



Running a better railway

How changes to planning rail improvement work can deliver savings and better services





Foreword

Britain's railway has much to be proud of. We now have one of the most intensively used networks in Europe, with a record 1.6 billion passenger journeys made last year, and the highest passenger satisfaction and best safety record of any major European railway. A strong partnership between the public and private sectors is delivering for passengers, taxpayers and the country as a whole.

But that success does not necessarily mean we are doing everything as well as we could. If we are to make our railway even better, we need to make passengers' and taxpayers' money go further.

The Rail Delivery Group (RDG) was established to offer a new way for the industry to work more collaboratively by bringing together Network Rail and passenger and freight operators. Key to the RDG's work is identifying and helping to implement ways for the railway to become more cost efficient, thereby giving the government options of holding down fares, reducing subsidy levels and increasing investment.

A dedicated working group was set up by the RDG to look at how the industry's asset management and planning of improvement work could be reformed to drive up efficiency. A great deal of work has been done by the group over the past 18 months to identify what the industry does well and what could be improved, not only to reduce costs, but equally importantly, to improve services for rail users.

By enabling some fundamental changes to cross industry working, we aim to help deliver a world class railway for Britain that provides more, better and faster services at the highest levels of safety to passengers, public and staff.



Tim O'Toole

Chief executive, FirstGroup and RDG lead on Asset, Programme and Supply Chain Management

Introduction

With record numbers of people and goods travelling on the safest major railway in Europe, Britain is leading the way on rail. Investment from successive governments and an industry focused on encouraging rail use is generating phenomenal growth. With demand rising, we cannot meet the challenge of delivering more and better services while bringing down costs without making some significant changes to how we work.

In the five years to 2019 (known as control period 5, or CP5), Network Rail has agreed to reduce running costs by 20%. What follows in this report outlines how the industry can help achieve that target by working together more closely.

The RDG's dedicated group has developed a number of specific programmes to look at different aspects of improvement work planning and asset management. Based on work done since 2012, each programme team has estimated how much could be delivered in savings and other benefits, through changed working practices. Collectively, the new ways of working that have been identified give the industry the opportunity to deliver between £460m and over £1 billion by 2019, depending on how extensively the changes are implemented.

The estimates in this report should not be regarded as targets for the industry to meet, rather guidelines of what could be possible if the following new ways of working, which are already in place on parts of the network, are fully embedded:

- Better cross industry planning for when Network Rail and contractors get access to the railway to carry out improvement work: £150m - £350m
- Improved productivity during allotted access windows: £60m - £140m
- Removal of redundant or problematic assets (such as points) on the network: £30m - £40m
- Better cross industry management of risk in infrastructure projects: £100m - £230m
- Earlier involvement of operators in scoping and planning major enhancement projects
- Improved planning and working practices leading to more services for passengers and therefore more fares revenue for government: £130m - £300m

Industry Access Programme (IAP)

POTENTIAL CP5 BENEFITS £150m - £350m

Total estimated benefits comprise:
£110m - £260m delivered through IAP phase one
£40m - £90m delivered through IAP phase two

As demand for rail services continues to rise, so does the need for access to the railway to do essential maintenance, renewals and enhancement work. IAP aims to increase value for money and improve services for passengers by enabling Network Rail, operators and contractors to adopt a more collaborative approach when planning that access.

IAP phase one

The first phase of IAP enhances the existing planning process through decision support tools and a new planning methodology for the industry: the IAP Nine Step Approach (see page 5). The approach enables operators, contractors and Network Rail to make more informed decisions as part of the access planning process. It sees the industry working together to agree the best access option which balances the costs for maintenance, renewals and enhancement work with revenue and customer impact. For example, would longer midweek possessions cost less overall because fewer possessions are needed? Or would a summertime blockade cause less overall disruption?

The estimated benefits for maintenance are based on a live trial carried out in 2013. The trial involved Network Rail's London South East route and passenger operator Southeastern agreeing an 11 week period (September – December 2013) to extend midweek night access on the Tonbridge to Hastings line. During the trial, maintenance work was done during two seven-hour slots on Mondays and Tuesdays every week, instead of four-hour slots over four nights in two of the 11 weeks. The trial delivered a 52% increase in maintenance productivity, an 84% reduction in maintenance backlog and 40% savings in maintenance costs.

For renewals and enhancements, the estimated benefits are based on analysis done in the

London South East, London North East & East Midlands and Scotland routes. These pilots looked at optimising the access required for work planned in CP5, by determining the lowest whole industry cost options, including passenger and freight operator revenues and costs. The results showed that whole industry benefits can be achieved by reducing the total number of disruptive possessions and the overall number of disruptive possession hours. This provides more effective 'working windows', meaning less time is spent on set up and hand back. The figures from the live trial and case studies have been extrapolated to take account of all the potential sites where the IAP approach could be applied. The programme team is working to roll out the approach across other Network Rail routes.

IAP phase two

The second phase of IAP is focusing more specifically on designing a new cross industry access and timetable planning process. This aims to reduce the risk of late changes to access and work not being completed in an allotted possession, meaning more access is needed to finish the work.

The estimated benefits for the second phase are savings for Network Rail in maintenance costs; in payments made to operators for planned and unplanned disruption (according to the Office of Rail Regulation's performance incentive arrangements); capital expenditure costs for renewals and enhancement; and planning staff costs involved in timetable changes and repeat work. Passengers will also benefit from less disruption because work will be completed more quickly, with fewer speed restrictions and fewer changes to timetables.

The benefits are assumed to be realised partially in years two and three of CP5 and fully in years four and five.

“ Network Rail's London North East and East Midlands route is applying the IAP approach to help identify the optimum access solutions in CP5 for our integrated programmes of work. Working collaboratively with our customers, we will be able to strengthen our access planning capability and ultimately deliver a better railway for a better Britain. ”

Simon Leyshon

Senior programme manager, London North East and East Midlands, Network Rail

“ By taking the appropriate access based on an informed rationale, there should be an overall reduction in disruption and costs to the whole industry. It is these reductions that will benefit the freight market the most. ”

Nick Gibbons

National planning and performance manager, DB Schenker Rail UK



- 1. Review access requirements** - what work needs to be done in CP5 across all the work programmes?
- 2. Collect data** - to understand the whole industry cost of the current access strategy, to 'model' against different access options
- 3. Analyse industry impact** - assess the trade-offs between delivery and operations in different access options, using decision support tools
- 4. Review options** - representatives from all parts of the industry sit down to agree the preferred access option
- 5. Agree access and industry benefits** - develop statement that includes the risks and benefits of the preferred access option
- 6. Publish agreed access** - formalise the agreed access option
- 7. Manage change** - assess the impact of changes to access plan throughout its development
- 8. Deliver the plan** - delivery of the work and associated altered service timetable
- 9. Review access and realise benefits** - confirm the projected benefits were realised and understand any lessons for future access planning

Network optimisation

POTENTIAL CP5 BENEFITS £30m - £40m

This area of work aims to identify redundant and problematic switches and crossings (S&C) on the rail network that could be removed, to deliver a range of cross industry benefits relating to costs, safety and performance. There are around 23,800 point ends on the UK rail network, which cost over £1 billion to renew and maintain over the past five years.

The programme brought together passenger and freight operators and Network Rail in a series of workshops which reviewed each S&C using detailed data on their movements and use over a 12-month period. The group has produced an agreed list of S&C for abandonment and 'potential' abandonment for each Network Rail route. These can be removed and replaced with track without any points, thereby avoiding future costs for renewals and maintenance. S&C are performance critical assets, so removing unnecessary ones will also improve the safety and reliability of the railway for passengers and freight.

The group has created an interactive support tool that Network Rail routes can use to develop S&C removal business cases. Asset managers can use the tool to assess the trade-off between short term costs of removal against the longer term benefits which include: reduced maintenance spend; avoided future renewal and refurbishment costs; reduced payments to operators for disruption; and income from scrapping metal assets. The data and tools could be used to assess other rail assets in the future such as loops and sidings, enabling further potential savings.

The estimated benefits over CP5 are based on the assumption that around 700 S&C will be abandoned, with more benefit materialising in CP6 and beyond.

“ The great thing about what we're doing here is making sure that we're keeping the right units of S&C in the right locations. Where crossings are introducing risk - both safety and performance - without adding any benefit, then less is better. ”

Tim Shoveller

**Managing director, South West Trains –
Network Rail Alliance**

“ Only by doing this do operators understand Network Rail's business essentials and the pressures that it's working under. And Network Rail can also get a better understanding of what train operators are seeking of it, and what it might achieve in the future. ”

John Czyrko

**Head of network strategy, First
Great Western**

Possession utilisation

POTENTIAL CP5 BENEFITS £60m - £140m

Access to the railway is a scarce resource and it is essential that the best use is made of any possessions granted. (A 'possession' is time during which Network Rail or contractors take over a section of track to carry out work, meaning that either a limited service or no trains at all can run).

The possession utilisation programme is looking at how to deliver industry benefits by increasing 'time on tools' and improving productivity during possessions. This could allow more work to be done during non-disruptive access, which could ultimately mean more services for passengers at weekends.

Based on studies, 'time on tools' is currently estimated in many cases to be lower than the European average of 80%. This means that planned works are sometimes not completed and more access is needed. There is also increased risk of overrun and disruption for rail users.

The programme creates a single point of focus for a number of existing Network Rail projects looking to reduce hand over, set up and hand back times through use of technologies and process change. It aims to help overcome any cross industry hurdles Network Rail may have faced in implementing the new methods. It will also look to deliver a consistent way to measure possession utilisation across all routes, something which is not currently possible.

The estimated benefits reflect reductions in maintenance costs, though Network Rail could also choose to use the increased 'time on tools' to do additional work, rather than to maximise savings.

“ Making the best possible use of possession time should benefit the whole industry and, crucially, result in less disruption and better service for our customers. ”

Drawing on worldwide best practice for a pilot study on the Chiltern route, we intend to apply these improvements initially on the Chiltern route and, subsequently, nationwide. ”

Rob Brighthouse

Managing director, Chiltern Railways



Cost of contingency

POTENTIAL CP5 BENEFITS £100m - £230m

This group was set up to improve the identification and management of risk and contingency in infrastructure projects. Studies have found that civil engineering work costs are around 30% higher on GB rail when compared to European rail or GB non-rail.¹ While there are several reasons for differences in cost, this group has worked with Network Rail, operators and contractors to identify how better risk management can help close the gap.

The group has identified key drivers of contingency cost, such as risk of late changes and uncertainty over possession times. The work has highlighted the impact of the regulatory and commercial structures that underpin the industry, which act as a barrier to efficient management of risk. Generally, risks are owned and managed in a fragmented way by either the contractor or Network Rail, with minimal input from operators. While that structure creates an accountability that can be effective in managing risks, the complicated nature of delivering rail projects often means that one party, on its own, is unable to achieve the best value outcome for the industry and its customers.

To address this, the group has produced a set of Heads of Terms (agreements) that the industry can use to draw up contracts, and guidance on changing the approach to and practices around risk management. Both are founded on creating a collaborative environment for all stakeholders – Network Rail, operators and contractors – when planning and delivering projects. They focus on getting joint agreement from the outset on what will deliver the best industry value for money while meeting customers' requirements, and collectively identifying and sharing risks as the project progresses. The group will continue to refine the approach over the next year through working with upcoming projects on the network.

The estimated benefits assume a gradual uptake of the tools produced by the group, with the full opportunity not being realised until the last year of CP5. The estimates are based on potential reduction in the cost of renewals and enhancement work, rather than maintenance costs (though these are possible too). Network Rail could choose to use the greater efficiency to deliver more work rather than a financial saving.

“ London Midland has started work on better understanding the cost of contingency outputs as a catalyst for improving the way we work as an industry on the large number of major infrastructure projects we are facing over the next three years. We are always looking to minimise negative impact on performance and deliver maximum value for the passenger. ”

Tom Joyner

**Passenger service director,
London Midland**

Major projects

This group aims to ensure that major rail enhancement projects deliver no more or less than what Network Rail, freight and passenger operators need – for the lowest whole-life cost.

Its work has found that key to greater efficiency is involving operators earlier in the project planning process, particularly during the scoping phase.

Historically, operators have only become involved at the procurement and delivery stage. Ramifications of this include projects sometimes delivering, and therefore costing, more than they need to for the operators' service requirements.

There has previously been no incentive for an operator to say that they need less capability (scope) than what Network Rail was proposing. Early involvement and an incentive will mean operators can make their requirements clear to Network Rail at the outset, so projects will cost less – while still delivering the Department for Transport's franchise specifications.

Following the major projects group's engagement with the government, the Office of Rail Regulation (ORR) included the Enhancement Cost Adjustment Mechanism (ECAM – see page 11) process in its final determination of Network Rail's

funding. This requires that in CP5, around 70 enhancement projects have to go through the ECAM process. This means that Network Rail has to consult with operators on the scope of these projects before they get to GRIP 3 (see below) in the investment planning process. Operators will be recompensed for costs and resources involved in their early involvement, and will share in potential scope savings identified while still delivering their service requirements.

The variation in scale of the enhancement projects means that at this stage, it is not possible to estimate the potential benefits over CP5.

“ Getting an innovative operator involved at the scoping stage to test what is actually needed for operation from a project is key. This is one of the most important messages from the [Paisley Canal] project to the whole rail industry, which has to find a way of making this a part of the process. One of the Network Rail staff involved summed it up – ‘alliancing will help educate people that we are all there for the same goal of operating a public service.’ ”

Alan Price

Director, railway planning and performance, ORR

When planning investment projects, Network Rail follows the Governance for Railway Investment Projects (GRIP) process, which covers the investment lifecycle from inception through to realisation of benefits, in a series of eight stages:

- GRIP 1** Output definition
- GRIP 2** Feasibility assessment
- GRIP 3** Selection of possible options
- GRIP 4** Single option development
- GRIP 5** Detailed design
- GRIP 6** Construction, test and commission
- GRIP 7** Scheme hand back
- GRIP 8** Project close

ECAM process explained

The ORR's final determination for CP5 included details of a new mechanism for enhancement projects. The proposal builds on an approach developed by the RDG's working group and is designed to give Network Rail more time to develop projects at an early stage of their lifecycle and, specifically, to work closer with operators to drive up efficiencies in project scope and cost.

The ECAM process encourages Network Rail (NR) and operators to develop bi-lateral agreements so they are jointly incentivised to reduce unnecessary scope during the design phase, and enable efficient construction in the delivery phase. The process will broadly operate as follows.

This two stage process is designed to address the issue of a franchisee changing during the lifecycle of the project.

NR propose a baseline cost for individual projects, based on its work to date, against which any benefits in terms of scope definition can be judged.

NR and the significantly affected operators define and jointly agree the operational outputs the enhancement needs to deliver, and sign up to a benefits sharing agreement.

Supported by the operators, NR develops the scheme to the point of single option development using the GRIP process.

NR updates the business case and makes an ECAM submission to the ORR.

If there are significant changes to the baseline cost, the ORR will notify the Department for Transport to give it the option to decide whether it still wants to fund the proposed scheme.

A new target cost is then established and ORR gives approval for the new baselined project to be added to the Regulatory Asset Base (RAB).

At this stage a portion of the predicted savings (initial baseline cost less the new target cost), as agreed in the bi-lateral agreement, is shared with the operators that have been involved in developing the scheme. These should be the scope efficiencies [Incentive stage one].

After the scheme has been completed, a review of the benefits realised will be carried out. At this point a further share of the actual realised savings against the RAB target cost, is shared with the operators. This would include efficiencies such as those delivered by improved access planning. [Incentive stage two].



Increased revenue

POTENTIAL CP5 BENEFITS £130m - £300m

Proposed changes in a number of the programmes could potentially enable train companies to run more services where there is passenger demand, and therefore generate more revenue for taxpayers.

Recommendations made by the industry access and possession utilisation programmes could move more work to non-disruptive or extended midweek possessions, and help unlock previously suppressed demand for weekend - and particularly Sunday - services.

An Arup report commissioned by the Association of Train Operating Companies (ATOC) and published in October 2007 found that if the railway could offer a Sunday service comparable with that on a Saturday, it might be worth between £70m - £130m a year in additional fares revenue.²

Since the report was published, industry revenue has grown generally by 50% – largely due to growth in journey numbers as well as increases in fares, mostly for inflation – so the range has been updated. This estimate assumes that the benefits will materialise towards the end of CP5.

Furthermore, as part of the deliverables of the second phase of the industry access programme, improved planning to reduce late notice cancelled possessions and greater certainty of access windows, would also offer operators more long term planning capability.

This could potentially allow operators to open ticket reservations for specified long distance services up to a year in advance, rather than the current 12 weeks, which would allow the rail industry to be more competitive and grow passenger volumes.

“ We know that many passengers would like to see more Sunday rail services offered. There is significant suppressed demand for travel across a range of markets particularly around leisure, shopping and visiting friends and family.

“Better and more joined up planning processes would allow the industry to run more services and open ticket reservations earlier, enabling passengers to plan their travel much more in advance and benefit from less disruption. ”

Richard Dean

Train services director, Southeastern

Looking ahead

Over the last decade, Britain's railway has been transformed into Europe's most improved, thanks to an industry structure which brings together private sector innovation and government policy to serve its customers and the wider economy.

By bringing together different parts of the industry, the RDG is committed to driving forward solutions that will deliver an even better and more efficient railway for customers and taxpayers.

We have set out how a shift in mindset and approach to maintaining and improving our network would allow the industry to deliver more of the services that customers want while also becoming more efficient.

By definition, this is not a series of discrete projects, rather the start of the industry's challenge to ensure these necessary changes are embedded and refined in the coming years, as the different programmes are rolled out more widely across the network.

The working group will also be looking for other opportunities where better cross industry collaboration can improve efficiency, such as in the procurement and maintenance of rolling stock.

The RDG recognises that the railway is only as good as its frontline staff and that the progress made over the last 20 years was only possible due to their daily hard work. The frontline workforce will underpin rail's future success and the RDG will continue to provide leadership, and work to create the right support and structures so that staff can help the industry to improve and evolve.

The industry has set itself some ambitious targets, but all parts of the sector share the same goal of providing a more cost efficient railway that drives growth and delivers even greater social and economic benefits for Britain.



This report is based on the work of the RDG's Asset, Programme and Supply Chain Management group. The group's current permanent members are:

Tim O'Toole First Group
Alan Price Office of Rail Regulation
Steve Murphy MTR
Richard Dean Southeastern
Simon Bunn Amey
Neal Lawson Network Rail
Nigel Jones DB Schenker
Walter Roux RailConsult UK
Gary Cooper ATOC
Dan Boyde Network Rail

Michael Roberts RDG
Paul Collins Department for Transport
Jo Kaye Network Rail
Martin Arter Network Rail
Jeremy Candfield RIA
Ron McAulay Babcock
Mick Rayner Balfour Beatty
Oliver Bratton MTR
Rob Brighouse Chiltern Railways

Rail Delivery Group

www.raildeliverygroup.com

Contact for more information:
info@raildeliverygroup.com
200 Aldersgate Street, London EC1A 4HD