are in very early development e.g. elements of the electric spine.

We need to invest to deliver outputs sustainably and efficiently

Our CP5 plans include the cost of operating, maintaining, renewing and enhancing the network, together with the income that we expect to generate from our property activities and income from non-franchised services. Our plan is based on delivering the required outputs whilst managing the network on a minimum whole system, whole life cycle cost basis. The level of expenditure and efficiency proposed continues to reduce the cost of running the core railway compared to CP4.

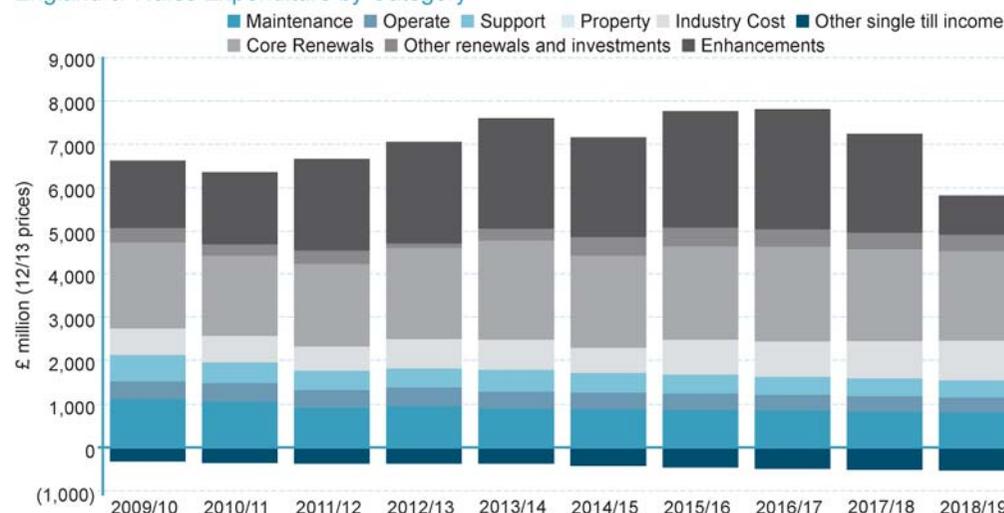
The analysis on this page summarises the actual costs to date in CP4 together with our projections for the last two years of CP4 and CP5, together with our functional costs map to the overall operating, maintenance, support and property costs

The following pages provide further details on each area of our plan. In particular they cover:

- the operating costs for each function (Network Operations, Corporate Services and Asset Management Services);
- our renewal costs, with a summary for each major area of expenditure;
- our enhancements which will deliver a significant increase in the capability of the railway;
- industry costs including traction electricity costs, costs of industry organisations and Schedule 4 costs;
- other single till income including our property business.

We summarise our overall efficiency plans, provide analysis of our plans on a route basis and compare our costs to the Initial Industry Plan and ORR's Advice to Ministers. We also provide an update on our forecasts for the remainder of CP4 together with longer term projections for managing the infrastructure.

England & Wales Expenditure by Category



CP5 total £m (12/13 prices)	Maintenance	Operations	Support	Property	Total
Network Operations	3,785	1,842	-	-	5,626
Asset Management Services	155	-	507	-	662
Corporate Services	274	-	1,534	(18)	1,790
Total	4,214	1,842	2,041	(18)	8,078

£m (2012/13 prices)	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Maintenance	1112	1057	911	955	893	874	863	844	826	808	4,214
Operate	397	418	414	412	393	390	382	368	358	343	1,842
Support	613	472	430	441	495	437	422	402	395	384	2,041
Property	0	0	0	8	7	(3)	(3)	(4)	(4)	(5)	(18)
Industry costs (including Schedule 4 & 8)	612	610	560	642	680	582	801	816	859	916	3,973
Other single till income	(318)	(359)	(370)	(371)	(377)	(424)	(461)	(490)	(515)	(532)	(2,422)
Core renewals	2009	1855	1908	2124	2,317	2,133	2,185	2,216	2,132	2,069	10,736
Other renewals and investment	325	284	308	158	275	451	431	400	395	396	2,073
Enhancements	1,553	1,664	2138	2,338	2546	2,303	2690	2,769	2,284	914	10,960
Total	6303	6001	6299	6707	7229	6,743	7,310	7,321	6,730	5,293	33,399

We will transform the way we operate the network

Operating the network today

Currently, the railway is operated from over 800 disparate locations using a range of technologies from computer workstations to mechanical lever frame signal boxes. Network Rail employs an operations workforce of 5,600 across a variety of roles.

Signaller – Controls the movements and routes of trains by means of points and signals, following a planned timetable. Provides protection to staff wishing to work trackside and to planned engineering works. Regulates trains at junctions to minimise overall train delay. Implements changes to the timetable during times of disruption, guided by controllers. Manages incidents on a local level, within their area of control.

Incident Controller – Manages incidents at a higher level, looking at the wider impact. Co-ordinates response staff and fault finding teams. Updates relevant parties during incidents (i.e. managers, TOCs, FOCs).

Train Running Controller – Manages the implementation of the planned timetable. Agrees alterations to the timetable with the TOCs/FOCs during times of disruption. Plans service recovery after an incident.

Electrical Control Operator – Monitors the traction current supply and the feeds from the National Grid. Provides traction current isolations during emergencies and for planned engineering works.

Management and supervision roles: Local Operations Managers (LOMs) and Operations Managers (OMs) provide line management to the signalling grades. Shift Signalling Managers are the signal box supervisors in larger boxes

Operating the network in the future

We have developed an operating strategy that will transform the way in which we control and operate the rail network. By centralising operational control and introducing modern control system technology, we will reduce our annual operating costs by £250 million over 15 years and deliver significant improvements in performance, capacity and customer service. This strategy has been informed by benchmarking our approach with other railways.

Our operating strategy is a long term programme which will see us migrating operational control into fourteen modern rail operating centres. This will allow us to reduce our frontline operations workforce from 5,600 to less than 1,500 in the longer term. To date, eight of the new rail operating centres have been built with the remaining six to be completed early in CP5.

During CP4, enabling elements of the operating strategy have been successfully deployed. This will allow us to move forward with an accelerated strategy during the next control period. Investments of £1,485 million: £876 million in the acceleration of our signalling renewal work above and beyond that those due to conditions, together with initiatives such as the rail operating centres and other system development. These investments will enable in CP5 a reduction in England and Wales of our operating cost of about £46 million per annum and a reduction of approximately 1,200 staff.

As part of our operating strategy, we are also rolling out a modern traffic management system. This will allow us to double the current productivity of individual operators and provide an improved capability for managing punctuality and disruptions leading to improved capacity and performance

Other costs of operating the railway

Non-signalling cost activities in the routes include Mobile Operations Managers (MOMs) who are the front line for minimising the impact of incidents on the railway, the managed stations teams running our managed stations,

the Performance and Train Delay Attribution teams, the Customer Relations Executives, and the route HQ Management teams

This non-signaller element of Network Operations has remained relatively static during CP4. Expenditure within non-signaller elements is both critical to maintaining strong relationships with customers and improving performance. Teams are generally small and focused in specific areas, restricting the scope for national adjustment to headcount and team sizes without a major impact on performance.

Due to a strong inverse correlation between MOM numbers and delay minutes, we will not seek to reduce their numbers in CP5. We have also recently agreed a template for our managed stations, and will therefore not reduce our managed stations headcount in CP5.

Network Operations HQ activities include operational planning (responsible for timetable management), performance management, a small business change team, fund management, and customer relationship management for freight, stations and depots.

Our industry access and possession improvement plan will enable efficiency savings of around £3 million within Network Operations HQ.

£m (12/13 prices)	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Signaller	277	274	268	256	245	230
Non-Signaller	99	99	99	97	98	98
Central Network Operations	23	22	21	21	20	20
Total Network Operations	398	395	387	373	363	348
Efficiencies	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Network Operations		1%	3%	6%	9%	13%

Note: £24 million of these costs are classified as maintenance rather than operations expenditure.

Now	Vision
800+ locations using a range of technology and infrastructure platforms	14 Operating Centres using common technology platforms and interfaces
>5000 signallers and controllers with productivity constrained by signalling technology	<1000 traffic managers using predictive technology that can be sized based on workload
Duplication between Network Rail activities and roles and the TOCs/FOCs across the disparate locations	Through centralisation of roles to the new Operating Centres and co-location with TOCs and FOCs, processes can be streamlined with improved responsiveness to customer requirements
Key customer interfaces dependent on telephone communication at times of perturbation	Key interfaces integrated with TOC/FOC systems, enabling effective decision making and timely, accurate information to passengers

For further details see the Operations expenditure summary

Our asset policies have matured and align with our route plans

We have made great progress during CP4 in developing our asset policies – gathering evidence, and building models and decision support tools that are the best that have ever been used in the UK rail industry. In some areas we now believe these policies to be genuinely world-leading, as demonstrated by our international benchmarking work. Nevertheless, we recognise that our policies are new, and some are yet to be thoroughly tested in practice. To assess the relative maturity of our policies we have reviewed each against tests for robustness, sustainability and efficiency. These tests align with, and build on the work of the independent reporter, who reviewed earlier versions of the policies in 2011. The output of these tests is summarised below.

We also recognise that the optimum delivery plan is one that aligns ‘top-down’ policies with the best local understanding of asset condition, criticality, and links to other programmes of work such as enhancement schemes. Our route asset management teams have therefore used the policies together with their local knowledge to produce optimised route plans. The alignment of these plans to policy is also illustrated below.

Asset	Policy maturity (Robustness / sustainability / efficiency)	Alignment of route renewal plans with policy	Alignment of route maintenance plans with policy
Track			
Signalling			
Structures			
Earthworks			
Drainage, fencing and other off-track			
Electrical Power			
Telecoms <small>* Centrally developed plan by Network Rail Telecoms</small>			
Buildings			

Policy maturity

We believe that all our policies will deliver the required outputs in CP5. For civils assets (structures, earthworks, drainage) our policies are new and (while supported by models) are largely untried in practice; for telecoms, there are a number of dependencies that could impact on the effectiveness of the policies (including ERTMS roll-out and the operating strategy) – we will continue to work on these areas over the next year, and monitor the effectiveness of all the policies throughout the control period.

We believe that our policies are sustainable. For a number of assets we are continuing to develop condition measures and models that will allow us to better demonstrate sustainability (drainage, fencing and off-track assets require the most work in this area).

We believe all our policies represent efficient expenditure. We recognise there is a challenge in thoroughly demonstrating this due to the introduction or further developing new ways of working in CP5 (new track refurbishment activities, ETCS, reliability centred maintenance) and the relative maturity of our whole life cost models (not yet in place for drainage, fencing and off track).

Alignment of route plans

Our route renewal plans (and central plan for telecoms) are well aligned to policy. The exception is structures, where the crude application of policy in one control period would require an undeliverable level of expenditure due to the backlog of work that has developed. We therefore propose to roll out application of the new policy in two control periods to balance risk, affordability and deliverability.

Our route maintenance plans are well aligned to policy. For drainage, to achieve lowest whole life cost, policy requirements lead to increased maintenance volumes over those delivered in CP4. Our assessment of the policy alignment reflects the challenge in achieving both increased volumes and operating efficiencies. Similarly in telecoms we are challenging ourselves to become significantly more efficient, by reducing our operating costs against a background of increasing asset numbers associated with FTN/GSM-R, ERTMS and operating strategy programmes.

Definitions

Robustness is the ability of the policy to deliver the required CP5 outputs. Sustainability is the application of the same policy continuing to deliver the same outputs indefinitely if demand on the network remains constant. Efficiency is delivering the required outputs in the most effective way at lowest life and whole system cost, taking into account efficiency improvements with time.

For further details see the Asset Policy document for each asset and Renewals expenditure summary

We will continue to maintain the railway in a safe and efficient way

To date

Throughout CP3 and CP4 we will have reduced the cost of maintaining the railway by over 40 per cent, while the number of vehicles running on the network will have increased by around 19 per cent. Key strategies that have made this possible include a major programme of in-sourcing maintenance activity in CP3, a strong focus on staff skills and engagement, and the adoption of a functional structure with centralised control.

The Future

Our plan for CP5 is based on bottom-up resource estimates from each route to safely maintain the railway at the optimum whole life cost. This is supported by our analysis of the required maintenance volumes based on our asset renewal policies and top-down modelling. We have also developed a good understanding through our internal benchmarking work of the 'structural factors' that impact maintenance costs across routes.

We have studied the progress of our maintenance delivery units in driving improvements in cost and performance, to understand how we can improve further. Combining this knowledge with a wide range of evidence gathered from external benchmarking, particularly with European railways, we have identified key opportunities for CP5:

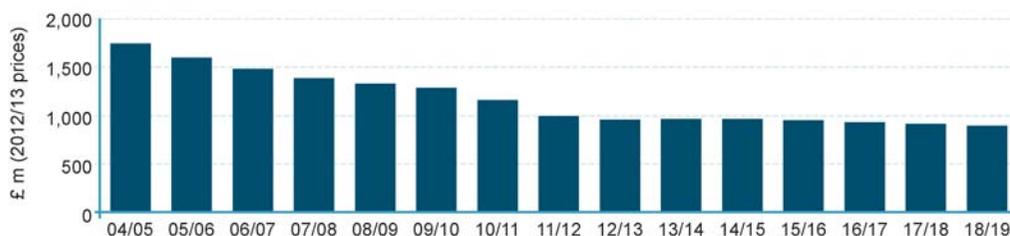
- **Improving productivity** – including mechanisation of labour intensive activities, changes to working practices to match the availability of staff to planned work, multi-skilling and better utilisation of track access time.
- **Avoiding unnecessary work** – plans include Risk Based Maintenance which will allow us to further refine our maintenance tasks and intervals. This will be supported by improved asset knowledge and the introduction of intelligent infrastructure to quantify the most cost-effective levels of reliability and risk, from which we will optimise our maintenance regimes. We will also be focusing on reducing unnecessary overhead activity.

Improvement strategies are founded on a safety approach that minimises the risk of worker contact with trains. It should be noted that delivering these improvements will take a great deal of effort and hard work. Many of our initiatives require a cultural change from our staff and trade unions, with changes to working practices and the introduction of new technology.

It is likely that not all of these initiatives will deliver savings in line with forecasts. There is therefore risk associated with achieving the savings included in this plan. Furthermore, although we are currently managing the network in a sustainable manner, adequate funding is essential for the safe running of the railway while delivering improved performance with increased traffic levels.

The planned savings in maintenance are expected to reduce costs by a further ten per cent by the end of CP5. Our maintenance expenditure forecasts are summarised below, together with the forecast headcount and the major areas of savings during CP5.

GB Maintenance



Network operations maintenance achieved consistent savings throughout the control period, with a forecast CP4 saving of nine per cent. This saving is belied the fact that maintenance has absorbed a number of other parts of the business into its cost base such as Thales telecoms early in the control period and its asset management team in 2012/13. Without this increasing cost base, the downward trend in cost would be far more pronounced.

This trend continues into CP5 with forecast maintenance efficiency savings of 12 per cent with average and annual savings of just over two per cent. These savings include absorbing the incremental annual cost of £52 million as a result of enhancements schemes such as the West Coast Electrification, Thameslink and Crossrail, each of which will require greater maintenance resource throughout the control period. The gross underlying efficiency level is 19 per cent over CP5.

Maintenance is a labour intensive activity with two thirds of CP5 expenditure being directly attributable to staff costs. To become better value for money, it is inevitable that there will be some impact on the number of people employed in this area. The methods through which we seek to make cost savings allow redundancies to be kept to a minimum.

Overall, headcount is projected to reduce over CP5 by around 1,050, which is equivalent to a reduction of eight per cent in total workforce. Proportionally, the delivery unit HQ discipline has the highest reduction (16 per cent) and this is in line with the strategy to reduce the indirect costs through roles such as section administrator, planner and certain technical staff. Track direct employees have the greatest absolute reduction of around 800, whereas electrification and plant operatives increase over the control period by around 250 to meet the demands of newly electrified assets in Wales and Western routes.

Efficiency initiatives

Centrally developed initiatives to improve productivity and avoid unnecessary work are forecast to save £167 million over the course of CP5. Routes have also put forward plans to deliver localised efficiencies which will produce a further saving of £127million. Projects cover a wide range of themes such as local restructuring, consolidation of delivery units, altering current techniques and methods of delivery, and reviewing the methods through which capital work is delivered and accounted for.

We are also targeting to a further £156 million of savings that we will identify and deliver during CP5, through a commitment to continuous improvement and encouraging innovation in every aspect of our maintenance work.

£m (12/13 prices)	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Maintenance Net Ops -Routes	745	752	741	724	707	691
Maintenance Net Ops - HQ	32	31	30	29	28	27
Maintenance Net Ops - Total	777	783	771	753	735	718

Efficiencies	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Maintenance		(1%)	1%	3%	5%	8%
Adjusted on like-for-like basis		4%	6%	8%	10%	12%

Note: Civils inspections have been reclassified from renewals to maintenance in our CP5 forecasts. We have therefore shown efficiency on like-for like basis with 2013/14 basis including inspection costs of £41 million.

For further details see Maintenance expenditure supporting document

Value and technical expertise from our Asset Management Services

The purpose of Asset Management Services (AMS) is to deliver a range of service propositions including setting asset strategy and policies, providing assurance and essential services to cover asset information, energy and telecoms in addition to high value specialist advice, problem solving and insight.

Our current AMS restructure completed over the last year resulted in the legacy engineering and asset functions (signalling, track and building and civils) being re-organised into two customer-facing organisations, **Route Services** and **Strategic Services**.

These functions provide account management services to Network Operations and Corporate Core customers respectively, and provide effective Customer Relation Management services acting as the conduit between the complex array of customer requirements and the AMS service delivery organisations as detailed below:

- **Technical Services (TS)** – represents the heart of AMS and encapsulates the primary source of specialist engineering capabilities and knowledge. TS provides problem solving and support services to help its customers achieve optimum performance from the rail infrastructure through continuous innovation, and driving industry best practice.
- **Technical Strategy-** responsible for writing and supporting implementation of the NR Technical Strategy and for leading our cross-industry work on technical strategy, including through the Technical Strategy Leadership Group and a number of pan-European initiatives. By defining our Technical Strategy, we are able to focus better on developing holistic, whole life systems. In shaping the future direction of technical competence, we will also promote innovation and use of industry best practice.
- **Energy Services** – providing energy service solutions at minimum whole life cost to the rail industry by building a sustainable long term National power supply strategy. Immediate challenges include addressing peak traction power capacity constraints with medium term focus on developing best in class people to realise the benefits of electrification schemes such as the West Coast Mainline expansion, and Southern DC network third rail reinforcement.
- **Network Rail Telecoms (NRT)** will lead in delivering value for money through a whole life asset management approach to the telecoms estate, deliver mission critical telecommunication systems and managed services to the Core Rail market. Inherent within this plan is that NRT is a key enabler for Network Rail's corporate strategies around National Operating Strategy, Traffic Management, Network Electrification Programmes (SCADA) and European Rail Traffic Management System business cases.
- **Asset Information (AI)** is a managed services provider to the GB Rail industry for asset-related information, maintaining the integrity of the overall rail infrastructure network model to support industry investment and operational management decisions. AI provides integration of infrastructure and rail vehicle information with EU systems to support rail-services interoperability decisions. It enables customers to make better informed business decisions that further improve railway safety, performance and cost, and provides a vital enabler for future traffic management systems to better exploit the existing rail infrastructure to run more trains.
- The **Network Certification Body (NCB)** is a subsidiary company of Network Rail Infrastructure Limited (NRIL), which is managed as a separate independent entity. It provides Rail Vehicle and Infrastructure certification services to UK and European railway projects. NCB provides three primary services to NRIL and third party UK rail industry customers, namely infrastructure safety certification, rail vehicle and plant safety certification, in addition to specialist rail vehicle technical services including load unit certification, and supplier assurance certification.

By providing these services centrally, we gain economies of scale, are well placed to develop and share technical best practice, and able to allocate scarce, expert resource in an optimal way for the network. For services that are 'networks' by definition, such as energy and telecoms, we also achieve wide benefits through being better able to distribute supply and manage perturbation.

We have committed to an overall efficiency of 17 per cent through CP5. The programme of reorganisation under Project Olympus will deliver savings to Network Rail in operation costs, through a more efficient and effective approach to service delivery by aligning organisational size through a demand driven operating model.

We will continue to demonstrate the effectiveness of AMS through the use independent measures of our capability, including use of broader benchmarks such as asset management excellence models, technical and professional qualifications and the recently developed certificate and diploma of asset management available through the Institute of Asset Management.

Our Asset Management Services costs including NRT (AM Telecom) and Utilities will total about £735 million in CP5 of which £662 million will be allocated to England & Wales.

£m (12/13 prices)	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Asset Information	27	23	22	22	21	21	109
Asset Management Services	34	26	26	26	27	25	130
National Certification Board	0	(1)	(1)	(1)	(1)	(1)	(4)
Network Rail Telecoms	66	74	66	60	59	55	313
Utilities	39	38	38	38	37	36	187
Total Network Rail	165	160	151	145	143	136	735
Total England & Wales	152	144	136	130	128	123	662
Cumulative efficiency		3%	8%	12%	13%	17%	

For further details see the Asset Management Services plan

We will renew our assets sustainably and at minimum whole life cost

Our plan is based on delivering the outputs whilst managing the network on a minimum whole-system, whole-life basis. We have made significant progress in developing our asset management capability. We recognise we can still improve our understanding of our assets and our capability.

We have moved from asset policies that were largely time-based in CP3, to policies that are condition-based in CP4. During CP3 and CP4 we also corrected much of the previous under investment from the 1980s and 1990s such that we are now in a more sustainable position other than for civils which is discussed further below. For CP5 we have now developed policies that are risk-based, and have a balance between renewal, refurbishment (component replacement) and maintenance. Getting this balance right, to deliver the required level of infrastructure performance in a sustainable way, is what achieves the lowest whole life cost.

CP5 policy development has focused on improving our understanding of asset degradation through better condition information; quantifying the impact of refurbishment as an alternative to full renewal; and applying risk-based whole life cycle cost models. This has enabled us to compare the costs, performance impact, and sustainability, for a range of possible maintenance and renewal regimes. The planned CP5 activity volumes are based on these improved asset policies. By using the revised policies the planned activity levels are lower than they would have been using the policies underpinning our CP5 plans. As a result, there are efficiency savings of two per cent embedded in the renewals plan.

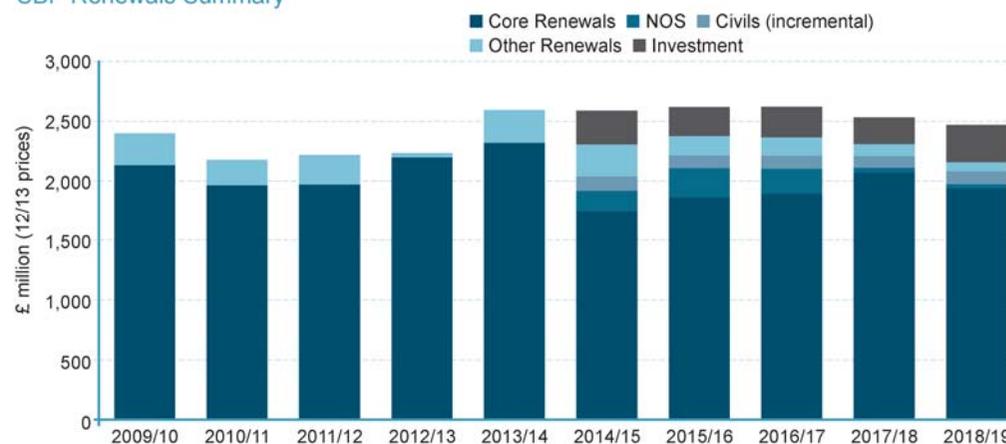
For civils, we did not secure all the funding we sought in PR08 for CP4. We accepted the PR08 determinations on the basis we could manage the risks in this area but did not believe the funding provided to be sustainable. During CP4 we therefore prioritised the most urgent areas of backlog but there are still some issues that need addressing, particularly civils and earthworks.

We are committed to delivering value for money to passengers and tax-payers. In the SBP we confirm our commitment to deliver 18 per cent headline efficiency over CP5. The pace of change over the next control period is the key issue in determining whether this challenging level of efficiency can be achieved. We have undertaken a comprehensive benchmarking programme to inform our view of the opportunities and how we can apply them to Network Rail. The efficiency plans we have developed represent a challenging step-change in the way run our business.

On this page, we have summarised our total renewals expenditure and efficiency profile. On the following slides, we outline the basis of forecasts for the assets with the most significant expenditure (track, signalling and civils). We also summarise the approach for buildings, telecoms, electrification and fixed plant. We have separately identified other capital expenditure that does not relate to renewal of existing railway assets. Finally, we have identified incremental investment during CP5 that will deliver safety improvements and/or savings in the longer term.

For further details see the [Renewals expenditure summary](#)

SBP Renewals Summary



£m (12/13 prices)	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Track	745	635	579	634	581	549	2,979
Signalling	502	702	721	665	583	525	3,196
Civils	409	481	456	448	426	427	2,238
Buildings	178	276	251	224	187	153	1,092
Electrification and plant	270	231	205	180	136	119	871
Telecoms	213	103	78	80	58	41	361
Other renewals	275	421	420	399	411	422	2,073
Reprofiling	-	(266)	(95)	(14)	144	230	-
Total	2,591	2,584	2,616	2,616	2,527	2,466	12,809

The renewals plan has been based on the annual expenditure profiles submitted by each route. Recognising the risk that we may not deliver the projected activity and expenditure in the early years of CP5, we have applied a simple high level adjustment to reprofile expenditure. We have not amended the underlying details.

We are currently expecting some renewals expenditure relating to GE overhead line and the network telecoms project that was funded during CP4 now to be delivered in CP5. We have included this expenditure in the CP5 forecasts with an offsetting reduction in our CP4 projections. We will continue to review the extent to which there are specific projects for which we need to agree roll over arrangements with ORR.

We take a 40 year view of our assets when developing our plans

Our plans for CP4 have been developed through an iterative process of “top-down” forecasting of our long term activities and costs and the development of “bottom-up” route-based asset management plans. The top down modelling is used to validate our route plans and demonstrate our policies and plans are sustainable and at minimum whole life cost.

By contrast, our longer term plans have been developed using “top down” models to forecast the overall levels of activity required to manage the network consistent with our asset policies together with a high level assumption about further cost savings beyond CP5. The forecasts also include the increase in costs of maintaining and renewing new assets created by our enhancement programme. Given the early stage of development of many of these schemes, these costs will not yet be fully reflected in our plans. The forecasting of operating costs reflects continued delivery of the Operating Strategy, with consolidation of signalling activities into 14 Operating Centres (of which 12 are in England & Wales).

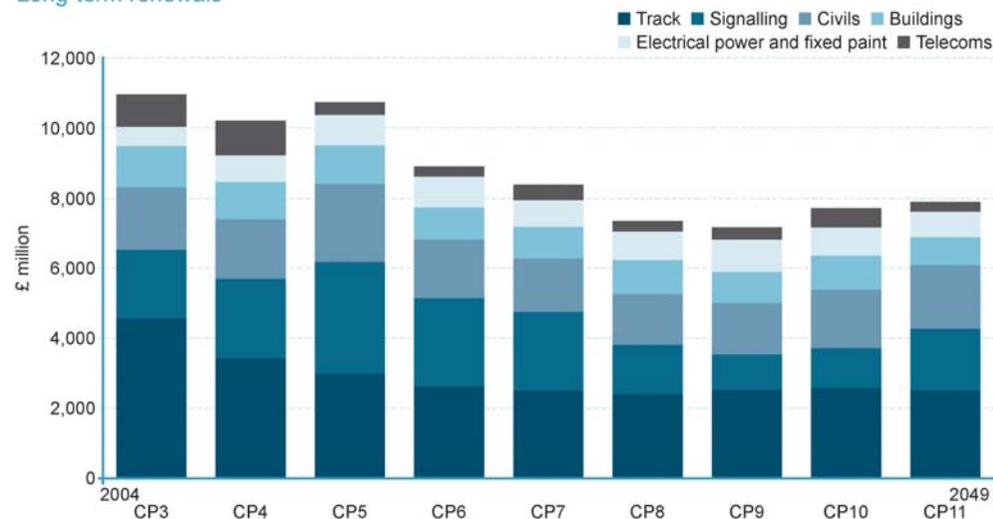
As these forecasts have been developed on a top down basis, it is inevitable that they will continue to evolve. They provide a good indication that we are managing the network in a financially sustainable way. They also provide a good indication that the cost of running the railway will continue to reduce in future. We will continue to develop and update these plans during CP5, and they will form the basis of our plans for the next periodic review. These forecasts are the basis for the long run average renewals figures used for calculating amortisation of the RAB.

These long term forecasts show that:

- we have been catching up previous under investment during CP3 and CP4, particularly for track
- in CP5, we will start to catch up the previous under investment in civils and will increase signalling expenditure as we start to invest to deliver long term savings in the operation of the network
- our costs will reduce over the following four control periods reflecting the more stable levels of investment together with potential further efficiency savings
- increasing costs in CP10 and CP11 as a result of the cyclical renewal of assets reaching the end of their lives.

£m (12/13 prices)	CP3	CP4	CP5	CP6	CP7	CP8	CP9	CP10	CP11
Track	4,555	3,420	2,979	2,613	2,487	2,395	2,524	2,579	2,500
Signalling	1,984	2,269	3,196	2,523	2,259	1,413	1,011	1,126	1,764
Civils	1,776	1,718	2,238	1,688	1,521	1,445	1,459	1,673	1,821
Buildings	1,177	1,056	1,092	916	922	975	890	970	806
Electrification and fixed plant	547	757	871	877	761	823	941	860	730
Telecoms	926	994	361	290	446	307	357	547	279
Total	10,965	10,214	10,736	8,965	8,463	7,927	7,250	7,820	7,967

Long-term renewals



For further details see our asset policies and modelling

CP4 track policy changes are proving sustainable and will continue in CP5

Overview

In CP4, we developed a criticality-based approach to managing track assets, differentiating intervention strategies by business criticality and the condition in four categories. This has enabled us to deliver the required outputs, together with substantial scope efficiency improvements from an increase in refurbishment to maximise component service lives rather than full renewal. For CP5 we have further refined this approach. Our whole-life cost modelling work indicates that our track plan for CP5 will deliver the required outputs sustainably at reduced cost compared to CP4

Policy development/volumes

In CP4 we developed a criticality-based approach to managing track assets, differentiating intervention strategies with regard to their impact on the railway. This has been refined and improved for CP5 and this will enable us to deliver the required outputs, together with substantial efficiency improvements. The introduction of refurbishment is designed to maximise component service life and will allow us to treat more of the asset for lower overall cost. For example:

- we will treat significantly more switches and crossings (S&C) in CP5 compared to CP4, targeted to provide performance improvements
- strategic re-padding of older concrete sleeper designs will maximise their remaining life.
- half-life re-ballasting is introduced and designed to improve the life of all of the track assets.

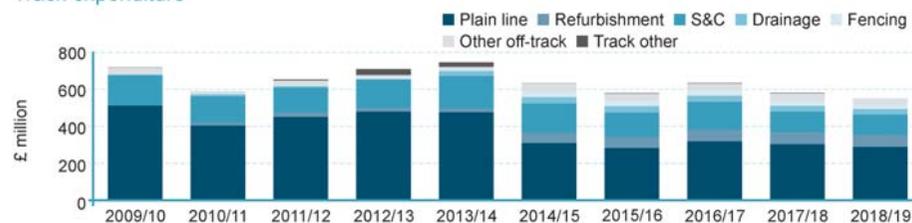
This development has been supported by whole life cycle cost modelling of alternative interventions.

The continued refinement of policy will be supported by improvements in decision support capability delivered through our ORBIS programme which will consolidate our track condition information. This is a key enabler to deliver the CP5 work and will allow us to make more informed decisions over the management of our assets as well as predict when the optimum time is to intervene. Improving the timing of interventions will be further supported by our work on risk based maintenance, this will progressively improve our maintenance regime.

Efficiency initiatives

- ORBIS will provide improvements in asset data quality as well as provision of additional decision support tools – this is a key enabler to assist us in targeting the half life re-ballasting appropriately in order to achieve the required outputs.
- Multi-skilling of key personnel – to meet the demands of operating in high performing, dedicated teams.
- Efficient work bank smoothing with midweek working in order to level resource demands and reduce supply chain cost.
- A new contracting strategy which brings to market the policy and volume changes in light of our benchmarking programme

Track expenditure



For further details see the Renewals expenditure summary

Unit costs and efficiency

Building on the reductions in unit cost seen across all work categories in CP4, fundamental changes to how we engage the market in CP5 will drive efficiency into the business, balancing responsiveness to local route needs while ensuring that economies of scale are maintained.

We have consulted extensively with our supply chain. Our new track strategy not only provides opportunity for small and medium enterprises, but better links the supply chain by engaging the market in a manner which draws out skills, competencies and benefits of regional alignment. This flows through into unit costs reflective of local structural factors – driven both by network complexity and access restrictions – and facilitating genuine route comparisons.

Building upon extensive benchmarking, our new contracts for CP5 will be predicated upon highly competent and dedicated resources that will be expert at delivering under the access pressures which exist in a dynamic network with high levels of midweek working to facilitate transparent delivery.

Plain line delivery, where contracted will be in route aligned packages, with bundling structured to bring synergy and provide genuine responsiveness to our customers. Switch and crossing works are marked both by the introduction of innovative treatment methods of heavy refurbishment – which can be delivered in constrained access – and full renewals being delivered by dedicated, highly skilled teams operating cross network. In CP5 we are bringing the human factory to worksite and delivering significant improvements in efficiency and installation quality with it. High Output Delivery sees an expansion in the amount of ballast cleaning over CP5 versus CP4 while investment and upgrade in plant enables us to match supply with demand to deliver at efficient unit rates.

Volumes	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Plain line conventional (km)						
Steel relay	3	3	8	14	2	30
Rail renewal	241	213	246	241	224	1,164
Single rail	24	21	24	27	24	120
Heavy refurbishment	95	149	182	191	175	793
Plain line (km)						
Automated ballast cleaning	235	195	171	137	178	915
Rail sleeper relay	126	83	169	165	149	692
Heavy refurbishment	0	67	56	0	48	171
Plain line refurbishment (km)						
Heavy refurbishment	41	38	36	39	35	189
Medium – concrete	112	127	132	136	156	662
Medium – other	127	133	128	152	149	689
Switches and crossings (number)						
Abandonment	108	80	84	54	49	375
Full	298	262	316	245	255	1,376
S&C refurbishment (number)						
Heavy refurbishment	238	299	368	402	407	1,714
Medium refurbishment	385	388	392	367	381	1,913

Our signalling renewals represent a transformation in technology

Overview

The control, management and safety of train movements are fully dependent on the signalling systems. Since the mid 1800s, signalling has evolved from basic principles into today's highly complex electronic systems numbering some 500,000 maintainable assets. The legacy of this development has resulted in many different signalling types and technologies across the network; all follow the original basic principle of Block Section Signalling. During CP4 we have been developing ETCS, Modular Signalling and Traffic Management amongst other technologies, all of which provide the opportunity to give whole life cost benefits throughout the industry. The CP5 policy is to further develop these technologies into our delivery programmes. The plan provides a response to DfT specifications requiring an industry move to ERTMS and aligns to the HLOS.

Policy development/volumes

The CP5 policy adopts a targeted approach to renewal, only replacing assets that are approaching end of life. The policy also:

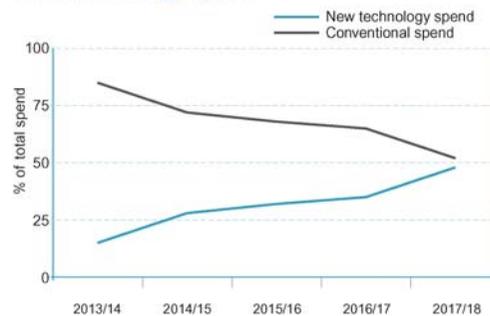
- Aligns with the National Operating Strategy (NOS)
- Aligns with the National plans for European Train Control System (ETCS)
- Supports a flexible application of alternative maintenance regimes to allow for criticality
- Maximises the benefits of Reliability Centred Maintenance of Signalling Equipment (ROSE) and Intelligent Infrastructure

Whole life cost modelling underpins the renewals approach taken and identifies the best technology to apply. The impact of the revised policy is:

- Integration of renewal workbank and national strategies (NOS/ETCS)
- Reduced base renewal cost when compared with full resignalling

This approach delivers to an increase in volume compared to CP4 in order to facilitate the business benefits that the above items realise. By the end of CP5, 43 per cent of our signalling spend will be on new technology (ETCS cab fitment, ETCS, Modular and level crossings (predominantly manually controlled barrier with obstacle detection))

New technology spend



Unit costs and Efficiencies

Unit Rates and efficiencies are achieved by the recently negotiated signalling framework contracts. Each framework contract area has different unit rates and efficiency profiles based on supplier technology, and the number of suppliers has been chosen to reflect the delivery volumes.

Embedded efficiencies are delivered through the application of CP5 policies via a targeted approach. This also includes implicit assumptions regarding volume scope efficiencies for major signalling interventions.

The efficiencies within the framework contracts build upon the around 24 per cent efficiency being achieved through CP4.

Deliverability

The deliverability of the work bank has been confirmed as achievable partly through revised delivery processes within the framework contracts and also changes to newer technology such as Modular Signalling and ETCS.

Signalling expenditure



Volumes	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Conventional (SEUs)	833	1,247	624	1,093	288	4,085
ERTMS (SEUs)	-	80	115	146	868	1,209
Level crossings	47	94	123	121	79	464
Partial conventional	596	931	796	261	376	2,961
Targeted component	181	83	76	101	140	580
Modular resignalling	116	253	370	139	161	1,039
Other SLC	6	1	3	2	2	14

For further details see Renewals expenditure summary

There has been under investment in structures and earthworks

The majority of our structures and earthworks assets are over a century old. They degrade very slowly which, meaning their longevity, can lead to a perception that the asset is more robust than is actually the case. In the last periodic review, the case was not fully established for our proposed increase in expenditure of around £300 million. During this control period we have carried out extensive further analysis of the required activity and expenditure levels. This analysis supports a significant increase in renewals to address the previous under investment. Incidents at Stewarton, Pass of Brander and River Crane, whilst not directly related to investment in a single control period, underline the need to significantly increase investment levels above those historically allocated to these assets. They also highlight that we will continue to improve our understanding of the underlying asset condition.

We have developed new asset policies which have been used to determine the levels of activity built into this business plan. They have been based on considerably improved asset information and modelling and represent a step change from the single, generic, civils policy that had been used previously.

We have developed sustainable, lowest whole life cost strategies for both structures and earthworks. The application of the new policies in one control period would require an undeliverable level of expenditure due to the backlog of work that has developed. We therefore propose to roll out application of the new policies over two control periods to balance risk, affordability and deliverability.

Despite considerable progress in defining a sustainable approach to the management of these assets, there still remains a degree of uncertainty whether the policies will result in appropriate activities and outcomes. Since the policies are new, there is still limited degradation information over the whole life of the assets and the modelling is complex due to the heterogeneity of the asset base. While recognising that an output based determination is desirable, we do not believe that it would be appropriate for civils during CP5. We need to deliver increased activity levels while continuing to review whether the revised asset policies are recovering the backlog and reducing the level of risk relating to civils assets. We believe that it is important for both ORR and Network Rail to jointly continue to assess whether our revised policies are appropriate.

Policy development/volumes – Structures

A risk-based policy for structures has been developed for CP5. It directs the development of delivery programmes to target maintenance and renewal activities to achieve an equitable level of risk across the network by the application of route-specific targets.

A panel of expert engineers has agreed triggers for the assets groups that use an established condition scoring system to determine when interventions should be considered. These are then described on single page policy documents which provide detailed guidance for the application of policy and choices for interventions dependent upon asset type, starting condition, and route criticality. Whole life cost modelling underpins and validates the options and identifies the best option to apply.

Policy development/volumes – Earthworks

We have developed a long term intervention strategy that will sustainably maintain the condition of earthworks assets at lowest whole life cost. We are proposing a policy that prioritises risk reduction in CP5. For CP6 and beyond a revised policy will be implemented to sustainably maintain both risk and condition.

The new earthworks policy will result in a broader approach to the management of the asset by requiring greater application of the lower cost interventions of refurbishment and maintenance, rather than complete renewal.

Civils efficiencies

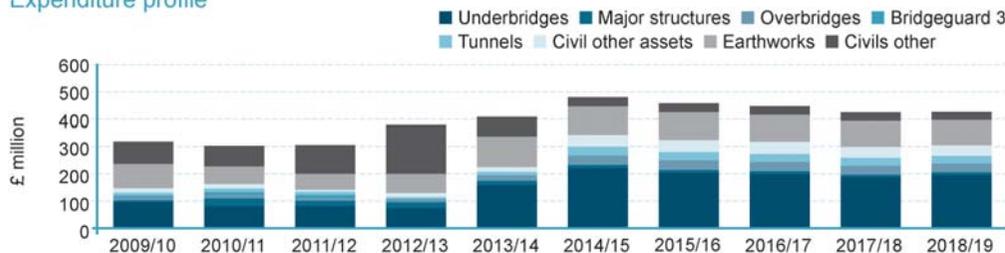
In order to identify the efficiencies that will be achieved by earthworks and structures across CP5, a review of the end-to-end asset management process was undertaken. This work identified the following five initiatives that will deliver increasing levels of unit cost and volume efficiencies across the control period:

- improved asset knowledge that will result from: the capabilities that are being introduced by the Asset Data Improvement and ORBIS programmes and; enhancements made to the asset monitoring regimes
- enhanced business planning and collaboration that will be delivered through a range of different initiatives (such as new decision support tools and improved workbank planning) in order to maximise the productivity of each possession
- enhanced asset management capabilities that exploit economies of scale and by ensuring that existing resources are employed more efficiently
- optimising the asset, commercial and contractual policies
- achieving unit cost reductions through continued improvements in the tendering, procurement and contract management of the CP5 workbank

Regulatory framework

We have proposed a different approach to the regulation of structures such that we can deal with emerging issues associated with many of our ageing assets and so we can invest any further efficiencies in accelerating the catch up from previous under investment.

Expenditure profile



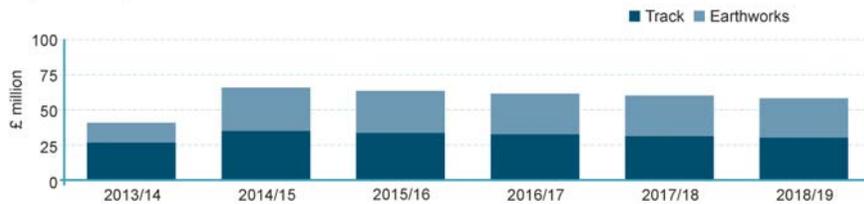
Volumes	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Underbridges (sq m's)	87,546	83,130	83,320	81,384	87,921	423,300
Major Structures (sq m's)	0	0	0	0	0	0
Overbridges (sq m's)	9,916	9,916	9,916	9,916	9,916	49,579
Bridgeguard 3 (sq m's)	181	2,803	677	252	418	4,331
Tunnels (sq m's)	20,373	20,373	20,373	20,373	20,373	101,866
Culverts (sq m's)	1,440	1,440	1,440	1,440	1,440	7,201
Footbridges (sq m's)	2,091	2,091	2,091	2,091	2,091	10,453
Coastal / Estuary Defences (m's)	1,645	1,645	1,645	1,645	1,645	8,225
Retaining Walls (sq m's)	4,019	4,019	4,019	4,019	4,019	20,094
Earthworks (5 chain-length)	3,554	3,549	3,547	3,552	3,554	17,757

We have renewal plans for all our infrastructure assets

Drainage

The management of drainage has historically tended to be carried out on a reactive basis. As part of our asset policy development programme we have produced an integrated drainage policy for the first time, providing a system view across drainage of all our assets. Our new policy and our plans for CP5 have been supported by a step change improvement in our drainage asset inventory and condition information, following extensive surveys. The policy sets out a more proactive approach to managing the drainage system that is reflected in the significant increase in activity during CP5 which will deliver whole life whole system benefits in the longer-term. We need to install new drainage on high criticality routes where its lack is affecting track quality, and we will continue with a programme of addressing poor condition drainage over the following two control periods, prioritising activity by route criticality. This step-change in activity poses a significant delivery challenge during CP5. Drainage expenditure is contained within our track and earthworks plans; the summary of expenditure in the figure below is not incremental to these expenditure plans.

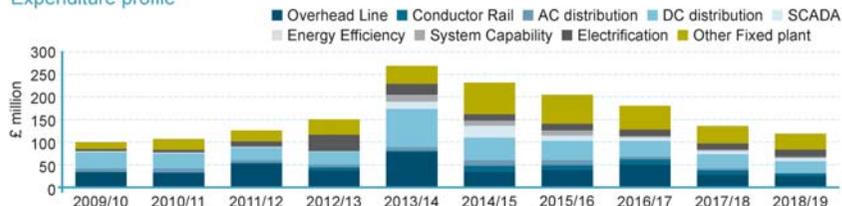
Expenditure profile



Electrification and Fixed Plant

The next control period will see a substantial investment in new electrification. We plan to use this opportunity to improve our designs and standards for the future safer operation and maintenance of our system – building on our recent work reviewing our electrical safety processes. In areas where there is no current electrification, we plan to build new maintenance depots and train staff in the safe and efficient operation and maintenance of these new systems. For our existing assets, we plan to develop our asset policies, moving from a primarily age-based intervention methodology to a more sophisticated asset management to reduce whole life costs. We will achieve this by developing more condition and criticality based assessment and intervention techniques based on whole life asset methodologies. Our signalling power supply assets are old and represent a significant risk of deteriorating performance and we plan to increase the level of renewal of these assets. We will also be increasing our assessments of the condition of these assets to prioritise renewal activity effectively. We will achieve efficiencies of 18 per cent by the end of CP5 by making greater use of Tier 2 contractors, selecting from more standardised designs, developing stable and optimised work banks, and effective targeting of renewals through better asset information.

Expenditure profile

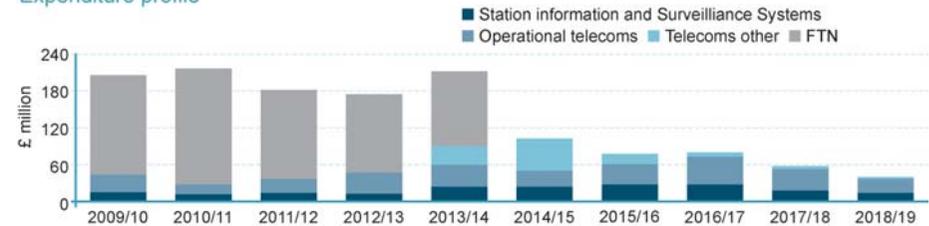


Telecommunication

Our telecom assets will become increasingly critical to the operation of the network in CP5, with more of our signalling and electrification controls running over our telecom network. Our policy reflects this, with a clear focus on the required level of service, interventions linked to asset criticality, specified service availability levels and tolerable downtime to meet required system performance. A revised maintenance, failure and renewal intervention regime has been developed to support these service levels. Our plan also incorporates the Fixed Telecoms Network (FTN) assets, including some renewals, as part of this new network was delivered up to ten years ago.

Efficiency savings of 14 per cent will be achieved during CP5 through better packaging of workbanks, scale economies in procurement, greater standardisation of design, and insourcing the initial stages of design. There is also a large embedded volume efficiency in our telecoms plan – by moving to service based renewals and focusing on component renewals and not just whole system we have reduced the required volumes and hence cost by an estimated £66 million.

Expenditure profile



Buildings

Buildings policy is based on asset condition and risk and has been refined to identify intervention thresholds that will achieve lowest whole life cost while maintaining risk. The policy development was informed by work on degradation relationships and intervention strategies with the Buildings Research Establishment. Detailed whole life cycle cost modelling has been carried out to support definition of the intervention thresholds. We are intending to reduce delivery cost through better work bank packaging, smarter procurement, and reductions in project management and contract overheads. We will achieve end-CP5 savings of 16 per cent through both scope and delivery efficiencies. We believe improvements in our asset management systems and asset policies will enable sustained renewal volume reductions.

Expenditure profile



For further details see the Renewals expenditure supporting document

We are investing beyond the rail infrastructure to deliver improved value

Within our overall renewals plan, there is further capital expenditure beyond renewal of existing railway assets. This includes expenditure in new plant and machinery as well as investment in non-operational assets. This expenditure supports the achievement of efficiency savings and other improvements.

Wheeled plant and machinery

The overall CP5 wheeled plant and machinery expenditure is £623 million, including £528 million for NDS fleet and maintenance plant, and £95 million for intelligent infrastructure .

Our revised policy on wheeled plant requires an increased focus on inventory management and degradation of sub-assemblies and components, root cause analysis, life extension of assets to deliver greater outputs for investment and reduction in whole life costs, and provision of new novel assets where customer demand justifies.

Separately, we have been working with ORR to agree modifications to our road rail vehicles fleet as a result of prohibition notices relating to their safe operation. We have therefore included some further expenditure within the investment section of this plan.

Around £562 million is allocated to England & Wales

Information Technology

Our core renewals expenditure for IT systems totals £276 million over CP5.

The CP5 capital expenditure is estimated at £208 million with additional £68 million planned for traffic management systems. The information system CP5 capital expenditure forecast has also been aligned to the Gartner investment category model (running, improving, changing) to illustrate how it is budgeted in line with various strategic objectives.

Separately, we believe that we will need to continue investing in IT to support further improvements and we have included some further expenditure within the Investment section of the plan.

Around £249 million is allocated to England & Wales.

ORBIS

We have included £173 million to enhance our underlying asset information capabilities through the ORBIS programme. The programme focuses on bringing about a step-change in improvements to asset data quality, implementing new tools and business process changes to take advantage of better information, and delivering business change activity required to embed new ways of working in a sustainable manner. Around one third of the ORBIS budget is allocated to IT systems enhancements and integration work. This specific programme is separate from the enhancements identified in the Information Technology investments.

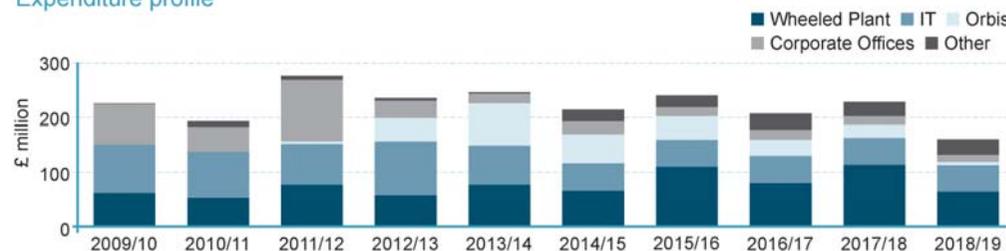
Around £156 million is allocated to England & Wales.

Corporate offices

Our plan includes £124 million of capital expenditure comprising renewal of our offices (£89 million), and investment in the commercial property estate to maintain current levels of rental income based on asset condition surveys (£35 million).

Around £120 million is allocated to England & Wales.

Expenditure profile



Regulatory framework

Investment framework

Our plan is based on the level of expenditure that we currently expect to incur during CP5. However, it is likely that we will continue to identify specific projects for delivery in CP5 that will deliver further improvements in future control periods (and potentially within CP5 too). It is therefore important that there is clarity on how incremental capital expenditure (underpinned by a robust business case) will be enabled and funded during CP5.

We also use the investment framework to fund investment to enable us to increase our property income. We have not included potential CP5 investment or income in the plan, but have described our current view of potential opportunities on the Property page of this plan.

Efficiency measurement

It is important that we separately identify this category of expenditure as the plan is based on specific expenditure forecasts (rather than underlying volumes and unit costs). Measurement of efficiency in this area is difficult and we believe that it is more appropriate to measure our expenditure compared to planned levels.

Further details are included in our supporting plans for NDS, Information Management, Asset Management Services and Property.

We have proposals for additional investment to deliver future benefits

Since we published the Initial Industry Plan, we have identified a number of areas where additional investment during CP5 will improve value for money and safety benefits in the longer term. We have therefore separately identified these areas of expenditure within our plan. Each of these investments is important for achieving ongoing improvement in the railway, and we therefore believe it is important that they are delivered during CP5.

Information technology

We have benchmarked our IT expenditure with other companies. This has indicated that the level of IT capital expenditure included in the IIP was significantly below the average levels experienced by other organisations. Continued investment in IT will be essential if we are to continue improving the service that we deliver to our customers as well as reducing costs. We have therefore included a further £337 million within our plan.

Safety

We have included an allowance of £100 million to deliver investments which will improve safe working at engineering worksites for both green and red zone working.

At present, conductor rails are primarily isolated through the operation of hook switches and manual application of short circuiting straps. This is time consuming, labour intensive and potentially places staff at risk. We have included £100 million within our plan for fitting Controlled Track Switches (CTSs) and Negative Short Circuiting Devices (NSCDs) within key areas. This will allow remote operation, reducing the need for staff to access the infrastructure, and avoid the associated risk. Simplifying the isolation process saves time and labour, increasing available working time within possessions by reducing set-up and hand back time. It also allows emergency isolations to be taken more quickly, improving restoration of service times.

In addition to the conductor rail isolation programme, we have identified a further £40 million of safety improvements to the DC-electrified network and £90 million of investment to our AC-electrified network as part of recent wide-ranging reviews of our electrical isolation processes.

We have been working with ORR to agree a programme for both new and modified Road Rail Vehicles to address safety issues identified during incident investigations and ongoing compliance with legislation. This programme will cost £120 million more than we included in the IIP for CP5.

Research and development

As outlined in the Technology and Innovation strategic theme, plans are being developed to increase R&D spend during CP5, rising to an additional £150 million in the final year of CP5 (which includes the £10 million per year HLOS funding). We are currently developing a more detailed plan for R&D investment which we intend to complete during summer 2013 with an interim plan being completed in March 2013.

Accelerated renewals

During CP5, we propose to accelerate renewals totalling £372 million. This includes acceleration of work in Western and Anglia to use the engineering access that is available in CP5 when we are carrying out major works. The electrification of the route and completion of Crossrail will lead to a significant increase in services in future years, which will lead to constrained engineering access in the future. This acceleration will reduce the level of disruption to train services during CP6 and will be value for money for the overall industry. We also propose accelerating. We also plan to accelerate renewals the mid life refurbishment of overhead line equipment in Anglia as we are unlikely to be able to deliver the full programme in CP6, which is when the asset policy indicates this work should be done. These costs are included in our core renewals forecasts rather than within the investment forecasts that are summarised on this page

Civils

Earlier in this plan, we set out our proposed approach to the management of our civils assets during CP5. There has been under investment in these assets over a considerable period and we need to recover this backlog so that we can manage these assets safely and sustainably in the future. As a result, we have increased the CP5 expenditure on civils by around £600 million, consistent with our aim of recovering the previous under-investment over two control periods. This investment is included in our core renewals forecasts rather than within the investment forecasts that are summarised on this page.

£m (12/13 prices)	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Information technology	66	94	67	54	55	337
Safety projects	147	60	95	67	83	450
Research and development	15	30	45	70	140	300
Network Rail Total	228	184	207	191	278	1,087
Total England & Wales	206	167	188	171	254	986

As noted on the previous page, we have not included a specific allowance for emerging investments to deliver future benefits. In particular, we have not included expenditure that may be required to support delivery of improvements in CP6 through the 2018 Periodic Review.

For further details see our investment supporting document.

We will deliver significant enhancements to the network

The HLOS requires a significant enhancements programme to be delivered in CP5 including a rolling programme of electrification, enhanced capacity into and between our major cities, increased connectivity between these cities and improved links to major ports and airports.

The portfolio of schemes

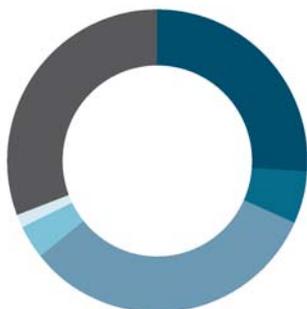
- The enhancements portfolio included in the SBP has been categorised based on:
 - Schemes already committed by previous Government announcements e.g. Thameslink and Crossrail
 - Schemes named by the HLOS e.g. the Electric Spine and Northern Hub
 - Schemes required to deliver the HLOS capacity metrics e.g. train lengthening and power supply
 - Funds provided for in the HLOS e.g. Strategic Freight Network
 - Schemes funded by others i.e. Cardiff Valleys electrification

£ million (2012/13 prices)	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Committed schemes	1,674	1,708	1,330	801	271	5,784
Schemes named by the HLOS	254	534	950	705	239	2,682
Schemes required to deliver the HLOS	109	152	212	273	117	863
Schemes funded by others	10	26	55	140	74	305
Funds	188	200	217	360	212	1,177
Rollover from CP4	68	70	5	5	1	149
Total enhancements	2,303	2,690	2,769	2,284	914	10,960

Project development

CP5 Enhancements by GRIP Stage

	£m	Number of projects
■ GRIP0	2,846	20
■ GRIP1	601	10
■ GRIP2	3,552	33
■ GRIP3	377	7
■ GRIP4	154	1
■ GRIP6	3,343	4



Key issues

- **Level of risk allowance:** Enhancements projects are different from renewals. They are multi-disciplinary, complex projects with inter-dependencies as well as conventional construction risk. In many cases there are a number of "one-off" and/or novel factors on these projects and many do not fit into a modular, repeatable framework. A number of factors can be outside of our control including external approvals and consents which affect project timescales, scope and cost. Therefore the level of risk allowance included in our forecast costs for enhancements is higher than for renewals. We have costed the portfolio at a P80 level of confidence reflecting the greater risk associated with enhancements and the level of certainty required to deliver the specified HLOS outputs within the funds made available.
- **Project development:** The HLOS included schemes that were not included in the IIP and we have had limited time to undertake development work since the HLOS was published. We propose that the outputs and funding of these schemes is fixed once the schemes have reached a more mature GRIP stage. These schemes include Waterloo, DC to AC conversion and elements of the electric spine. We have included our current view of the cost of these schemes in our forecasts.
- **Cost of electrification schemes:** We continue to develop the detailed definition of the electrification schemes for CP5 and beyond. The Great Western electrification project is currently in GRIP stage 3. The cost of this project has increased since the IIP and we continue to examine opportunities to reduce costs whilst delivering the required outputs
- **Power supply:** Given the early stage of development of many of the schemes, there are uncertainties surrounding the scale of power supply enhancement to support the required output. Further work is required to understand requirements.
- **Impact on the network:** The delivery of this enhancements portfolio will increase the cost of the core network. Firstly, there will be more infrastructure to maintain. Secondly, the additional capacity provided will increase the amount of traffic on the network, increasing the maintenance and renewals activity required on the existing infrastructure as a consequence of the additional tonnage. Lastly, the HLOS fundamentally changes the nature of the asset portfolio. The delivery of the HLOS will increase significantly the amount of electrified railway (adding 3,000 kilometres by the end of CP5) that will require ongoing maintenance and future renewal.
- **Impact on performance and access:** Given the short time since the HLOS was published and the level of development work undertaken, further work is required to understand the delivery plan for the portfolio of schemes in sufficient detail to undertake a more robust assessment of the programme of work on access requirements and potential performance risk mitigation works.
- **Accelerated renewals:** we are proposing to bring forward renewals activity from Control Period 6 on the Western route to maximise the work undertaken during the significant disruption necessary in CP5 to deliver the required enhancement programme

For further details see the Enhancement Expenditure supporting document

Nearly £6 billion of enhancements are already committed for CP5

A significant element of enhancements expenditure relates to projects that have already started or that have been committed to by Government from previous announcements.

The committed projects are:

- Crossrail – A new integrated railway route through central London from Maidenhead and Heathrow in the west to Shenfield in the north east and Abbey Wood in the south east.
- Reading Station Area Developments – Major station redevelopment with new facilities and track configuration.
- Great Western Electrification – Extension of electrification along the Western route and into Wales.
- North West Electrification – Overhead electrification and associated power supplies and distribution along a number of north eastern routes including signalling immunisation, track lowering and bridge reconstructions.
- Northern Hub – A major infrastructure work to help facilitate economic growth in the north of England.
- Trans-Pennine Electrification – Overhead electrification and associated power supplies and distribution for a number of routes.
- Intercity Express Programme (ECML capability) – Development, design and implementation works to introduce Intercity Express trains up to 260m long to replace the current fleets of class 43 (HST) on the ECML from 2018 onwards.
- Intercity Express Programme (ECML PSU) – Traction power supply capability to meet Thameslink requirements and enable the introduction of Intercity Express trains on the ECML.
- East West Rail – The objective of this project is to provide additional network capacity to accommodate growth in freight and passenger markets, by reopening and enhancing the Oxford – Bletchley – Bedford railway to create a direct link between the Great Western, West Coast and Midland Main Lines.
- Thameslink Programme – Will increase train capacity on one of Europe's busiest stretches of railway – the Thameslink route from north to south through central London.
- Stafford Area Improvement Scheme – Addressing the capacity and performance constraints in the Stafford area
- West Coast Power Supply Upgrade – The scope of the overall programme is to deliver an upgraded traction power supply system to support the operation of the Stafford specification.
- CP4 rollover: A number of projects funded in CP4 will complete in early CP5

Committed projects expenditure (in 2012/13 prices)	£m
Crossrail Programme	1,444
Reading	143
Birmingham New St Gateway	38
Great Western Electrification	874
North West Electrification	197
Northern Hub	242
Trans-Pennine Electrification	239
Intercity Express Programme (IEP)	365
East West Rail	352
Thameslink Programme	1,654
Stafford Area Improvement Scheme	154
West Coast Power Supply Upgrade	82
Rollover of projects from CP4	149
Total	5,933

For further details see Enhancement Expenditure supporting document

The HLOS requires over £6 billion of additional enhancements

As well as the committed schemes and funds, a number of other projects were named in the HLOSs. A number of other projects are also required to meet the specified capacity metrics. Within the Governments' High Level Output Specifications (HLOSs), a number of ring-fenced funds have also been specified to deliver stated outcomes. These funds allow a greater level of flexibility around delivery. Governance arrangements are being agreed so that the best use of these funds is made from an industry perspective in achieving the required outcomes.

These projects include:

- The Electric Spine – a major north-south rail electrification and capability enhancement. The objective of this project is to increase regional and national connectivity and support economic development by creating a high-capability 25kV electrified passenger and freight route from the South Coast via Oxford and the Midlands to South Yorkshire.
- Waterloo – The primary driver of this project is to provide capacity to meet demand and the forecast growth into and at London Waterloo station.
- Western access to London Heathrow Airport – A new rail link between Heathrow Terminal 5 and the Great Western Main Line.
- Schemes for HLOS capacity – this includes a number of schemes to provide greater capacity into, in particular, regional cities by train lengthening to deliver the HLOS capacity outputs
- Welsh Valley Lines Electrification – The scheme will enable the more efficient operation of passenger services on the Valley Lines network, replacing ageing diesel traction with a cascaded fleet of refurbished electric trains.

Other projects expenditure (in 2012/13 prices)	£m
The Electric Spine	1,417
Other named schemes	1,265
Required to deliver HLOS	863
Welsh Valley Lines Electrification	305
Total	3,850

Projects requiring further discussion

In the IIP the industry set out its view of the required infrastructure enhancements for CP5. The HLOS and SoFA provided funding for many of the projects identified, and a number of other schemes. There are a number of schemes not required by the HLOS that were included in the IIP. We have not sought funding for these schemes in this plan and we will continue to develop the business case for these schemes and explore potential funding sources. The schemes in this category include Gospel Oak to Barking electrification, congestion relief at Paddington, Wimbledon, Clapham Junction, and stations in Liverpool, and journey time improvements on routes to Bristol and Stansted Airport.

The funds are:

- The Strategic Rail Freight Network – An allocation of £206 million has been granted to fund improvements identified by the industry to continue rail freight expansion in England & Wales whilst stimulating wider economic growth and environmental benefits. Network Rail is working with stakeholders to identify the best use of available funds and to deliver schemes that are funded by the SFN programme.
- East Coast Connectivity – Network Rail's obligations are to work with the industry to develop plans to deliver works within a maximum CP5 expenditure of £247 million on ECML to improve capacity and reduce journey times.
- Passenger Journey Improvement – A £309 million fund for use in CP5, targeted at the improvement of several aspects of the passenger service offer. It is expected that activities will be focused on three areas; journey time improvement, performance/reliability improvement and other enhancement opportunities that emerge, often as increments to asset renewal activity, such as projects to reduce station transit time for passengers.
- Station Improvement – A fund broken down into two elements of £103 million for improvements to passenger experience at station, and £103 million for 'Access for All' measures to be proposed by Local Delivery Groups.
- Development – A fund broken down into three elements of £57 million for developing new projects, £52 million for innovation, and £36 million to help HS2 with project development at all physical interfaces with the national network, including making scope recommendations to HS2 limited and to DfT.
- Level Crossing Safety – A £67 million fund to reduce the risk of accidents at level crossings.

Funds expenditure (in 2012/13 prices)	£m
The Strategic Rail Freight Network	206
East Coast Connectivity	247
Passenger Journey Improvement	309
Station Improvement	206
Development	144
Level Crossing Safety	67
Total	1,177

We have not included a forecast of enhancements projects that we may be asked to deliver by third parties as this is very difficult to forecast. In CP4, the level of third party enhancement is expected to total around £1 billion with expenditure expected to be around £140 million in 2013/14.

For further details see Enhancement Expenditure supporting document

Our plan sets out our latest view of the cost of required enhancements

In the IIP, we included the enhancement schemes already committed in CP5 and projects that the industry considered were required in CP5. The publication of the HLOS named additional schemes to be delivered plus illustrative schemes required to deliver the HLOS capacity outputs. The SBP provides the industry's view of the schemes required to deliver the HLOS outputs and our current view of their costs

The table summarises the key changes in the cost of the proposed enhancements projects for CP5, comparing the overall cost of committed schemes assumed in the Initial Industry Plan (published in September 2011), with the assumed cost of schemes required to deliver the HLOS (published in July 2012) and the portfolio of schemes included in the SBP.

As described earlier, the HLOS recognised a significant number of schemes had already been committed by previous Government decisions prior to the publication of the HLOS. In overall terms, the assumed cost of the committed schemes in the HLOS was broadly consistent with the costs assumed in the IIP. At a project level, comparing the IIP to the HLOS, the material differences related to the commitment to take forward delivery of North Trans Pennine electrification in CP5 in the HLOS which was assumed in the IIP to be delivered later, offset by scope reduction for West Coast and the absence of funding to complete the Reading programme.

The HLOS provided significant additional funding beyond the committed schemes to deliver specifically named schemes such as the Electric Spine, plus funding for schemes to meet the HLOS capacity outputs and the provisions of ring-fenced funds.

We have continued the development of our costing for schemes since we published the IIP. The most significant changes in costs compared to those assumed in the HLOS includes:

- Proposed expenditure on Great Western electrification has increased by over £300m due to increased scope (including new bridge reconstructions) and the development of an electrification system that meets the requirements of European regulations and those of new trains
- The inclusion of funding to complete Reading which was absent in the HLOS
- The inclusion in our plans of additional schemes to facilitate the delivery of the required capacity. The inclusion of power supply strengthening accounting for most of the increase in these costs
- The inclusion of funding for schemes which have rolled over from CP4

Reconciliation between IIP, SoFA and SBP	£m	£m
IIP (current railway)		5,142
Changes to HLOS		
Changes in schemes committed at IIP	(56)	
Schemes committed since the IIP	278	
Funds	1,177	
New projects required by HLOS	3,468	
Total	4,867	
HLOS Total		10,009
Changes to SBP		
Thameslink	(41)	
Crossrail	(5)	
Reading	143	
GW Electrification	325	
Northern Hub	49	
IEP	37	
North Trans Pennine electrification	(60)	
North West Electrification	(32)	
Stafford area improvement	(48)	
West Coast power supply	(7)	
Birmingham New Street	(15)	
East West Rail	74	
Schemes named in the HLOS	108	
Schemes required by the HLOS	274	
Rollover of schemes from CP4	149	
Total change from HLOS to SBP	951	
SBP		10,960

We will work with industry to address key systems issues

European Rail Traffic Management System (ERTMS)

During CP5 a number of signalling renewals will involve a transition of trackside infrastructure from conventional signalling to European Railway Train Management System (ERTMS) technology. By 2019, as well as the Cambrian Line which was completed during CP4, ERTMS will be operational on significant parts of the Great Western Main Line, the East Coast Main Line and the Thameslink core. This is in accordance with the National Implementation Plan for ERTMS and is being deployed with support from the cross industry programme team, which is led by Network Rail. The national test facility at Hertford North becomes operational at the end of CP4 to enable infrastructure and rolling stock integration testing. ERTMS has on-board components in addition to trackside equipment, and the industry is developing a train fitment plan describing the proposed timing of ERTMS capability for passenger and freight trains. Train fitment projects are being managed jointly with the ROSCOs and operators through the cross industry programme team, under governance of a cross industry group. Provision has been made in CP5 for train fitment where it is not anticipated to be covered through a franchise agreement or new train procurement.

It is assumed that new Thameslink, Crossrail and Intercity Express Programme (IEP) rolling stock will already be fitted with ERTMS.

Interoperability

Network Rail has been working with the DfT, the ORR and the industry on the adoption of the Railways (Interoperability) Regulations 2011 since their introduction in January 2012. Network Rail has initiated a review of its plans to determine how the infrastructure, systems and operation of the network, and the business of our customers, could most effectively and efficiently be aligned with the interoperability objectives. Network Rail's interoperability strategy development will begin in 2013 and with a wide consultation of our stakeholders.

Electrification and rolling stock

A key component of the HLOS is a rolling programme of electrification, making continued use of cascaded modern electric rolling stock and exploiting synergies between schemes in order to meet forecast demand growth and deliver better environmental outcomes. The concept of a high capacity passenger and freight electric corridor running from the south coast through Oxford, Bedford and via the Midland main line to the East Midlands and South Yorkshire, with a link from Oxford to the West Midlands and the North West builds on the already committed investment to electrify the Great Western main line, the North West and TransPennine corridors.

The electrification and major programmes such as Thameslink, Crossrail and the IEP create a requirement for a significant rolling stock construction programme during CP5 and the

opportunity for the redeployment of existing diesel and electric multiple units to support ongoing growth and address crowding issues.

Joint work by train operators, Network Rail and ROSCOs has been underway since last summer and the first 'Long Term Rolling Stock Strategy' is expected to be published shortly. The industry's current estimate of new build requirements in CP5 is in the order of 2,750 vehicles including 2,400 for Thameslink, Crossrail and IEP. More detail of the industry's rolling stock planning is set out in the Industry Strategic Business Plan. The franchising programme is key to defining the precise delivery of future rolling stock.

Depots

In developing its rolling stock proposals the industry is assuming that for Thameslink, Crossrail and IEP, new depot and stabling provision will remain a DfT responsibility. In the case of Thameslink and IEP the contracts with preferred bidders already include depot provision.

For all other replacement or 'growth' rolling stock it is assumed support for depots and stabling will be sought by franchisees from DfT.

Our expenditure plans include the cost of maintaining the current depot portfolio and capabilities on a minimum whole life cost basis but do not identify any depot or stabling expenditure other than that identified to particular projects at present.

For further details see the Industry Strategic Business Plans

Our Corporate Services provide increasing value for money to customers

Corporate Services is in the process of adapting from our historic functional approach into a new customer-focused service-orientated approach that will drive efficiencies through more effective engagement with the operating business. We are moving to a place where we can put our customers at the heart of what we do.

In order to deliver this vision, the centre is developing a new operating model which will allow more effective delivery at the frontline, known as Project Apple. The principles that will underpin this new operating model will support the transformation of the central functions as they align themselves to this progressive cultural shift and support the routes and IP as decision-making and transparency is brought closer to them. As we devolve more activity into business units, the role of the central support functions around assurance and governance will become increasingly important.

A number of central functions are within Corporate Services, including Business Change, Business Services, Contracts and Procurement, Finance, Government and Corporate Affairs, Group Strategy, Human Resources, Information Management, Legal Services, Safety and Sustainable Development and Workplace Management.

We have established a Corporate Services organisation to provide high-quality and cost effective services to our internal customers and the wider rail industry. Services will be provided in areas such as core business support, central administration and stakeholder management. An internal charging mechanism will be introduced to drive value for money and facilitate comparisons with external market rates. Our vision is a cross-functional organisation focused on customer service. Such an organisation will achieve significant efficiency savings by removing the duplication of roles and increasing collaboration across traditional functional boundaries. In April 2012, we created Business Services which was our first major step on this journey. Business Services provides a central resource for business transactions including accounts payable/receivable, supplier management and payroll. During CP5, we will continue the development of Corporate Services.

Corporate Services (including accommodation costs) is operating at world class efficiency levels in many areas with 95 per cent of the overall operating expenditure being independently benchmarked. All of our costs are based on detailed bottom up analysis and have been reviewed at executive level. We have committed to an efficiency of 18 per cent by end of CP5. This will be achieved by delivering an underlying efficiency of two per cent per year with additional efficiency initiatives being realised through the control period. The key initiatives that will be delivered are Project Apple; reducing apprentice recruitment during CP5, and moving more people to Milton Keynes in CP5, thus reducing the overall operating expenditure of our London offices.

Our National Delivery Service (NDS) brings together a wide range of products and services which support Network Rail in delivering our day to day business. This includes road and rail fleet, road haulage, procurement of materials and rail recycling. NDS will also deliver efficiency of around 16 per cent through CP5 with most of the saving achieved in the first year of CP5.

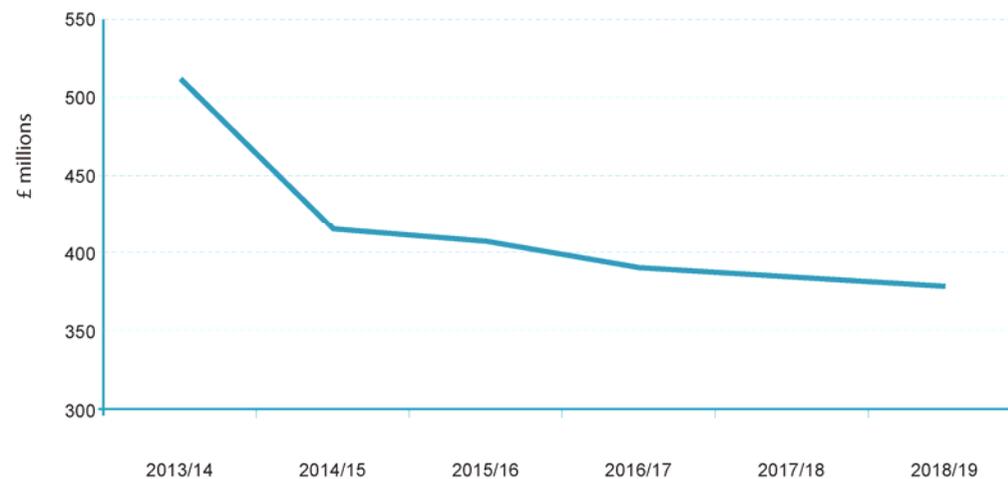
Group is our cost centre for recording one-off or unusual transactions. Typical transactions are insurance claims and income from Network Rail High Speed (NRHS). The nature of Group is such that financial forecasts are limited as they rely on historic trends and forward assumptions on accounting policies, insurance strategy or contractual arrangements with HS1. The unavoidable uncertainty around each of these assumptions presents an ongoing risk that Group considers and reviews.

Benchmarking

Detailed benchmarking has taken place on a function and discipline basis to underpin the robustness of the functional submission plans. These include studies from Hackett on Contracts and Procurement, Finance, Human Resources and Information Management; a Gartner study on Information Management; an ARUP study on NDS and IPD benchmarking for workplace management as well as further studies in Business Services, Legal Services, Government and Corporate Affairs and Insurance. In addition to external benchmarking, every service cost line has been reviewed on a detailed bottom up basis through analysis, justification and value for the first time.

£m (12/13 prices)	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Corporate Services	237	227	222	213	209	204	1,076
Property (accommodation costs)	90	74	74	67	66	64	346
NDS	83	78	76	74	72	70	370
Group	103	35	34	36	37	39	182
Total Network Rail	512	415	407	390	384	378	1,973
Total England & Wales	464	376	369	354	348	342	1,790
Cumulative efficiency		19%	21%	24%	25%	26%	

Corporate Services



“Corporate Service costs* will reduce from five per cent of total corporate costs to four per cent over CP5”

* Excluding Group costs

For further details see the Corporate Services plan

Our property business delivers vital income for the industry

Overview

Property's role is to provide high quality professional property services to support the railway, delight our customers and stakeholders and help to reduce industry costs. Our vision for CP5 is that we will substantially increase our financial contribution to Network Rail and thereby reduce the financial burden of the railways to the taxpayer. This builds on the foundations laid in CP4 and will be achieved by:

- Continuing to grow our rental income streams at rates ahead of the market
- Improving our efficiency at delivering income as demonstrated by our cost to income ratio
- Investing our own capital to improve our income base for CP6
- Adapting to the challenging conditions in the current market and delivering best value in the medium term through joint venture arrangements
- Providing flexible, environmentally friendly and value for money accommodation for Network Rail employees.

£m (12/13 prices)	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Property rental income	89	90	91	91	92	93	457
Property sales	36	19	19	19	20	19	95
Retail income	95	97	101	103	105	107	513
Other income	30	31	32	33	33	34	162
Total income	250	237	242	246	250	253	1,227
Other operating income	27	31	32	32	33	34	162
Operating costs	(34)	(29)	(29)	(29)	(29)	(29)	(143)
Net operating costs	7	3	3	4	4	5	18

Market outlook

Actual and predicted economic conditions have impacted on the income base brought forward from CP4, growth and the sustainability of our investment programme during CP5 – in particular on development and sales income. The development market remains depressed due to both reduced demand and the difficulty in obtaining finance and is likely to remain so into the medium term.

Whilst management action can address some of the challenges emerging from the economic climate, the ability to grow rents and occupancy, and deliver viable investment schemes, is highly dependent on underlying market conditions. Occupancy levels at 95 per cent and 99 per cent for the commercial estate and retail respectively, are above competitors such as Workspace.

Operating costs (£143 million)

Throughout CP5 operating costs associated with commercial activities remain at CP4 exit rates in real terms. As the vast majority of our net commercial operating costs are directly linked to revenue generating activities, efficiency can be measured in terms of the ratio of operating costs to income. This is expected to show continued improvement throughout CP5.

Net Sales Income (£95 million)

With the exception of primary Central London sites, the commercial property market is currently depressed by levels exceeding those experienced during the recession of the early 1990's (IPD/IPF UK Q1 2012 Quarterly Briefing). Our strategy to deal with the current market conditions is to focus on JV-type arrangements that enable us to gain a share of development profits in addition to land proceeds. In addition to our existing 'Solum' joint venture with Kier PLC which was launched in CP4 and will mature in CP5, we propose to launch a second joint venture in CP5. Outright disposals are based on our current pipeline of feasible sites.

We are currently discussing the transfer of sites from DB Schenker to Network Rail. Given that this is still being negotiated, we have not included the acquisition cost and the resulting costs and income in our plan.

Managed Stations Retail (£513 million)

During CP4 we are delivering significant self-funded investment in both providing additional floor space (e.g. Waterloo Balcony and Victoria Place) and information systems. During CP5, we will continue to improve the breadth of the retail offering for rail passengers, allowing them to broaden their purchases beyond the immediate requirements of their journey. We will be providing significant additional space at Euston, Paddington, Liverpool St and London Bridge as well refreshing our offering at all other managed stations.

We share in the success of our retail tenants through turnover-linked top-up rents. The like for like sales growth has significantly outperformed British Retail Consortium (BRC) reported sales growth over the last nine successive quarters.

Other Managed Stations Income (including advertising) (£162 million)

Historically, non-retail Major Stations lettings have been largely of an ancillary nature. During CP4 we are investing in opportunities to bring unused or low income-generating space to a more profitable use, in particular serviced offices.

We will continue to work with our advertising partners (currently JC Decaux and Primesight) to maximise income by investing in new technology and seeking imaginative ways of utilising existing sites. Our non exclusive concession agreements, due to expire in 2015 and 2016 respectively, offer the potential for uncapped income in the event of outperformance as well the security of a minimum guaranteed return.

Property Rental Income (£457 million)

The bulk of our property rental income is derived from our business space portfolio. Our like-for-like rental growth and occupancy over the course of CP4 is projected to be ahead of market comparators. We anticipate a similar position through CP5, albeit less pronounced when the wider market enjoys a recovery.

Occupancy rates for our business space estate are currently 95 per cent. This compares favourably to Workspace Group Plc, who have a comparable portfolio, with occupancy of 89 per cent.

Other Operating Income (£162 million)

Some growth in real terms is expected in CP5. Concessions income consists primarily of left luggage and car park income. Investment in car park capacity, price increases and increased take will increase income. Other income consists of non-commercial income from items such as administration fees and consents.

In addition, we are currently projecting a potential further £112 million of income which would require additional investment of £217 million. During this control period, this has been managed through the investment framework. We have not included this income and investment in our plan given the uncertainty resulting from the current economic climate.

Further details have been provided to ORR in the Property plan

We receive other income from a range of sources

In addition to the various track access charges from franchised train operators, we receive income from a range of other sources, which is known as other single till income. Our forecasts for each source of income are set out below.

Freight income

Under the current regime, freight operators generally do not contribute to the fixed costs of the rail network, although they do make payments to Network Rail by means of the same variable charges as passenger operators. Freight income includes variable track access charges such as variable usage charge, electric traction charges and the capacity charge, as well as freight-specific charges for freight only lines and coal spillage. Forecast Schedule 4 and 8 costs have been netted off these income forecasts.

Freight income has been forecast on the basis of the CP4 charging regime and may change as a result of future decisions by ORR. The SBP submission takes in to account the latest traffic forecasts and policy on charging, and supersedes the IIP forecast.

The traffic forecasts underpinning these figures are ambitious, and predicated on a number of investments that will encourage growth of freight during CP5.

If the CP5 forecast ends up being too high, this will mean that Network Rail will have lower allowed revenues through the single till and could result in an increased efficiency challenge in CP5.

Passenger open access income

Open access income from non-franchised passenger principally comprises fixed contractual payments together with variable track access charges such as variable usage charge, electric traction charges and the capacity charge. Compared to the IIP, SBP income is forecast to be higher due to increased forecast traffic and increased charge rates.

The main assumption is that open access income will be consistent with current levels together with increases as a result of traffic growth and updated variable charge rates.

Stations and depots facility charges

Network Rail has funded enhancements to stations and depots during CP4 on behalf of third parties, principally train operators. These costs are recovered through facility charges (FCS).

Our forecast of CP5 income reflects the known enhancement schemes. Compared to the IIP, forecast income is higher due to the increased number of schemes that being developed. The income projections are based on current charges together with forecast income for new schemes.

Track facility charges

Beyond the station and depot schemes, we also have funded enhancements for Evergreen 3 and West Coast platform enhancements. The facility charges for these schemes total around £57 million over CP5. The income relating to West Coast platform enhancements was not included in the IIP.

Crossrail charges

We are investing £2.2 billion in building elements of the Crossrail project. Forecast CP5 capital expenditure is £1.4 billion. We are forecasting income in CP5 of £327 million, which is wholly based financing costs. We have assumed that capital repayment will begin with the introduction of a facility charge in the first year of CP6. The forecast in the SBP is lower than the IIP mainly as a result of reprofiling of the project and revised proposals from government and TfL on the approach for calculating charges.

Cardiff Valleys charges

The HLOS includes a commitment to electrify the Valley Lines network in and around Cardiff, together with the Great Western Main Line to Swansea. The scheme is not funded through the SoFA. Our assumption is that these costs will be funded through RAB with Welsh Government paying the financing costs of £28 million during CP5.

Network Rail High Speed 1

We have included the forecast net profit from Network Rail High Speed 1 in the plan. Network Rail has agreed to operate and maintain HS1 until at least 2025. Our forecast income until 2014/15 is based on the existing fixed price within the operator agreement. The reduction in income in 2015/16 reflects the lower profits in the new contract. We have assumed that this profit will be unaffected by HS1's periodic review.

Other income

The Station Access Conditions require Network Rail to purchase insurance cover for stations. This cost is passed through to train operators. We are forecasting that insurance premia will remain at current levels of around £3 million per year during CP5.

£m in 2012/13 prices	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Freight	44	66	73	78	82	85	384
Passenger open access	24	26	29	29	29	29	143
Stations and depots facility charge	31	38	42	42	42	42	204
Track facility charge	12	12	12	11	11	11	57
Crossrail and Cardiff Valleys financing charges	-	33	53	74	92	103	355
Network Rail High Speed 1	10	11	7	7	7	7	37
TOC insurance premia	3	3	3	3	3	3	15
Property income (from previous page)	250	237	242	246	250	253	1,227
Total	376	424	461	490	515	532	2,422

Further details have been provided to ORR in the other income supporting document

We compensate train operators for disruption to their services

Schedule 8

The Schedule 8 performance regime is designed to:

- Compensate train operators for the financial impact of poor performance caused by Network Rail and other train operators.
- Help align financial incentives between Network Rail and train operators, so that the impact of performance on revenue and/or costs is incurred by the organisation to which the disruption is attributable.
- Provide appropriate economic signals so as to drive decision-making by both Network Rail and the train operators in relation to performance management.

For passenger operators, the Schedule 8 regime is designed to be financially neutral provided that Network Rail meets its regulatory performance targets. Therefore we assume that the passenger regime will be financially neutral over the course of CP5.

The freight regime is not financially neutral. This is because alternative compensation arrangements are in place in respect of cancellations caused to freight operators, which are not offset elsewhere in the Schedule 8 regime. We estimate that these costs will amount to approximately £18 million during CP5. The forecast freight Schedule 8 costs are included within the freight charges which are set out on the previous page.

Schedule 4

Schedule 4 of the track access contract between Network Rail and train operators sets out the basis for compensation we pay to train operators for the effect of planned disruption, like scheduled engineering works. Schedule 4 compensates operators for costs they may incur as a result of disruption, like publicity material and where necessary rail replacement buses, and for revenue they lose during disruption and in the future as a result of the inconvenience caused to passengers.

Schedule 4 incentivises Network Rail to manage works on the network efficiently, and encourages us to take account of the impact of our planning decisions on the wider industry. In exchange for this compensation, franchised train operators pay Network Rail a fee known as the Access Charge Supplement (ACS). Open access operators have the option to pay the ACS and receive compensation as described, or to opt out.

The main assumption underpinning the Schedule 4 cost estimates relates to Network Rail's 'access efficiency' – the amount of disruptive access needed to deliver a given volume of maintenance and renewal work. We assume that access efficiency will continue to improve over the course of CP4, so that Network Rail meets its possessions planning targets, and remains constant thereafter. To estimate passenger Schedule 4 costs, the core of the methodology proceeds in the following stages:

- Estimate Schedule 4 unit costs for key maintenance and renewal activities, using 2010/11 as a base year. This enables Schedule 4 payments in the base year to be split between asset types and between maintenance and renewals
- Multiply the Schedule 4 unit costs by the CP5 planned activity volumes (or spend)
- Introduce an allowance for costs associated with emergency timetables.

The figures for passenger operators include an allowance for Schedule 4 costs associated with emergency timetables (for example due to bad weather), but exclude Schedule 4 costs related to enhancements, which are estimated separately in enhancement project costs.

Network Rail also pays Schedule 4 compensation to freight operators. The arrangements are not funded by freight operators, but instead by means of a funding settlement determined by ORR. We have assumed that the CP5 funding available for freight Schedule 4 will increase in line with inflation and that payment rates will be set by ORR such the regime is financially neutral if Network Rail delivers its possession plans efficiently. We estimate that these costs will amount to approximately £41 million during CP5. The forecast freight Schedule 4 costs are included within the freight charges which are set out on the previous page.

We recognise that freight operators may prefer to receive enhanced levels of compensation for possessions in exchange for payment of an access charge supplement. In the SBP, we have assumed that no operators opt for enhanced compensation levels in CP5.

£m in 2012/13 prices	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Passenger Schedule 8	(72)	-	-	-	-	-	-
Passenger Schedule 4	(155)	(126)	(130)	(131)	(122)	(121)	(630)
Passenger Schedule 4 ACS	137	126	130	131	122	121	630
Total	(90)	-	-	-	-	-	-

Further details have been provided to ORR in the Schedule 4 and Schedule 8 supporting documents

We contribute funding for a range of industry costs

Our plan includes funding for our contribution to a range of industry costs.

Electric traction costs

Network Rail passes a high proportion of the network's electric traction costs directly onto operators. The calculation for the off-charging regime is agreed at an industry level. Rises in costs are primarily driven by anticipated rises in unit costs for electricity, which are based on Department of Energy and Climate Change forecasts.

Cumulo rates

Cumulo rates are the business rates that are paid to the Department for Local Government and Communities. Our cumulo rates are due to be revised in 2017. We have been assumed that the 2017 revaluation will be carried out on a similar basis to the 2010 revaluation..

BTP costs

This is a fixed cost set by the British Transport Police Association (BTPA). The annual forecast throughout CP5 for the core contract costs is £71 million of which £64 million relates to England & Wales. Network Rail shares the overall cost of BTP with other members of the rail industry. The total cost to Network Rail is separated into nine categories; train patrol, station patrol, other patrol, crime terrorism, major incident handling, dealing with incidents, crime investigation, criminal justice and special operations. Due to the limited direct control over the final cost, we would not expect there to be significant savings during CP5. We will continue to work with BTP to understand how potential reductions in future years may be achieved.

ORR costs

This cost is determined by the Office of Rail Regulation (ORR) and agreed by the Department for Transport (DfT). The cost is split between Network Rail's fee to operate the network licence and reporter's fees.

CIRAS costs

The Confidential Incident Analysis and Reporting System is a safety reporting system. Network Rail receives an appropriate apportionment for maintaining and updating the CIRAS system. Currently this equates to £300,000 per annum.

RSSB costs

They measure safety performance and risk for the industry and they lead research and development into safety, facilitate national initiatives across the whole rail apportioned across the rail industry appropriately with Network Rail absorbing £9 million (of which £7 million relates to England & Wales) of their full cost each annum (based on 2012/13 prices).

Rail Delivery Group costs

We have included provision of funding for Rail Delivery Group.

£ million (2012/13 prices)	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Electric traction	232	447	461	498	553	2,192
Cumulo rates	133	134	134	151	154	705
BTP	64	64	64	64	64	320
ORR	18	17	16	16	15	81
CIRAS	0	0	0	0	0	1
RSSB	8	8	7	7	7	37
RDG	1	1	1	1	1	7
Total	456	671	684	737	795	3,342

Further details have been provided to ORR in the Industry costs supporting document

We plan to deliver further efficiency savings of 18 per cent in CP5

We are committed to delivering value for money to passengers and tax-payers. In the SBP we confirm our commitment to deliver 18 per cent headline efficiency over CP5. This includes savings of two per cent as a result of the lower activity volumes that are embedded in our CP5 plans reflecting the improved asset policies. The pace of change over the next control period is the key issue in determining whether this challenging level of efficiency can be achieved. We have undertaken a comprehensive benchmarking programme (see next section) to inform our view of the opportunities and how we can apply them to Network Rail. The efficiency proposals we have developed represent a challenging step-change in the way we run our business.

Key initiatives

Our key initiatives to deliver further efficiencies beyond those achieved in CP4 include:

- **Renewals** – a saving of £1.4 billion will be made through implementing more cost effective asset policies, improved scheduling of our work, more effective contractual relationships, standardisation of processes and multi-skilling of staff.
- **Maintenance** – we will deliver annual savings of £117 million by the end of CP5 through standardisation, greater mechanisation, increased risk-based maintenance enabled by improved asset information and multi-skilling.
- **Operations** – reduction of cost through consolidation into 14 operating centres, delivering annual savings of £50 million.
- **Support functions** – we will deliver annual savings of £89 million per annum by the end of CP5 compared to CP4, delivered through better utilisation of resources.

Our plans reflect the work undertaken to date by RDG to identify cross industry savings. We are grateful for the input provided by RDG and their work to examine the opportunities to deliver cost savings related to asset, programme and supply chain management. This work is summarised on page 75 of the plan. RDG will be key to unlocking some of the efficiencies we have projected and this work has provided us with greater confidence that we can deliver the headline 18 per cent efficiency.

Our plan does not include explicit savings as a result of substantial further alliancing. However, to achieve the efficiency savings in the plan, we will need the support of stakeholders, particularly operators which will be achieved through more collaborative working including alliancing.

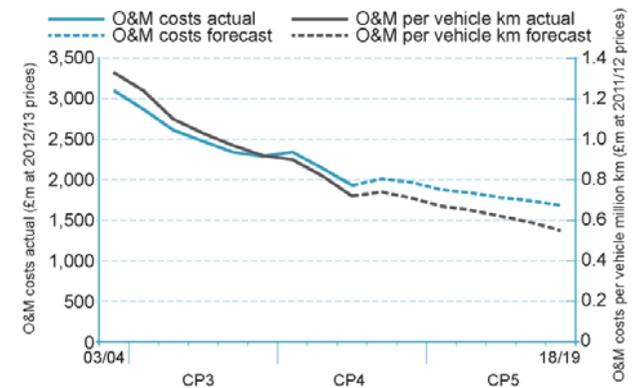
We continue to examine opportunities to go beyond this level of efficiency, and are committed to becoming a world leader in cost-effective infrastructure management.

Key enablers

We are undertaking substantial cultural and structural change to meet the needs of our customers and drive efficiency and value for money in everything we do. A range of programmes are underway, including:

- **Alliancing** – working more closely with train operating companies, we shall align behaviours through shared incentives and objectives.
- **Devolution** – devolving decision making and management accountability to route level will focus efforts on continuous improvement throughout CP5.
- **The Quadrant at Milton Keynes** – our national centre brings together 3000 of our staff and allow more efficient delivery of outputs across the business.
- **DIME** – a new structure for how we deliver capital projects will deliver savings through internal organisation and the introduction of outside competition.
- **ORBIS** – generational improvement in the way we manage asset information will facilitate many of the maintenance and renewal savings we have planned.

Operating and maintenance unit costs



Efficiency



Civils inspections have been reclassified from renewals to maintenance in our CP5 forecasts. As the efficiency calculation for operating costs is based on comparison to prior year costs and for renewals is based on pre-efficient spend, this change results in a reduction in efficiency of around one per cent compared to IIP.

For further details see Efficiency supporting document

We have developed a better understanding of top down benchmarking

We have used a range of approaches and techniques to understand the potential scale of efficiency savings. Whilst no single piece of information can determine the potential savings, the evidence available points towards a range from 10 to 20 per cent. We are confident our plans for 18 per cent efficiency are challenging but achievable, and will bring us to the frontier of modern value for money railways.

Econometric analysis – previously

At PR08, ORR founded much of its assessment of our efficiency potential on an econometric analysis based upon data collected by the International Union of Railways (UIC) as part of its Lasting Infrastructure Cost Benchmarking study. These were high-level figures submitted by fourteen European rail infrastructure managers.

In 2010, ORR published the first update of its work on cost efficiency compared to our international peers. It estimated that in 2008 we were 34 per cent less efficient than potentially we could be. In 2011, ORR updated its analysis and found that for 2009 the efficiency gap had reduced to 17 per cent.

Over the last two years we have worked with ORR to examine such datasets and the form of its econometric modelling to understand better the true nature of the cost gap to our comparators. We have identified serious problems with the data and its use for analysis, in particular:

- The data is incomplete and inconsistent. Condition and performance indicators are missing, meaning that any analysis cannot take into account the relationship between input spend and outputs such as asset condition and reliability. There are also significant anomalies where values are missing or highly volatile.
- Countries report very differently. Varied accounting practices and internal data definitions make it impossible to compare like for like. For example, many European railways classify much of their spend as investment, whereas we record it as being renewals.
- The configuration of the model requires substantial further development; particular areas to address include purchasing power parity, steady state adjustment to take account of cyclic spend, elasticity of the structural factors considered, the time dimension in the model and some of the omitted variables.

These concerns, coupled with the sizeable shift in results from the 2008 to 2009 dataset, raise serious questions as to the validity of ORR's assessment at PR08. What is clear from the data is that some countries are simply not carrying out enough maintenance or renewal work to sustain the condition and performance of their networks. Consequently:

- They are not incurring the costs one would expect, making comparisons with these countries extremely misleading.
- They are building up a backlog of work, just as Great Britain did in the 1980s and 1990s, while we have spent the last decade addressing this.
- These countries will ultimately have to increase expenditure, or close parts of their network and see services reduced.

Crucially, two of Europe's most visibly efficient railways in recent years have chosen to increase expenditure to mitigate the effects of ageing networks. In 2009 Norway doubled its renewal spend, and more recently Sweden announced a 25 per cent rise in its maintenance and renewal budget.

Econometric analysis – now

To address some of the issues identified with the econometric model and its dataset, we conducted a number of alternative configurations of ORR's econometric model. These put the efficiency catch-up in a range between zero to 20 per cent, with the most plausible scenarios being in the range 10 to 12 per cent.

We have recently re-run ORR's preferred model with the most current data available. It indicates the efficiency gap in 2010 has reduced to between 10 and 12 per cent. Our analysis indicates that this gap could reduce by a further three per cent by the end of CP4.

With the help of FTI Consulting, we have constructed a Corrected Ordinary Least Squares (COLS) model as an additional econometric approach. Results are emerging and will be refined in the early part of 2013.

Further supporting evidence

Again with the help of FTI Consulting, we have developed and tested a first version of a cost model and produced efficiency estimates and rankings for our maintenance and renewal activities. Currently this is across nine routes (excludes Wales), using data from the first three years of CP4.

The results suggest an efficiency catch-up in a range between 10 and 20 per cent. This analysis requires further work, which we will continue during 2013. We have benchmarked our operations and support activities against other UK utilities using ORR's preferred methodology and dataset. This analysis indicates that there are potential savings of approximately 15 per cent.

We have also analysed the potential level of frontier shift during CP5, being the natural rate of progress in efficiency for leading edge organisations within an industrial or commercial sector. Our analysis indicates that for operations, maintenance, support and renewals over CP5, a frontier shift (including the impact of input prices) of one per cent is in keeping with the railway sector's potential. In this plan, we have included a stretch of six per cent stretch efficiency, which requires further savings to be identified through innovation and modernisation within our business.

Future development

We believe it is critical that other railways support further initiatives in this area and that driving this from one country will not result in substantial progress. We are therefore working with the UIC and EIM and other countries to improve the data, so that in future far more accurate comparisons might be possible.

Conclusion

This work has confirmed our view that the scale of the gap identified by ORR at PR08 was overstated. While the overall gap is smaller than previously thought, it is also important to note that alternative approaches suggest a fairly broad range for the cost gap. In developing our efficiency assumptions, we have taken into account the cost gap and frontier shift analysis, and believe that our CP5 target of 18 per cent is challenging and justified, and that further challenges could severely undermine our ability to deliver a high performing and sustainable railway.

For further details see Efficiency supporting document

Bottom up benchmarking has helped us to develop efficiency plans

We recognise that many opportunities exist for us to improve the way we run our business. Over the past two years we have conducted a comprehensive benchmarking programme to identify best practice and how much of it we can implement in our railway. This has included “boots on ballast” site visits with other railways in Europe and around the world, as well as internal initiatives to drive continuous improvement.

Bottom-up benchmarking – “how to achieve our efficiency potential”

We conducted 85 visits with 16 countries, including key European comparators of Sweden, Norway, France, The Netherlands and Switzerland. We have established mutually beneficial long-term relationships, allowing us to share best practice and understand how much of it we can apply to our railway. As the question above illustrates, there are very different approaches and attitudes in other countries.

In some areas, particularly asset management, we found that other countries were very keen to learn from us. We also identified many areas of opportunity for Network Rail, which have formed the basis of our CP5 plans.

What we found	What we are doing as a result
They have fewer standards and rules	Increase commonality of designs and processes
They find it easier to access the railway to undertake their work, as there is a better balance between disruption and construction costs	Align ourselves and our work planning more closely with our industry partners to make best use of the time available in which to access the network
They have more productive staff, who are far more likely to have multiple skill-sets	Increase multi-skilling and staff flexibility
They have far more mature and collaborative contractual relationships with simpler contracting processes	Work more closely with our contracting base, including more performance-based specifications and greater encouragement to innovate

Our discussions also revealed advantages enjoyed by some of our comparators:

- Prorail (the Netherlands) has a more integrated approach to large infrastructure works which are traditionally accompanied by line closures of weeks or even months at a time.
- When comparing a sample of our civils renewals with The Netherlands and France, we found their costs would increase substantially if they had to work to the same track access restrictions as us.

- many railways count significant portions of their renewals as enhancements, due to accounting/regulatory practices and also ETCS implementation (particularly Italy and Belgium).
- One year in the 1990s (before comparative data collection), Sweden renewed ten per cent of its total network switches. More recently it is renewing at a rate suggesting a 400 year life. Average asset age suggests it has renewed one or two bridges and no earthworks in a decade.
- Due to their geography, Prorail (The Netherlands) have very many fewer bridges and tunnels to maintain than us.
- The Economist, dated 10 February 2011, explains that DB (Germany) has been neglecting its infrastructure. “... even now Berlin’s commuter trains cannot exceed 60kph (40mph) because of winter maintenance problems” and Germany’s federal transport minister announced 3.9 billion Euros would be invested to improve the network that year.
- Many other countries have significantly younger asset populations than we do, due to the later construction of their railways and more rebuilding after the second world war.

It is also apparent that railway organisations around the world operate in greatly varying ways compared to ourselves, such as.

- Sweden patrol its track on foot much less frequently than we do. For CP5 we are increasing our use of remote monitoring and infrastructure monitoring vehicles.
- Trackworker safety – Prorail (The Netherlands) have no red zone working on main lines.
- The Dutch PTS equivalent can be completed online in 40 minutes – it’s a two day course in Great Britain.

For further details see Efficiency supporting document

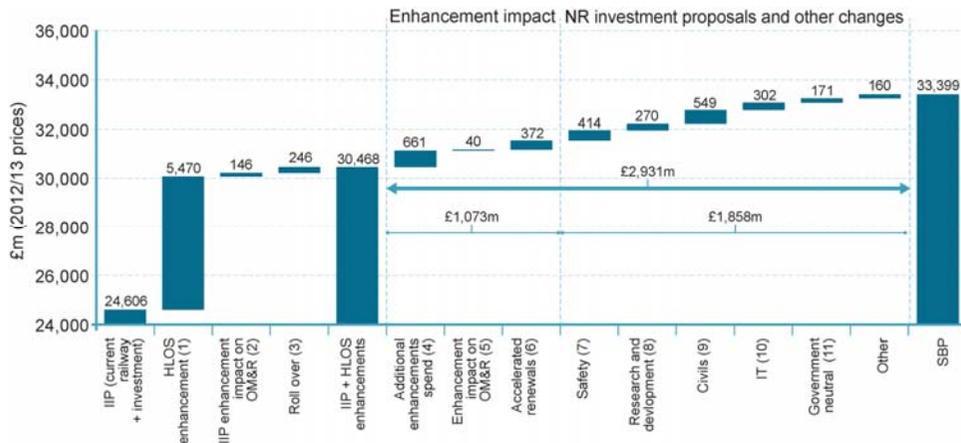
From detailed discussion with our comparators, we know that in some areas our key European counterparts have lower delivery costs than we do, and it is clear that significant opportunities exist for us to drive inefficiency from our business. We have identified areas of best practice and developed plans for CP5 that will bring our ways of working in line with our European counterparts, delivering savings equivalent to the lower end of “should cost” savings identified by Sir Roy McNulty in his Value for Money Study. This represents a step-change in the way we do business. One of the biggest issues facing the railways in Great Britain is how quickly the whole industry – not just us – is willing and able to change.

We have updated our plans since we published the IIP

Since we published the IIP in September 2011, we have updated a number of areas of our plan. On this page, we have summarised the principal changes, including the incremental investments outlined earlier in this document. ORR has also published its Advice to Ministers since we published the IIP and we have summarised the principal differences.

Comparison between IIP and SBP

The changes that we have made to our plans since we published the IIP are illustrated in the graph below.

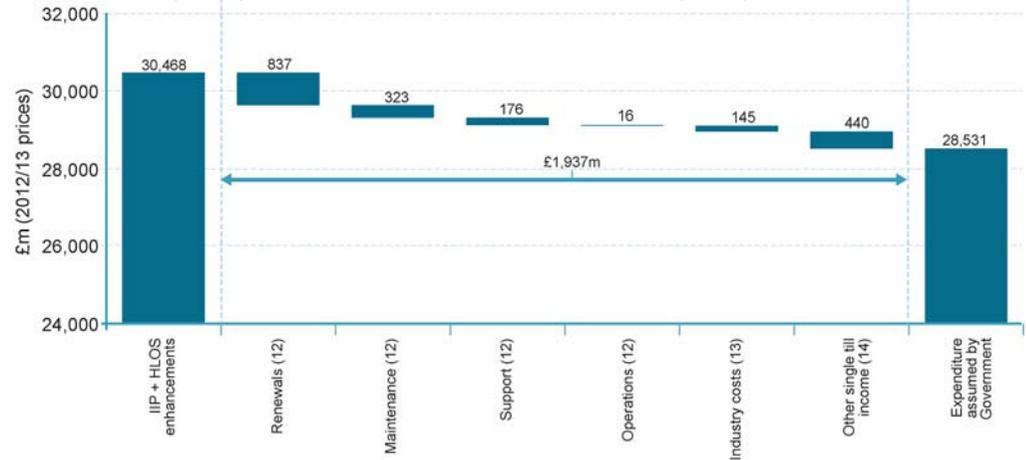


This analysis starts with the IIP's current railway plus investments scenario as ORR used this as the basis for its Advice to Ministers. The key changes are:

1. additional enhancements required by the HLOS
2. additional maintenance and renewals costs as a result of the HLOS enhancements that we included in the preferred plan
3. renewals and enhancement expenditure funded during CP4 that we now expect to be delivered in CP5, including GE overhead line, network telecoms project, Bromsgrove electrification and Kent power supply
4. additional maintenance costs as a result of a better understanding of the cost of enhancement projects, particularly electrification schemes
5. further maintenance and renewals costs as a result of the HLOS enhancements
6. accelerated renewals where it is efficient to deliver at the same time as other enhancements on the railway due to unique access opportunities or delivery efficiencies (associated particularly with signalling and switches and crossing projects)
7. safety related investment that we have identified since the IIP
8. additional research and development to support sustained investment in technology development to transform the rail system
9. further expenditure in civils assets to address the historic under investment
10. additional investments in IT that are needed to support continued transformation of the business
11. increased costs that will be offset by incremental income in other parts of government such as cab fitment costs for ERTMS that have been transferred from train operators, higher cumulo rates that will be paid to the Department for Communities & Local Government, and updated possessions compensation.

Comparison between the IIP and ORR's Advice to Ministers

ORR's Advice to Ministers, which included two scenarios, was based on the IIP (current railway plus investment) and did not include enhancements. ORR's "High" scenario was broadly in line with the IIP, while the "Low" scenario included substantial reductions in expenditure. We understand that the SOFA was based broadly on the middle of the two ORR scenarios. The graph illustrates the sources of difference between the SBP and the expenditure assumed by Government based on the mid-point of ORR's scenarios in the Advice to Ministers (broadly the SOFA) together with enhancements required by the HLOS but funded from other sources and capital expenditure rolled over from CP4.



This includes:

12. reduced maintenance, renewals, operations and support expenditure based on ORR's analysis of the potential for improved efficiency. We are continuing to review our plans. We are keen to avoid unsustainable cost reductions and have expressed particular concern about the potential consequences of reduced maintenance
13. reduced industry costs such as those associated with BTP and cumulo rates. We will continue to work with other industry bodies to review these costs but, as noted opposite, developments since the IIP mean that cumulo rates are more likely to increase
14. an assumed increase in other single till income. However, the assumed increase in freight charges is no longer expected and ORR appears not to have included the investment required to enable the assumed increase in property income (although this investment is less likely to be justifiable in current market conditions).

Summary

Based on our analysis of the ORR's Advice to Ministers, the SOFA includes net expenditure of £28.5 billion. This includes an assumption of incremental savings of £1.9 billion based on ORR's advice. In addition, we have included incremental expenditure of £1.1 billion to deliver the required enhancements and £1.9 billion of other investment or ongoing business costs. This results net expenditure in the SBP of £33.4 billion.

We have also updated our delivery plan for CP4

Outputs

Our latest forecasts suggest that we will not meet the national PPM target for 2013/14, with a projected shortfall against the long distance and London & south east sector targets. We will continue to focus on delivering performance improvements over the remainder of the control period.

Asset Stewardship Indicator is not a regulatory target. It is a key measure of asset condition; we expect the trend of improving asset condition to continue.

Possession Disruption Indices have been consistently better than target, with a slight rise in the latter part of CP4 due to the increase in volume of capital works on the Network.

Passenger safety has been affected by slips, trips and falls. It is expected to continue to improve from 2011/12 and be better than target at the end of CP4.

Workforce safety remains a challenge and we do not expect to meet the CP4 target, which was set before the exposure of under reporting of accidents; going forwards, our focus on safety culture and simplification is expected to help reduce the level of injuries in the workforce.

Financial Value Added

Financial Value Added (FVA) at the end of the control period is forecast to be £1.1 billion for England and Wales, with the increase compared to the £0.4 billion in our last delivery plan update largely attributable to a change in our assessment of FVA on interest:

- this is after delivering savings across the network of around £5 billion compared to the spend levels at the end of Control Period 3, consistent with ORR's final determinations for CP4;
- income shows negative FVA largely due to indexation differences;
- operating and maintenance costs are expected to be slightly less than the CP4 target but £100 million more than we expected at the time of our 2012 Delivery Plan Update;
- forecast renewal outperformance remains unchanged compared to our last delivery plan update, with increased track unit costs and increased expenditure on FTN/GSM-R and Information Technology being absorbed by contingency
- enhancement projects outperformance is unchanged from our last forecast; and
- outperformance of £806 million is expected on net interest payable, with most of the benefit coming from lower than expected interest rates.

Efficiency

Although not a regulatory target, we had an objective of reducing the running cost of the railway by 23 per cent. With challenges in Track, IT and FTN costs, the removal of outperformance on civils renewals, additional costs in non volume renewals and the inclusion of an allowance to cover the prospective ORR fine in respect of long distance train performance, we now expect to achieve 20 per cent efficiency in CP4.

Key performance indicators	2009/10	2010/11	2011/12	2012/13	2013/14	CP4
National PPM (%)	91.5	90.8	91.6	92.2	92.5	92.5
E&W PPM (%)	91.6	90.9	91.7	91.3	91.8	92.6
ASI	0.029	0.066	0.085	0.098	0.123	N/A
PDI-P	0.65	0.52	0.55	0.62	0.63	0.63
PDI-F	0.82	0.89	0.85	0.82	0.83	1.00
PSI	0.215	0.171	0.233	0.220	0.210	0.240
FWI	0.127	0.126	0.144	0.120	0.115	0.090

Financial value added in CP4

	£m
■ O&M	5
■ Renewals	96
■ Enhancements	201
■ Income	(43)
■ Interest rate	613
■ Interest volume	117
■ Interest other	76
■ Other	(36)



REEM efficiency



The routes are the core building block of our plans

The forecasts are based on the submissions from each route and support function. So that we can be transparent about the overall cost of each route, we allocate all support function and other centrally managed costs to our routes. We summarise on this page the fully allocated expenditure by route.

£m (2012/13 prices)	Anglia	East Midlands	Kent	LNE	LNW	Sussex	Wales	Wessex	Western	Total
Operations	200	88	147	336	501	138	120	147	164	1,842
Maintenance	455	252	312	702	1,187	234	262	347	463	4,214
Support	205	114	173	337	515	165.0	113	212	206	2,041
Property	(2)	(1)	(3)	(3)	(4)	(2)	(1)	(2)	(1)	(18)
Renewals	989	581	901	2133	2370	684	682	981	1415	10736
Other renewals and Investments	205	108	192	332	500	194	104	223	215	2073
Enhancements	363	918	1981	1158	2130	265	614	679	2852	10,960
Industry costs (incl Schedule 4 & 8)	515	181	547	591	869	377	105	480	288	3973
Other single till income	(167)	(105)	(250)	(366)	(518)	(179)	(99)	(216)	(523)	(2,422)

We have been developing a more detailed approach to allocating costs to each of our routes. The approach is currently in draft form so has not been reflected in this plan. Before confirming implementation of the revised approach, we will discuss the detail with ORR. We note that the revised approach would result in a reduction in the allocation of costs to England & Wales by around £10 million per year (of which around £7.5 million relates to operating costs), with an offsetting increase in the allocation of costs to Scotland.

For further details see the Route Plans and the cost allocation supporting document



Outputs

This section sets out the outputs Network Rail intends to deliver in the remainder of CP4 and in CP5 consistent with industry’s plans to deliver the HLOS outputs. It covers:

– Our contribution to the HLOS	62
– Managing trade-offs	63
– The outputs framework for CP5	64
– Safety	65
– Capacity	66
– Performance	67
– Access and availability	68
– Asset stewardship	69
– Carbon	70

We are clear on our contribution to the HLOS

The Industry Strategic Business Plan sets out how the industry intends to deliver the HLOS outputs safely, sustainably and efficiently. This section sets out the outputs Network Rail is committing to as its contribution towards the delivery of the HLOS outputs. The output requirements and commitments are summarised in the table below and explained further in the following pages.

	Industry outputs required by the HLOS	Network Rail's commitments
Safety	<ul style="list-style-type: none"> £67 million ring fenced funding to reduce the risk of accidents at level crossings. 	<ul style="list-style-type: none"> We will commit to continually reducing the risk to the public, passengers and our workforce. We will reduce risk at level crossings by eight per cent during CP5.
Performance	<ul style="list-style-type: none"> 92.5 per cent PPM and 2.2 per cent CaSL at the end of CP5. Focus on improving worst-performing routes and those on which lower levels of reliability have greatest economic effect. 	<ul style="list-style-type: none"> We will broadly maintain performance at end CP4 level, focus on reducing the variability in train service reliability and reduce the gap between the best and worst performing services. Our plan is intended to deliver 92.5 per cent PPM and 2.2 per cent CaSL by the end of CP5 but it needs to be recognized that there is a range of potential outcomes around this projection.
Capacity	<ul style="list-style-type: none"> Specifies level of demand to be accommodated at key points on network. Specifies a number of projects that must be delivered and uses other schemes to illustrate how the HLOS could be delivered. 	<ul style="list-style-type: none"> We have developed a plan with train operators to deliver the required capacity to accommodate the demand forecasts set out in the HLOS. Our plan sets out the enhancement programme required to support the necessary train service changes. Our plan sets out for each enhancement programme the outputs delivered, scope, cost and key milestones which we would eventually expect to be included in our CP5 delivery plan and subject to the well established change control process used in CP4.
Availability	<ul style="list-style-type: none"> No specific targets set in the HLOS. 	<ul style="list-style-type: none"> We have developed access strategies with train operators for each route. The plan assumes we have the ability to determine the appropriate trade off between running services and closing the network to undertaken engineering work. We have included forecasts of PDI-P and PDI-F.
Sustainable development	<ul style="list-style-type: none"> The rail industry to demonstrate greater environmental sustainability Industry to set measures and targets for carbon/energy performance and show how industry considers sustainability in decision making. Industry to make business case for investment. 	<ul style="list-style-type: none"> We have developed a vision and strategy for sustainable development. The SBP sets out the carbon trajectory for Network Rail. We will commit to including climate change scenarios in our asset policies and investment decisions to protect the future value of our assets.
Ring fenced funds	<ul style="list-style-type: none"> Strategic Freight Network (£200 million), East Coast (£245 million), Passenger Journey (£309 million), Station improvement (£206 million), Development (£144 million), Level crossings (£67 million). 	<ul style="list-style-type: none"> We have agreed with industry the objectives, allocation (where relevant) and governance for these funds. These proposals are set out in the Draft CP5 Enhancements Plan.

The way in which these outputs and commitments are regulated is subject to parallel consultation processes and we have provided extensive input to these consultations. We regard it as critical that the regulatory framework incentivises or enables efficient and effective delivery while providing sufficient flexibility to make balanced and evidenced-based trade-offs. This plan has therefore been prepared on a basis that is consistent with these related submissions.

There are clearly areas of the plan which are subject to further development. For example, the HLOS specified schemes fundamentally change the nature of the network particularly with the introduction of electrification systems and the introduction of new rolling stock such as the Intercity Express Programme which will require further development of the precise outputs to be delivered on those routes and the impact of these changes on our overall asset management plans.

We will continue to refine our plans at a route level and seek to integrate the changes required to deliver the HLOS outputs into our core route asset management plans.

There are significant uncertainties in forecasting the delivery of the outputs and the cost of delivering them. We have included analysis of these risks and uncertainties.

We must be able to make trade-offs to deliver better value for money

We believe we can deliver better value for money to customers and funders if we have the flexibility to make trade-offs at a local level between capacity, performance and cost.

- Delivering improved value for money is core to achieving the vision for both the railway and Network Rail.
- Given the experience during CP4, the challenge of getting the trade-offs right between performance, capacity and cost, the need to maintain alignment between Network Rail and train operator outputs and to offer better value for money, we believe it is imperative that there is a framework that allows us, in conjunction with our customers, to make trade-offs across the outputs and across routes as to what we deliver in CP5.
- Planning Oversight Group (POG) remitted a working group to better understand the interdependencies and trade-offs between different outputs, to develop an analytical framework and toolkit for examining trade-offs on congested parts of the network. The group was asked to develop a possible framework that would manage adjustment of targets if this was justified.

Understanding trade-offs

- Analysis of the network has identified “hot spots” where congested parts of the network currently experience poor performance against a number of measures and also where significant infrastructure work is planned in CP5. On this basis, the most critical hot spots for CP5 are Birmingham New Street, London Bridge, London Victoria, Manchester Piccadilly, London Liverpool Street and London Cannon Street.
- Case studies have been undertaken of different parts of the network to explore the relationship between PPM and other outputs. This analysis concluded:
 - For the majority of the service groups examined the expected relationship between a decrease in delay and an improvement in PPM, and vice versa. There are two groups where this relationship is overly sensitive or not true. Journey time seems to have been a key factor in both cases:
 - For service groups in which both PPM and delay per train have fallen, an increase in speed on those lines appears to be a partial cause in the majority of these
 - For service groups with a large increase in PPM and a large decrease in delay per train (above normal levels), speed has decreased on the majority of these
 - Analysis of different routes on the network revealed a similar relationship between the number of trains and average delay per train mile, with more traffic leading to more delays.

A framework and toolkit for examining trade offs

- The analysis has helped us to start to develop a framework and toolkit for examining the trade off on congested parts of the network and to examine the balance of capacity, performance and journey time informed by our understanding of the impact on demand, revenue, cost and economic benefits of the available choices.
- A number of clear performance drivers have been identified, with quantified evidence of complex relationships. Key variables assessed include traffic growth, journey times, timetables complexity and current performance delivery
- The performance impact of the changes specified in the HLOS has been assessed on both a qualitative and quantified basis as part of this work. Having taken current performance hotspots into account the main risks identified are Thameslink, Northern Hub, refranchising changes and intermodal freight growth

A framework for change

- A pre-requisite to a change control process is a clear baseline level of performance. The SBP includes projections for each train operator consistent with delivery of 92.5 per cent PPM by the end of CP5.
- Planning Oversight Group has supported the need for change control to include the top level regulatory outputs in order to offer better value for money and maintain alignment with future franchise commitments.
- The mechanism should be based on the principles of the change control mechanism used in CP4 for the enhancements programme in that an assessment is required of the impact of the proposed change on affected customers and on other output commitments and that affected parties (customers and funders) should be consulted on the proposed changes and, ultimately, ORR would need to approve the proposed change.

For further details see the Trade Offs supporting document

We need the right outputs framework for CP5

There needs to be clarity about the purpose of each regulatory output and indicator and the consequence associated with deviation from the forecast trajectory. There also needs to be recognition by ORR of the level of confidence of delivery of outputs. We propose that regulatory output targets are more at threshold than at higher aspirational levels. Not all indicators should become targets and indicators or enablers should be treated as such – the focus should remain on the underlying purposes so that any individual measures do not constrain progress.

Outputs framework

Set out below is our view as to how the outputs framework should work in CP5

- Regulated outputs
 - top level measures meet HLOS
 - subject to regulatory enforcement
 - flexibility on change control
 - consider these expected outcomes so propose to agree thresholds for minimum acceptable level
- Indicators
 - used to manage our business
 - transparent with ORR with forecasts
 - not subject to regulatory enforcement but we will inform ORR of our overall progress
- Enablers
 - measures to track development of our core competencies
 - not subject to regulatory enforcement but we will inform ORR on progress
- Customer reasonable requirements
 - output measures agreed locally with each customer, based on what is important to them
 - not set through the periodic review determination (e.g. JPIP process).
 - customers will have recourse to ORR

A key principle underlying this framework is that detailed output requirements should be customer-driven and should be subject to local discussion with operators. Network Rail needs to be held to account for delivery but not in a way which constrains improvements or sensible trade-offs.

Output measures

Set out below is our view as to which measures are within the framework

- Regulated outputs
 - PPM and CaSL for England & Wales*
 - Freight Delivery Metric*
 - Enhancements output, scope and milestones*
 - Level crossings risk reduction plan*
 - PDI-P and PDI-F (or alternative measure) forecasts*
- Indicators
 - Workforce and passenger safety forecasts
 - Operator Network Rail delay minutes by route*
 - Freight Network Rail delay minute by route*
 - Asset output measures*
 - Carbon trajectory* and other sustainable development KPIs
- Enablers
 - Network Rail's safety strategy
 - Asset management excellence
 - Asset information milestones
 - System operator milestones
 - Customer service maturity
- Customer reasonable requirements
 - PPM and CaSL by operator and other indicators agreed with operators
 - Freight performance indicators agreed with customers
 - Network Availability indicators agreed with customers

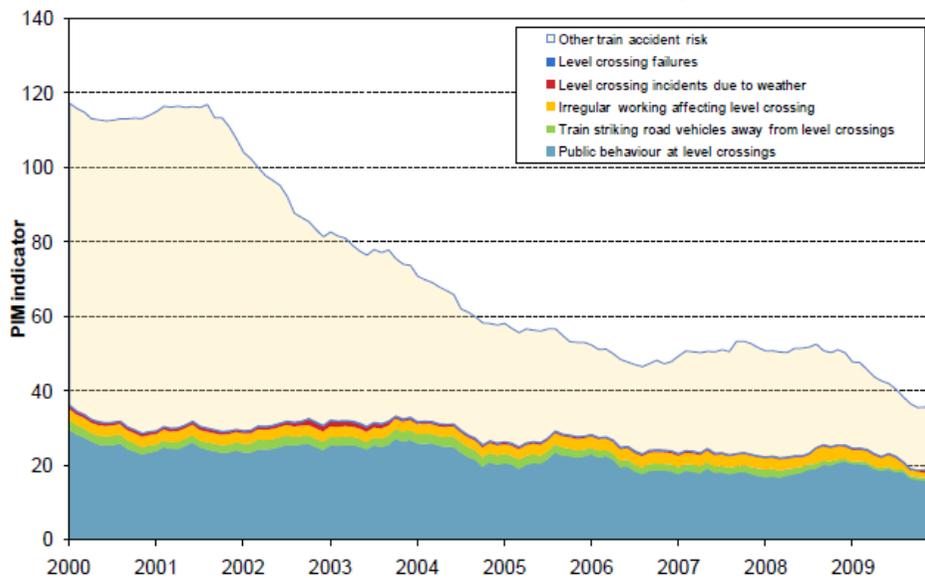
* The SBP suite of documents includes forecasts of all these measures. Our plan assumes that the regulatory regime is consistent with our proposals for monitoring performance targets during CP5, including an agreed change control process and establishment of customer reasonable requirements as set out in our response to ORR's consultation on outputs.

We will continue to reduce the safety risks in CP5

The safety of our workforce, passengers and the public is of paramount importance. We also believe that a safer railway is also a better performing railway. As a responsible business, we will not trade-off safety with other operational issues and will deliver our safety strategy to ensure everyone goes home safe every day.

Train accident risk

Overall, train accident risk has fallen by two-thirds during the last ten years, driven by a large reduction in the risk from Signals Passed at Danger (SPADs) owing to TPWS installation. Currently the largest risk from the Precursor Indicator Model is public behaviour at level crossings. The lower coloured section in the graph below shows the risk from road-rail interface activities. This is dominated by the risk from public behaviour at level crossings, but it also includes small contributions from failures, irregular working and non-rail vehicles on the line at other locations that lead to derailments. Those other precursors are more important in passenger risk.



Level crossings risk

Collisions between trains and road vehicles at level crossings are classified as train accidents. Collisions at level crossings account for around 42 per cent of all of the Precursor Indicator Model's train accident risk to passengers, members of the public and workers.

The graph illustrates the lack of any significant reduction in level crossing risk over the previous eleven years to 2009 with regard to train accident risk (and whole system risk). This has meant that the proportion of train accident risk attributable to level crossings has grown substantially. As a result of this a policy decision was taken to adopt a more interventionist approach in order to reduce risks at level crossing in CP4 and CP5.

Ring-fenced funding of £67 million was specifically provided in the HLOS to reduce the risk of accidents at levels crossings. We have a prioritised list of potential interventions informed by our risk modelling and we believe this level of funding will allow us to reduce risk by eight per cent (based on the current level of risk) in CP5. The £67 million will include 30 high risk closures and enforcement cameras at 200 locations.

We will continue to explore the opportunities to invest to reduce risks at level crossings on a self-financing basis and also promote the business case for additional funding in this area.

Track worker safety

Protecting the safety of our people when they are working on the track is of critical importance. Historically, a significant number of workers were killed each year working under lookout protection whilst trains were still running. The move towards more so-called "green-zone" working has resulted in an improvement in the safety of our people. However a combination of reduced access time for blocks and a recognition that "green zone" working also contains risks means that we need to introduce new technology to make a step change in the safety of those working trackside.

We plan to invest £100 million in new technology to provide remote alert of approaching trains.

In addition to our investment in new electrification, we plan to invest £230 million in additional equipment on the existing electrified network to make the taking of isolations safer. This will provide enhanced protection to our staff when working with electricity, reduce delays in taking isolations and improve efficiency.

We will also invest £135 million in developing new, or making changes to existing, road rail vehicles to design in features that will mitigate the risks of working under overhead lines, working when adjacent lines may be open to traffic or clearance is otherwise limited, overturning machines and the risk of vehicles failing to stop.

For further details see Transforming Safety and Wellbeing and the Safety Plan for Level Crossings

We will deliver significant new capacity

HLOS	Peak Three Hours		High Peak Hour	
	Forecast demand in 2013/14	Extra demand to be met by 2018/19	Forecast demand in 2013/14	Extra demand to be met by 2018/19
London	539,300	119,000	268,500	54,200
Birmingham	37,500	3,900	19,200	1,800
Leeds	25,400	5,100	13,000	2,800
Manchester	28,100	6,200	13,600	2,600
Others	34,800	4,900	16,500	2,000

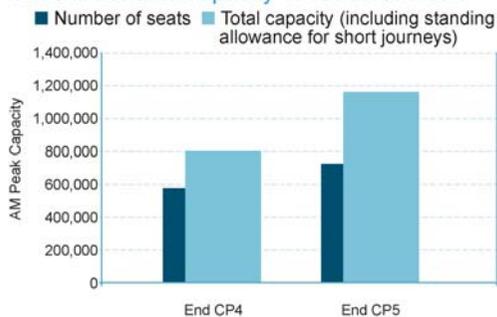
Central London

Overall, this plan delivers an additional 115,000 seats into central London during the weekday morning peak by the end of CP5, an increase of 20 per cent. In addition to this increase, extra standing capacity for passengers making short trips will be provided, including the deployment of 'metro style' rolling stock on inner suburban services.

Key strategies include:

- Completing strategies from CP4 whose delivery rolls over into CP5, including the Thameslink Programme, Crossrail, the Intercity Express Programme (IEP) and Great Western electrification.
- Delivering more capacity where this can be done within the existing capability of the network, including 11-car Pendolinos and Essex Thameside lengthening.
- Investing in the capability of the network to accommodate extra capacity, including the Great Eastern and Lea Valley routes, Midland main line electrification and wider route upgrade, Redhill platform zero, Uckfield line longer trains, Waterloo to Reading longer trains, and enabling power supply upgrades.

Central London Capacity Three Hour Peak



Regional cities

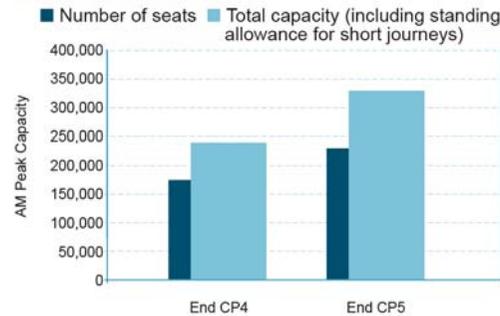
Across the regional cities specified in the HLOS, the plan adds roundly 55,000 extra seats during the weekday morning peak, an increase of 32 per cent over the course of CP5. The extra capacity proposed is greater than the anticipated demand growth over CP5, resulting in lower average load factors by the end of CP5. This does not mean, however, that the plan has overprovided for capacity in responding to the HLOS:

- Overall, 92 per cent of the total capacity proposed for CP5 is provided by operational solutions (that is, solutions not requiring any investment in the capability of the infrastructure), schemes committed pre-HLOS, or schemes directly named in the HLOS as being sought by funders.
- In some cases the additional capacity will be a 'step change' designed to meet demand over a longer period than just CP5.
- 'Line of route' factors – many routes and services provide capacity into two or more cities. Increasing capacity for the benefit of one city will generally increase capacity for all.
- On some routes capacity will be added by schemes which are not being pursued for capacity reasons (e.g. the Northern Hub aims to stimulate the regional economy).

The key capacity interventions specified for the regional cities are:

- **Birmingham:** Longer services, electrification of Walsall to Rugeley
- **Bristol:** Introduction of IEP trains, Great Western electrification
- **Leeds:** Longer suburban services incl. platform lengthening, Leeds, Huddersfield and Bradford enhancements, north cross-Pennine electrification, Northern Hub
- **Leicester:** Inter-urban lengthening, and delivery of extra capacity following electrification of the Midland main line
- **Liverpool:** Northern Hub, north west electrification
- **Manchester:** The Northern Hub, north west and north cross-Pennine electrification
- **Newcastle:** Introduction of IEP trains, north cross-Pennine electrification
- **Nottingham:** Suburban lengthening, delivery of extra capacity following electrification of the Midland main line
- **Sheffield:** Suburban train lengthening and delivery of extra capacity following electrification of the Midland main line, Northern Hub.

All HLOS Regional Cities Capacity Three Hour Peak



We are exploring how to improve the current framework for measuring and incentivising the use of capacity on the network. We believe the current framework should be retained and enhanced so that we can cascade its use to a route level.

For further details see [Capacity supporting document](#)

We will maintain a high level of performance

Performance is at historically high levels across the GB network. The HLOS requires us to develop a plan to deliver 92.5 per cent PPM and 2.2 per cent CaSL by the end of CP5. Analysis has shown that base levels of performance would be expected to continue to improve in CP5. Such a trend would be based on the improvements and investment in recent years, more efficient working practices and building reliability into infrastructure and fleet assets. However, the effect of considerable predicted increases in passenger and freight growth, together with significant infrastructure investment, new fleet and widespread re-franchising, needs to be understood. We have a plan to deliver the required outputs. As a result of the uncertainties in forecasting the precise level of performance, our plan is expected to deliver within a range from 91 to 93 per cent PPM by the end of CP5. The HLOS target falls within this range.

The performance plan

We have developed a plan intended to meet the HLOS requirements of 92.5 per cent PPM and 2.2 per cent CaSL by the end of CP5

The intent is to broadly maintain performance at end CP4 levels and focus on reducing the variability in train service reliability, reducing the gap between the best and worst performing services.

Key areas of uncertainty relate to the impact of traffic growth, the impact of the investment programme, the introduction of new rolling stock and the outcomes of the re-franchising programme. Against these uncertainties our plan is expected to deliver within a range from 91 to 93 per cent Public Performance Measure (PPM) and between 2.16 and 2.36 per cent Cancellations and Significant Lateness (CaSL) by the end of CP5.

We have included a forecast by train operator for each year of CP5 in our detailed performance plan.

The JPIP process will develop more detailed plans agreed with each train operator on a rolling two-year basis, from which we will update our CP5 forecasts and explain key changes.

There is no HLOS requirement in terms of freight performance output. We are currently discussing the adoption of a new Freight Delay Measure (FDM) with freight operators. The industry proposes that the FDM should be a regulated output at an industry level. The industry does not believe it is sensible to disaggregate the regulated output to an individual operator as it is not possible to know which operators will be operating particular freight paths in CP5. Annual performance plans will be produced for each freight operator and these will include forecast performance measures and will have the status of customer reasonable requirements.

We will continue to develop our performance plans in consultation with train operators through the JPIP process. We will continue to seek to identify the most cost effective way of delivering performance, including providing funding to train operators to improve rolling stock reliability where this is the most cost-effective option.

We are proposing not to create a performance fund for CP5. Our plan is based on achieving 92.5 per cent PPM. We will need to manage our resources to deliver this and the other outputs required of us from the periodic review. We will have flexibility to move resources across routes to address under/over performance.

Change control

Most of the passenger railway will be re-franchised before the end of CP5. This will enable funders to re-define the outputs that they wish to buy through the franchises. These opportunities will lead to better VfM and reduced net industry cost. However, re-franchising also creates a risk that Network Rail's regulatory outputs, as set in the periodic review, may be inconsistent with future franchise commitments, or with operators' commercial decisions. In order to handle this risk, we propose a change control mechanism for CP5. The mechanism would be a means of changing regulatory output target(s) to reflect deliberate trade-offs between industry outputs – principally capacity, journey time and train performance. The scope of the mechanism would be limited to trade-offs that are deliberate decisions, initiated by funders and/or operators; for circumstances that are unforeseen in the periodic review.

Ideally the mechanism would be used rarely, if at all. Ultimately, however, the mechanism would be used if it is needed. How often it would be needed will depend on two things, the extent of change(s) initiated or supported by funders and/or operators; and the level of disaggregation at which regulatory outputs are set. The higher level the regulated outputs, the lower the likelihood of needing change control. The change control process should be based on the industry processes by which decisions (to trade between outputs) will be made, and by which the impacts of those decisions on performance will be quantified. This will ensure that there is a clear line of sight and consistency between trade-off decisions and any change control. It will also mean that the change control process is as efficient as possible. The two key industry processes concerned will be Event Steering Groups and the JPIP process.

Framework for passenger performance outputs

Recognising the uncertainties in forecasting performance, we are proposing a framework for CP5 that holds us to account in the following way:

- The regulated target is to deliver 92.5 per cent PPM and 2.2 per cent CaSL by the end of CP5.
- Recognising the uncertainty in delivering a precise level of performance, there should be a minimum threshold of punctuality below which ORR would consider regulatory action. Given the range of uncertainty, we believe the threshold should be set at 90 per cent PPM at a national level in any one year.
- We will report delivery against the annual CP5 forecasts at a train operator level in the annual update of our CP5 Delivery Plan.
- We will manage changes to our CP5 forecasts at a train operator level through the JPIP process which will update the forecasts for each year of CP5 on a rolling two year basis.
- The first year of the JPIP will have the status of a customer reasonable requirement. The second year of the JPIP will not have this status, although there would be an expectation that these would not change significantly without justification.
- Other performance measures (e.g. delay minutes) would be used as indicators but would not be regulated outputs or customer reasonable requirements.

Framework for freight performance outputs

We propose that the Freight Delivery Measure should be a regulated output at an industry level. We do not believe it is sensible to disaggregate the regulated output to an individual operator as it is not possible to know which operators would be operating which flows in CP5.

Annual performance plans will be produced with each FOC and these will include forecast performance measures for each operator. These will have the status of customer reasonable requirements.

For further details see the Performance plan

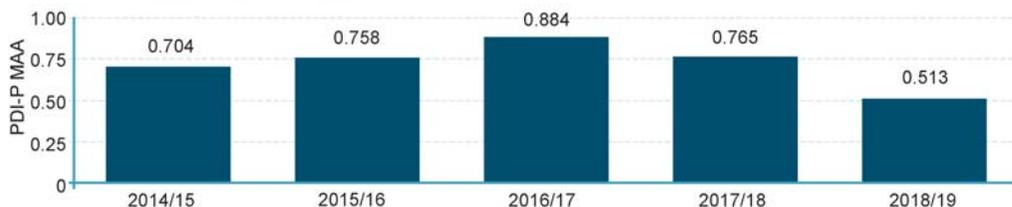
We will optimise the balance between running trains and maintaining the infrastructure

We recognise that time is money. The rail network needs to be open for business to carry passengers and freight and to generate revenue. At the same time, we must maintain, renew and enhance the network as efficiently as possible. The level of access is a key determinant of the volume and cost of work we are able to undertake on the network. We must agree strategies with our customers that strike the right balance between these requirements.

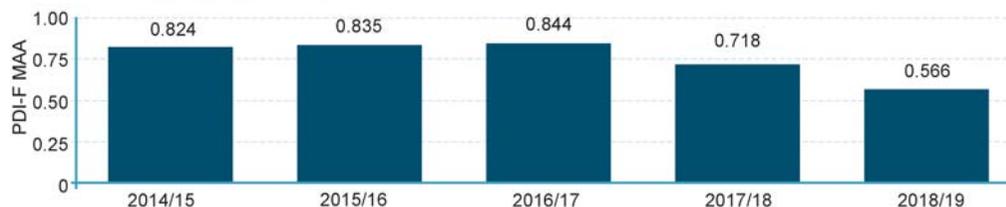
- At this stage of our planning for CP5 we have undertaken a high level assessment of the volume of access required. This will be refined as we develop more detail of the work banks and definition of programmes to be delivered at a route level.
- This high level assessment shows a significant increase in the expected annual volumes of access required to deliver CP5 plans for the first three years of the control period with reductions seen in the later years to at-or-below CP4 volumes. We will examine opportunities to smooth these volumes, recognising that the understanding of the options and constraints is route specific.
- The further development of Route Network Availability Strategies (RNASs) will be critical in determining a better understanding of the CP5 access picture.

National Possession Disruption Impact forecasts

PDI-P contributions by work type



PDI-F contributions by work type



The CP5 PDI estimates are based on disruption impact per unit spend based on a comparison with the outcomes in the first three years of CP4. The estimates are based on the assumption that similar renewals and enhancement schemes will require comparable levels of disruptive impact per spend as in CP4 on each route. The forecast shows significant increases of over 30 per cent in access impact on passengers in 2015/16 to 2017/18 compared with CP4 based on impact per spend. The impact on CP5 delivery works on freight services starts the control period about 18 per cent higher than the CP4 exit point, showing year on year improvement for the rest of CP5. It has not been possible to produce a bottom up estimate of availability as specific access plans or strategies are either not available or insufficiently developed we will be able to update the forecasts.

Developing new metrics

Network Rail is in the process of developing, with its customers, new metrics for network availability. For TOCs, this metric will be based around the working timetable, for FOCs around the ability to provide freight customers with a source to destination route. These metrics have yet to be finalised with industry. We propose that the PDIs should be retained as network totals.

The new metrics can be disaggregated to a lower level and we propose that, although the network forecast in the CP5 delivery plan be used as an indicator, that the disaggregated level be one of the first items in the possession indicator report.

For further details see Access Strategy and Network Availability supporting document

We will manage our assets robustly and sustainably

Network Rail has a large and complex portfolio of assets to manage. The accountability for managing these assets principally lies with our route organisations through the implementation of their detailed asset management plans. The central asset management team is responsible for overseeing these plans and assuring the Board that the plans are sustainable. This is a key role of the centre of network Rail in the sustainable management of the network. It is important to be able to monitor these assets at a portfolio level in order to detect any systematic trends and to be able to assess the longer term sustainability of our approach to asset management. We have developed new measures to assess:

- Robustness: whether our assets will deliver the required outputs
- Sustainability: whether our asset policies continue to deliver the outputs over the longer term.

We have developed new measures for the major asset disciplines (track, signalling, telecoms, electrical power, buildings, structures and earthworks) and the forecasts are summarised below.

Robustness measures	CP4	CP5
Track		
Failures > 10 mins	9,364	9,451
Signalling		
Failures > 10 mins	12,053	12,053
Telecoms		
Failures > 10 mins	519	519
Electrification and Plant		
Failures > 10 mins	671	736
Buildings		
2 and 24 hour reactive faults	5,268	5,268
Structures		
Open risk items with risk score >20	291	218
Earthworks		
Robustness	Under development	

Asset	Sustainability measure	CP4	CP5	CP6	CP7	CP8	CP9	CP10	CP11
Track	Used life (%)	52%	51%	50%	50%	53%	55%	56%	57%
Signalling	Remaining life (years)	13.3	15.0	17.8	21.1	21.0	20.0	18.4	17.8
Telecoms	Remaining life (%)	72%	46%	36%	44%	69%	53%	36%	37%
E&P	Remaining life (%)	61%	57%	55%	54%	53%	53%	53%	51%
Buildings	Remaining life (%)	41%	42%	45%	49%	53%	55%	58%	58%
Structures	Condition score for principal load bearing elements (bridges)	7.4	5.8	4.2	4.3	4.5	4.6	4.6	4.5
Earthworks (GB total)	Earthworks Risk Index	100	99.6	99.7	99.7	99.7	99.7	99.7	99.6

Note: remaining life is based on the estimated average asset life.

The principal reasons for the forecast trends are:

- Track. Increasing trend in used life. Increase in refurbishment means that sleepers can be left in service longer (previously would have been prematurely replaced when ballast or rail needed replacing). Also, reduction in rail defects (for example, due to grinding) allows increase in rail life and as a result rail wear becomes more important factor.
- Signalling. Increase in mean remaining life from roll out of operating strategy and ERTMS.
- Buildings. Increase in mean remaining life reflecting cycle of past investment.
- Electrical Power. This excludes enhancements which will offset the reduction in remaining life. Also, we can extend the life of some assets based on whole life cost assessment.
- Earthworks. Relatively flat profile as there will be fewer high criticality earthworks in poor condition, offset by an increase in lower criticality earthworks.

For further details see the Asset Output Measures supporting document

We will improve our carbon footprint

Our carbon emissions

Baseline ('business as usual') forecast

We have forecast our scope 1 and 2* carbon dioxide emissions based on our existing plans. This shows that we expect to deliver small reductions against current levels in the carbon intensity of our operations. The key drivers of reduction are planned and ongoing rationalisation of offices, signalling locations and maintenance depots. This forecast provides the baseline against which we will monitor our CP5 carbon performance.

It should be noted that the forecast is based on our understanding the makeup of our carbon footprint and its relationship with our key business activities. As we implement our Sustainable Development Strategy we expect this understanding to improve and we will adjust our baseline accordingly.

Understanding consumption is a key enabler to energy efficiency and we will continue to work with operators to install smart meters. To achieve reductions beyond our baseline, we will invest in more energy efficient assets and equipment as we enhance, renew and maintain our network. There is a significant opportunity to achieve energy efficiency in our buildings, and we will deliver this through: integrating sustainability into specifications for new-build and refurbishment works; undertaking prioritised energy efficiency retrofits; and putting in place behaviour change plans to reduce energy consumption.

Reducing carbon intensity of supply

We will also seek improvements against our baseline through reducing the carbon intensity of the energy we use. We will use our position as a major consumer of electricity in Great Britain to seek the improvements in supply profile through our long term energy contracts. In addition we will identify and deliver opportunities for low-carbon self generation where there is a good business case.

* Scope 1 emissions are direct emissions from sources owned or controlled by the company, and Scope 2 emissions are indirect emissions from the generation of electricity consumed by the company. See <http://www.ghgprotocol.org/>

Embedded carbon

Scale of footprint

In addition to the carbon footprint from the energy that we procure and use, Network Rail has a substantial impact through the carbon embedded in the services, products and materials we procure. Furthermore, traction emissions (from train services on our network) represent the biggest contribution to the industry's overall footprint.

Measuring and reducing footprint

In CP5 we will seek to reduce the carbon embedded in the new infrastructure that we build, through the use of appropriate methodologies and tools. This will enable us to forecast, reduce and report reductions in embedded carbon. We will undertake trials of such approaches over the remainder of CP4, and propose a more comprehensive approach in time for our CP5 Delivery Plan.

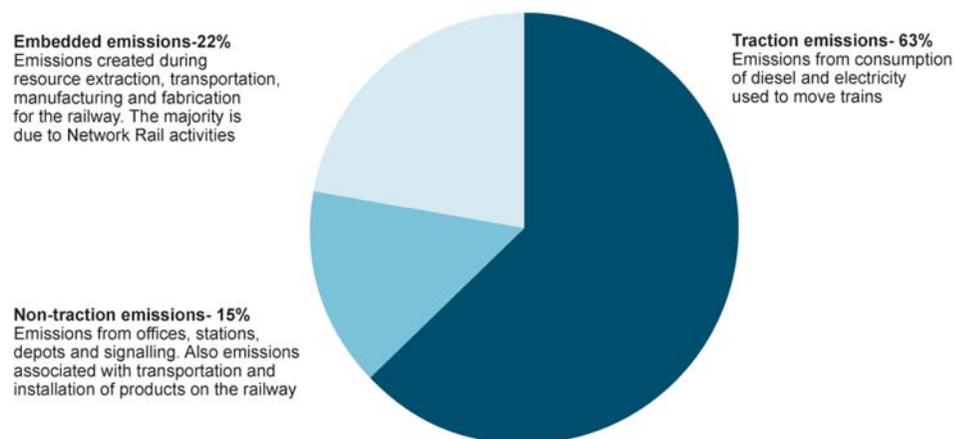
In addition we are committed to working with our customers to support them to use traction energy in an ever more efficient manner. This will include continuing to support train operators metering more of their electricity usage.

Carbon dioxide emissions	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Total tonnes CO ₂ e / ktonnes	261	255	256	256	255	254

Note: Forecasts are based on the most recent Defra conversion factors. They do not account for past or future changes in the carbon intensity of electricity and other fuels

Expected Carbon Intensity of our Electricity Supply	2010	End CP5	End CP6
Carbon Intensity of Electricity/kg CO ₂ e per kWh	0.52	0.45	0.40
% Change on 2010 (most recent published year)		(14%)	(23%)

Breakdown of rail industry's whole life carbon footprint



Source: Rail Industry CP5 environment plan – September 2011. Sustainable Rail Programme

For further details see the Sustainable Development Strategy

Deliverability, key assumptions and risks

This section sets out our assessment of the challenges to deliver our plan, the key assumptions made and our assessment of the risks. It covers:

- The key assumptions we have made 72
- Our assessment of risk 73
- Capital programme delivery 74
- Development of our efficiency plans 75
- Reducing our costs further 76

The key assumptions underpinning our plan

Developing our plans requires us to make a range of assumptions about future events. The outcome of our plan will be affected by the extent to which actual events accord with our assumptions. We have set out the key assumptions that underpin our plan below. We have also included details of our assumptions in each of our functional plans and have created an assumptions log of the most significant assumptions.

Economic and environmental

There will be continued growth in demand for passenger services in all sectors as well as for freight services. This will translate into an increase of 10 per cent in passenger vehicle kilometres and a 22 per cent increase in freight tonne kilometres across the network as a whole during CP5. We have set out our detailed assumptions in our detailed supporting document on traffic growth.

Interest rates, including the FIM fee, will be consistent with current market rates. We have set out our detailed assumptions in the confidential supporting document on financing costs.

Annual inflation (RPI) will be 3.0 per cent in 2013/14 and 2.75 per cent thereafter and there will be no change in the definition of RPI.

The property market conditions will reflect current economic forecasts which we have set out in our supporting property plan.

The rail market in Great Britain will continue to be attractive for our key suppliers.

Fares policy remains unchanged from RPI+ one per cent

Weather patterns will be broadly consistent with trends over the past five years. While we will continue to respond to the impact of climate change, we have not included the impact on outputs and costs of abnormal levels of extreme weather.

We will not need to remove the ash trees (around 400,000) that are alongside the railway.

Regulatory and contractual framework

There will be no major changes in legislation.

There will be no major changes to the current industry framework during CP5.

The refranchising process will restart within the next year and the delay will impact on the level of support required by train operators.

Franchising outputs will be consistent with the HLOS outputs.

The regulatory regime is consistent with our proposals for monitoring performance targets during CP5, including an agreed change control process and establishment of customer reasonable requirements.

Funding for enhancements takes account of the early stage of development for a number of projects and enables the price to be fixed after completion of the periodic review.

Civils renewals are funded on the basis of an overall expenditure allowance to deliver a new asset policy to begin recovery of the backlog rather than as an output based settlement.

The adjusted WACC approach does not have an adverse impact, including on our ability to raise debt or on the cost of debt.

Schedule 4 and 8 rates continue are maintained at current levels.

The regulatory regime supports the delivery of improvements in cost and outputs consistent with the regulatory principles set out on page 78. The next section of plan highlights some particular issues about the development of the regulatory and financial framework.

Technological

We will develop efficient technical solutions for the delivery of new electrification systems, ETCS and the network operating strategy including traffic management.

We will continue to develop plans for an interoperable railway but will not be required to incur specific additional costs beyond our existing capital expenditure in CP5.

We will develop new technical solutions that will enable longer term savings through an increase in our investment in research and development.

Other factors

We obtain the engineering access, including increased mid-week working for track renewals and the major access requirements for enhancements, and the plant needed to deliver the CP5 programme.

There is support from our customers and stakeholders for our overall strategy including the purpose, role and vision.

Trains operators will continue to support continued transformation of Network Rail and our stated industry including through alliancing.

We maintain a constructive approach to industrial relations in order to minimise the risk of significant industrial action.

Train operators operational and rolling stock performance is consistent with assumptions in the performance plan.

Train operators support delivery of savings including, for example, efficient access for engineering work and early involvement in enhancement projects.

For further details see the supporting documents on assumptions and risk

The risks and uncertainties in our forecasts

As well as identifying the key assumptions that underpin our plans, we have also identified the key risks to achieving our objectives and their underlying causes. We have also assessed the level of uncertainty as a result of the assumptions and risks through use of quantified risk analysis and other techniques.

Safety and sustainability

The key risks include:

- We do not maintain robust processes for railway operation and asset integrity.
- We do not deliver a change in safety culture within Network Rail and our suppliers.
- We do not take sufficient action to mitigate safety risks imported by third parties (including level crossing misuse, trespass, defects in traction and rolling stock).

The principal underlying causes of failure to mitigate these risks include a shortfall in our leadership and management capability, the scale of transformational change being unrealistic, and insufficient funding.

Corporate capabilities

The major corporate capabilities are asset management, capacity and performance management, and project development and delivery. The key risks include:

- insufficient improvement in our asset management capability
- delayed improvement in asset information systems, processes and data
- shortfall against performance outputs
- inability to make balanced trade offs between performance, capacity and cost
- insufficient improvement in project delivery
- ineffective work partnership working with suppliers and customers
- consulting business not being won in competition.

The principal underlying causes of failure to mitigate these risks include:

- a shortfall in our leadership and management capability, the scale of transformational change being unrealistic, and insufficient funding
- inherent variability in performance, timetable changes, shortfall in asset reliability, worse than expected rolling stock performance, higher than planned growth
- uncertainty in required activity to manage the infrastructure sustainably
- inflexibility in the regulatory framework and insufficient incentive for partnership working with train operators

Key enablers

The key enablers for achieving our corporate objectives are technology and innovation, organisational change, people, transparency and public information and funding. They risks relating to our objectives in these areas include:

- lack of improvement in real time communications
- poor progress developing working technology (including compliance with European requirements) together with a new research and development programme
- lack of alignment with our customers, with ineffective alliancing / risk and benefit sharing partnership model
- slow progress in developing accountable Network Rail business units with clear accountabilities
- failure to create an integrated category based supply chain
- inadequate process for attracting good people into Network Rail and for managing and developing people throughout their careers, based on a more open, diverse and inclusive organisation
- not being seen as an open and accessible organisation

- being unable to deliver CP5 outputs sustainably and efficiently
- not developing robust plans for CP6 supported by continued benchmarking to demonstrate Network Rail's relative efficiency
- not developing a sustainable funding and financing strategy or mechanisms for raising third party capital.

The principal underlying causes of failure to mitigate these risks include:

- a shortfall in our leadership and management capability, the scale of transformational change being unrealistic, and insufficient funding
- efficiency and output targets being too challenging, undermining our ability to attract and retain the right people and reducing incentives for customers and suppliers to support achievement of targets
- not reverting to funding based on a full cost of capital in CP6

Quantitative analysis

We have conducted analysis to understand the uncertainty inherent in our expenditure plans. We have also analysed the uncertainty in our expenditure plans.

Our quantitative analysis indicates an expected level of expenditure to deliver the required outputs which is above the level in this plan. This indicates that our plans already contain an element of stretch, reflecting our ambitious change programmes to make the railway more efficient and better value for money. It is also clear that any reduction in the funding to perform the work would reduce the likelihood of Network Rail being able to deliver the plan.

Whilst it is difficult to quantify the impact on punctuality that different levels of expenditure might have, our analysis shows that our expenditure plans do not have a strong and immediate influence on punctuality as there are many other factors that influence performance, including industry operational issues and external factors such as weather.

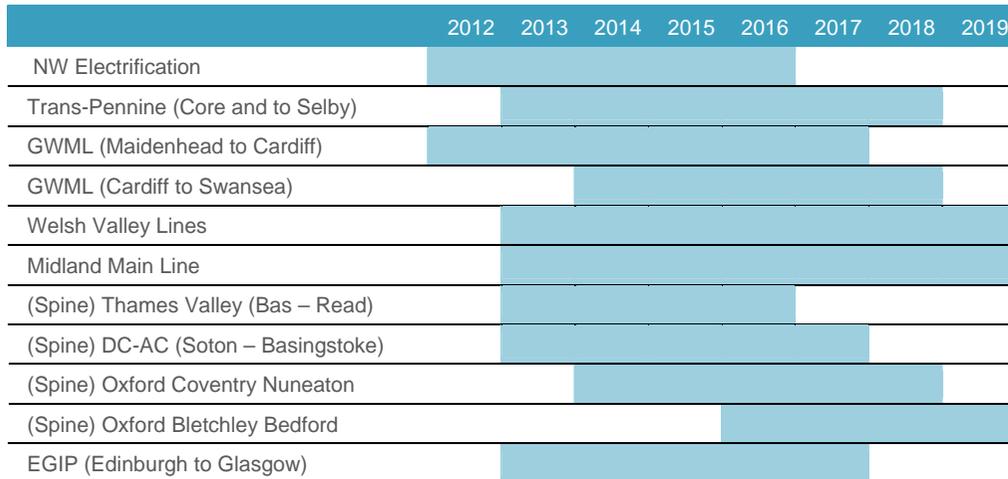
Enhancements have different risk approaches depending how well developed the projects are. Early stage projects have a uniform uplift to reflect unidentified scope, risk, and optimism biases; GRIP 2 projects use a three point estimate approach; and GRIP 3 projects include a full quantitative risk analysis. Portfolio benefits have also been modelled. The appropriate levels of risk have then been incorporated into the forecast enhancement costs.

We have separately analysed the uncertainty in absolute levels of performance. Our statistical analysis supports a range of between 91 and 93 per cent for PPM.

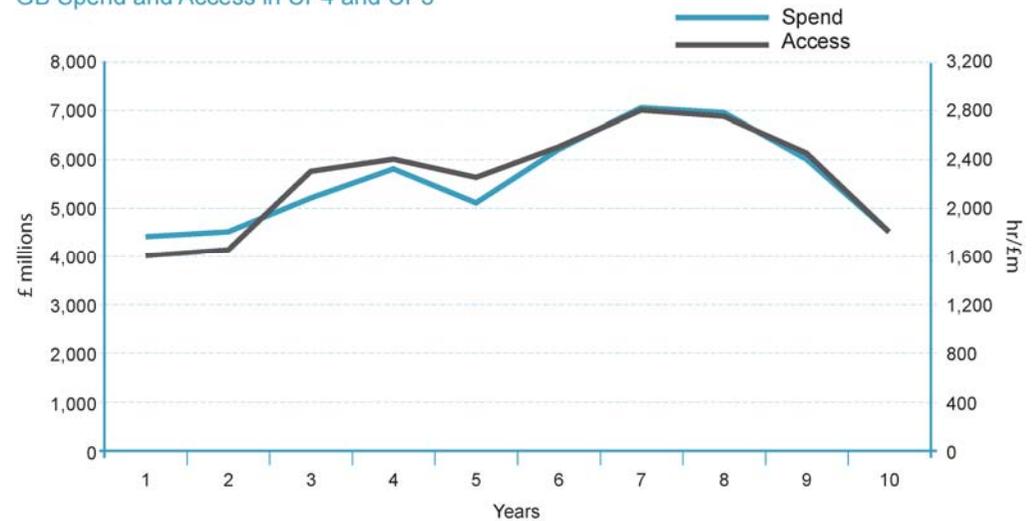
Further details have been provided to ORR in the supporting document on assumptions and risk

The risks to be managed in the capital programme

Summary assessment	Action plans
<p>People: No significant issues in any area other than E&P resources for electrification where there is a shortfall in design, management and supervisory staff. Full review of CP5 bank holiday working underway.</p>	<p>People: A working party including Network Rail, RIA, NSARE and the supply chain is exploring how sufficient E&P capability can be established. It is using the lessons from, and methods adopted by the National Electricity distribution network when facing similar issues in 2009.</p>
<p>Plant and equipment: There is a requirement to procure new ballast cleaners, tilting wagons, Kirov cranes and wagons to satisfy increased requirements and replace end of life equipment.</p>	<p>Plant and Equipment: Plant and equipment requirements need to be finalised and a procurement strategy/life extension programme agreed between NDS and the business.</p>
<p>Materials: There are no significant shortfalls predicted.</p>	<p>Materials: Not applicable.</p>
<p>Access: National projections indicate circa 25 per cent additional access requirement over CP4 peak for years two and three. Route based access requirements needs further work.</p>	<p>Access: A central planning capability has been established to examine opportunities to smooth the overall workload. The current plans to improve access efficiency also need to be prioritised.</p>
<p>Technology: The scale of the electrification programme introduces the need for technical innovation that has increased delivery risk. There are no major dependencies in Information Management.</p>	<p>Technology: The introduction of innovation for new electrification is being co-ordinated between Energy Services and Infrastructure Projects using forums with dedicated resources.</p>
<p>Design and planning: Development of designs and plans for CP5 are on target. A number of schemes are in early development and hence lack the detail for accurate forecasting.</p>	<p>Scheme Development: Development of the HLOS schemes needs to be maintained and funded in CP4 in order to effectively inform the deliverability assessment and in turn the Delivery Plan.</p>



GB Spend and Access in CP4 and CP5



For further details see the Deliverability assessment supporting document

We will work with RDG to identify further opportunities

Our plans deliver savings of 18 per cent in addition to the savings of 42 achieved over the last two control periods. While we believe that we can continue to reduce costs, these efficiencies are becoming more difficult to achieve and will require more collaborative working across the industry. We will challenge ourselves to find new ways of reducing our costs. We recognise that we need the help of our industry partners to go beyond the efficiencies delivered by our current plans.

We welcome the analysis provided to us by RDG. The initial findings of the RDG work streams examining the opportunities to save costs in relation to asset, programme and supply chain management (APSCM) are summarised below. There is more work to be done to validate the scale of savings indicated. The scale of opportunities identified is consistent with the level of efficiency we have already included in our plans and how we think these savings can be delivered. The RDG work therefore gives us greater confidence in the level of efficiency we have assumed in our plan. The future work of the RDG work streams will also help us to explore the opportunities to go beyond the level of efficiency we have planned. We are committed to working with RDG to explore these opportunities and where possible to embed these in our plans.

The RDG work confirms our view that the level of access is a key factor in the level of cost savings we can deliver.

Industry access planning improvement programme

This programme will change the way industry undertakes the planning of access to the rail network for both train services and engineering work.

It will deliver:

- A new baseline timetable to include a stable train and freight timetable
- Smoothly rostered maintenance work.
- A new way of planning Restrictions of Use; closer to the day of arrangements.
- A single data source for planning work and revising services.
- An optimised network access plan where we and operators create joint plans.

Cost of contingency

Forming industry alliances when developing and delivering projects will improve access and contingency arrangements.

This programme is designed to reduce both capital expenditure and operating costs during the delivery stages of projects, removing double-booking of resources and improving 'working windows' through 'Joint-value-Engineering' contracts and better alliancing.

Route based workbank optimisation

Bringing industry partners and operators together will help optimise planning of works to improve possession arrangements.

Designed to improve value and performance without being penalised with increasing costs and schedule 8 payments. Better planning of work banks to drive the best value by:

- Finding the optimal Possession arrangements (blockades, mid-week working, performance trade-offs).
- Smoothing demand for plant and resources.

Network optimisation

Identify and bring forward abandonment of point ends above and beyond the current CP5 abandonments plans.

The Switches and Crossings Optimisation programme has been exploring the ability to remove redundant, underused and problematic S & C Assets. This will reduce Schedule 8 payments, increase capital income from cascading and scrapping; leading to a simplified network thus, reducing risk and passenger incidents. Cost to introduce however, will be significant over the control period.

Major projects review

A further work stream has commenced to examine the opportunity to reduce costs of major projects by facilitating earlier and deeper engagement of train operators in the design and delivery strategies for major projects. The outputs from this work stream are not yet available.

Initial estimate of network wide efficiency estimates

£m * (2012/13 prices)	Low	Mid	High
Access Planning ^[1]	173	237	522
Route based work bank optimisation	71	175	278
Cost of Contingency	133	200	267
Network Optimisation	61	61	61
Total efficiencies	438	673	1,128

[1] Potential TOC increased revenue benefits are included

Reducing our costs further will import more risks

In assessing the extent to which we can achieve cost savings in CP5, we have carried out a wide range of benchmarking as well as developed detailed plans for each of our business units. In considering the potential for further savings, it is important that ORR recognises the risks that we would face as a result. These can be summarised as follows:

Operating expenditure: The Operating Strategy already represents a major transformation in the way that the network is operated. Increased savings requires additional capital expenditure, and the acceleration of consolidation into rail operating centres. It is essential that we build confidence in the 15 year programme with successful delivery of the investment programme and the resulting changes in the operation of the network. Unrealistic assumptions would risk undermining the credibility of the programme.

Maintenance: We plan to reduce our direct maintenance workforce by around 2,800 by the end of CP4, and plan a further reduction of around 1,250 during CP5. We recognise that we need to continue improving the productivity of our maintenance activities and more effectively use modern technology so that we are more effective and efficient in delivering maintenance activities. Many of these changes require a change in our culture as well improving our management and working practices. It is critical that we do not set targets to simply reduce headcount in order to achieve cost savings. Maintenance is critical to the safe working of the railway. As two thirds of maintenance costs are directly related to headcount, any further reductions in maintenance costs would need to be achieved by further headcount reductions. We are concerned that this is likely to have implications for the effective management of the network.

Renewals: Over the last few years, we have continued to refine our asset policies, increasingly focusing effort on critical routes and identifying opportunities for refurbishment and life extension. We have also carried out a wide range of benchmarking with other railways that have enabled us to identify a number of areas for improvement. There are also an increasing number of railways that are learning good practices from us. We will continue to look for opportunities to more effectively prioritise our renewals activities based on the improved information that will be provided through ORBIS. We will also work with train operators to assess whether there are more efficient ways of managing engineering access. While we may be able to achieve further savings in CP5, it is not yet clear whether these can be achieved without increasing the whole life cost of managing the infrastructure.

Enhancements: A significant proportion of our enhancements costs are an early stage of development. At early stages of development, there is particular uncertainty about project scope and therefore the overall cost. As a result early stage projects include an allowance for risk based on established and independently reviewed risk methodologies (based on DfT's Webtag approach) to reflect unidentified scope, risk and optimism bias. We have included an efficiency overlay of 12 per cent to all new projects and a risk overlay to reflect the portfolio

benefits of delivering a large and diverse programme of work. For more developed projects, more detailed analysis has been possible but this does not eliminate risk from our programme. Assumptions for further savings would increase the risk that we fail to deliver the enhancements for the planned cost.

Support: For CP5, we have developed our plans at a much greater level of detail than we did for CP4. For a number of activities, we have also carried out benchmarking compared to other major companies. Our plans deliver savings of 19 per cent. We could potentially achieve further cost savings, but we may have to reduce or cease specific activities within our support functions as a result. It is possible that some functions could become more efficient but we consider our plans already represent a stretching target and it is unlikely that we will be able to deliver further genuine efficiency savings within CP5.

While our efficiency assumptions are based on specific improvement plans in all areas, we do not yet have plans in place to achieve all the planned savings. There is therefore a significant risk that we will be unable to achieve the savings set out in the SBP as it is inevitable that some of our proposals will prove optimistic. Any further savings beyond this plan will simply increase the risk that we fail to achieve our target.

Following the development of a number of alliances, including the deep alliance in Wessex, it is essential that the savings assumed by ORR are achievable. For alliances, and the new Route Efficiency Benefits Sharing Mechanism, to have a positive incentive effects, train operators need to be confident that the assumptions can be out performed. Our plan is already dependent on improved working between train operators and Network Rail, but we have not made an explicit assumption for further savings as a result of alliances as this would significantly reduce the incentive for train operators to participate.

The impact on outputs

We will never compromise safety. Cost savings must not lead to an unsafe railway. Cost savings that cannot be absorbed through higher efficiencies could result in a degradation of outputs in both the short and long term. Operating and maintenance expenditure reductions that require head count reductions beyond those planned could lead, for example, to a backlog in maintenance activity that ultimately could result in the degradation of the operation of the railway through the introduction of more speed restrictions.

Less capital expenditure than we assumed in this plan could lead to a backlog of required investment and the need for higher levels of investment in future control periods if this means the assets are not renewed on a sustainable basis.

If we believe we have inadequate funding to deliver the enhancements programme we will be clear on this and we will not commit to delivering the programme set out in this plan.

Financing and funding

This section sets out the how we will finance our plan and the funding we require. It covers:

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– our financing plan	81
– income	82
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– affordability	84

We have discussed key regulatory principles with ORR

The way in which we are regulated is critical to the efficient and sustainable delivery of railway outputs. ORR has set out its key principles for the periodic review and Network Rail has sought to develop these principles and to discuss with ORR how they can be applied in practice. Our objectives for the review are to secure sufficient funding and a regulatory framework to enable Network Rail, in partnership with the rest of the industry, to deliver an improving and sustainable railway consistent with industry's vision for the railway and our vision for Network Rail.

Network Rail has developed some key principles which our Board considers to be essential to establishing a regulatory settlement for CP5 which fulfils the opportunity presented by this period of change in the rail industry. These are:

- Safety – Network Rail should be supported and encouraged to deliver continuous improvements in public, passenger and workforce health and safety
- Output based incentive regulation – Network Rail should be effectively incentivised to deliver and outperform achievable output and efficiency targets
- Simplicity and risk based approach – The regulatory and contractual regime should be simple and targeted using a consistent risk-based approach
- Partnership – Network Rail and its customers/suppliers should be empowered to enter into various forms of partnerships or alliancing arrangements which will improve value for money without undermining network benefits or scale efficiencies
- Whole-life, whole-system, risk-based optimisation – The level of funding, the required outputs and the financial framework should enable Network Rail to manage risk and make whole-life, whole-system decisions
- Corporate development – The regulatory regime should encourage but not predetermine the evolution of the business to facilitate improved value for money, for example through competition and risk capital.

In the longer term, we believe that a different approach to regulation is essential if we are to continue delivering improved outcomes for customers and taxpayers. In the short term, we recognise that Network Rail will need to demonstrate further progress in key areas to provide greater confidence that this different approach to regulation will result in continued improvement. We see the periodic review and this plan as key steps in the process. The consultations on financial issues (see next page) and on the outputs framework (see page 64 in the previous section) are particularly important.

Detailed consultations on specific issues such as the volume incentive and the route based efficiency sharing mechanism (REBS) are also critical since the detail will have a major impact on the business's ability to deliver efficiency. For example, we support REBS as a means of promoting more effective collaboration with operators but a degree of flexibility is required so that it does not also discourage certain efficiency initiatives.

We are keen to continue exploring these issues with ORR.

These principles are reflected in Network Rail's responses to the key consultations on the periodic review. In particular, the consultations on the following elements of the regulatory framework are critical to our ability to deliver our plans:

- High level review of track access charges consultation (July 2010)
- Periodic review 2013: First consultation document (May 2011)
- Establishing Network Rail's efficient expenditure PR13 consultation (July 2011)
- Consultation on the potential for increased on-rail competition (October 2011)
- Consultation on incentives (December 2011)
- Aligning incentives to improve efficiency: Update and further consultation (May 2012)
- Periodic review 2013: Consultation on the variable usage charge and a freight specific charge (May 2012)
- Consultation on financial issues for Network Rail in CP5 (August 2012)
- Network Rail's output framework for 2014-19 (August 2012)
- Consultation on Schedules 4 and 8 restrictions of use and performance regimes (November 2012)
- Consultation on reforming the volume incentive (December 2012)
- Consultation on technical issues relating to traction electricity charges (December 2012)

For further details see the relevant consultation responses and submissions on the regulatory principles for CP5 and the supporting document on the CP5 regulatory framework

A new approach to the financial framework is being used in CP5

Cost of capital

For CP4, ORR's determination was based on full cost of capital of 4.75 per cent (real). Based on independent analysis by Oxera and our own separate analysis, we consider that Network Rail's cost of capital (including efficient financing costs) continues to be 4.75 per cent.

Adjusted WACC approach

ORR has confirmed that it will use an adjusted WACC approach to determine our allowed revenue in CP5. The adjusted WACC approach uses the full cost of capital but recycles the equity surplus (the difference between our full cost of capital and efficient financing costs) to funders before the revenue requirement is determined. ORR's assessment of our revenue will not include the in-year risk buffer that was previously included in CP4.

In confirming this approach, ORR has recognised that it will need to determine a financing uplift so that Network Rail receives a sustainable level of funding during CP5. In assessing the CP5 revenue requirement, we have considered the level of financing uplift required.

Our estimate of the efficient financing costs reflects both our embedded debt and our forecast cost of future debt.

In this plan, we have set out our revenue requirement based on both the full cost of capital (using the approach adopted in CP4) and the adjusted WACC approach.

Funding us on this basis represents a significant departure from the conventional regulatory approach typically employed by regulators. Whilst recognising ORR's rationale for applying an adjusted WACC in CP5, we consider that this approach should be readily reversible in the event that unsupported debt or concessions are taken forward. Furthermore, we believe that, on exiting CP5, the regulatory framework should return to the conventional model. It would be helpful if ORR provided a firm commitment or a presumption to fund us based on a conventional full WACC approach in CP6. We are also exploring with ORR alternative approaches to the adjusted WACC approach without changing the overall economic effect

Amortisation

In PR08 the amortisation calculation was based on long-run (35-year) annual average steady state renewals. This is broadly equivalent to the long-run annual average investment required to maintain the overall capability, age, condition and serviceability of the network in steady state.

In its Advice to Ministers document, in the context of applying an adjusted WACC approach in CP5, ORR made a financial sustainability adjustment to amortisation such that it is equal to CP5 annual average renewals spend. CP5 annual average renewals is approximately £800 million higher than long-run annual average renewals. ORR stated that it made this adjustment to mitigate against financial sustainability issues resulting from its decision to apply an adjusted WACC in CP5.

We consider that the long-run annual average steady state renewals calculation continues to be important. Therefore, we have shown this separately from the financial sustainability adjustment. We estimate long-run annual average renewals over 35 years (consistent with the approach in CP4 which we consider remains appropriate) to be £1.8 billion.

Separately, we have considered the level of an appropriate financial sustainability adjustment. As our plan includes incremental investment of £1.8 billion largely to deliver improvements in future control periods, we do not consider it appropriate simply to adjust amortisation to the level of CP5 renewals.

In the first adjusted WACC scenario, we have calculated amortisation based on the mid-point of ORR's Advice to Ministers adjusted for the incremental investment in CP5. In the second scenario we added a financing uplift so that Network Rail can be confident that it will be able to achieve reported accounting profits, with overall

amortisation based on the proportion of the RAB in England & Wales and Scotland. Clearly there is flexibility around the assumed level of amortisation although it is important to consider the impact on financial sustainability.

Inflation

ORR has stated that it will retain the conventional approach of establishing the determination in real terms and indexing the access charges each year based on the November RPI value. It will also adjust our RAB each year for movements in RPI but will no longer adjust our renewals expenditure for movements in IOPI. It will include an up front estimate of input price inflation in the efficiency assumption it sets.

ORR is concerned that inflation should not be treated as an automatic pass through. It is carrying out more work to understand better how we deal with inflation in our pay negotiations and in multi-year supply contracts. If ORR concludes that we are not following generally accepted ways of dealing with inflation it may decide to factor in an additional efficiency challenge associated with how we deal with inflation in the cost base.

As RPI is increasingly diverging from CPI, the Office of National Statistics (ONS) is consulting on changing its definition. A great deal of Network Rail's debt is indexed to RPI. If the Bank of England (BOE) and the Chancellor of the Exchequer deem the change to be 'fundamental and materially detrimental' to gilt holders, there is a risk that we will need to compensate our index-linked bond holders or redeem the bonds. The ONS consultation closed in November and the decision and potential change in RPI will be announced on 10 January 2013.

Financeability

ORR has recognised that, in assessing long-term financial sustainability, it is particularly important to consider whether our level of debt is appropriate and whether this debt can be re-financed and serviced efficiently. We consider that the CP5 debt levels forecast in our SBP are entirely appropriate and sustainable as long as the regulatory regime remains consistent and robust. The RAB effectively provides for our revenues to be set such that our sunk costs can be recovered from access charges.

We note that ORR's CP5 policy decisions (e.g. to apply an adjusted WACC with no equity surplus/risk buffer) give rise to higher absolute debt levels and a less favourable debt/RAB ratio than if there was a continuation of the CP4 approach in CP5. It is important to be clear that although ORR's policy decisions result in a lower funding requirement in the short term, the total amount of money required by Network Rail in CP5 will remain unchanged and it will, therefore, have to borrow additional funds to meet this requirement. The risks that we face as a business remain unchanged and these are reflected in our full cost of capital.

ORR's approach will result in an adjusted interest cover of around 1.0 and the absence of a risk buffer means that Network Rail will need to borrow to fund any additional costs. As a result it is critical that the maximum debt to RAB ratio includes sufficient headroom to manage the risk of incremental costs.

As a result of this approach, it is possible that Network Rail will report accounting losses during CP5 which will create significant reputational issues. We believe that it is important that CP5 allows us a reasonable expectation of producing a 'fair' accounting profit. For this reason we welcome ORR's decision to fund our in-year cash financing costs during CP5 and the financeability adjustment to the amortisation allowance.

Other

In the last review, ORR introduced a mechanism (the opex memorandum account) to remunerate us for specific variances in operating costs, income and incentives during CP4. We expect this to total £133 million, which we have included in the CP5 revenue requirement calculation. We are forecasting minimal tax payments in CP5.

Further details have been provided to ORR in the financial framework supporting documents

There are different options for calculating our revenue requirement

Approach

We have calculated the revenue requirement for England & Wales on the basis of a full cost of capital and an adjusted WACC approach. For the full cost of capital approach, we have adopted the approach used in CP4 in which equity surplus (i.e. the return on the RAB less cash interest and a risk buffer) is reinvested to fund enhancements.

For the adjusted WACC approach, we have considered two scenarios.

- In the first scenario, we have assumed that the return equals the forecast cash interest cost and amortisation is based on the mid-point of ORR's Advice to Ministers adjusted for the incremental investment in CP5
- In the second scenario, we have applied a further financeability uplift (included in amortisation) as it is important that Network Rail has a reasonable expectation of reporting an accounting profit. Our analysis shows that Network Rail should be planning to achieve profits of around £500 million per year so that we can manage potential volatility, particularly in operating expenditure and interest rates.

For each of these scenarios, we have summarised for the company as a whole, the calculation of the net revenue requirement together with our forecasts of the debt to RAB ratio, adjusted interest cover and accounting profit.

Issues

With a challenging economic climate, we recognise that ORR's adjusted WACC approach will enable DfT to reduce the level of funding that it provides Network Rail during CP5. However, the level of risk that Network Rail actually faces will not change.

As a result of this revised approach, we would be expected to fund risks that materialise through increased borrowings. This would result in an increase in the debt to RAB ratio, for which there is a maximum limit in the network licence. It is essential that there is sufficient headroom to allow us to manage the impact of risks within this limit. To achieve this, the limit should remain unchanged at 75 per cent.

Applying the adjusted WACC approach with no financeability adjustment could result in reported accounting losses. This would impact our ability to attract high quality people, and have a reputational impact with key stakeholders and the media. It is therefore important that the financeability uplift is sufficient for us to be confident that we will be able to report profits.

The assumed FIM fee has been based on the latest market assessment. This has resulted in an increase in costs of around £750 million compared to the IIP (and around £380 million compared to the Advice to Ministers). This increased payment to DfT needs to be recognised in comparing the revenue requirement to the SOFA.

E&W CP5 revenue requirement £m 2012/13 prices	Full WACC	Adjusted WACC (ORR approach)	Adjusted WACC (with profit)
Controllable operating costs	8,078	8,078	8,078
Industry costs	3,342	3,342	3,342
Schedule 4 & 8 costs	630	630	630
Return	11,494	7,521	7,319
Amortisation	8,831	10,200	12,017
Other single till income	(2,422)	(2,422)	(2,422)
Opex memorandum account and other adjustments	206	206	206
Net revenue requirement	30,159	27,555	29,170

E&W financial information £m 2012/13 prices	Full WACC	Adjusted WACC (ORR approach)	Adjusted WACC (with profit)
Net debt at end CP5	36,226	39,077	37,359
RAB at end CP5	54,733	56,642	54,826
Net debt/RAB at end CP5	66%	69%	68%
Adjusted interest cover ratio at end CP5	1.48	1.00	1.00
Weighted average cost of capital	4.75%	3.00%	2.96%

Network Rail P&L (Total CP5) £m 2012/13 prices	Full WACC	Adjusted WACC (ORR approach)	Adjusted WACC (with profit)
Turnover	35,376	32,514	34,195
Total operating expenditure	(13,357)	(13,357)	(13,357)
Depreciation	(8,786)	(8,932)	(8,844)
Operating profit	13,326	10,225	11,994
Financing costs	(9,361)	(9,840)	(9,629)
Profit before tax	4,005	519	2,500

Further details have been provided to ORR in the financial framework supporting documents

We will need to raise a total of £23 billion of debt in CP5

Background

Network Rail has the largest debt portfolio of any UK regulated utility (more than all of the water utilities combined). We adopt a prudent and efficient approach to managing this portfolio so that we can deliver value for money. The chart below shows that debt service costs represent a significant proportion of our total expenditure.

All Network Rail's debts are guaranteed by the Secretary of State for Transport through the Financial Indemnity Mechanism (FIM), which enables us to access the widest possible sources of finance at the lowest possible cost.

We are committed to delivering funding at the lowest possible cost (subject to investor and maturity diversification considerations). We have issued debt in a range of currencies and maturities, in both nominal and index linked format. Debt issuance is supported through a global investor relations programme and by a strong relationship banking group. Debt capital markets are continually monitored to identify low cost funding opportunities.

Current debt

In September 2012, Network Rail had net debt of £28.0 billion (in £ hedged equivalent) which comprised NRIF DIP debt (including commercial paper) of £30.6 billion and cash (and short term investments) of £2.6 billion.

The weighted average maturity stands at around 16 years and, although there is no specific targeted weighted average maturity, this is comparable with both the Debt Management Office and with other regulated utilities. Of this total Network Rail debt, around £25 billion is allocated to England & Wales.

Assumptions

Currently, approximately 50 per cent of our debt is index linked. Index linked does not currently offer good value for money and the future proportion of index linked debt is currently under consideration. In this plan, we have assumed no further index linked issuance in CP5.

We will continue to raise finance under the FIM throughout CP5 and have assumed the FIM fee will be 1.25 per cent. We have assumed that no debt will be raised without the FIM in CP5.

Our detailed assumptions for future interest rates are set out in a separate confidential supporting document. If interest rates are one per cent higher than we have assumed, our CP5 interest costs would increase by around £1 billion (taking into account the extent to which rates are already fixed for CP5). The potential redefinition of RPI could have a material impact on Network Rail but we have assumed no impact on our financing costs.

Our current policy is to hedge 80 per cent of our debt. This is currently being reviewed.

Total expenditure

	%
Debt service costs	20
Operating costs	27
Renewals	29
Enhancements	24



CP5 debt

During CP5, we need to refinance £7.4 billion of existing debt as well as borrowing around £16 billion of new debt (in cash terms).

As a result, under the adjusted WACC (with profit adjustment) scenario, Network Rail's total net debt will increase to around £49 billion (in cash terms) by the end of CP5. Of this total Network Rail debt, around £44 billion will be allocated to England & Wales. In the adjusted WACC (ORR approach) scenario, the net debt for England & Wales would increase by around £2 billion.

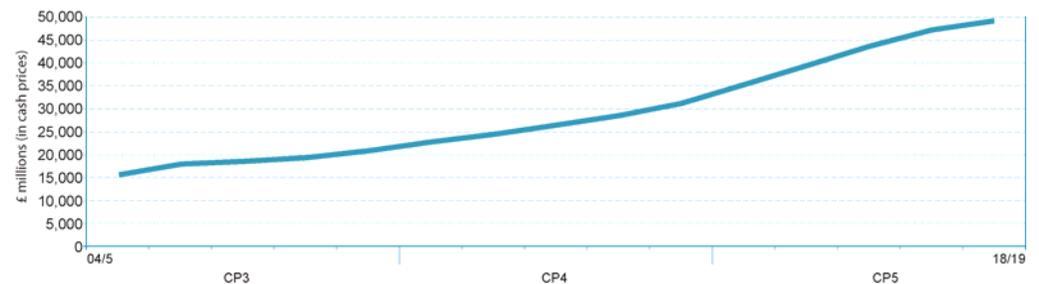
Financing investment on this scale will be a significant challenge, particularly if the continuing difficulties in financial markets persist. A robust financial framework is required to reflect continued challenging and uncertain conditions throughout CP5.

If there were a downgrade in the UK's "AAA" credit rating this would impact on the cost of refinancing existing debt and of raising additional funding. If our profitability is adversely affected, then our cost of borrowing could increase, as investors might deem the company overly reliant upon government backing.

All three major ratings agencies currently have the UK on "Negative Outlook" suggesting that ratings action could be taken.

The adjusted WACC approach provides funding for the cost of debt only. The cost of debt (including the FIM fee) is consistent with an adjusted weighted average cost of capital of around three per cent. This assumption has been validated both by our own analysis of the current debt markets and by Oxera's independent analysis of the expected cost of debt.

Net debt



Further details have been provided to ORR in the Financing Plan and Oxera's adjusted cost of capital paper.

Our income is received through a range of charges

We summarise below the income that we are forecasting from each charge during CP5. We will publish draft price lists for consultation in March 2013, and final price lists in December 2013.

Schedule 4

Schedule 4 provides compensation to train operators for planned disruption. The Schedule 4 Access Charge Supplement is consistent with the forecast Schedule 4 costs.

Variable Usage Charge (VUC)

The VUC aims to recover Network Rail's operating, maintenance and renewal costs that vary with traffic. The income received from this will be sensitive to ORR's efficiency overlay, which will be finalised in October 2013.

CP5 charge rates are forecast to be 14 per cent higher in real terms than CP4 primarily due to the inclusion of new cost categories that we consider vary with traffic. Consistent with the approach in CP4, VUC will be levied on passenger operators based on a cost per vehicle mile, and levied on freight operators based on a cost per gross tonne mile. The freight variable usage charges are included in the income on page 52.

Network Rail will conclude on its VUC consultation in March 2013.

Capacity charge

The capacity charge recovers additional Schedule 8 costs associated with increased traffic. We are projecting income of £848 million in CP5 based on CP4 tariffs. We are currently reviewing the tariff levels to take into account current congestion levels and forecast traffic in CP5.

As in CP4, CP5 capacity charges are based on a cost per train mile basis for both passenger and freight operators. Contrary to CP4, CP5 charges will be at service code level for passenger operators.

Electric current for traction (EC4T)

EC4T charges recover the cost of electricity that Network Rail provides to power electrified train services. Based on DECC electricity price forecasts and electrified traffic forecasts, EC4T income for CP5 is forecast to be £2,037 million.

A difference from CP4 is that freight operators' EC4T bills may be based on actual electricity prices and not indexed prices.

ORR is considering options to incentivise on-train metering, and changes to the volume wash-up, together with the introduction of losses efficiency targets, to increase the incentive for Network Rail to manage transmission losses efficiently. This could result in Network Rail under-recovering its EC4T costs through charges. This increases the risks that Network Rail is managing during CP5.

Electrification Asset Usage (EAU) Charge

EAU charges recover the maintenance and renewal costs associated with electrification assets which vary with traffic. We have projected income of £98 million in CP5, which is higher than CP4 due to an increase in rates.

Coal spillage

This charge aims to recover the costs of coal spillage on the network. The charge is levied on freight operators carrying coal on a cost per gross tonne mile basis. We are projecting income of £19 million during CP5. This is included in freight charges on page 52.

Freight only line (FOL)

This is charged on a cost per gross tonne mile basis and is designed to recover the fixed costs of freight only lines. Consistent with CP4, we have assumed that the charge is levied on coal that is transported for the electricity supply industry and spent nuclear fuel markets. We are projecting income of £24 million over CP5. This is included in freight charges on page 52.

Stations and depots income

This comprises income from managed and franchised stations long term charge, managed stations qualifying expenditure, franchised station lease income and depot lease income. We are projecting income of £1,435 million in CP5. We are proposing to transfer SISS costs from the fixed charge to the long term charge and to move to a portfolio charging structure for franchised stations.

Fixed track access charges (FTAC)

FTAC is the residual revenue required by Network Rail to run its business after all income has been received. For the SBP, FTAC is assumed to be identical to the net revenue requirement (i.e. we have not made an assumption about the level of any network grant). FTAC will be levied as a fixed value in each year of CP5 for each franchised passenger operator.

We are currently consulting on the approach to calculating FTAC during CP5 and will conclude in January 2013.

£m in 2012/13 prices	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	CP5
Variable usage charge	147	172	173	174	176	177	872
Capacity charge	169	169	169	170	170	170	848
Electric current for traction	208	215	416	427	462	517	2,037
Electrification asset usage charge	8	19	19	19	20	21	98
Stations and depots	275	287	287	287	287	287	1,435
Schedule 4 access charge supplement	137	126	130	131	122	121	630
Fixed track access charges and network grant	4,627	4,266	4,452	4,637	4,866	5,029	23,251
Total	5,571	5,254	5,645	5,845	6,103	6,323	29,170

Further details have been provided to ORR in the charges supporting document

A new efficiency sharing mechanism is being introduced

A new route based incentive regime is being introduced in CP5. In addition, the schedule 4 and 8 regimes and the volume incentive will continue. We summarise below the adjustment relating to the CP4 opex memorandum account.

Route-Based Efficiency Benefit Sharing (REBS)

REBS is a mechanism intended to encourage TOCs to work with us to help us improve efficiency. ORR considers that REBS should be asymmetric, with 25 per cent of the upside and ten per cent of the downside being shared with operators.

We have undertaken an analysis to estimate the average payout made by Network Rail as a result of the asymmetric nature of the REBS regime. This has been done using Monte Carlo analysis, a common tool deployed in economics and statistics used to quantify the implications of uncertain circumstances, such as CP5 efficiencies.

As a result of the asymmetry, REBS is forecast to cost around £70 million in CP5 (of which £64 million relates to England & Wales) and we have included an adjustment to the revenue requirement to reflect this expected cost.

It should be emphasised that the exercise to estimate average payouts through REBS is based on Network Rail achieving its efficiency targets on average. It is possible that Network Rail could systematically outperform or underperform efficiency targets across routes.

In instances of general outperformance, costs could be considerably higher than those set out above. In instances of general underperformance, the costs could be much lower than that set out in the table, and could even represent a source of income to Network Rail.

We are discussing with ORR the approach for setting the baseline for REBS. We consider that it should be based on the route projections included in our CP5 Delivery Plan, provided that this is consistent with ORR's final determinations in aggregate. We also consider there needs to be a change control mechanism so that we are not discouraged from making changes which improve overall efficiency.

Schedule 4

Schedule 4 (SC4) provides compensation to train operators for planned disruption. Passenger operators pay an Access Charge Supplement in exchange for SC4 compensation and the passenger regime is financially neutral if Network Rail delivers its baseline plans efficiently. The freight regime involves a net payment to operators.

Schedule 8

Schedule 8 (SC8) provides compensation to operators for lost passenger revenue resulting from unplanned disruption. The passenger regime is financially neutral if Network Rail meets its regulatory performance targets. The freight regime involves net payment to operators for compensation for cancellations.

Volume Incentive

The Volume Incentive was introduced in CP3. It provides a lump sum cash payment to Network Rail where we accommodate demand over and above that envisaged in the HLOSs and the freight RUS.

The incentive is based on train miles and farebox for passenger traffic, and train miles and gross tonne miles for freight. The CP3 passenger incentive rates converted the economic benefits of additional rail passengers into a benefit per train mile using relative growth rates. The CP3 freight rates were calculated to be equivalent to the passenger rates.

For CP4 the volume incentive payment rates are set based on passenger and freight train miles, and payment is made on the train miles accommodated above the baselines (which are set separately for passenger and freight). The volume incentive is reported in the regulatory financial accounts (Statement 10 (c)). The total amount payable under the volume incentive is paid through the opex memorandum account evenly over CP5. We will respond separately to ORR's recently published consultation document.

Opex memorandum account

Our forecast of the opex memorandum account totals £133 million, which makes adjustments relating to the last periodic review including in respect of the volume incentive, capacity charge, the development of Euston and Victoria, National Stations Improvement Programme and industry costs.

British Rail Residuary Board

DfT intends to transfer various assets (such as the Old Dalby test track, bridges and war memorials) from British Rail Residuary Board. The details have not yet been finalised, but we believe that these will cost around £2 million per year to maintain. We have included this separately within the revenue requirement calculation.

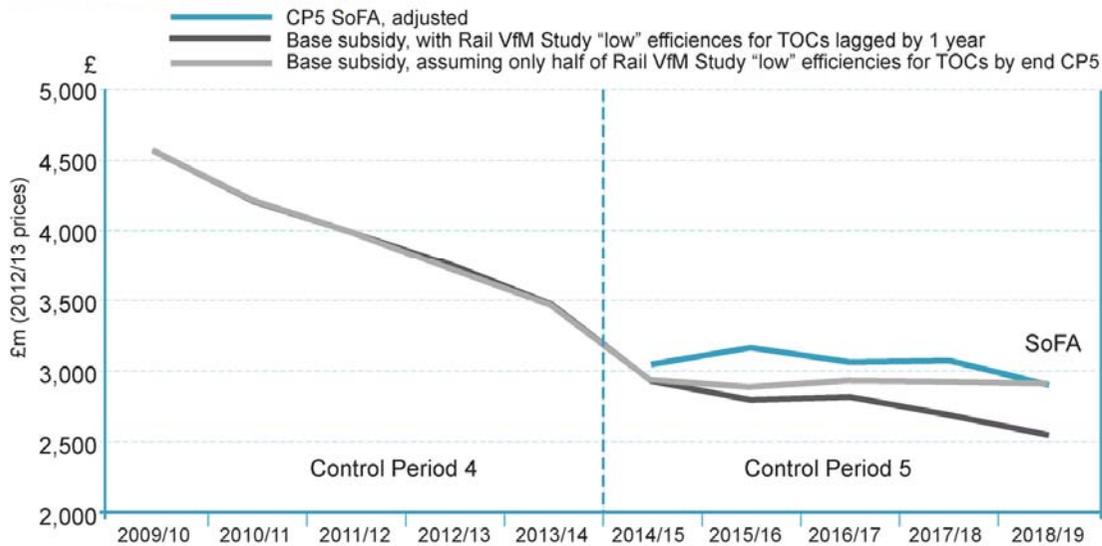
£m in 2012/13 prices	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	Total
REBS	-	13	13	13	13	12	64
Opex memorandum account	-	27	27	27	26	26	133
BRBR	-	2	2	2	2	1	9
Total	-	42	42	42	40	40	206

Further details have been provided to ORR in the incentives supporting documents

Industry subsidy will continue to fall in CP5

Working with train operators we have updated our analysis on the overall underlying subsidy forecast for CP5. This has been carried out jointly with industry through Planning Oversight Group and the Rail Delivery Group. We have tested the subsidy required against a range of efficiency assumptions for train operators, reflecting the uncertainties surrounding the re-franchising programme and reform agenda for franchising.

Underlying Support Trajectory



The industry published a view of ‘underlying’ industry support trajectory in the Initial Industry Plan (IIP, September 2011). This has been updated.

Our forecast of subsidy required by the rail industry in England & Wales by the end of Control Period 5 ranges from £2.6 billion to £2.9 billion.

This range reflects the trajectory first published in the Initial Industry Plan, plus adjustments to take account of changes since this time. These changes include Government’s decision not to increase the cap on regulated fares by RPI+ three per cent in January 2012, 2013 and 2014.

The trajectory includes Network Rail’s revenue requirement based on the adjusted WACC approach with an allowance for profit.

The range in funding reflects the assumed delivery of Rail VfM Study “should cost” low efficiencies for train operators as in the IIP with the following adjustments:

- the ‘low’ end of the range, £2.6 billion funding, assumes the delivery of train operator efficiencies will be lagged by one year reflecting the pause in the refranchising process
- the ‘high’ end of the range, £2.9 billion funding, assumes that only half of the Rail VfM study “should cost” low efficiencies for train operators are delivered by the end-Control Period 5.

This range compares to a SoFA in the final year of Control Period 5 of £2.9 billion, a figure which has also been adjusted to reflect more recent changes to fares policy.

Further details have been provided to ORR in the Affordability Assessment supporting document

Next steps

This section sets out the next steps in the development of our plans, key stages of the periodic review and key events that will inform these processes. It also includes a list of supporting documents and a glossary:

- Next steps 86
- Supporting documents 87
- Glossary 88

We will continue to develop our plans

The Strategic Business Plan is a milestone in the development of our plans for CP5. We will continue to develop our plans over the next 12 months prior to the publication of our CP5 Delivery Plan and the commencement of the next control period. The key areas of development over the next year will include:

- development of Joint Performance Improvement Plans with our customers for the final year of CP4 and the first year of CP5
- continued development of the portfolio of enhancements to better define outputs, scope, cost and milestones
- further integration of the enhancements programme into our asset management plans at a route level
- development of more detailed delivery plans at a route level and improved understanding of key issues such as access
- continued engagement with our delivery partners, the train operators and the supply chain, in order to develop our delivery strategies
- continued exploration, with the help of RDG, of opportunities to deliver further efficiencies

The SBP is our major input to ORR's Draft Determinations, to be published in June 2013.

Now that we have published our plans, our next step is to explain and justify our plans to ORR.

It is inevitable that our plans will change over CP5 as we respond to external events, refine them in light of progress made and we understand better the outputs to be delivered from the programme of refranchising. The publication of our CP5 Delivery Plan, in response to ORR's Final Determinations, will provide the baseline statement of outputs and activities for CP5.

We will update this annually as we progress through CP5.

We have a comprehensive suite of supporting documents

Our SBP is underpinned and supported by a significant volume of evidence and analysis. The key supporting documents for each section of the SBP is shown below

Strategic Direction Statement	Transforming Network Rail	Activity and expenditure plans	Outputs	Deliverability, key assumptions and risks	Financing and funding
Key supporting documents					
Industry SBP	Transforming Safety and Wellbeing	10 Route Plans	Trade-Offs Summary	Deliverability Assessment	Regulatory Framework
	Sustainable Development Strategy	Operations Expenditure	Safety Plan for Level Crossings	Assumptions and Risk	
	Asset Management Capability	Maintenance Expenditure	Performance Plan		
	Capacity and Performance Planning Framework	Renewals Expenditure	Passenger Capacity		
	Project Development and Delivery	Enhancements Expenditure	Asset Stewardship		
	Project Development and Delivery	Investment Expenditure	Access Strategy and Network Availability		
	Technical Strategy	Efficiency	Asset Output Measures		
	People Strategy	Corporate Services Plan			
	Risk Management	Asset Management Services Plan			

For further details see the full list of supporting documents

Glossary

AIS Asset Information Strategy	IEP Intercity Express Programme	PPM Public Performance Measure
AMIP Asset Management Improvement Programme	II Intelligent Infrastructure	PR Periodic Review
AMS Asset Management Services	IIP Initial Industry Plan	RAB Regulated Asset Base
CaSL Cancellations and Significant Lateness	IOPI Infrastructure Output Prices Index	RAM Route Asset Manager
CC Capacity Charge	IP Infrastructure Projects	RCM Remote Condition Monitoring
CP Control Period	JPIP Joint Performance Improvement Plan	RDG Rail Delivery Group
CRR Customer Reasonable Requirements	LOM Local Operations Manager	REBS Route-Based Efficiency Benefit Sharing
DBS DB Schenker	LTC Long Term Charge	RIA Railway Industry Association
DECC Department of Energy and Climate Change	LTPP Long Term Planning Process	RoSE Reliability Centred Maintenance of Signalling Equipment
Defra Department for Environment, Food and Rural Affairs	MAA Moving Annual Average	RUS Route Utilisation Strategy
DfT Department for Transport	MML Midland Main Line	S&P Strategy and Planning
DIP Debt Issuance Programme	MSIP Management System Improvement Programme	SBP Strategic Business Plan
E&P Electrification and Plant	NDS National Delivery Service	SC4/8 Schedule 4/8
EAU Electrification Asset Usage	NOS Network Operating Strategy	SD Sustainable Development
EC4T Electric Current for Traction	NR Network Rail	SISS Station Information and Surveillance Systems
ECML East Coast Main Line	NRHS Network Rail High Speed	SLCC Safety Leadership and Culture Change
EGIP Edinburgh Glasgow Improvement Programme	NRIF Network Rail Infrastructure Funding	SoFA Statement of Funds Available
ESG Event Steering Group	NRT Network Rail Telecoms	SoS Secretary of State
ETCS European Train Control System	NRTS Network Rail Technical Strategy	TFC Track Facility Charges
FCS Facility Charges	NSARE The National Skills Academy for Railway Engineering	TOC Train Operating Company
FIM Financial Indemnity Mechanism	NTP North Trans-Pennine	VDU Visual Display Unit
FOC Freight Operating Company	OM Operations Manager	VUC Variable Usage Charge
FTAC Fixed Track Access Charge	ORBIS Offering Rail Better Information Services	WACC Weighted Average Cost of Capital
FTN Fixed Telecoms Network	ORR Office of Rail Regulation	WLCC Whole Life Cycle Cost
GRIP Governance for Railway Investment Projects	PDI-F Possession Disruption Index for Freight	
GWML Great Western Main Line	PDI-P Possession Disruption Index for Passengers	
HLOS High Level Output Specifications	POA Passenger Open Access	
HS2 High Speed 2	POG Planning Oversight Group	
IAPI Industry Access Planning Improvement		

