

An aerial photograph of London St Pancras International railway station, showing the large, modern glass and steel roof structure and the surrounding dense urban environment of London, including the Shard skyscraper in the background.

Strategic Business Plan – Summary

9 February 2018

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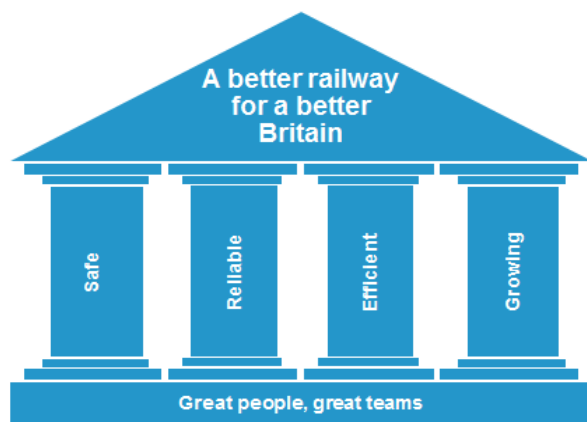
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Foreword

This is a strategic business plan for a better railway for a better Britain. It is a plan built on the transformation of Network Rail that commenced in CP5 – with devolution to separate route businesses at its core. Railways are the economic arteries of our country and are critical to the economy, jobs and housing. The connectivity, competitiveness and productivity of our country are directly impacted by the performance of the railway. This plan matters.

Britain's businesses say that they want freight services that are more affordable, which would also reduce environmental emissions and free up roads for people. Rail passengers tell us that their priorities are lower cost fares, more seats and better reliability¹. Today they often take safety for granted – we never do. And with 22m people living or working less than 500 metres from the railway, we understand our responsibility to minimise noise and inconvenience for our lineside neighbours while we manage the network.

As a passenger and customer focused business, our plan focuses on four key responsibilities. To run a safe, reliable, efficient and growing railway. We will achieve this by attracting, developing and giving opportunities to great people, working together in great teams.



¹ Transport Focus report on Rail passengers' priorities for improvement (November 2017)

Safe

Our strong track record of improving passenger safety has been hard won – today we run the safest major railway in Europe. But this plan shows how we will reduce the risk of a train accident by a further 10 per cent, through better inspection techniques and better asset management. The application of digital technologies will also enhance safety through provision of automatic train protection and traffic management on selected routes. We will also increase our focus on growing security threats including cyber security.

We will reduce the gross risk to the public from level crossings by 13 per cent, building on the 37 per cent reduction achieved since the start of CP4, using ALARP (as low as reasonably practical) principles for the first time to target risk reduction in the most efficient way. We will continue to develop our award winning programmes to reduce railway trespass and prevent suicides.

We believe that we have a moral and ethical responsibility to our people and the communities we serve and that safety and performance go hand in hand. We are therefore targeting to halve workforce lost time injury rates by the end of CP6, on top of the 37 per cent being achieved in CP5, with a focus on front line leadership and behavioural change.

We will reduce non-traction energy consumption in our operations by 18 per cent in CP6 and broaden our approach to safety to embrace environmental performance. Our vegetation policy will enable us to increase biodiversity on our cuttings and earthworks. This is responsible leadership.

Reliable

The reliability of train services has declined in recent years and is a major concern for passengers. The causes of delays are complex and interconnected in more ways than ever before. While there will be a significant increase in the number of train services over CP6, our plan, working in partnerships with TOCs, will achieve a 15 per cent reduction in the number of trains that are delayed. We estimate that the forecast improvement in train performance will deliver annual economic benefits of around £0.4bn by the end of CP6.

Our partnership plans will also revolutionise the way we measure train punctuality – setting us apart as the most demanding and transparent rail network in Europe. We will run trains to the minute, constantly striving to reach optimal operational reliability with our train operating partners. This approach will give fresh insights into the interactions that cause delay, which may result in a need to change franchises and regulatory incentives.

Efficient

Our plan for CP6 includes expenditure of £47bn (in 2017/18 prices) to operate, maintain, renew and enhance the railway, which we will spend wisely and efficiently. We know that during these challenging economic times, passengers are concerned about the level of fares. We must deliver efficiently to drive down costs. Over CP4 and CP5 we have reduced the operating and maintenance cost per passenger kilometre by around 40 per cent. In this plan we will achieve a further 10 per cent improvement in real terms efficiency, offset by cost pressures (or headwinds) of two per cent. Significant improvements in our business planning at a route level will drive more efficient delivery in CP6. Efficiency savings will also be achieved through smarter working, more efficient use of the railway and better technology.

We will ensure that the optimum life cycle cost balance is achieved between maintenance and renewals using asset management techniques and that gross renewals efficiency improves by 11 per cent.

Many of Network Rail's assets have asset lives of several decades. It is therefore critical that this plan is considered in a long term context. Organisational stability will help routes deliver to continue driving efficient delivery over the next ten years and beyond.

Growing

The amount of passenger travel on the railway is forecast to increase by 15 per cent over CP6, adding to the doubling of passengers in the last twenty years. The new capacity built in CP5 will help, with an increase in train services of nearly 10 per cent in the next two years. But there is no doubt that the railway is full or under strain in many places. This plan includes the development of further significant investment in potential new projects to enhance the capacity of the railway and the connectivity of our country. Further enhancements would require additional funding from

government or third parties. We will work with communities and customers to identify other ways to improve services and present these options to funders. We are developing plans that could help raise funding from new sources, focused on those that benefit directly from better transport connections. Emerging early stage ideas could total £1.6bn, building on the £1bn raised in CP5.

We will further improve project delivery efficiency by spending more time ensuring that the scope and specification of these are optimised for maximum economic benefit. We will encourage contestability in the delivery of projects and welcome challenge to our engineering standards.

But CP6 must mark a turning point for Britain's railway. We must adapt to the digital world using traffic management, driver advisory systems and digital train control. These technologies will allow us to run more trains, safer and more reliably. We will transform our supply chain relationships to better align incentives, enable development of automated modular designs and drive down cost, avoiding the need for costly infrastructure. Over 60 per cent of ageing signalling equipment must be renewed over the next 15 years, which can only be delivered affordably by cheaper solutions, which the digital railway will facilitate. CP6 will see the end of major analogue resignalling. Digital signalling is the future that this plan ushers in.

Great people, great teams

We aim to be one of Britain's best employers. We aspire to create an environment that will allow everybody to reach their full potential. We are leading the way in moving the rail industry to become more diverse and inclusive. But we are still at the foothills. By the end of CP6 we aim to increase the number of women in our business by 50 per cent. We also aim to be in the top 25 graduate employers and to have gender-balanced recruiting of apprentices and graduates.

A transformation in Network Rail

This plan is different in critical ways that give us the confidence to set out these ambitious goals. It is a plan built on the foundations of reform that we put in place in CP5. The plan is built 'bottom up' by local engineers who understand their assets. It is activity based and transparent. Delivery of efficiency and improvement targets is supported by clear action plans, which can be tracked and amended as events unfold.

Underpinning this plan is a fundamental change to the way Network Rail operates. It is now a federation of devolved businesses operating within a national framework. This creates the opportunity for close alignment with customers; track and train coming together in the interests of passengers. It creates the opportunity for local innovation and for competition between routes to drive new ways of working. It creates the opportunity for benchmarking and a spirit of healthy competition.

Each route had developed its own plan. They have engaged with customers, and wider stakeholders, to understand their priorities and to develop plans that, as far as possible, meet customers' expectations. They will continue to strengthen the depth and quality of engagement over the coming months, and throughout CP6.

Separate CP6 determinations for each route and the System Operator by ORR reinforce the importance of devolved businesses making decisions at a local level with scorecards at the heart of the regulatory framework.

The national framework ensures that we operate the network for the benefit of everyone. The System Operator will ensure optimum and fair use of the network for all users. It will coordinate industry improvement proposals and transparently and competently carry out economic analysis, subject to independent governance, thus providing all funders with the best possible information on which to make investment decisions. This is a fundamental change, with those closest to passengers as the guiding mind of the railway.

We must move faster to harness technology and our plan includes a step change in investment in research and development across a new network of universities and research associations. This supports the industrial strategy and is the foundation of the rail sector deal proposal.

Our Transformation Plan is aligned with the Government's strategic vision for rail which was published in November 2017, with track and train working together more effectively.

An ambitious plan

This is a radical plan, an ambitious plan. It is not without challenge and risk. But with great people, great teams, the right quality of leadership, the right incentives and the determination to see it through, it can deliver the better railway that a better Britain needs.



Mark Carne
Chief Executive

Economic benefits of the railway

The railway in Britain plays an essential role in supporting sustainable economic growth. It connects people with jobs, goods with markets, brings individuals, families and communities together and directly contributes to national employment. It is a growing industry, which offers not only prosperity and connectivity at home, but gives British businesses and technologies export opportunities overseas.

Improvements for passengers

In the last year of CP5, passengers will see unprecedented improvements because of significant investment from the public and private sectors into the railway. A number of major projects in our Railway Upgrade Plan will conclude in 2018/19, delivering real and tangible benefits for passengers.

We know that passengers want ticket prices that offer value for money with more seats and more frequent, reliable trains. RDG is driving initiatives that will reduce the cost of rail travel, including cheaper advance fares now being available on the day, more railcards going digital and the recently launched trial of a 26-30 Railcard. Network Rail is currently spending £130m every week improving Britain's railways; 97p in every £1 from ticket fares goes back into running and improving services.

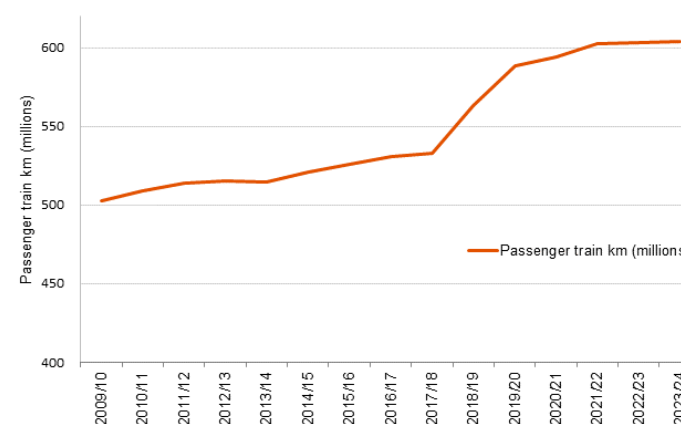
The improvements made to the network will allow train and freight operating companies to run more services, and longer trains with more seats. By 2021, train operators will have delivered 7,000 new carriages onto the railway network. The additional carriages will take the total number running on Britain's railway from an estimated 13,000 to 15,900 – an increase of 22 per cent. The new carriages will mean the retirement of some of the oldest trains on the network with rolling stock that has more seats, Wifi, power points, improved accessibility and air-conditioning. Pacer trains, dating back to the 1980s, operating in the north of England will be replaced with 281 new electric and diesel carriages.

As well as a smoother, quieter ride, technology on the new carriages will improve reliability by enabling potential faults to be detected and fixed more quickly. Some will include digital screens to give passengers real-time information on connecting services and seat availability.

Working in partnership, Network Rail and train operating companies have created significant new capacity on the network, with 6,400 new services running every week by 2021. This reflects the opening of Crossrail, the completion of the Thameslink and Great Western upgrades, and the associated train cascades to other parts of the country.

The major growth in passenger train services (measured in train km) is shown in the chart below. This will enable a significant increase in the number of passengers using the railway, helping to connect communities and boost local economies around the country. It can also affect train reliability, which is discussed on page 11.

Passenger train km growth 2009/10 – 2023/24



We also estimate that our forecast improvement in train performance will deliver around £0.4bn of annual economic benefit by the end of CP6. Better connectivity will connect more people to jobs.

Our station improvements programme is also delivering benefits for passengers. The industry will have delivered improvement works to 178 stations across the country by 2019. Major stations such as Kings Cross and Birmingham have delivered outstanding results for passengers and the communities around them, driving regeneration and increasing customer satisfaction scores. We have been listening to our passengers, and are making the use of toilet facilities free for all our Managed Stations. We will introduce water fountains to cut down on plastic and are rolling out free wifi.

Our investment in stations and our diverse, high-quality retail offer is directly linked to our retail performance and customer satisfaction, both of which are growing. Gone are the days when our stations were only used for catching a train, they are now also destinations of choice for shopping, dining and socialising. All profits from Network Rail retail activities are reinvested back in to the railway.

We are working in partnership with train operating companies to keep improving customer satisfaction, with the aim of remaining the top-rated major railway in Europe for passenger satisfaction. We will continue to review in detail the results of the twice yearly passenger satisfaction survey carried out by Transport Focus and results will be included in the route comparison scorecards. The scorecard will also include the passenger satisfaction score for our Managed Stations.

Jobs, skills and growth

The combination of public and private investment that is going into the railway will boost the UK's economy by almost £85bn². This investment means jobs, skills and growth. Improved journey times will drive up productivity. The UK rail industry directly employs 102,000 people, and supports a further 138,000 jobs. Network Rail employs around 38,000 people, and we have 4,000 companies through our supply chain, more than half of which are small to medium enterprises. 98 per cent of our supply chain spend is with British companies. We have also trained 2,000 apprentices over the last ten years. Our plan for CP6 will help deliver jobs, skills and growth right across the country.

Unlocking housing supply

In addition to jobs and growth, rail investment can drive re-generation and housing development. New links or stations can bring communities that have been traditionally cut off within easy reach of towns and cities. Network Rail is releasing land by 2020 so that 12,000 new homes across the UK can be built. In CP6, we will be actively working with developers to help free up more land, and develop a standard land value capture mechanism that will reinvest proceeds into the railway.

Supporting British technology and innovation

Many of the improvements that have been delivered on Britain's railway in

the last decade come from new technologies. Much of this technology has been borne out from collaboration and innovation across the rail industry, initially trialled in UK universities and Rail Innovation Development Centres, before being adopted more widely. We are looking to build our links with UK universities further during CP6. This helps support British knowledge and innovation, helping to create export opportunities, as we sell our technology overseas.

Environmental benefits

Modal shift of both passenger and freight traffic to rail has environmental and wider social benefits, reducing road congestion, CO₂ emissions and traffic accidents. Travel by rail is more environmentally efficient than travel by both road and air for passenger and freight journeys. As we further develop the network, we will support the use of the most appropriate train technologies and their impact on total carbon emissions, reflecting the age of power units on existing rolling stock.

Planning for population growth

Forecasts show that growth will be concentrated in urban centres in the coming years. We need to undertake upgrade works now to meet the needs of cities and their growing populations. The Department for Transport plans to regularly publish a 'pipeline' of railway enhancement projects, setting out where in the process each one is; commitment to develop, commitment to design, commitment to deliver.

DfT's recently published strategic vision for rail sets out the Government's plans for the next generation of rail schemes, which includes:

- Transpennine Route Upgrade – improved journey times between Manchester and Leeds
- High Speed 2 – Phase 1 of the new high speed network will open in 2026, with new high-speed trains running from London to Birmingham
- East West Rail Phase 2 (the western section) – re-establishing the rail link between Cambridge and Oxford to improve connections between East Anglia and central, southern and western England.

The Government is also working with Transport for the North on Northern Powerhouse Rail to improve frequencies and journey times between major cities in the North; and with Transport for London on Crossrail 2, to deliver increased capacity and reduced rail journey times between south west and north east London.

² [In partnership for Britain's Prosperity](#), RDG, October 2017

Network Rail's plan for CP6

Network Rail's four key responsibilities are to run a safe, reliable, efficient and growing railway. Each route, the System Operator and our national functions and services have developed plans for CP6 that drive improvement in each of these areas. The plan is based on the available funding and high level output requirements in the SOFAs and HLOSs for England & Wales and Scotland by DfT and Transport Scotland.

All routes accept that their plans must be developed within the funding available in the SOFAs. Within this plan each route continues to present its own arguments for further investment in improving their railway from the overall portfolio of SOFA funding. This reflects the healthy competition that is created by having separate CP6 determinations for each route.

Routes have engaged with customers to understand their priorities and to develop plans that, as far as possible, meet customers' expectations. Each route has included a section in its Route Strategic Plan to describe the engagement with its customers and to summarise the depth of their support for the plan. While there has been engagement with customers on their priorities, it has not been possible to reflect all customer aspirations in the route plans reflecting, for example, the significant differences between franchise assumptions and current levels of train performance.

Further details of how our CP6 plans have been developed are provided in the appendix. In particular, we set out the improvements that have been made to the business planning process and the role of ongoing customer engagement to inform the route plans.

While this plan focuses on CP6, many of Network Rail's assets have lives of several decades. It is therefore critical that this plan is considered in a long term context. Successful delivery of our Transformation Programme will depend on a period of stability after we have delivered the significant changes that will enable the devolved routes and System Operator to work effectively. Organisational stability will help routes to continue driving efficient delivery over the next ten years and beyond, while further changes are likely to reduce the scale of improvement.

We have summarised below the planned improvements at network level

for the four key responsibilities. Further detail is included in the routes' and other national functions' plans. The Scotland Route Strategic Plan includes details of our response to the detailed requirements of the Scotland HLOS.

It will be critical that we make a good start to CP6, based on a plan that we can deliver. This will depend on close working between track and train, with collaborative working to deliver train performance forecasts and with our supply chain to deliver a significant increase in renewal volumes, supported by engineering access agreed with train operators.

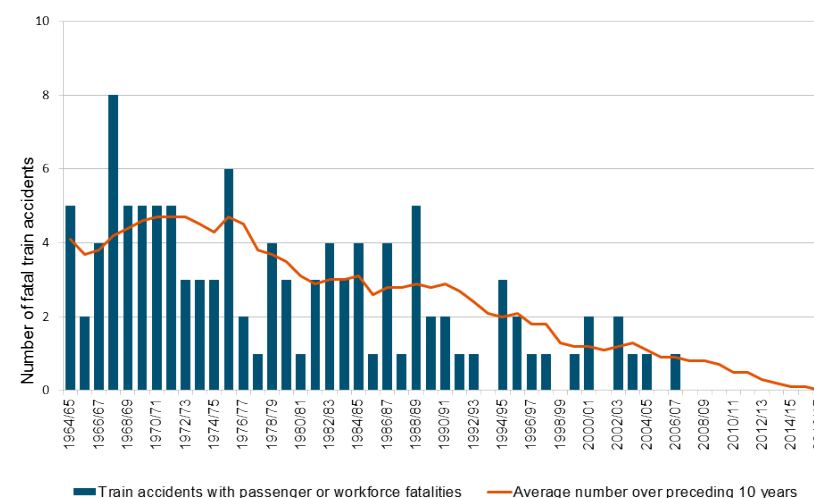
Safe

Keeping people safe on the railway has to be at the heart of everything Network Rail does – we want everyone home safe, every day. As well as being a moral responsibility, we believe that improved safety and improved business performance go hand in hand.

Passenger safety

Over the last 50 years, there has been a dramatic improvement in the safety of the railway which is illustrated by the reduction in train accidents that have resulted in passenger or workforce fatalities.

Fifty-year trend in train accidents with passenger or workforce fatalities

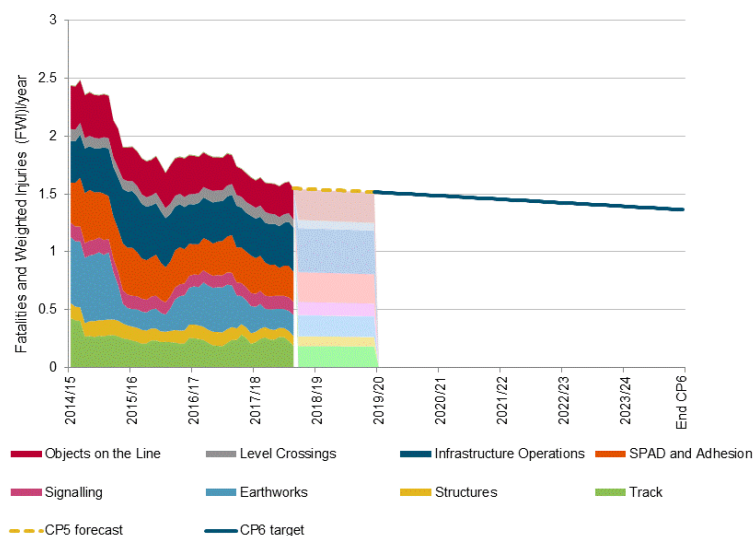


By the end of CP5 we expect to deliver a reduction in train accident risk of 38 per cent. In CP6 we are striving to reduce train accident risk by a further 10 per cent. This will primarily be achieved through better inspection techniques, better asset management, and improved operations and ALARP based risk management. Key initiatives to drive down train accident risk during CP6 include:

- Implementation of the drainage policy across all routes
- Realising the benefits of the routes' plans for managing adverse weather conditions.
- Greater awareness of risk due to changes in land use by third parties.

We will continue to work with operators to implement the cross-industry signal passed at danger (SPAD) risk reduction strategy.

CP6 Train Accident Risk Reduction



Public safety

With 20,000 miles of railway, much through populated areas, we face a constant challenge to deter trespass through physical barriers, patrols and education. The number of trespass events has risen by more than 30 per cent since the start of CP5, with a related increase in fatalities. As well as

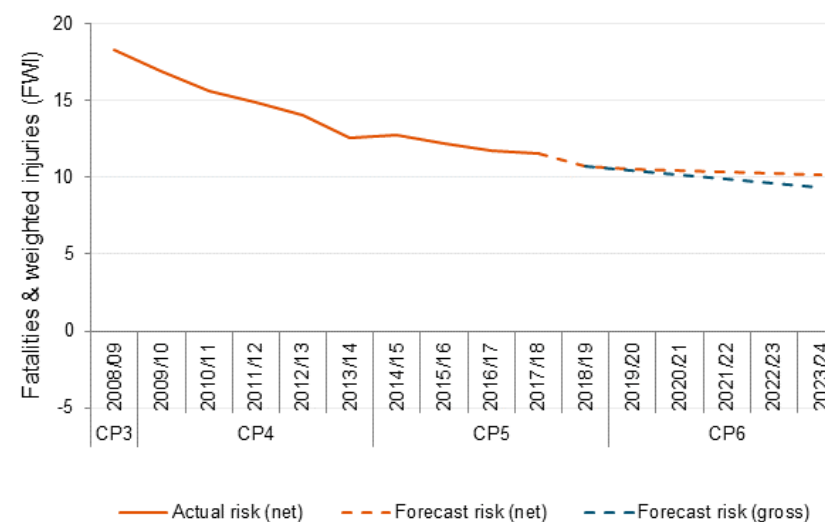
the human tragedy, trespass leads to significant delays to passengers. Working with industry partners we will continue to educate young people and target investment at trespass hotspots.

We are also managing a very successful industry-wide programme, working collaboratively with external partners, aiming to reduce the number of people that take their own life on the railway. With campaigns like #smalltalksaveslives we have reduced the number of suicides by 14 per cent over CP5. The CP6 programme for suicide prevention will include interventions, fencing and patrols in areas with most incidents.

Level crossings safety

We have one of the best level crossing safety records in Europe. But sadly, there are a number of deaths and many near misses each year. Over the last ten years, we have had a major focus on reducing the risk to the public resulting from level crossings. Since the start of CP4, Network Rail has reduced level crossing risk by 37 per cent. We have developed new solutions which are now successfully driving down the cost of risk reduction, giving improved value for money.

CP6 level crossing risk reduction

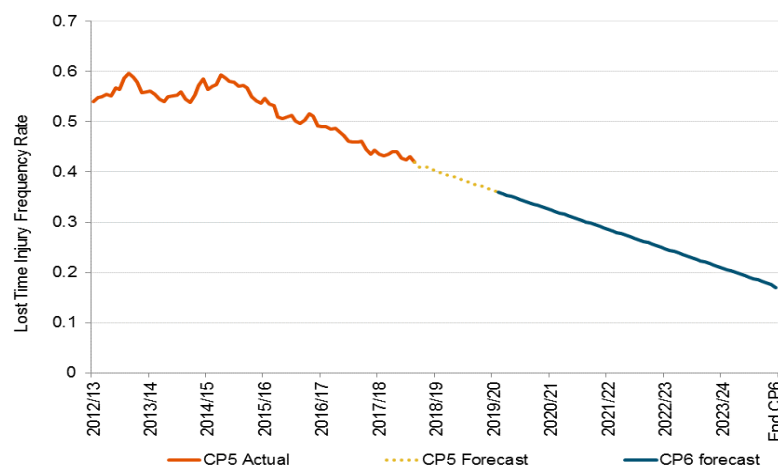


Routes will continue to invest in improving the safety of level crossings. In CP6 we aim to reduce gross level crossing risk by a further 13 per cent, recognising that there is no specific level crossings fund available for CP6. Taking into account the significant increase in traffic, faster trains, societal growth and more information about the use of level crossings, the net reduction is forecast to be five per cent. This will be achieved through targeting higher risk user-worked and footpath crossings, automatic half barrier road crossings, open crossings and some bridges and diversions to enable closure, with each decision being tested using ALARP principles.

Workforce health and safety

Protecting the people who work for Network Rail is at the heart of our vision for 'Everyone Home Safe Everyday' and 'Everyone Fit for the Future'. Improved working practices, culture and technical solutions will help us achieve our vision.

CP6 reduction in Lost Time Injury Frequency Rate



In CP5 we adopted the Lost Time Injury Frequency Rate (LTIFR) measure to help benchmark with the best industries. We have seen a significant improvement and are forecasting a 37 per cent reduction by the end of CP5. But there is much more to do if we are to match the safest industries.

We will continue that progress in CP6 through our Home Safe Plan. We

are setting ourselves the ambitious target to halve LTIFR in CP6. We will focus on reducing injuries, ill-health and near misses, especially through:

- Radically reducing manual handling risk through lighter equipment and innovation to avoid manual handling where possible
- Improved control of working hours to reduce fatigue risk
- Safer Trackside Working, deploying technology and reducing dependence on lookouts
- Behavioural safety training for worksite leaders
- Focussing our efforts on the management of hand arm vibration, respiratory hazards and mental wellbeing.

Mental health continues to be the second highest reason for sickness absence in Network Rail. In CP5, as part of the Home Safe Plan, we commenced a mental health and resilience project. This will continue into CP6 and is designed to achieve a supportive culture of wellbeing, with the long term aim of reducing mental health related sickness absence.

We will firmly tackle mental health, with a target to reduce by 30 per cent the number of people impacted by this issue. We will improve the occupational health management of our work force by effectively mitigating, monitoring and diagnosing occupational health conditions. Our aim is to be proactive in supporting improved health awareness by changing behaviours that influence long term health.

Physical and cyber security

We must focus on the increasing security risks, in cyberspace and in the physical world. We have made great progress in cyber security, aligning to the 'National Cyber Security Centre 10 Steps'. However, threats to the railway are increasing; trespass, theft, vandalism and cyber attacks are a daily challenge impacting operations and costs. Working with our industry partners including BTP, we will improve our security measures which will include the introduction of a formal security management system.

Environmental performance

We must play our part in delivering the UK's carbon emission reduction targets by implementing energy efficiency measures and operating good practice energy management standards. Our aspiration is to reduce non-traction energy consumption by 18 per cent and carbon emissions by 25 per cent during CP6. Our continuous improvement programme includes

use of LED lighting and building optimisation with longer term initiatives to develop renewable generation and energy storage.

Our Responsible Railway Plan sets the framework for improving sustainable business performance, delivering social value and maximising opportunities for socio-economic growth. Our programmes to protect the natural environment focus on having a net-positive impact on biodiversity and reducing waste sent to landfill to near zero. Our management of vegetation alongside the railway has the potential to support a wide range of habitats. We are also exploring alternatives to removing trees, such as pollarding. These approaches both support biodiversity and the safe, efficient running of the railway.

We are also adapting the railway for improved resilience with development of long term weather resilience and climate change adaptation strategies by each route.

Further information on safety can be found in sections 4.1 and 8 of the Route Strategic Plans.

Reliable

We know that passengers want a reliable railway, with trains that run on time and more frequent services.

More passengers are getting on trains and arriving on time at their destination than at any time in the history of the railways. But train punctuality is not where we want it to be. We have by far the most heavily congested railway in Europe. A single problem at one place during the rush hour can have a knock on effect to services hundreds of miles away, many hours later. The reliability of infrastructure is the best it has even been, but the delay from each incident is increasing; 70 per cent of delays are now from knock-on effects rather than a primary cause. Growth in passenger numbers also results in extended station dwell times which can impact train performance on an already heavily utilised network.

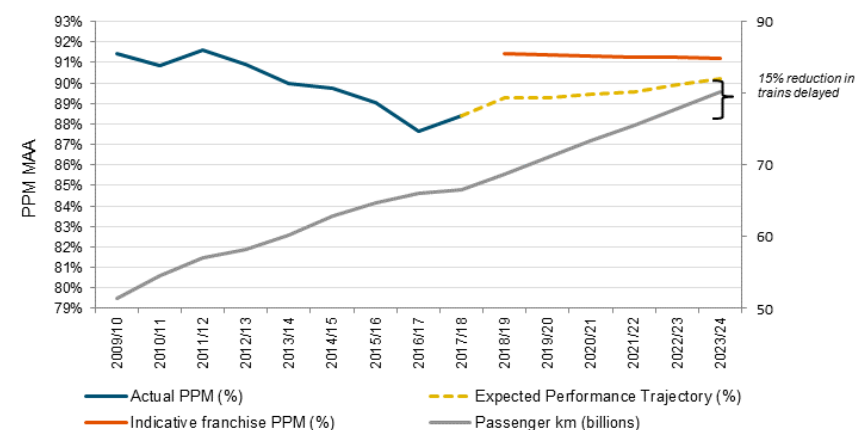
We will continue to focus on maintaining the good levels of freight train performance that we have achieved during CP5. We are developing an action plan to address the 42 factors that underpin faster freight services.

Train performance

Over the last five years, with the growing number of people using the

railway, more passengers are arriving on time. However, there has been a reduction in the number of trains arriving on time (measured using PPM). We have now started to reverse that decline and are forecasting that we will achieve a 15 per cent reduction in the number of trains that are delayed compared to current performance levels. To achieve our forecasts, the level of delay must improve by seven per cent by the end of CP5. A further improvement of eight per cent is forecast during CP6 which reflects pressure on train performance including the impact of growth in train services (particularly reflecting Crossrail and Thameslink).

National PPM forecast for CP6



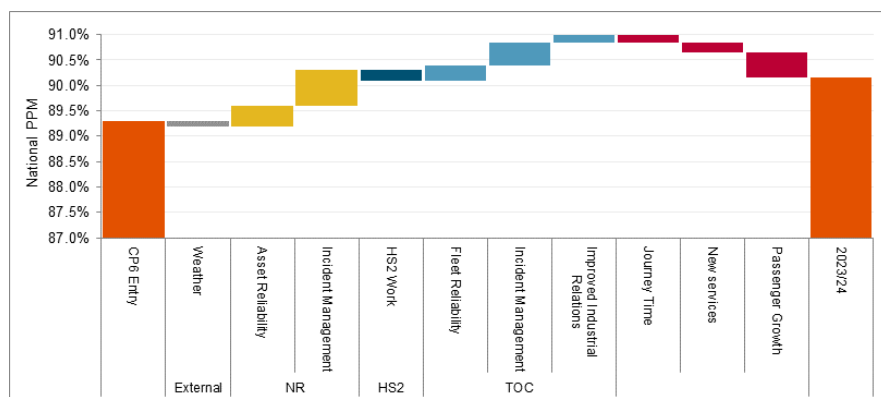
Each route has identified the key areas on which it will focus to deliver the planned improvement in train performance. The waterfall diagram below shows at a national level the scale of changes forecast for each cause of delay. The forecast is dependent on improvement in asset reliability and effective operations by both Network Rail and train operators.

The diagram shows the impact of the continued growth in passenger numbers as well as the assumption that the impact of external events (e.g. extreme weather) will be no worse than CP5. The annual trajectory in the CP6 plan, particularly the initial years, is dependent on achieving 89.3 per cent PPM by the end of CP5. Successful introduction of major new timetables, such as Thameslink from May 2018, will be critical.

Different routes face different challenges when it comes to train

performance, so there is no one-size-fits-all approach. Instead, measures will be tailored at the local level, to best reflect the circumstances in that particular area. Routes have engaged with customers to develop train performance forecasts. Every route is putting in place a joint performance plan with its train and freight operating companies.

Scale of PPM change in CP6 for each cause of delay



With 70 per cent of all delay being 'reactionary', we are currently focused on reducing the delay per incident in CP5, and our strategies will continue into CP6. Improvements include creation of incident management teams so that we better respond to incidents, improving our use of Intelligent Infrastructure capability and promoting a strong culture of 'every second counts'. Our focus on delay per incident has already delivered a reduction of 450,000 delay minutes (around five per cent) this year and an improvement of around £40m in Schedule 8 payments to TOCs.

We have also introduced a measure on route scorecards which reports the Network Rail caused delay minutes per 100 train kms. We are forecasting an improvement of seven per cent in Network Rail delay by the end of CP6 compared to 2017/18.

Network Rail and train operators have improved information to passengers when they face delays, for example through phone apps and social media updates. The deployment of traffic management as part of the digital railway offers further opportunities to improve information to passengers.

Train performance targets and measurement

We will also revolutionise the way we measure train punctuality. The industry has agreed that it will start to measure train performance on an 'on time' basis at all stations. This will set us apart as the most demanding and transparent rail network in Europe.

We have not yet been able to include on time measures in each route's scorecard as most franchises include PPM as a key measure. However, we intend to work with the industry to migrate scorecards to on time metrics as new franchises are put in place.

On time reporting will result in headline performance figures that are significantly lower than those reported under PPM. However, this will better enable us to run trains to the minute, constantly striving to reach optimal operational reliability with our train operating partners.

During CP5, Network Rail and train operators have had different targets for train performance. As we have prepared our CP6 plans, it has become increasingly clear that it will be very difficult to create aligned targets given the levels of train performance assumed in some franchises. The franchise competition programme is a great opportunity to bring track and train closer together for the benefit of passengers. Significant improvement in alignment can be achieved by the end of CP6 as franchises that will be let between now and the end of CP6 cover nearly 50 per cent of passenger journeys on the network. However, it will take time to achieve full alignment as existing franchises that last beyond the end of CP6 cover more than 50 per cent of passenger journeys.

DfT has agreed that Network Rail will take a larger role in the pre-submission phase of franchise competitions. In 2017 we started a new way of working with DfT which includes embedding our people into DfT's franchise competition teams. The System Operator will strengthen this further by building a dedicated team of franchise professionals. It will support DfT and other franchising authorities to ensure that franchise specifications are consistent with Network Rail's plan, deliverable, improve safety and drive innovation through the Digital Railway. It will also ensure they make best use of available capacity, provide reliable timetables and maximise joint working between train operators and Network Rail for the benefit of passengers and taxpayers.

Asset reliability

A critical factor underpinning train performance is the reliability of our assets. By the end of CP5, we are forecasting to have reduced the number of service affecting asset failures by 16 per cent. This substantial improvement reflects the benefits of devolution with local teams having a better understanding of their assets, enabling better targeting of maintenance and renewals, and of continued deployment of intelligent infrastructure.

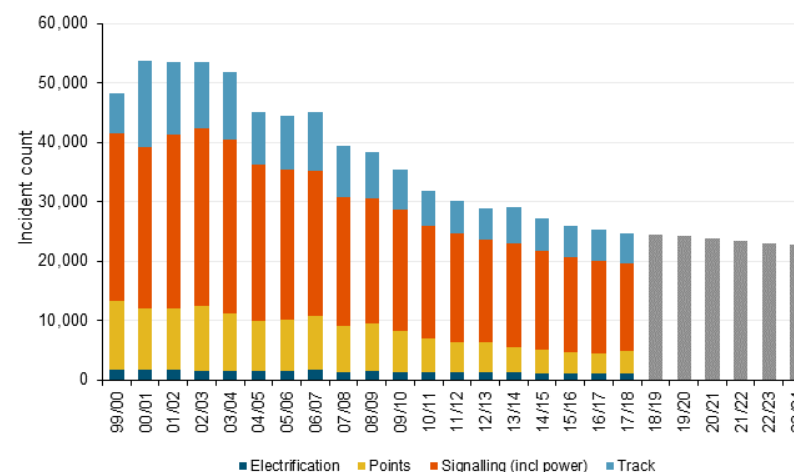
We are unquestionably world leaders in the way we use train-borne inspection devices to monitor the condition of track and our ORBIS programme has transformed how we turn vast amounts of data into insight to optimise asset management decision making.

We are moving to risk-based maintenance, using reliability centred maintenance techniques to create revised maintenance regimes, which manage assets proactively to prevent failure. Today over 60,000 assets are now monitored which is driving real improvements. For example, points failure rates have halved over the last seven years. More can be done, drawing on the experience of other industries which have developed sensing technology. As a result, we are currently trialling or deploying a number of areas of improvement, for example:

- Increased use of drones for lineside infrastructure LiDAR scanning and surveys in areas with access constraints
- In-service passenger train overhead line equipment
- Track geometry monitoring and advanced data analytics.

Routes are forecasting further improvements of seven per cent during CP6 which will be achieved through continuous improvement and our Intelligent Infrastructure programme. This could be increased further as we invest the £2.6bn Group Portfolio Fund, which is described further on page 15.

Asset reliability – Service Affecting Failures 1999/2000-2023/24

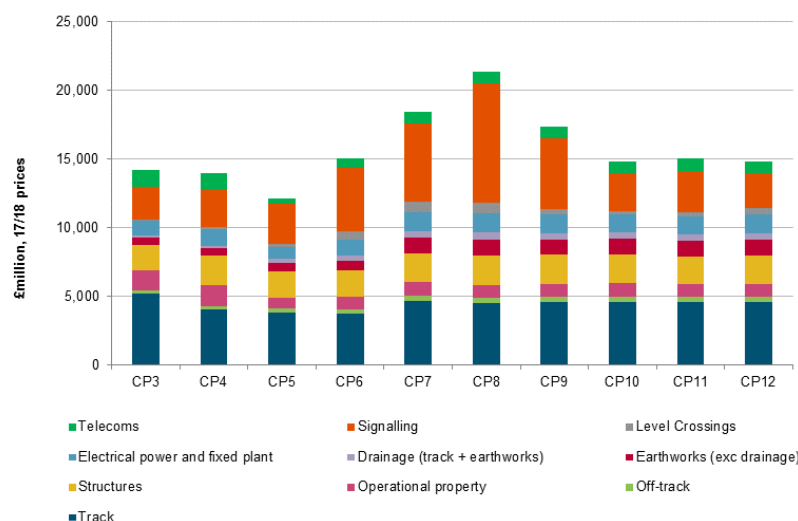


Asset sustainability

Our overall approach for the sustainable management of our operational infrastructure is to assess potential future changes in asset remaining life and the required maintenance and renewal activity levels needed for the required asset performance in the short, medium and longer term.

This allows us to demonstrate whether our proposed activity levels support whole life stewardship by avoiding an undue future cost spike. Our current long term projections are shown in the graph below.

The projections have been prepared on the basis of CP6 cost levels continuing into future control periods. They show increasing expenditure in CP7 and CP8, with the most significant increase being in signalling renewals. The projections reflect conventional signalling renewals as we do not yet have a long term model that reflects the development of the digital railway. However, we expect digital signalling to facilitate cheaper solutions in future as a result of successful investment in technology and the digital railway. This should result in lower, more efficient costs in future control periods. If we achieve a further efficiency savings of nine per cent in CP7, renewals expenditure would be similar to CP6 levels in CP7 (our current forecasts indicate around 10 per cent higher).

Long-term expenditure projections by asset to CP12**Technology**

We are committed to transforming the railway's use of technology to reap the benefits from the emerging trends in automation, intelligent mobility, and mobility as a service. Similar technology driven sectors spend around six per cent of turnover on R&D. It is less than one per cent in the rail industry.

We will align our internal research and development activity with the delivery of the industry's technology development plan. We are forecasting to spend £440m, which will then be matched by third party funding. The programme will leverage recent industry achievements such as the creation of the UK Rail Research and Innovation Network and our founding membership of the European Shift2Rail technology development programme. Success will depend on new collaborative working practices, technology transfer and learning from adjacent sectors such as the aerospace and automotive industries. The results will feed into major industry programmes such as Intelligent Infrastructure and Digital Railway as well as the industry's planning process. These will be through a suite of

whole-system technology demonstrators, which will be deployed in the operational railway to deliver benefit in CP6, as well as a pipeline of technologies to benefit CP7 and beyond.

Potential universities to support research programme

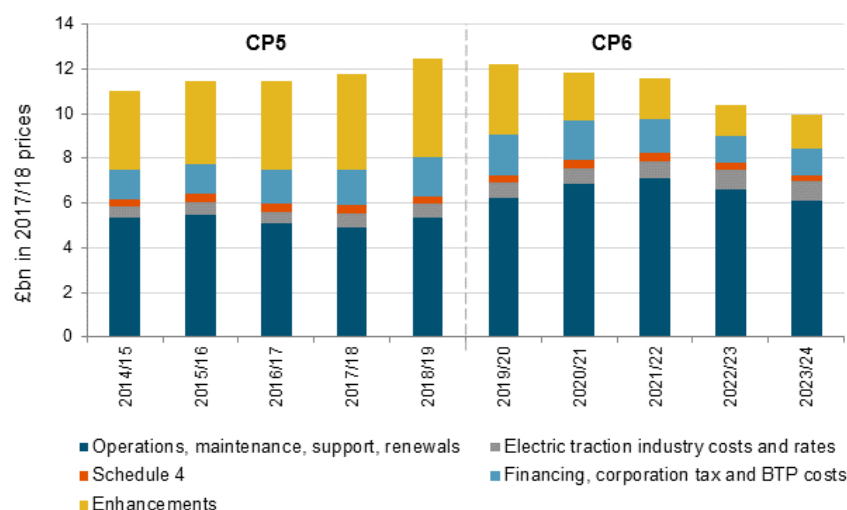
Further information on reliability can be found in sections 4.2 and 5 of the Route Strategic Plans.

Efficient

The total expenditure in our CP6 plan is summarised in the chart below. Our plan includes an increase of 25 per cent in operations, maintenance, support and renewals costs compared to CP5, which reflects activity levels that are needed to sustainably manage the infrastructure for the long term as well as continuing to improve the reliability of our assets in the shorter term. The most significant increase in expenditure is infrastructure maintenance and renewals carried out by the routes. Funding of enhancements will be separately funded on a case-by-case basis rather than as part of the CP6 settlement.

A summary of England & Wales and Scotland expenditure (and sources of CP6 funding) is provided in the appendix.

Great Britain CP5 and CP6 expenditure



Beyond the route plans, there are significant investments in CP6 for some national functions including research, development and technology (£0.44bn) to enable better outputs and a reduced cost base over the longer term, investment in the commercial property estate to support income growth (£0.3bn), telecoms (£1bn) as many assets are operating beyond their design life and there is increasing demand for improved

communications, and the System Operator to strengthen timetabling and long term planning as well as new system capabilities.

Potential further investment

Our plan includes a Group Portfolio Fund of £2.6bn which we have held back to provide for risks that could materialise during CP6. Part of this expenditure has already been allocated to routes.

Excluding the Group Portfolio Fund, the routes' assessment of the probability of delivering their plans is between P45 and P55. There is therefore a risk of around 50 per cent that they will spend more than their plans. We do not want to be in a position where we have to replan every time a risk materialises as this would be very inefficient. Including the Group Portfolio Fund, the probability of delivery increases to P80.

Ideally, actual results will be in line with the CP6 Plan and we will be able to gradually release the Group Portfolio Fund to invest it in improving the railway. This approach should increase confidence in the stability of the base funding in route plans. As we increase confidence in delivering the plan, it will be released to routes, which continue to develop further investment options. Its release will depend on successful delivery of routes' plans and robust business cases, which will help maintain healthy competition between routes.

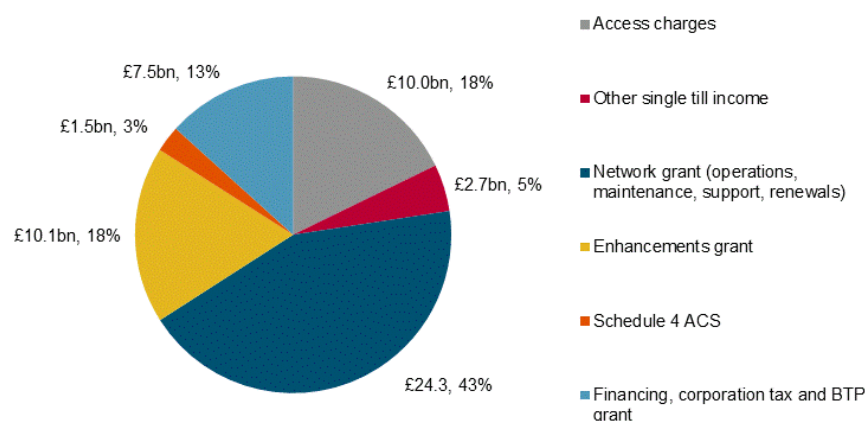
Investment of the Group Portfolio Fund is likely to be towards the later years of CP6, which will smooth the profile of renewals expenditure over the control period as a whole.

Sources of funding

The SOFAs stated that we will not borrow to finance our activities in CP6. Our expenditure will therefore be funded by government grants, access charges and other sources such as property income.

The funding for financing and corporation tax costs (and British Transport Police in England & Wales) has not been included in the SoFAs for CP6 and will be funded separately through direct grants. Enhancement funding for England & Wales will be formally agreed with DfT and managed through the Joint Portfolio Board. We expect a similar 'pipeline' process to be developed in Scotland.

Great Britain CP6 sources of funding



Efficiency and headwinds

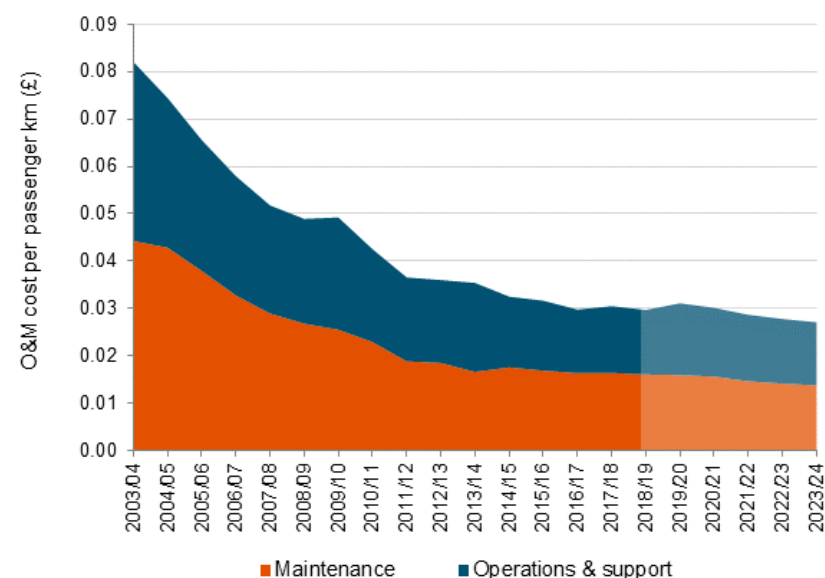
We must deliver efficiently to drive down costs. In this plan, across our overall operations, maintenance and renewals, we will achieve a further 10 per cent improvement in real terms efficiency. This is offset by headwinds (or cost pressures) of two per cent. Significant improvements in our business planning at a route will drive more efficient delivery in CP6. Efficiency savings will also be achieved through smarter working, more efficient use of the railway and better technology.

Successful delivery of these efficiency savings is critical to our success. But the scale of savings also represents a major challenge when combined with the need to deliver an increased volume of renewals, the planned improvements in asset reliability and train performance and the emerging enhancement programme. It is important that the plan has the right balance between being challenging and being achievable. The improvements in business planning, with a more continuous process and ownership at route level, have increased our confidence that this plan has the right balance.

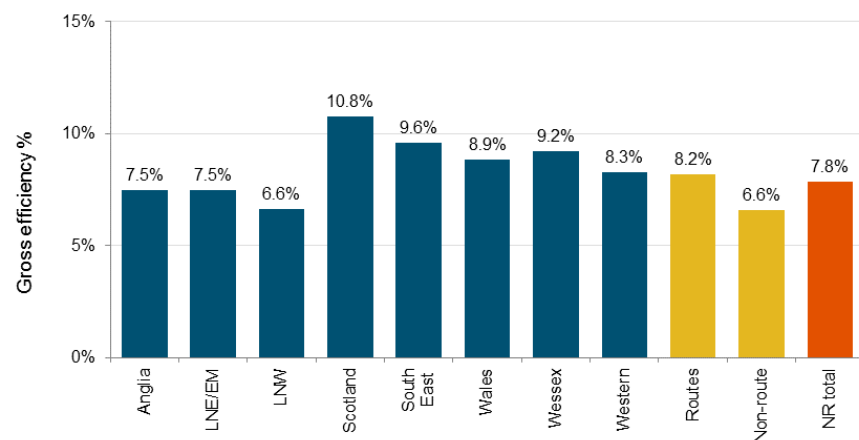
Operations and maintenance efficiency

Over CP4 and CP5 we have reduced the operating and maintenance cost per passenger km by around 40 per cent. We are forecasting that the cost per passenger km of running the railway will reduce by nine per cent in real terms in CP6.

Operating cost per passenger



This includes a significant increase in maintenance to manage a larger, more complex railway and to improve the resilience of the railway, which was reflected in the SOFAs. We are then forecasting overall efficiency savings in operating costs of £830m over the whole of CP6. This is partly offset by external cost pressures (or 'headwinds'). By the end of CP6, the efficiency savings will represent a reduction of eight per cent in operating costs, or five per cent after taking into account headwinds.

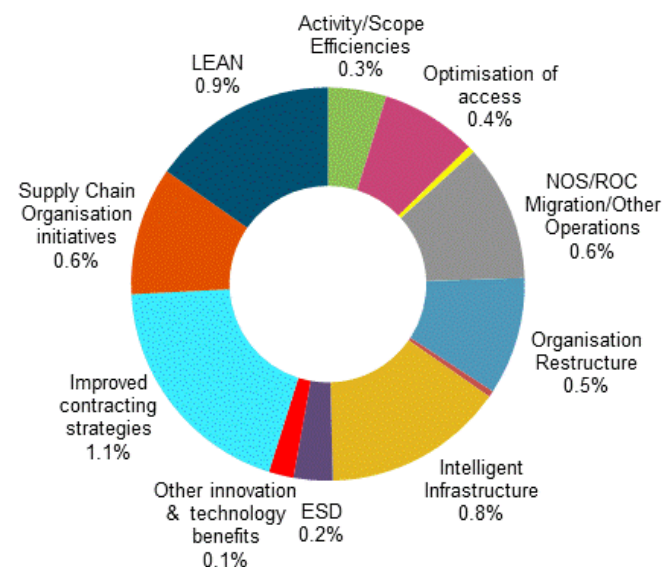
CP5 exit to CP6 exit gross efficiency – operating costs

Key initiatives to realise these savings include:

- Use of Intelligent Infrastructure which will deliver operating cost savings of £118m in CP6. This will markedly reduce the requirement for our people to carry out routine inspection on track with improved information so interventions are focused and timely
- Application of our LEAN programme, Better Every Day, which will deliver savings of £125m, building on the savings of around £50m in CP5. We are training 50 per cent of our people in LEAN improvement techniques to deliver many hundreds of small route based projects
- The national operating strategy which is forecast to deliver savings of £89m. The strategy will reduce the number of signalling locations and migrate signalling into large centres known as ROCs (Route Operating Centres). This allows for a reduction in the overall number of people required to manage the flow of traffic with consolidation into a single location.

Routes will also deliver savings through improved working with our supply chain, for example by better structuring work packages, increased delivery flexibility and opportunities for innovation.

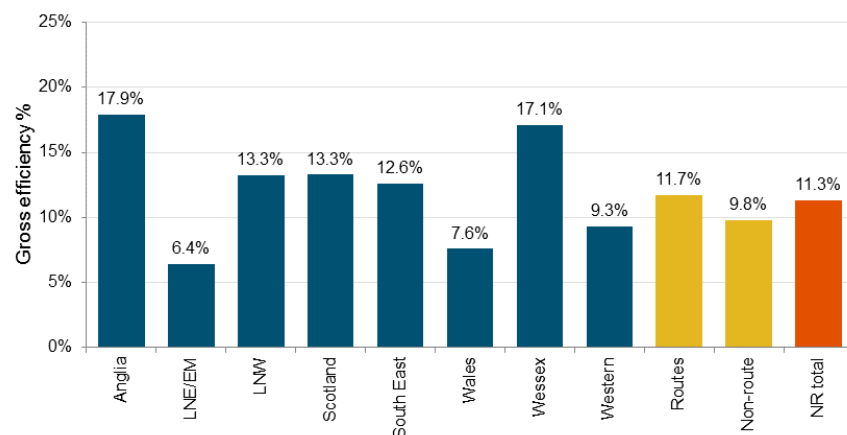
The overall sources of efficiency savings are summarised below.

Summary of operating costs efficiency savings (%)**Renewals efficiency**

We are forecasting to make overall efficiency savings in renewal costs of £1.9bn over the whole of CP6. This is partly offset by external cost pressures (or 'headwinds'). By the end of CP6, the efficiency savings will represent a reduction of more than 11 per cent in renewal costs, or nine per cent after taking into account headwinds.

Key initiatives to realise these savings include:

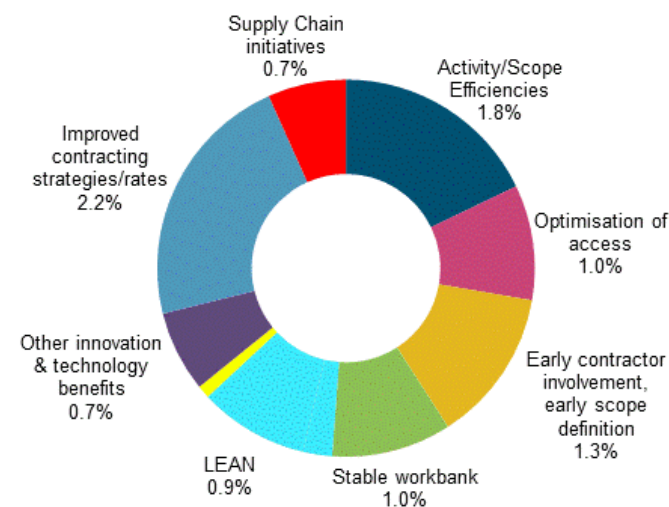
- Improved contracting strategies which are forecast to deliver savings of £426m, with improvements in our internal commerciality and the contracts we have in place with our supply chain
- Improved workbank stability which will deliver savings of £197m. Our strategies to achieve this include improvements in management and review structure to enable early intervention if projects deviate from plan. We will work with the supply chain to create packages of work which we expect to reduce the extent of change
- Forecast savings of £190m from optimisation of engineering access.

CP5 exit to CP6 exit gross efficiency – renewals costs

Sufficient engineering access, and good use of that access, is critical to efficient delivery of our plans. In addition to the joint access plans that many routes have with train and freight operating companies, we are implementing other practical strategies. These include safer / faster isolations, right time starts, joint use of possession and integrated access planning teams.

All routes also have a number of initiatives to make more productive use of engineering access, including greater use of longer midweek night possessions, identifying regular access opportunities in key locations and better packaging of work to allow more work to be done within a possession.

The overall sources of renewals efficiency savings are summarised below.

Summary of renewals costs efficiency savings (%)**National functions efficiency**

We are also delivering efficiency savings in our national functions of seven per cent for operating costs and 10 per cent for renewals. The level of planned savings in CP6 partly reflects the higher savings they have achieved in CP5 compared to routes. Examples of savings include the plans of Route Services to deliver:

- IT transformation savings of £45m through a new procurement framework and transformation of how IT infrastructure is hosted
- Savings in Business Services of £39m with commercialisation of Network Rail Training
- Savings of £163m in Supply Chain Operations which includes identifying synergies across the supply chain and optimisation of High Output maintenance and operations.

Following external benchmarking, we are increasing the number of procurement specialists, which will increase costs in Route Services but will enable us to deliver much larger savings throughout the business, including in routes.

We have commissioned consultants to carry out an independent review of capital projects delivery to improve our operating model so that we deliver effectively and efficiently. This includes assessing how Infrastructure Projects (IP) is organised and its operating effectiveness and capability.

Importance of the supply chain

Network Rail is the UK's largest infrastructure client. We generated £22bn of work for the supply chain over the first three years of CP5, with 99 per cent of this work going to UK based companies. Stable and consistent activity levels are critical for efficient delivery by the supply chain. We must avoid the huge variation that we have previously had for some activities so that we can better support the supply chain in delivering the country's major programme of infrastructure investment.

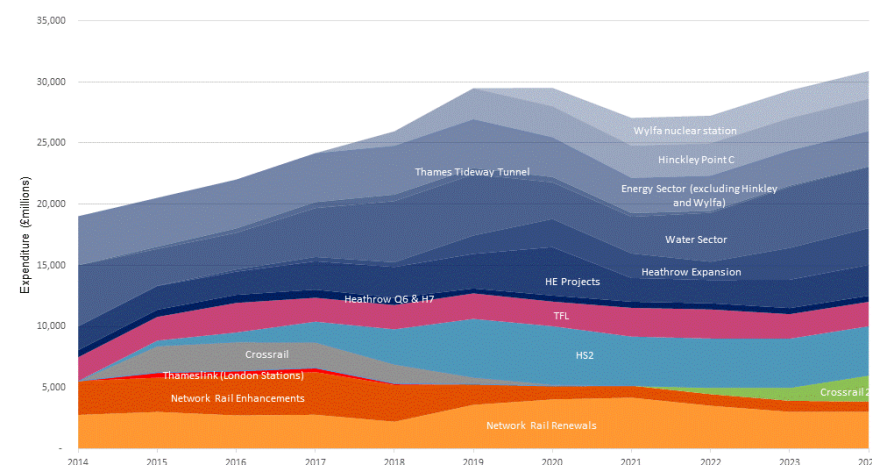
We want to be an industry client of choice. We will regularly publish an integrated, coordinated CP6 procurement pipeline. Early supplier and stakeholder engagement is a key success factor for complex programmes with multiple stakeholders. We will make further use of alliances to support this in CP6.

We will continue to drive change through collaboration, cross industry engagement and improved communication of our expectations for behaviours, competence and performance, using national performance metrics and efficiency targets. We will reinforce standard approaches to improve cost control and benchmarking, and build a culture of commercial accountability for what rail works 'should, will, did cost and why'.

Our approach to engaging with the signalling supply chain for digital and conventional signalling portfolios will be coordinated and efficient. We are encouraging new entrants and setting higher commercial and delivery expectations whilst driving structured continuous improvement. Renewals works will be delivered through new regional framework arrangements with greater use of market testing to ensure value for money. These will be more closely aligned with the routes to ensure access planning assumptions are fully incorporated to support efficiencies.

Further information on efficiency can be found in sections 5 and 7 of the Route Strategic Plans.

UK infrastructure spend profile



Source: Network Rail analysis

Growing

The doubling of passengers in just twenty years is putting a strain on our railway. The most cost effective way of increasing capacity is using longer trains. Where this isn't possible, infrastructure based projects are required, but these are expensive and disruptive to existing passengers. In future we will improve capital project efficiency by spending more time ensuring that the scope and specification are optimised for maximum economic benefit. We will obtain funding from new sources, focused on those that benefit directly from better transport connections, building on the £1bn forecast to be raised in CP5. The level of funding that can be raised in CP6 is likely to depend on the level of commitment by government to new enhancement schemes as this could enable us to leverage further third party investment. But CP6 must mark a turning point for Britain's railway. CP6 will see the end of major analogue resignalling – digital signalling is the future that this plan ushers in.

Enhancements

We have radically changed our approach to planning enhancements in recent years. In CP6, enhancements will be considered on a case by case basis rather than in one five year budget. This pipeline approach will be supported by business cases to confirm the strategic fit, value for money, affordability and deliverability of proposals. We have agreed a framework with DfT for new enhancements projects in CP6. We advocate a similar process with Transport Scotland and other funders.

The System Operator function already plays an important role in ensuring 'joined up' planning across the rail network. The industry, through RDG, now agrees that the System Operator should coordinate input from across the whole industry to provide much broader economic analysis to support decisions in the railway and within the wider transport sector, so that railways can be seen as a part of an overall transport solution that supports the wider economy.

The System Operator will be a source of transparent, high quality industry-based economic analysis for Government and potential investors, and help underpin improved decision-making about the future of the railway. It will provide funders with advice on the best ways to deliver economic benefits from the railways. The decisions over which options are selected for development remain with public and private funders.

In October 2017, DfT confirmed in its CP6 SOFA that there will be funding to take forward the England & Wales enhancements that were deferred from CP5. We will work with DfT to develop proposals through the pipeline process and only commit to schemes once they are suitably developed and funding is agreed with DfT. In this plan, we have only assumed delivery of those CP6 schemes for which delivery funding has already been agreed with DfT. No impacts or benefits have been assumed for CP6 schemes that do not have confirmed funding.

Funding was also made available for the early-stage development of new enhancement schemes, together with funding for further accessibility improvements and the strategic rail freight network. Candidate schemes will include those focused on the most pressing capacity challenges on the network. Delivery of these will depend on the availability of funding from government and other sources.

We will work with DfT to identify the priorities for development.

For England & Wales, little development of new proposals has been carried out in the last few years as the industry has focused on the schemes included in the CP5 determination. While development funding has been included in the SOFA, this funding will not be available until the start of CP6.

As a result, while we will deliver schemes deferred from CP5, there will be few new enhancements that can be considered for funding in the early years of CP6.

The potential pipeline for development and delivery of enhancement schemes in England & Wales will be set out in a plan for rail investments to be published by DfT in due course. The potential schemes for development in CP6 reflect some of the most pressing issues for the railway for which delivery funding is not yet available.

In addition to enhancements being progressed through the funding provided in the SoFA, further enhancements could be delivered through funding provided directly or indirectly by government and third-party funders. This includes potential funding for major programmes of work in Scotland, for HS2 integration to the existing network, and for development of programmes such as Northern Powerhouse Rail and Crossrail 2.

Our plan includes investment in the improvement of station retail facilities so that we can continue to grow our property income. We are targeting a 10 per cent return on investment which we also expect to improve passenger satisfaction as well as encouraging wider benefits around stations. We continue to develop proposals for redevelopment of stations such as Euston, Victoria, Crewe and Clapham Junction. Specific proposals for the redevelopments are not included in this plan and they will require separate government or third party funding to progress.

HS2 will transform rail connectivity in Britain and provide the step-change in capacity we need to deliver major improvements on existing lines. Phase 1 of the new high speed network will open in 2026, with new high-speed trains running from London Euston to Old Oak Common in West London, through to Birmingham Interchange and a new Birmingham terminal. Trains will also connect onto the existing rail network, running direct services to major cities and towns in the Midlands, North and Scotland.

We are working collaboratively with High Speed 2 Limited and the industry

towards the seamless introduction of High Speed services onto the existing rail network. This includes leading the industry process of developing a major recast of the West Coast Main Line timetable to maximise the benefits of capacity released by the new High Speed line. Alongside this, we will need to agree funding from HS2 Limited for defined programmes of system capability enhancements to successfully introduce the new High Speed trains on to the existing railway, and deliver the journey times, capacity and connections to strengthen and spread the benefits of High Speed 2.

Transport Scotland is developing its future investment strategy for rail and we expect this to be published in the coming weeks.

As future decisions are made about the development and delivery of enhancements, we will need to understand impacts on, and agree any changes to, the rest of our plan. This includes our ability to deliver work at a local level (including the availability of engineering access) and the adequacy of resources in the supply chain. We may need to ‘smooth’ activity in our plan in light of both internal and supply chain resources. This highlights the need for suitable flexibility in the annual budgets that we agree with DfT.

Digital Railway strategy

The introduction of modern technology in CP6 will mark a turning point in the way the network operates.

Today’s railway faces three major challenges:

- A capacity crunch caused by a doubling of passenger numbers since the 1990s that means the network is full in many important places
- A failure to embrace digital technology resulting in an over reliance on manual processes that are still controlled by a 19th century system of trackside coloured lights and signal boxes
- A continued rise in the costs of renewing outdated conventional signalling which have become unsustainable – a major problem given that almost two-thirds of the rail network’s signalling system needs to be replaced in the next 15 years.

The Digital Railway Programme is the rail industry’s solution to tackle these fundamental problems and will transform the rail network for passengers, business and freight users by deploying modern signalling

and train control technology. To achieve this, the Digital Railway Programme is working across the railway industry with the Government, Rail Delivery Group and the Rail Supply Group. The focus for CP6 will be on extensive traffic management systems including Connected Driver Advisory Systems (CDAS) and Crew and Stock Systems to improve performance.

To deliver the European Train Control System (ETCS) element of the digital railway, the rail industry is working with Government to align signalling renewals, fitting trains with modern technology, and the franchise timetable. As illustrated by the map below there is an alignment of rolling stock fitment with signalling renewals and enhancements in the following areas in CP6 and CP7:

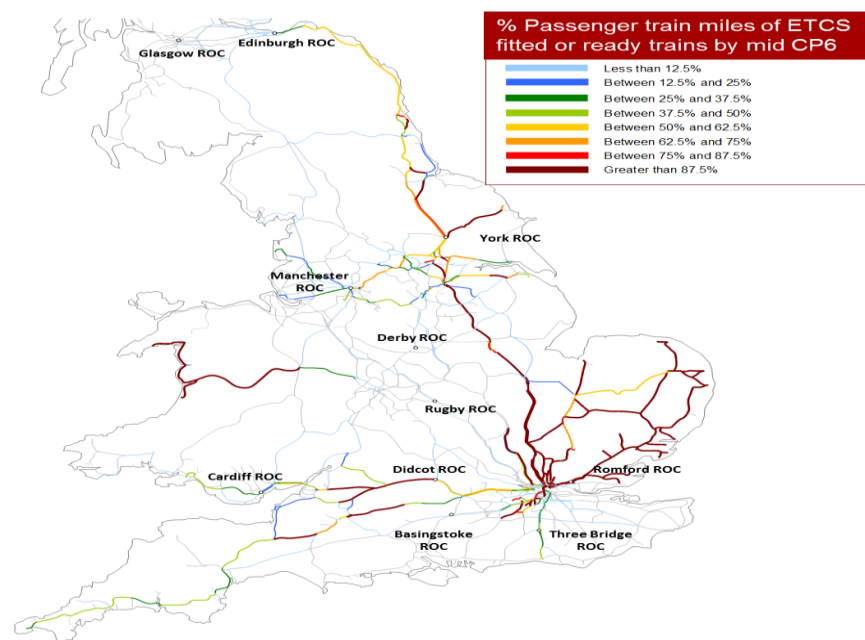
- East Coast Main Line
- Trans Pennine Upgrade
- West Coast Main Line and the HS2 interface
- Wessex Route
- Anglia Route.

Initial business cases to introduce digital railway have been prepared for routes that cover 70 per cent of all passenger journeys, and those parts of the network where scheduled train fitment and re-signalling align have been identified to deliver the best return.

Developing new ways of working with the supply chain and an alternative procurement model are fundamental to transforming the network in an affordable way. This is focused on joint working with suppliers to achieve required outcomes based on whole of life costs.

We expect the future costs of digital signalling to be lower than conventional signalling with adopting innovative and collaborative working practices.

Implementation of digital technology requires investment in both train and infrastructure. There is committed investment in new trains which supports future digital railway plans. The map below shows all passenger trains that will be either ETCS ready or ETCS fitted by mid-2022.

Committed digital investment in passenger trains

The digital plans have been developed to take advantage of this rolling stock investment. They include development of digital technology in CP6 to address specific pinch points on the network, including:

- Extension of train control software across the South East route, including Sussex, to reduce passenger delays and restore the timetable more quickly when disruption occurs
- Initial funding for replacement of lineside signals with in-cab signalling (ETCS) between Kings Cross, Moorgate and Peterborough. This will facilitate improved performance in CP7
- We are working closely with HS2 to identify effective digital solutions to manage the interface between the new high speed line and the West Coast Mainline. The plan includes a contribution to HS2 for digital technology as part of the Crewe resignalling programme.

The plan also includes the introduction of digital signalling and train control as part of the Transpennine Rail Upgrade programme to increase capacity

and reduce journey times between Manchester and York. Specific details depend on enhancement funding decision which is separate to the SBP.

As part of the overall Digital Railway programme, priority schemes which are not funded through this plan include:

- Undertaking a review of how packages of digital technology can improve passenger services to reduce rail congestion and delays in and around Manchester. This will be completed in the first half of 2018 and recommendations made to government
- Fitment of older passenger vehicles, freight locomotives with digital technology.

The initial digital schemes that are being developed, and the current funding position, is summarised in the table below. We are exploring alternative funding and financing options, where appropriate, and aim to have developed proposals by the end of 2018.

Digital funding pipeline

SBP renewals	SBP renewals (with further funding required)
• Digital Railway programme team (DR) • On Track Machine fitment (RS) • Contribution to HS2 for ETCS - Crewe resignalling and TM LNW South (LNW) • Feltham ETCS (Wessex) (assumes same cost as existing conventional scheme) • ETCS Leeds - Manchester & TM Transpennine Route Upgrade (LNE/LNW) (subject to decision on enhancement funding)	• TM & ETCS East Coast Main Line (Peterborough - King's Cross) (LNE)
National Productivity Investment Fund	Further funding required
• 'First in Class', initial cab fitment projects and test facilities (National Enablers) • Develop: Traffic Management (South East) • Develop: ETCS L2 Moorgate Branch ECML (LNE) subject to grant agreement • Develop: Traffic Management Transpennine Route / Manchester (LNE / LNW)	• ETCS & TM Great Eastern Main Line (Anglia) • ETCS & TM South West Main Line (Wessex) • Passenger & freight train fitment

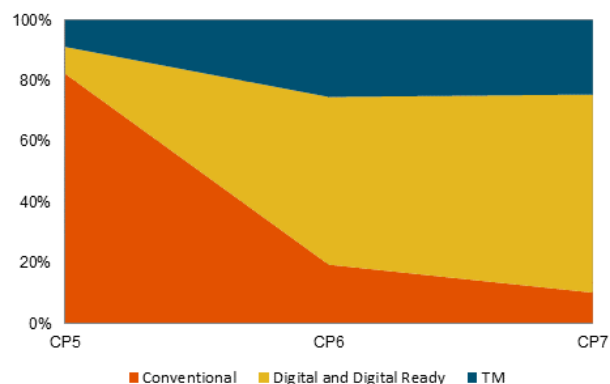
Our CP6 plan has been prepared on the basis that when and where investment is made in future to replace obsolete signalling systems the new infrastructure will either:

- Replace conventional lineside signals with in-cab controls, or
- As a minimum upgrade the current signalling to make it 'DR ready' to support an easy switch over in future.

Introducing Traffic Management and Connected Driver Advisory System is a major part of the plan for CP6. This will optimise performance and provide better information for passengers when things go wrong. Crucially it will assist timetabling and re-planning when needed to ensure rolling stock and crew are in the right place.

This transition to a digital railway will have a significant impact on the nature of investment in signalling assets and helping to address the bow-wave of signalling renewals.

Indicative transition from conventional to digital schemes



Digital technologies must be supported by a programme that brings together people, skills, data management, telecommunications, and supportive commercial and project management relationships. A Digital Railway Academy will be established, blending physical and virtual training methodologies using the fantastic facilities at Network Rail and industry training centres, and further education colleges. This will provide the curriculum and resources to develop our talent to fully exploit the benefit of digital technologies at such an exciting time in the rail industry.

Third party investment

Network Rail is 'open for business'; we want to make it easier for others to fund, finance or deliver work on the railways. The recent Hansford Review considered the barriers that prevent third parties building on, and potentially funding or investing in, our railways. We are implementing changes following its recommendations so that a range of organisations can come forward with alternative solutions and new ways of working. We will:

- Introduce contestability
- Enable third parties to carry out projects and renewals directly
- Make third party funding easier to achieve
- Attract and reward third party finance and delivery.

We have already made some significant changes. We have put in place a new route leadership structure, with business development capability in all routes. We have created the role of professional head of asset protection and optimisation to give strategic leadership and direction to route asset protection and optimisation teams.

We have also set up a project finance team that is exploring options for third party project financing. This includes a pathfinder projects for Digital Railway deployments for the East Coast Mainline South resignalling project.

In CP6, we will continue to develop opportunities for third party investment including stations upgrades, other capacity schemes, journey time improvements, electrification, level crossing, depots and freight improvements. Potential opportunities for third parties include:

- Schemes up to £50m such as Haughley Junction doubling and University Station (Birmingham)
- Schemes between £50m and £100m such as Trowse Swingbridge, West Yorkshire Combined Authority new stations, and train detection signalling improvement between Paddington to Airport Junction
- Schemes over £100m such as Leeds station, Cumbrian coast line upgrade, Victoria station redevelopment and Oxford station master plan.

These schemes are not funded in this plan and would require third party investment. Potential schemes that could be funded and delivered by third parties will be further informed by DfT's Industry Investor Guidance. It is being developed in consultation with Network Rail for publication in 2018.

We aim to change stakeholder perceptions of Network Rail to an organisation that is easy to partner with and attractive for investment. We will be more proactive in influencing investment in regional and local plans, responding to regional policies and aligning our plans to local strategic objectives such as strategic economic plans of Local Enterprise Partnerships. We will build a customer focused business development culture, with business cases reflecting enhancement as an enabler of wider community objectives such as better access to jobs, housing development and local regeneration.

Further information can be found in section 6 of the Route Strategic Plans.

Risk and opportunities

We have developed a CP6 plan that we believe is deliverable, while also being ambitious and challenging us to get better every day. It includes improvements across all areas of our business, including improvements in safety, asset reliability, train performance and cost efficiency. Like any plan, it is based on a range of assumptions about how we will achieve these improvements as well as external factors that could impact Network Rail. It is certain that these assumptions will not turn out to be exactly correct. It is therefore important that we have identified the key risks and are able to mitigate them as we progress through CP6.

Successful mitigation of the risks we face will enable our people, the supply chain and train operators to work together to deliver the planned level of work, safely delivering the improvements in asset reliability and train performance while making the planned efficiency savings. This requires us to manage a broad range of financial and non-financial risks.

Network Rail and the supply chain's overall delivery capability will be critical if we are to deliver the planned increased in maintenance and renewal volumes during CP6. Over the next year, it is particularly important that we continue to work together so that we successfully deliver our plans for the early years of CP6. We must avoid a repeat of the challenges faced at the start of CP5.

The plan is dependent on continued delivery of our Transformation Plan, which is critical so that our routes and national functions continue to strengthen their capability to deliver effectively. It is dependent on our people and therefore continued improvements in capability development and talent management as well as staff retention.

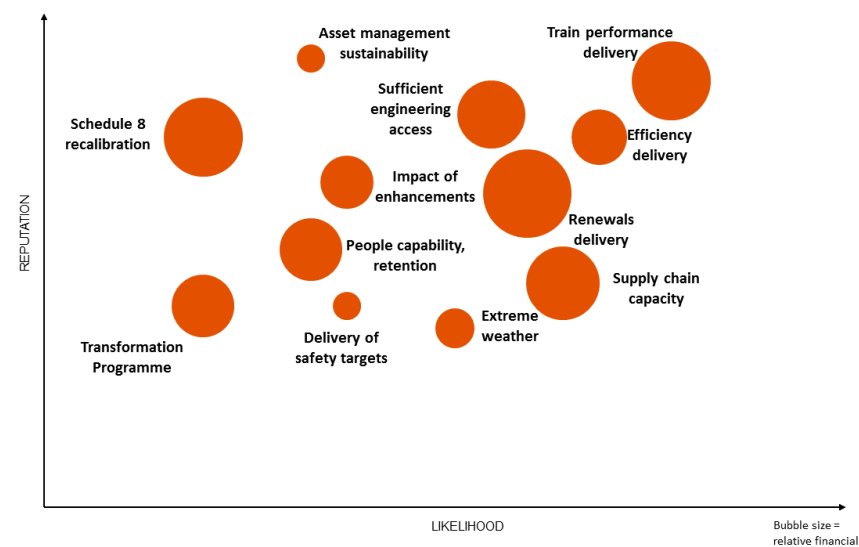
As we have already noted, the routes' assessment of the probability of delivering their plans is between P45 and P55. There is therefore a risk of around 50 per cent that they will spend more than their plans. There are many financial risks that need to be managed, as well as opportunities that might be exploited. In particular, our ability to deliver the efficiency savings is critical to delivery of the plan.

Delivery of train performance improvements is dependent on collaboration between track and train. We highlighted on page 12 the assumed impact on train performance of the major factors that influence punctuality.

There are also significant external factors that can impact our plan. For example, extreme weather can have a significant impact on our infrastructure, where we can partly mitigate the financial risk through insurance cover. For the first time, we have been required to manage the financial impact of variations in inflation. A significant increase in inflation could have a material impact on the amount of work that we can deliver within the funding available.

Key risks (excluding inflation) to delivery of our plan are shown below.

Risks to the CP6 plan



While the benefits of devolution and better planning for CP6 have increased our confidence that we will be able to deliver our plan, we have created the Group Portfolio Fund to enable us mitigate risks if they arise. The key opportunity is therefore to deliver in line with, or better than, our plan, enabling us to invest the Group Portfolio Fund in further improvements in the railway.

Great people, great teams

The continuing transformation of Network Rail and the delivery of this reforming, ambitious plan will only be possible if we can attract, develop and retain the brightest and the best.

The commitment and dedication of staff in the railway cannot be faulted. But to reach our potential we must call on the talents of everyone – diverse teams perform better. In CP5 we started to make real progress and are leading the rail industry in this area. We increased the number of women in the company by 32 per cent, launched an award winning diversity and inclusion strategy and now have vibrant staff networks for gender equality, LGBT, cultural fusion and carers. Leaders of some of these groups have been recognised in the Queen's honours list. But we have much more to do and in CP6 we are determined to make equality of opportunity a key strategic theme and increase the number of women by 50 per cent.

We want to make sure we have appropriate facilities for all of our staff whether office based or working trackside. We will provide adequate toilet and changing facilities for all genders at all sites throughout the country by the end of 2019. No trains will discharge toilets onto the track by this time too which will significantly improve the working environment for our staff and help us to provide a work place of dignity and respect.

We were ranked 66th in the top 100 graduate employers this year, up ten places from the previous year and we aim to be in the top 25. We are proud to lead the industry in the development of apprenticeships across all levels in a range of technical and professional roles, offering a wide range of interesting and rewarding career opportunities.

We will have gender balanced recruiting of apprentices and graduates. This may seem ambitious, but in CP5 the number of women apprentices has increased by six per cent and, through better engagement with our outreach programmes with educational establishments and youth groups, proper job design and better recruitment practices. We believe gender

balance is possible – and will be a key enabler of cultural change and attraction for talented people.

We also know we have more to do to make the work environment better for everyone. Improved awareness, management training and support for individuals can reduce mental health issues – our target is a 30 per cent reduction over CP6.

Improved management training will also lead to better motivated and led staff. They will all have clear performance and personal development targets and quality performance conversations with line managers. And through flexible working and part time jobs we want to end any culture of long hours 'presenteeism' and value people by their contribution.

We will be known as a company where our people work in an environment that allows everyone a fair opportunity to reach their personal potential. In summary we are determined to become a great employer of great people working in great teams.

Transformation: route based regulation

As we move into CP6, routes will have their own income, activity and cost projections. They will also have balanced scorecards, ensuring that all responsibilities to customers, and ultimately passengers and freight users, are appropriately managed. We are working with ORR to place scorecards at the heart of the regulatory framework for CP6, which will ensure that we focus on delivering for customers and other stakeholders rather than having separate regulatory targets which can result in Network Rail treating ORR as its customer. The use of the scorecard within the regulatory framework is a major positive development.

Routes now have the delegated authority to be accountable to manage their operating, maintenance and renewals activities to best meet the requirements of their customers. We will need to work with DfT and ORR to ensure there is appropriate flexibility in the application of government accounting rules for routes to be able to make the optimum trade-offs between Schedule 4/8, maintenance and renewals to improve reliability and decide on the best time to deliver the work.

With the introduction of settlements for each route and the System Operator, we will transform our governance structure for CP6. The Executive Committee will carry out quarterly 'deep dives' for each route. It

will review progress delivering the current year's scorecard together with the full control period plans for efficiency, train performance, renewals delivery and transformation. The results of these reviews will form the basis of reporting to the Executive Committee and Board. Most routes will have Route Supervisory Boards (and System Operator will have an Advisory Board) which will enable progress to be reviewed with train operators and Transport Focus under the leadership of an independent chair. Quarterly reports will be provided to the Board. We will also provide these to ORR to enable its regulation to build on our internal governance.

Our Transformation Plan is aligned with the Government's strategic vision for rail which was published in November 2017, with track and train working together more effectively.

An ambitious plan

This is a radical plan, an ambitious plan. It is not without challenge and risk. But with great people, great teams, the right quality of leadership, the right incentives and the determination to see it through, it can deliver the better railway that a better Britain needs.

Further details and next steps

Further detail

In addition to this Strategic Business Plan summary, today we have also published the following route and national function plans.

Anglia	Infrastructure Projects
LNE / EM	Digital Railway
LNW	Telecoms
Scotland	Asset information
South East	HR
Wales	Legal
Wessex	Finance
Western	Communications
System Operator	Property
Freight and National Passenger Operators	Route Business Services
Safety, Technical and Engineering	
Route Services	

We will publish an update of our Transformation Plan, which describes progress in delivering our overall strategy for transforming Network Rail, around the end of February. We are also publishing 'About Network Rail' which describes our organisation and how it works.

Next steps

Following submission of this Strategic Business Plan, ORR will carry out a detailed review of our plans to inform its determination for CP6. Network Rail will have the opportunity to respond to ORR's draft determination. Following publication of ORR's final determination, Network Rail will decide whether to accept ORR's conclusions.

During this period, we will continue to develop our CP6 plan, taking into account current business performance and ongoing engagement with customers and wider stakeholders together with ORR's emerging conclusions.

Following ORR's final determination, we will finalise the CP6 price lists for fixed and variable access charges, reflecting ORR's determination. We will also consult customers and wider stakeholders on our draft CP6 Plan in December 2018. Our plan will continue to be based on plans for each route, the System Operator and our national functions.

We will then publish our CP6 Plan in March 2019. We will continue to update our plan during CP6, supported by ongoing engagement with customers. We will report our progress in delivering the plan with route scorecards providing an overall picture of each route's performance.

Key milestones for the remainder of the periodic review are:

June 2018	ORR publishes Draft Determination
August 2018	Network Rail responds to Draft Determination
October 2018	ORR publishes Final Determination
December 2018	Network Rail publishes price lists
December 2018	Network Rail consults on draft CP6 Plan
February 2019	Network Rail decision on acceptance of final determination
March 2019	Network Rail publishes CP6 Plan

Appendices

Development of the CP6 Plan

It is critical that we have a robust regulatory determination for CP6, which has a realistic balance between being challenging and deliverable. It has therefore been essential for us to make significant improvements in the business planning process so that we avoid the major challenges that we have faced during CP5, when efficiency targets were set top down, with inadequate plans to deliver them.

This improvement has been based around two key principles. First, consistent with devolution, the plan is based on route plans that are owned by each route. Second, we have introduced a ‘continuous’ business planning process through which route plans are regularly based on projections for the next eight years. Consistent with these principles, route plans are informed by ongoing customer engagement with routes developing their understanding of customer priorities.

Each route has developed its own plan based on knowledge of its network and its customers. The plans reflect an understanding of the activity levels required to maintain and renew the infrastructure. A critical improvement has been the creation of an activity based planning tool which has for the first time enabled routes to develop maintenance plans that are based on activity rather than resource levels. Routes have developed efficiency plans using a consistent framework to allow comparison between routes.

Routes have engaged with customers to understand their priorities and to develop plans that, as far as possible, meet customers’ expectations. Each route has included a section in its Route Strategic Plan to describe the engagement with its customers and to summarise the depth of their support for the plan. While there has been engagement with customers on their priorities, it has not been possible to reflect all customer aspirations in the route plans reflecting, for example, the significant differences between franchise assumptions and current levels of train performance.

This process has resulted in plans that are owned by each route. The System Operator and our national service functions (including STE and Route Services) have made similar improvements in their plans. There has been a huge amount of work carried out over the last two years to develop these plans. Routes (and other areas of the business) provided their first

CP6 submissions in February 2016. This was an unconstrained submission so that routes could identify all the activity that would ideally be needed to operate, maintain and renew the network in CP6.

During 2016, our initial focus was to develop a robust baseline plan, which was significantly more affordable and deliverable than the original submission. This was further developed during 2017 by identifying incremental options to improve the resilience of the railway and efficiency savings to be made during CP6 offset by cost headwinds that we will face.

In 2017, ORR provided advice to government that supported a significant increase in renewals and maintenance expenditure during CP6. The SoFA for England & Wales, published in October 2017, supported ORR’s advice. Route plans have been developed consistent with the requirements of the High Level Output Specifications (published in July 2017), including the increase in the level of renewals expenditure and the need to continue driving train performance.

The SoFA for Scotland, published in January 2018, also supported ORR’s advice. The Scotland Route Strategic Plan includes details of our response to the detailed requirements of the Scotland HLOS, published in July 2017.

Overall OMR expenditure included in this plan is consistent with the SoFA. This includes ‘holding back’ around £2.6bn so that we have headroom to manage financial risks during CP6, which ideally we will be able to gradually release for investment in improving the railway.

Each stage of the plan has been reviewed by the Board supported by its Business Plan Committee, which is attended by the Chairman, non-Executive Directors, the Chief Executive and Chief Financial Officer. It has increased the Board level input and challenge to the emerging plan. The Executive Committee has reviewed the overall CP6 plan after each of the eight submissions that have been made by the routes. In addition, there has been an Executive review of each route’s plan after each submission. There have also been cross route working level reviews of route plans, particularly for efficiency and headwind analysis, to ensure they are presented on a consistent basis so that ORR can better carry out comparative analysis during its detailed review of the route plans.

These reviews have enabled the Board and Executive to assure progress in developing the plan and provide strategic direction on its ongoing

development, while making sure this does not undermine route ownership.

Each route has reviewed its own Route Strategic Plan prior to submission. This has followed a wide range of review and analysis by route teams, particularly the asset management teams led by the Director, Route Safety & Asset Management in each route. There has also been a number of central assurance reviews carried out, generally after each plan submission. Assurance reviews have included:

- Consistency of renewal plans with each asset policy by the professional heads within STE
- Review of the activity based costing forecasts of maintenance costs
- Deliverability of the overall renewals and enhancement plan by IP
- Review of the reasonableness train performance trajectories.

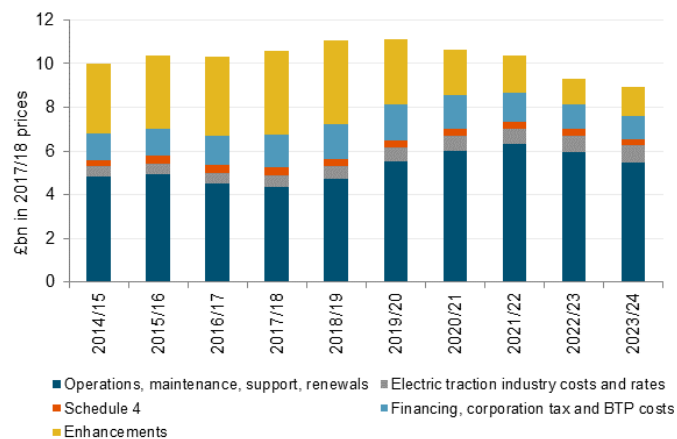
ORR commissioned an independent review by Nichols of the planning process, which was completed in September 2017. It assessed whether we are developing robust expenditure plans for each area of operations, maintenance and renewals (OMR), whether the progress with the development of these plans is on track, and whether there is sufficient challenge on efficiency. Nichols concluded that:

- we are following a progressive planning process that should lead to robust expenditure plans for OMR; and
- we are applying a coordinated approach to identifying and developing potential efficiencies for CP6 and there is a good level of management visibility and challenge.

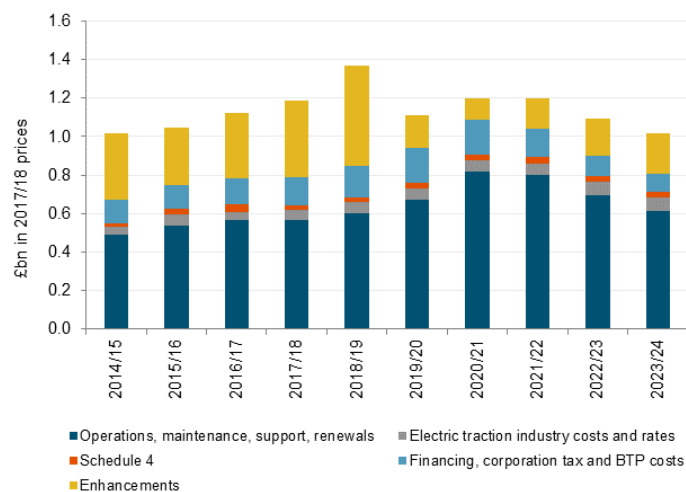
In addition to this summary, the overall SBP includes individual plans for each route and national function. We will separately provide supporting detail to ORR to enable it to understand our plans in more detail. This will include a databook that collates the overall income and expenditure submissions from each route, the assurance reports that provide a central assessment of key aspects of the plan, and other supporting evidence to provide ORR with further detail for its assessment of the plan.

Income & expenditure forecasts

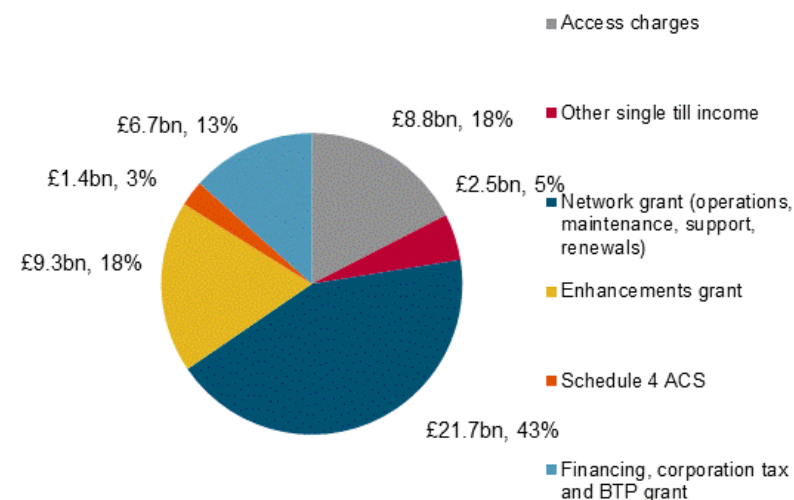
England & Wales CP5 and CP6 expenditure



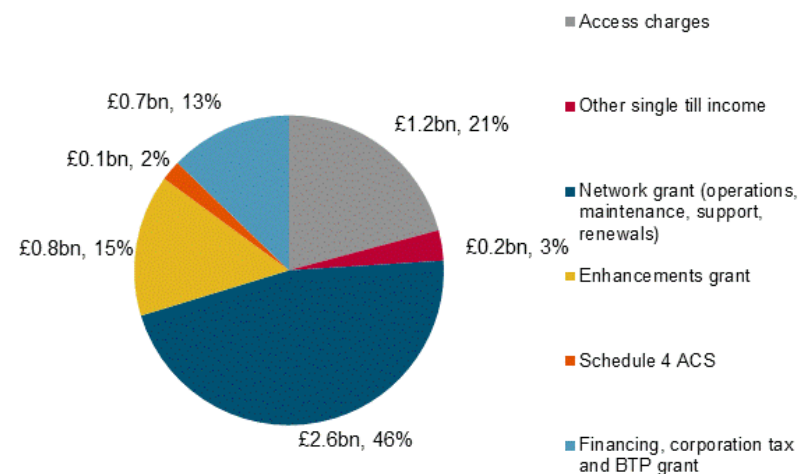
Scotland CP5 and CP6 expenditure



England & Wales CP6 sources of funding



Scotland CP6 sources of funding



Geographic route measures

		Anglia	LNE / EM	LNW	Scotland	South East	Wales	Wessex	Western
Passenger train km	CP6	8.1%	8.9%	6.3%	4.6%	4.3%	0.2%	11.4%	12.4%
Freight train km	CP6	4.6%	17.7%	8.0%	11.4%	18.6%	7.5%	7.0%	14.5%
Lost Time Injury Frequency Rate	2023/24	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Train performance – PPM ³	2023/24	92.6%	90.8%	91.0%	92.5%	87.7%	92.1%	87.5%	89.5%
Train performance – On Time	2023/24	69.2%	60.8%	63.4%	65.3%	66.8%	60.2%	65.9%	59.7%
Train performance – Consistent Route Measure Performance ⁴	2023/24	1.46	1.27	1.59	0.95	2.79	1.52	2.22	1.69
Freight Delivery Metric	2023/24	92.9%	93.9%	93.9%	94.5%	91.0%	94.4%	93.6%	94.0%
Service Affecting Failures	2023/24	3.0%	9.5%	4.9%	9.6%	1.0%	8.1%	4.9%	11.4%
Composite Reliability Index	2023/24	3.3%	8.9%	6.5%	9.6%	1.0%	7.2%	4.9%	7.5%
Operations ⁵ , maintenance & renewals (CP6 total)	CP6	£2,409m	£5,276m	£5,783m	£2,870m	£3,929m	£1,476m	£2,125m	£2,649m
Efficiency – operating costs	2023/24	7.5%	7.5%	6.6%	10.8%	9.6%	8.9%	9.2%	8.3%
Efficiency – renewals	2023/24	17.9%	6.4%	13.3%	13.3%	12.6%	7.6%	17.1%	9.3%

³ Route PPM is a weighted average of lead operators in each route

⁴ Network Rail caused delay minutes per 100 train km

⁵ Excluding electric traction and industry costs