

## **Towards CP6: delivering tomorrow's capacity**

Future Rail Infrastructure

Network Rail Chief Executive Mark Carne

18 September 2017

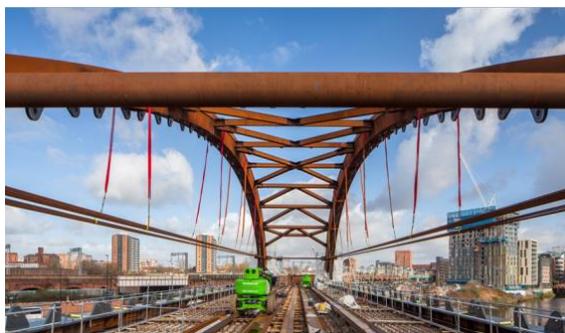


Good morning, everybody. Great to see you all and it's a pleasure to be here supporting this event. I want to tell you about some of the amazing things that are happening in rail and that are going to transform our railway in just the next few months. It's incredible what is actually happening.

Borders Railway opened a couple of years ago, but it's an example of the first new railway to be built in 100 years in this country. And do you know it's a huge success and more people want new railways to be built. I've often said in the four years that I'm doing this job that nobody has ever said to me, "Mark, will you please shut this station, will you please shut this bit of railway?" People want more railways like Borders, more stations, the demand is huge, and we are meeting that demand with some absolutely amazing projects.

Just outside this door is London Bridge. This will be the iconic station for London in the future. It's going to be quite breath-taking when it opens in January next year.

Then we've got more investment in Scotland, the Edinburgh Glasgow Improvement Project, which will start bringing new trains and services between Edinburgh and Glasgow next year, transforming journey times, comfort and performance of that part of the railway.



This doesn't look like much perhaps in this photograph, but it's the Ordsall Chord, which fundamentally rewires the railway in the north of England, providing direct connectivity between Newcastle and Manchester Airport, really changes the way the railway runs. It's a huge change in our system and it will be up and running at the end of the year.

Next month the very first of the Intercity Express Train will start running on the Great Western Railway. More of these trains will progressively be introduced over the next year on longer bits of electric wires until we get to Cardiff by December 2018 with a full electric service. Then you've got the iconic Crossrail project, the Elizabeth Line, where Network Rail is delivering £2.3 billion worth of that railway system. I say to Andrew Wolstenholme that he's got the easy bit to do. He just has to dig a tunnel where nobody can see him. We've got to do £2.3 billion of work on a live railway. It's really challenging and I'm very proud of what the team have done. What a difference that is going to make to London.

It's not just Crossrail that you would have seen on the news. At Waterloo, the extension of the platforms there to allow the new ten car trains to arrive will transform that station for the hundreds of thousands of people that use it. This is a project, that for ten years, people were saying "it's just too difficult to do. We just don't know how to do it."



But we did make it happen and in three weeks we converted that to this. It's an amazing project and I want to thank now all of the passengers who were so supportive of us and our team during that amazing project. I often say that this is the best road improvement project in the country. 45,000 more seats available for people to travel by train, if those 45 000 people travel by train instead of by car, that is the equivalent of a three lane bumper to bumper traffic jam from Waterloo all the way to Winchester. It's a lot of cars and we are taking them off the road and putting them into comfort on rail and that is going to speed up and improve the journey time for everybody who still has to travel by car.



So when you add all of these things up, in just the next few months, there's a 30% increase in the capacity of major commuter systems, whether it's here in London, or in Manchester, or in Scotland. A real transformation is taking place in our railway with more than 6000 new carriages and trains coming into service in the next few years, what a difference this is going to make.



I want to thank all of you who have been involved in helping us to do this because it's a team game and this is the railway industry delivering some extraordinary projects under very difficult circumstances. Your engineers are the new Brunel's of this country in my view. For those of you who don't know, this is a simple firelighter, but it's an example of how difficult it is to build on our railways today, because this is right over the Great Western

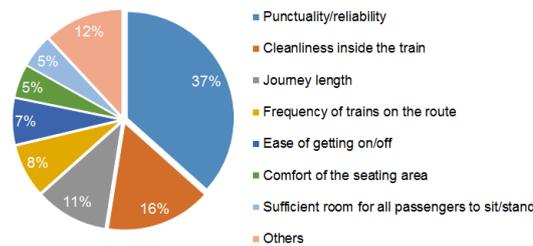
mainline. You can't just build that bridge over the top of a live railway. Somebody had to build it to one side and then jack it out across the railway as the trains were running underneath. That's the kind of innovation and brilliance that our engineering teams are delivering right across the country today and I hope you feel very proud of what they're doing.

It's not just improving capacity with these amazing projects, it's also improving safety. We're improving the safety of our workforce. Fatality Weighted Index is down 40% in just three years. We're improving level crossing risk across the country as a whole by either shutting level crossings or improving safety arrangements at them in a systematic risk based way. We're improving passenger safety as well by reducing train accident risk. We have a relentless focus with the Precursor Indicator model, which is one of the bits of jargon, but it's a very sophisticated approach to helping us manage train accident risk in a better way. Of

course there's still much to do on safety, there's still a lot to do on improving train performance, but let's just for a moment recognise the significant progress that we've made together.

When you look to the future it's important that you think about passengers. What is it that passengers really want from our railway? What is it they want from us and how can we best deliver? This is just one example of some research by Transport Focus on one of our routes, but it's really clear what passengers want.

### What drives passenger satisfaction?



Future of Rail



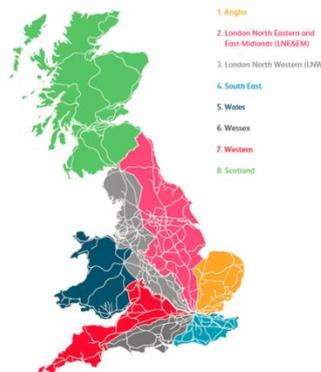
What they want is punctuality and reliability of their service more than anything else. For us to deliver that we cannot do it alone, we have to work hand in glove with the train operating companies. One railway, Network Rail and the train operating companies working together in the interests of passengers, that is at the heart of the transformation strategy that Network Rail has.

I want rail to continue to grow. There's a huge opportunity for rail to continue to grow over the next 20 years, but I will come back to this and talk about some of the challenges. Our country is going to see population growth, urbanisation, people wanting new houses - 250,000 new houses every year. People want these houses close to railways, that's why people want new stations, new railway systems, because the roads are congested and we're delivering better railways.

In order for us to grow and to meet this demand, we know that within Network Rail we also have to transform, and on your desk you will see the latest version of our transformation plan, the latest update of our transformation plan, which is published today. This really shows how we're driving the performance of Network Rail through evolved route businesses. We now run eight different geographical businesses and one run in national customers and freight. There are real businesses with bottom lines, and from 2019 they will be separately regulated with their own regulatory settlements.

### Devolved route businesses

- 8 geographical routes and freight and national passenger
- 2019 – separate regulation
- Strong, ambitious CP6 plan

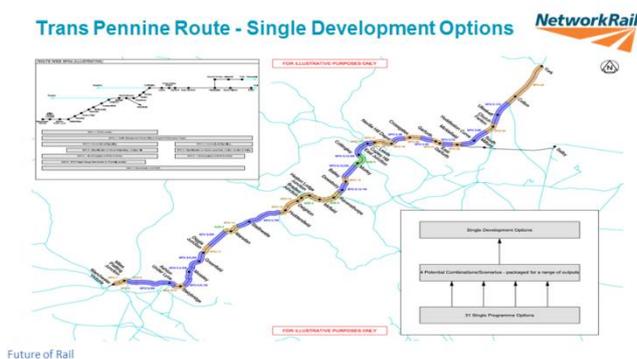


Future of Rail

So Network Rail will become a holding company of a group of companies, and each of these businesses is very closely aligned to train operating partners, and each of these businesses will have a route supervisory board independently chaired, with passenger representation on it with transport focus, pulling track and train together, independently overseeing the way the railway runs for the benefit of passengers.

This is a really important change that will lead to better railways in the future, but we're also making other important changes. We have now the system operator, a widely misunderstood term in some respects, but the system operator is in a sense the brain of the railway. It's the body that tries to use the capacity of the railway system in a most efficient way, giving every user of the railway fair access to that railway system, but it's also now about providing transparent economic analysis and independent economic analysis of the best ways to enhance that capacity going forward. So the industry can help funders and government by demonstrating where are the best places to invest to improve the performance of the railway as a whole. It's a really significant change, and the system operator will be separately regulated from 2019, and regulated not on the basis of how much does it cost, but how much economic value do the ideas that it comes up with create for our country.

Now we all know that CP5 has had some really difficult challenges. Great Western was a very difficult reputational issue for us in Network Rail and as an industry. I will say now that I'm immensely proud of the team that are delivering. Two years ago I had to go fight with the PAC and got a right old roasting, and rightly so, for the fact that the Great Western project was so poorly formulated in its early days. Today the team on the ground are delivering an amazing project and doing it fantastically well, but we're not going to make those mistakes again.

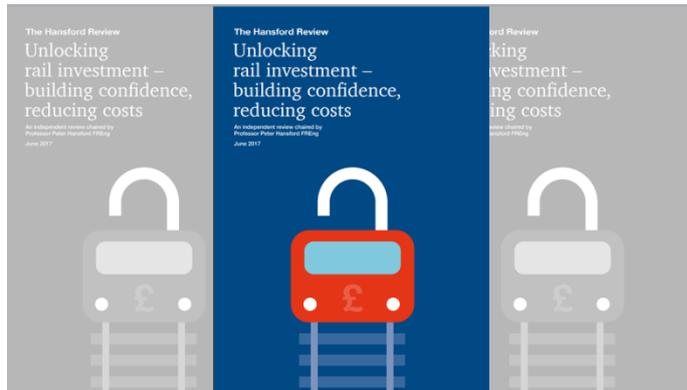


That's why I have said that on projects like Trans Pennine route upgrade, we will do the work first before we tell people how it's done and how long it will take. I said we would deliver a study by the end of December 2017, and we will. I'm really glad I stuck to my guns on this because it's difficult, this is a really tricky piece of railway, and just shooting from the hip and saying we can do it for that much in this length of time is madness. You've really got to take the time to study every single piece of that railway system and work out how you're going to improve the performance of it. So we've taken the time, and we will come back to funders at the end of the year, and then it will be up for Transport for the North and other funders to decide what kind of project they want to buy and build.

There are an amazing number of other projects, unbelievable numbers of other projects, the things that are already ongoing, like Aberdeen to Inverness in the north. And Crewe Hull will be critical when HS2 comes around.

We've got amazing redevelopments of other stations right around the country, in York and Leeds and Bristol and other places around the country. I'm not going to go through it all, but I can assure you the appetite for investment in new projects is huge. Michelle (Dix) will talk about Crossrail 2. What's really important is that we're not going to fund these in a big lump like we did in CP5. We're going to fund these at the point in time when the design of the

project is mature enough to justify the project, and for us to give investors' confidence in what we're going to do and how long it's going to take to do it.



We're going to change the way in which projects will be delivered. I commissioned Professor Peter Hansford to do a review into unlocking rail investment through allowing third parties to either invest, fund or build on our railway system. I'm delighted with the report that he produced and Network Rail has set out its action plan for how we're going to do that. We want more

contestability in the building of projects on our network. It must be the right thing to do, it must drive innovation and creativity, and we are going to make that happen. I'm going to open up the standards at Network Rail. I'm not going to have a situation where people can say Network Rail standards drive cost. If you think you've got a better way of doing it come and tell us. If you're right and we agree with you, there will be a financial reward for anybody who can come up with a better way of doing it than is contained within our standards.

We want to drive innovation. I want our standards to represent the best current thinking of everybody in the industry. It must be industry standards. So CP6 is going to be different, our plans for CP6 are going to be fundamentally different, they're going to be built on solid foundations. We're going to have far greater certainty with the supply chain than we've been able to give people in CP5, because for the supply chain it has been very challenging and continues to be. I don't want that and I know you don't want it, so we have to have solid plans that we can deliver with consistency and certainty. I want plans and I want to work in a way which drives efficiency and innovation, working with contractors and suppliers who want to do things differently.

I want to make sure that we do approve the right projects, which create the greatest economic value, and we do them at the right time, when we've done enough work to give people confidence in how long it's going to take and how it's going to be delivered. Then we can deliver projects as promised because we do have a tremendous track record of delivering projects when we know what it is we've got to build.

**Two critical technology strategies**



- Digital Railway**
  - Traffic management
  - Driver Advisory System (connected)
  - Automatic braking
  - ETCS
- Intelligent Infrastructure**
  - Predict and prevent
  - Remote sensors
  - Drone, aerial and satellite technology
  - Intelligent train inspection

I want to talk about our technology strategy in Network Rail to close, because when you boil it down, we only have two technology strategies. The first is digital rail and the second is what we call intelligent infrastructure.

Now let me cover intelligent infrastructure first. We have to move to a predict and prevent way of working. We have to monitor our infrastructure in a fundamentally different way, so that we can see when things are going wrong before they go wrong, so that we can then intervene. We're doing some really smart stuff. At the moment we have 60 000 remote sensors on our network. 60 000 sounds like quite a lot. One A380 aeroplane has 25 000 sensors, so that shows you how much we still have to do to drive this way of working in our industry.

I want to know when bridges creak long before they do. I want to know when embankments are starting to move long before they do. I want to know when points are going to fail long before they fail. I want to know when track is wearing out long before it's worn out. There's a lot we can do in this area and I'm really excited by some of the stuff we're doing. Some of the aerial surveillance technology we're doing is brilliant. Let me give you one example. We can now fly over the track and using incredible cameras which cost more than a helicopter, we can measure the chlorophyll levels in the trees underneath, so we can see which trees are dying. That means we can go in and chop down the dying trees before they fall down on the railway. That is predict and prevent, that's the sort of thing I'm taking about.



Now digital railway, I believe it's time has come. Let me be more provocative, it's time must come. It's ridiculous. Do you know that the separation distance of a train on a digital railway is two minutes? That's the best we can achieve with the RTNS.

The separation distance of the driverless lorries, which are now about to be tested on Britain's roads, is about 0.3 of a second. That's 400 times better than we achieve on the railway, even if we put the RTMS in. The speed of change in the automotive sector is breathtaking. If we don't move faster, the industry is going to change and passengers' expectations and freights expectations are going to change. The digital railway is a must and we have to get on with it. I'm really proud of David Waboso, who has done so much to give credibility to the programme in the industry, and has now got a plan, which includes in CP5, some significant interventions, in a phased way that will start to make a real difference, but we've got to go much faster.

My grandson was born this year my first grandchild. I don't believe he will ever need a driving license. I don't believe he will ever own a car. He will qualify for a driving licence before HS2 gets to Manchester. Car ownership, in a very short period of time, will be viewed in the same way that today we look at horse ownership. It's really going to change.

We as a railway need to wake up and recognise that if we don't move faster, and with more aggression and more determination, the industry is going to change around us. We're not

short of brilliant people. I've never worked in any industry where I've been so proud of the amazing people that we have in our industry. Up and down the country, we have extraordinarily talented people. So it's up to us as the leaders of this industry to take the lead and take the industry to a different place. Thank you very much.