

Wales Route Strategic Plan

February 2018



1. Foreword and summary

Foreword by the Route Managing Director

Network Rail recognise that the railway in Wales and the borders plays a critical role in connecting people, business and communities in support to both regional and national economic growth. A devolved route business operating within a national framework of Network Rail (NR) ensuring, through the System Operator, that we operate the rail network for the benefit of all.

I am delighted to present our Route's Control Period 6 (CP6) Strategic Business Plan (Plan), delivering a better railway for Wales and the borders. It is a Plan built on the transformation of Network Rail that commenced in Control Period 5 (CP5) and a Plan where we shall continue to deliver a safe, reliable, affordable and growing railway that better meets the needs of our local customers whilst providing maximum value for taxpayers and our funders.

Since 2014 we have taken a number of significant steps that we are extremely proud of; investing over £900m across the route whilst developing stronger relationships with our customers and key stakeholders including the newly formed Transport for Wales (TfW) on behalf of Welsh Government. With the electrification of the Seven tunnel, the re-signalling of the North Wales Coast, and the Cardiff area signalling renewal, all delivering significant performance improvements whilst unlocking infrastructure capacity, bringing track & train closer together in preparation for an enhanced passenger service expected under the next Wales & Borders Franchise.

Our Plan focuses on four key areas in support to a passenger and customer focused business: To run a safe, reliable, affordable and growing railway.

Safety: We already have a strong safety record. Today, NR runs the safest railway in Europe, positioning us well for our plan to deliver a world-class safety record aligned to those achieved in sectors such as construction and

oil & gas. We will continue to reduce the risk of a train accident through better asset management, targeted investment in vegetation management, fencing and drainage renewal combined with the implementation of traffic management. We have already increased our focus on security threats including cyber security.

We will reduce the risk to the public from Level crossings whilst using ALARP principles to target risk reduction in the most efficient way. Our home safe plan ensures we will continue to reduce Railway trespass and prevent suicides and we have a challenging target commitment to reduce workforce lost time injury rates by 59% over CP6, with a focus on front line leadership and behavioural change. This improvement will bring parity between the Wales route and leading safety records in the construction industry.

Reliability: Improving the performance of the railway is key to our customers and local stakeholders. The reliability and capacity of train services has declined in recent years and is a major concern for passengers. Our plan, working in partnership with our TOC's & FOC's, will achieve a further 9% reduction in the number Service Affecting Failures (SAF) in CP6 building on the 25% SAF reduction realised over the last five years.

Enhanced maintenance strategies, greater use of remote condition monitoring and a 'predict and prevent' approach as well as planned investments that include renewing Wales' iconic timber viaduct at Barmouth and delivering Phase 2 of the Port Talbot re-signalling scheme, all so as to deliver a much more resilient and reliable railway.

We will run trains to the minute, constantly striving to reach optimal operational reliability through a continuous improvement culture striving for operational excellence together with our train operating partners.

Affordability: Our plan includes expenditure of £1.34bn (in 2017/18 prices) to operate, maintain and renew the railway. Ensuring CP6 is a success requires a robust Plan focused on effective deliverability and cost efficiency. We have worked with our stakeholders to ensure the rail

network will support their aspirations during CP6 and beyond, and will continue to collaborate with our TOC & FOC customers to maximise the benefits of a devolved autonomous route.

In this Plan we will achieve 6.6% improvement in real terms efficiency, offset by headwinds of 2.8% leading to a gross improvement of 3.8%. We will achieve this through smarter working, better planning, more efficient use of the railway and better technology.

We will ensure the optimum life cycle cost balance is achieved between maintenance and renewals using ISO 55000 Asset Management techniques

Growing Railway: We are forecasting continued growth in the number of commuters over CP6 and investment in capacity improvements undertaken in CP5 has enabled improved journey opportunities to support regional and national economic growth. This together with improvements expected to be delivered by the new Transport for Wales train operating company will significantly increase franchise passenger service performance while also accommodating the expected continued long-term growth in demand for rail services across the route.

We welcome these anticipated improvements for passengers across Wales and the borders, and expect train performance in CP6 to match the high Public Performance Measures (PPM) experienced in the Valleys today, particularly through the challenging autumn period. We will also continue to work with customers and communities to identify other ways to improve services and present these options to funders. We will encourage contestability in the delivery of projects and welcome challenge to Network Rails engineering standards.

A devolved route within a national framework: Underpinning this Plan is a fundamental change to the way Network Rail operates, a devolved autonomous route business operating within a national framework. This created the opportunity for close alignment with customers; track and train coming together in the interests of passengers. Working with stakeholders to ensure our Plan for the rail network supports Transport for Wales, Welsh

Government and the Department for Transport's future aspirations.

Network Rail's aim is to be one of Britain's best employers by attracting, developing and retaining great people. We also aspire to create an environment within the Route that will allow everybody to reach their full potential and Network Rail is already leading the way in moving the rail industry to become more diverse and inclusive. We will reform welfare facilities for our frontline staff and tackle mental health and wellbeing.

We have a devolved leadership team delivering against a Route determination with a Scorecard at the heart of the ORR regulatory framework. We have put in place joint boards that have ensured the most effective partnership with Train Operating Companies ever achieved within Wales and Borders, whilst also enabling the industry to communicate with passengers with one voice. Our new route Supervisory Board is now ensuring we build on this partnership approach and holding the industry to account through the Scorecard.

I am confident that our Plan, with the continued support of our stakeholders and dedication of our people, sets out the course of action that will deliver a better railway for Wales and the borders that we can all be proud of.



Andy Thomas, Wales Route Managing Director

Strategic context

Wales Route is of vital importance to the UK

Established in 2011, the Wales Route operates, maintains, and renews the railway infrastructure in Wales and Borders [Appendix C]. We play a vital role in supporting the economy in Wales, the Borders and beyond, by connecting people to their jobs and providing communities with access to other parts of the region and the rest of the UK. Our primary routes are used by passengers on long distance services between Wales and London, Manchester, and Birmingham. Our interurban and commuter routes transport passengers to and from key economic centres with our rural routes connecting low population areas across the region. The Wales Route is also vital for freight. Approximately 15% of rail freight services across GB start, end, or transverse our network. Freight operators transport steel, coal and petrochemicals in South Wales as well as container traffic between Wales, the Midlands and Southampton.

Major investment has been delivered during CP5

The Route is currently exiting the fourth year of our CP5 programme. Major achievements include:

- Delivery of over £900m of renewals and enhancements. As part of the wider Great Western electrification project, in October 2016 we completed the electrification of the Severn Tunnel and by the end of CP5 we will have electrified the entire route between Filton and Cardiff Central. Since autumn 2017, passengers in South Wales have benefitted from new Intercity Express trains each of which has delivered over 130 extra seats, faster journey times and improved connectivity for South Wales to London, with 40% more seats in the morning peak once the full fleet is in service.
- In December 2016, we completed the Cardiff Area Signalling Renewal programme (CASR) which increases capacity through Cardiff Central from 12 to 16 trains per hour. This project has delivered a more resilient and reliable railway in Cardiff and the Valleys and has boosted performance significantly. PPM performance on the Valley Lines is

consistently above 95%. By the end of CP5 the Port Talbot Phase 1 and North Wales Coast Phase 1 signalling schemes will also be complete. These flagship renewal schemes will deliver a more reliable railway for passengers in the future.

- In 2015 we opened a new station at Ebbw Vale Town we have delivered better stations for passengers across the route, with major schemes at Port Talbot Parkway, Pontypridd, Llandudno and Rhyl. Meanwhile, the new platform eight and south entrance at Cardiff Central has greatly improved the passenger experience at our busiest station. We have also delivered a number of projects to improve access at stations in Wales and Borders, including Machynlleth, Chirk, Llandaff, Radyr and Severn Tunnel Junction.
- We have worked hard to reduce risk across our level-crossing portfolio, meaning a safer railway for communities in Wales and Borders. This has included the full closure of 18 level-crossings. At Talerddig in Mid-Wales we are working collaboratively with Powys County Council and Welsh Government to close eight rural level crossings through the construction of two brand-new bridges.

During CP5 we have also overcome significant challenges. The route began the control period with an incomplete knowledge of our asset condition which led to a significant amount of reactive work diverting resources away from planned activity. Together with the fact that arrangements with contractors were not able to be put in place early enough, this led to a backlog in delivering volumes in some key asset areas. Our CP6 delivery strategy learns from these lessons putting appropriate mitigations in place.

The CP6 context

In developing our CP6 plans, we have undertaken detailed modelling of asset condition as part of our wider asset management framework. This has indicated that by adopting a risk-based approach and carefully prioritising expenditure, we can sustain current levels of safety and reliability and potentially deliver marginal improvements. However, sustainability in CP6 is expected to experience a slight decline as referenced in Section 3 and 5.4.2. This is because to stay within the affordability constraints, we have

had to streamline our work banks by focusing on refurbishments that extend asset life as opposed to undertaking renewals. Opportunities to offset this projection have been included within Appendix D of this report.

Our plans also take into account:

- **Changes in asset policy** in areas such as Track, Structures and Off-track.
- **Deferrals from CP5:** Where deferrals are safety and/or performance critical they have been incorporated into CP6 plans
- **Electrification:** Handover of the new assets is scheduled for late 2019. Staff directly responsible for maintaining overhead lines (OHL) and distribution are receiving specific training whilst other more general safety and awareness training is being rolled out across the Route.
- **SHE strategies:** in areas such as workforce & public, safety, environment and social performance

Beyond these factors, two events have the potential to significantly impact our plans:

- **Uncertainty on future franchise arrangements:** The procurement process for the new Wales & Borders franchise is currently underway and is due to come into effect in 2018. This could include an asset divestment on the Core Valley Lines (CVL) which would see the roles and responsibilities of the Wales Route and the lead TOC change. We have been working with Transport for Wales (TfW) to support them with their procurement.
- **At this point, our working assumption is that OMR of the CVL remains the responsibility of the Wales Route.**
- **Uncertainty on enhancements:** The Wales Route Study (2016) sets out 14 potential schemes for funders to deliver capacity and connectivity enhancements in CP6. Following the UK Government announcement to cancel electrification from Cardiff to Swansea in June 2017 there are currently no committed enhancements within the Wales Route in CP6. **This is the basis of our CP6 submission on OMR.**

Any change to these assumptions will impact the outcomes that we can deliver and a change control mechanism will be required to deal with this.

The enhanced delivery capability of the Route

Another key piece of strategic context is our ongoing programme of work to build the capability of the Wales Route. In part this involves capitalising on Network Rail's wider devolution programme to improve our responsiveness to local issues and increase local accountability. Areas that have recently been devolved to the Route include: Finance, Human Resources, Communications, Utilities, and Contracts and Procurement. In addition, based on lessons learned during CP5, we have put in place a number of initiatives to make our delivery strategy in CP6 more robust. These were outlined in our 2017 Corporate Plan and include a culture change programme, training all employees to utilise LEAN tools and leveraging technology such as Remote Condition Monitoring equipment to allow us to move towards a "Predict and Prevent" strategy.

Vision and outcomes

In developing our plans for CP6, we have a clear view of what success looks like and the outcomes we are targeting. This is founded upon a solid understanding of what our customers, stakeholders, and passengers want from the railway across Wales and Borders.

Purpose	To connect people, businesses and communities to enhance the quality of life for all
Role	We are an asset management organisation
Vision	A better railway for a better Britain to meet the future needs of our customers
Mission	Delivering for our customers a safe, reliable, affordable and growing railway

We recognise the importance of engaging with our customers, stakeholders, and passengers. We hosted two open stakeholder events in 2017 to understand priorities for CP6 and further events will be undertaken in 2018. We have also engaged with Welsh Government to align our plans with TfW's aspirations for the Operator and Development Partner (ODP) procurement and treat TfW as our principle TOC customer due to the franchise award timing.

Our vision and mission is underpinned by five strategic themes. These are safety, customer, people, delivery, and growth. For each of these we have a clear view of the outcomes we are targeting.

Safety

In CP5 Wales Route has maintained consistently good SHE performance as demonstrated by our key performance indicators (KPIs) and we are forecasting this to continue into CP6. Our workforce lost time injury frequency rate (LTIFR) is a key area of focus. In CP5 we have achieved a 35% reduction. In CP6 we will build on this success and reduce this by more than a further 50% underpinned by managing the health and wellbeing of our staff and developing and embedding a learning culture [A.48]. Our CP6 plans support continued passenger and public risk mitigation and minimising our environmental impact.

Customer

In CP6 we will continue in working with our TOC and transport focus in Wales on the key issues that are important to our customers.

We are putting our passengers first with our areas of focus on a safe punctual, reliable network which provides up to date information and facilities to our passengers. We will be working on joint initiatives with our lead TOC with continued collaboration in CP6.

People

Through CP5 we have significantly grown our workforce, enhancing our capability to internally deliver renewals work, whilst focusing on the frontline and areas that drive improved safety and performance for our customers. Wales Route is the lead route with the highest employee engagement having seen an upward trend, increasing in both 2015 and 2017, supported by lower absence levels and employee turnover. We continue to champion early engagement in education, innovation and diversity, working with key stakeholders across Wales and the Borders to develop talented people for the future, within the communities they serve.

We plan to build on these successes in CP6, increasing the capability of our people through the development of a learning culture. Our plans have a continued focus on early engagement, utilising our STEM ambassadors to improve our apprenticeship uptake, introducing pre-apprenticeships and widening accessibility for all. Collaborative working with our TOC and local communities will broaden the skill and diversity of our workforce. As a key employer in Wales and Borders, recruiting talented people with a diversity of skills will improve safety, performance and value for our passengers.

Delivery

Early deliverability reviews have been undertaken with both Infrastructure Projects and the Works Delivery Team to develop effective strategies, with a Level 1 deliverability assessment undertaken in August 2017, as detailed in Appendix I.

Works will be targeted at the most appropriate delivery team dependent upon financial value, level of complexity and competency of resource. To facilitate these discussions a cross-asset renewals work bank has been uploaded into a GIS system to enable geographical representation of the current plans and proposed timeframes for activity. In response to the Hansford Review recommendations we have provided a list of activity that could be contested by third parties. This is contained with Section 7.6.

Future development will include continued collaborative strategic planning sessions with deliverers and framework Contractors in early 2018, with further follow up sessions towards final submission of the SBP and beyond.

Growth

The railway in Wales and Borders plays a key role in supporting the economy. Over the last 10 years use of the rail network has continued to grow significantly with almost 50% more passenger journeys made to, from and within Wales, and forecasts developed in collaboration with the rail industry suggest this growth level will continue to be strong.

In the coming years it is vital to continue to work collaboratively with stakeholders to identify options to deliver future capacity requirements, investigate what opportunities exist to secure investment in the railway and ensuring continued benefits for passengers, communities and the taxpayer.

Our 2017/18 scorecard tracks 31 KPIs, each of which has been developed in collaboration with our customers. 15 measures are owned jointly between the Wales Route and the principal train operator on our network.

Wales Route – Strategic themes and high level outcomes



Each high-level outcome above is supported by detailed key performance indicators (KPIs) included in our Route scorecard.

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2. Stakeholder priorities

Meaningful engagement with our stakeholders is crucial to the authenticity of our Route Strategic Plan (RSP). Developing a comprehensive perspective of stakeholder needs requires us to understand the priorities of our funders, partners, customers, and passengers and the drivers of these priorities. In common with the other Network Rail Routes, Wales Route has to balance the requirements of a vast and diverse set of stakeholders with different interests in the railway across a geographically diverse network. However, for the Wales Route in preparing for CP6, this complexity is compounded by two factors:

1. **Welsh Government (WG) and Transport for Wales (TfW) have greater autonomy and influence:** In 2014, it was agreed that WG, in the form of TfW, would let the contract for the new Wales and Borders operator. WG has also become an increasingly important funder of the railway. However, our primary funder remains UK Department for Transport. Therefore, in developing our CP6 plans, the Wales Route has to balance the requirements of both devolved and national government, as part of our stakeholder plan we are treating TfW as the TOC for the new franchise as it is currently unknown who it will be.
2. **Award of the Wales and Cross Borders Franchise:** The contract for the new franchise is currently being competed and will come into effect from 2018. The contract has the potential to include major infrastructure investment in the CVL with a new Operator Delivery Partner (ODP) being appointed. At the conclusion of the ODP process, the roles and responsibilities of the Wales Route may change in respect of the CVL infrastructure. The ongoing nature of the competition means that there is a high degree of uncertainty as to the identity of our principal customer in CP6 and what their priorities will be. Other Routes such as Wessex and Anglia, where franchise competitions have recently been concluded, are operating in an environment of greater certainty.

Further details for the Wales Route Stakeholder programme are included within Appendix J.

Who are our stakeholders?

Partners	Regulators & Funders	Passenger, Public & Interested parties
Arriva Trains Wales & TfW Great Western Railway Virgin trains XC trains London Midland trains DB Cargo Freightliner Colas, DRS, GBRF Rail Delivery Group British Transport Police Supply chain	Department for Transport Welsh Government Office of Rail & Road Transport for Wales Elected Representatives MP's & AM's Businesses & Developers Local authorities Natural Resources Wales (NRW) Environment Agency (EA) Natural England (NE)	Transport Focus Line side neighbours Local rail interest groups Community rail groups Local Communities Business association Wales W&CB Franchise Bidders: Keolis Amey MTR Corp. Wales Abellio Rail Cymru Arriva Rail Wales

How the stakeholders have been/are engaged with?

Who	How	What	When/Outcome
All identified Stakeholders	External Stakeholder workshop	Presented the CP6 plan in its current form, described the basis for the approach and the funding target we have based our working assumptions on. The primary objective was to obtain feedback on stakeholder priorities to support the development of our plan. A second session was used to update on progress to date and review how the feedback has been used and incorporated where applicable. Specific questions were asked to obtain further engagement, feedback and understanding of priorities	23 rd February 2017, 58 invitees, 37 attended Feedback obtained and reviewed for incorporation into the plan 27 th July 2017, 70 invitees, 52 attended Further update on plan progress and how feedback was used, raising questions for the stakeholders to feedback on
Route, IP & Supply Chain	Workshop	A workshop identifying issues that have affected delivery of CP5 in Wales and the areas of opportunity to focus on over the next 18 months to ensure a deliverable CP6 plan	6 th April 2017, 40 invitees, 32 attended Created a team to follow up and complete actions identified
Route, IP & Supply Chain	Delivery Integration & Efficiency Team (DIET)	Formed the DIET to work on the outcomes from the Route, IP and supply chain workshop	May 2017 – September 2017, 12 team members Providing input to specific sections of the RSP to support deliverability
ORR PR18 engagement	Presentation and discussion	L1 Engagement with ORR on our plan development L2 Engagement with ORR on our plan development ORR consultation Route response L3 meetings with RAMs First RSP review meeting	15th May 2017 21st June 2017 18th July 2017 September 2017 & November 2017 December 2017
Elected representatives – WG, AM & LGA	Established current periodic Newsletter Established assembly drop in session	Provide details of our CP6 plans to a wide political audience during the summer recess Provide a face to face Q&A session for AM's & LGA on the current plan	August 2017 27th September 2017, periodically planned
Community Rail, TOC & FOC,	Established Head of Customer Relations forums, directors liaisons 1-1 and organised briefs	Quarterly meetings with each community rail group, engaging in person on topics for discussion TOC/FOC interactions through various channels, performance meetings, directors liaison meetings, train planning, timetable planning	Quarterly – next meeting in September Periodic forums with TOC & FOCs customers TfW briefing November 2017




How stakeholder needs have been prioritised?





Feedback from stakeholders has been continually reviewed by the Route and independently. This feedback has been used to assist in prioritising areas for greater focus and investment; ensuring stakeholder needs are addressed whilst balancing the activities across safety, performance, reputation and sustainability.




Prior to the review of our stakeholder feedback it was noted that there are certain expectations of the Railway that will go unmentioned in such events that relate heavily to the Wales Route mission to deliver for our customers a **safe, reliable, affordable and growing railway**. This is at the core of our CP6 plan, and so the outputs from this process have been used to make subtle adjustments to elements of our plans to exceed our customers' expectations.

The first stage of analysis was to study the feedback given from workshops and other engagement mechanisms presented in the previous tables, then group common feedback and answers together to consolidate. The second stage was to take a holistic view of the feedback that had been collected, identify common categories from all feedback and group these into themes below.

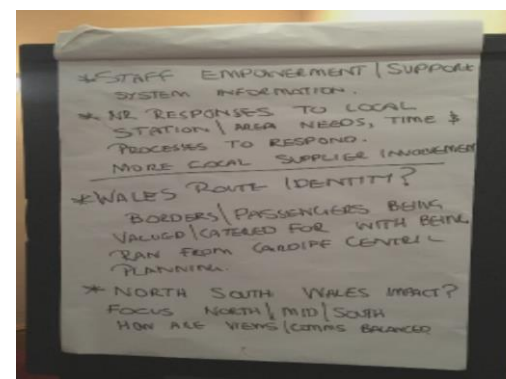
This approach means that the prioritised needs listed below are directly from our stakeholders in their words.

Consolidated number	Prioritised need	Extent its addressed	Link to Short & long term route objectives	Rating	Reason
1	More consideration of passengers	We will optimise assets and resources to deliver efficiencies to our customers, improving the passenger experience reducing disruption, recovering quicker and cost, whilst improving customer information with our Incident Officer team and new technology such as Traffic Management in the WROC	Passenger satisfaction improvement is both a short & long term route objective. It is measured through surveys and is an agreed scorecard measure with ATW		This is shown as Amber due to the ongoing nature of the activity and the complexity of measuring success against the proposed outputs of our plan
2	How will you deliver for passengers and lineside neighbours?	We will continue to build on our work with our rail partners, using satisfaction survey results and feedback, working closer with Transport Focus, Rail Interest Groups & Community rail groups, ensuring we respond & communicate effectively with communities, neighbours and passengers alike	Improving passenger satisfaction & reducing line side complaints is an agreed scorecard measure with ATW		
3	A more joined up approach is required, with shared objectives	Work with customers to build on successful collaboration with ATW e.g. Project Tiger and Industry Operations Board Continue collaboration with WG: MoU & Behaviours Charter, support WG/TfW to let new franchise	The Route has created an Industry Supervisory Board to further build collaboration, represent the customer and for the railway in Wales and Borders to be held to account with an independent chair		

4	Greater transparency is needed during planning and delivery	Cross-disciplinary planning across operations, maintenance, renewals & enhancements reporting on processes through a score card measure. The Route is also undertaking a Planning Review starting at section level with the aim of improving our planner capability in support of efficient planning	The Route has a joint scorecard measure of T-18 & T-12 late notice changes to access arrangements and looking to further joint working with the new franchise		
5	Better contingency planning	Scenario planning to improve contingencies, investing in our joint command & control functions to have more robust business continuity strategies and application. We are introducing Incident Officers & Traffic Management in the WROC to enable improvements in: incident response, ownership of contingency plans, embedding changes associated with lessons learnt	Our objective is to have a joint command & control structure using new technology & processes to minimise impact to customers		Shown as an Amber risk to delivery due to the franchise process
6	More flexible response to change/ ability to react to short-notice changes in the programme	Comprehensive projects work bank that enables us to respond to short notice change and maximise opportunities, to have contingencies in place for engineering work alterations to have the ability to utilise possessions for other work if work is cancelled	Our objective is to have a work bank that is aligned with our supply chain and our joint access planning process to enable maximum utilisation of possessions and rail access		Shown as an Amber risk due to the complex nature of aligning multi-functional renewal interventions with maintenance activity fair enough out to minimise disruption and maximise access opportunities
7	Does the Wales Route have the capacity/ability to deliver on its plans?	Yes, we will optimise assets and resources to deliver efficiencies to our customers and reduce disruption, ensuring the work bank is not only deliverable but achievable with supply chain partners and IP being heavily involved in the planning processes through our 'DIET' initiative	We are working with our supply chain giving an early view of the work bank with the objective of aligning it with their resource & delivery planning throughout CP6 and beyond. Where certain interventions require a national approach (e.g. major signalling renewals) we are working with other routes to optimise resource and avoid conflict		Shown as an Amber risk to delivery due to bringing Route, IP & SC together and enabling a smooth work flow into year 1 of CP6 and avoiding the drop off of work that occurred in year 1 of CP5

8	Supply chain and partners need to be engaged early	Better use of in-house capability including joint office with our in-house design group. Changing the way we contract to leverage economies of scale associated with national contracts where appropriate and cultivate local supply chain investing in businesses across Wales and Borders.	Supply chain partners have been engaged and feeding into our planning to ensure the delivery plan is an adequately resourced work bank throughout CP6		Shown as an Amber risk due to challenging national frameworks
9	Improved approach to access	Build engineering possessions requirements in to the access requirement of ODP contract and to meet requirements of FOCs	This is being raised as a franchise requirement for the new ODP to ensure aligned approach to planning and granting access, will be finalised with the award		Shown as a Red risk due to uncertainty of the franchise award and to what extent our requested requirement will be met
10	Need to align schemes with both the Enhancements planned for the Route and schemes in development/ under consideration by other stakeholders	We will be focusing more effort into third party schemes and collaboration with developers e.g. Cardiff parkway development, as this could also lead to match funding opportunities	The Business Development Director is leading on opportunities to generate income, we are sharing our renewal plans with WG and TfW to align work in CP6		Shown as a Red risk due to the uncertain nature of securing third party investment schemes to be able to align with our own work bank

Stakeholder session receiving direct feedback



Wales Route and Freight & National Passenger Operators (FNPO) KEY PRIORITIES contained in Appendix G

During 2016/17 the Freight and National Passenger Operators (FNPO) Route was established as the company's ninth operational route, to look after nationally focused customers whose interests extend across our routes. Our national aim is to grow rail freight and strengthen support for Cross Country Trains (XC), Caledonian Sleeper (CS) and other national operators i.e. charter operators and aspirant open access passenger operators

Control Period 6 (2019 – 2024) FNPO plan of activities

- ▶ CP6 Strategic Freight Network projects on Wales Route
- ▶ Interactive map of the network for Route Availability (RA), Gauge clearance, etc. that is easily accessible
- ▶ Achieve and stabilise Wales Rail freight Delivery Metric (R-FDM) at 94.4% and maintain through CP6
- ▶ Removal of agreed restrictions to improved capability
- ▶ Freight infrastructure, Freight only lines (FOLs/yards) is maintained, refurbished, renewed to safely facilitate forecast growth and operations

3. Route objectives

This plan is predicated on the key assumptions laid out in Appendix B and will be impacted as these assumptions change

Route scorecard summary

The long term balanced scorecard will align our business to deliver against our ambitions and aspirations and reflect stakeholder priorities and needs [Section 2]. During CP5 the industry scorecard formed the basis of monitoring performance by ORR as a precursor to route regulation in CP6.

The scorecard outcomes within this document are deliverable within the funding available.

We have confidence in delivery because we understand how our volumes, costs, and initiatives drive scorecard outcomes. Train performance has been modelled “bottom up” and “top down” by our performance team who have helped establish Wales and Borders as one of the best performing of all NR Routes. Trajectories for safety and asset management measures are also underpinned by modelling and analysis.

Our Asset Managers used a combination of the central ‘Technical Authority’ forecasts and local evidence to estimate the relative impacts of volume changes, improvement initiatives and external risks. To further validate deliverability we have developed an Outcome Framework tool that brings together all these CP6 volumes and initiatives and maps them to scorecard outcomes.

The ongoing Wales and Borders franchise competition inevitably means we have less certainty on CP6 customer measures and our approach has been to base metrics and trajectories on engagement with ATW and TfW.

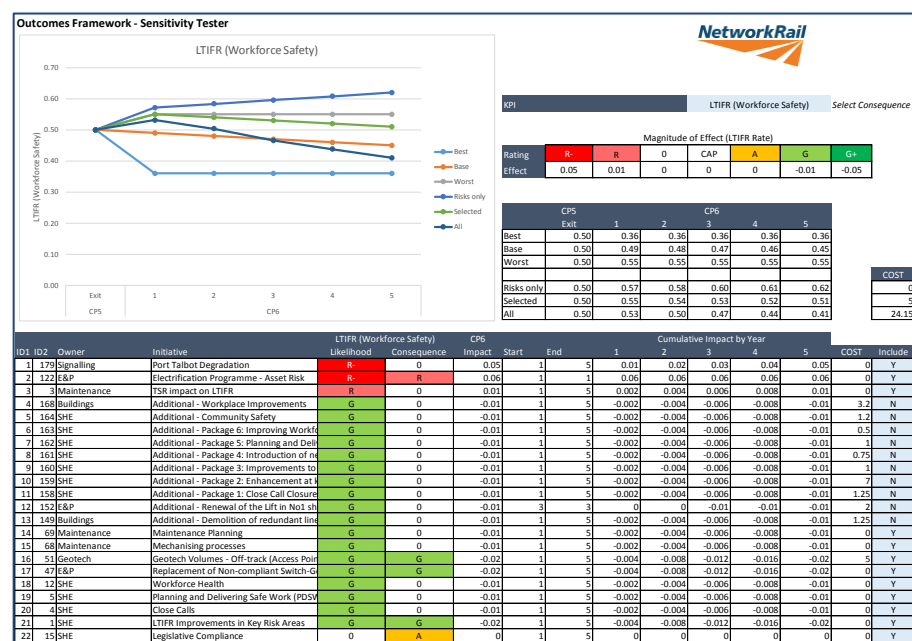
Our Outcome Framework tool distinguishes between Network Rail, TOC and jointly-led activities so that customer outcomes can be recast to reflect the plans of any new franchisee.

Developing the scorecard

Our scorecard has been designed to reflect the unique challenges and opportunities across the Wales Route during CP6 and beyond. It is based on:

- A thorough understanding of current scorecard results, the reasons for current performance, and a robust view of the forecast CP5 exit position
- A clear view of stakeholders priorities for improvements [Section 2]
- Activity is aligned to the funding available as announced in the Statement of Funds Available (SoFA) [Section 5]
- Detailed work banks and well developed initiatives [Appendix J]
- Robust analysis of headwinds and tailwinds [Section 7]
- A critique of the expertise and capacity to scope and undertake OMR works both within the Wales Route and, crucially, the supply chain [Section 8]
- A robust view of access to the railway [Section 7.3].

The screenshot below is from our Outcome Framework [Appendix K]. This spreadsheet tool contains all the key volumes, initiatives, external risks identified for CP6 and maps them to scorecard outcomes by KPI. We have used it to help validate deliverability of the scorecard trajectories. For instance, we have used it to quickly identify all initiatives that drive a specific KPI, to help assess whether the initiatives are sufficient to support the trajectories being forecast. We have also used it to understand the potential impact on outcomes of switching initiatives on or off or delaying their impact.



Metrics, trajectories, trade-offs & achievability

Within the perceived funding available, and as agreed with our stakeholders, we have prioritised safety, operational performance, and customer/ reputation above asset sustainability.

Safety: Safety: Our Strategic Business Plan builds on our achievements in CP5 with continued improvement in the quality of Close Call reporting and timely closure, improvements in Planning and Delivering Safe Work (PDSW) and elements of the Home Safe Plan supported by the inclusion of the RM3 KPI in our long term scorecard.

The challenging LTIFR target included within the Wales Route scorecard reflects Network Rail's national aspiration to benchmark itself against other industries who lead on safety. However, the criteria that other such industries use vary from how Network Rail currently measures LTIFR.

As a result it is recognised that there will need to be a level playing field with which to compare NR's LTIFR, which will require changes to Network Rail's definition of what incidents are counted as LTIs in CP6 [A.48].

A suitably funded Home Safe Plan developed and implemented by Wales Route and STE combined with the activities articulated in our Strategic Business Plan will deliver this step change in organisational culture.

Level Crossing risk reduction in CP6 is supported by funding to target a reduction in level crossing risk including 30 level crossing closures, 15 passive to active upgrades and 20 active crossing renewals. Development funding has also been included within the submission to enable strategic closures in future control periods. In CP6 this activity will build upon the Wales Route's ongoing commitment to reduce public and passenger risk associated with level crossings, with further plans being developed for CP7/8. Asset safety performance is discussed in Section 5 of this report.

Train performance: Measures are focused on passenger outcomes, with a move towards *Average Passenger Lateness* and *On time at all recorded stations*. Trajectories are based on detailed modelling and are driven by initiatives associated with signalling, remote condition monitoring, operations that includes incident response and Operator improvement. The Freight Delivery Metric has been developed in collaboration with the route and Freight & National Passenger Operators (FNPO).

Customer: Our proposed customer metrics are based on feedback from

stakeholders, with focus on the perception of Network Rail by passengers, the public and government. A change mechanism will be required to agree these with the new train operator associated with the upcoming W&B franchise.

Achieving the passenger focused trajectories such as customer satisfaction is largely driven by delivering asset volumes for buildings, structures, drainage and vegetation. Lessons learned to better profile work over time and manage communications should drive down complaints. Our emphasis on collaboration and joint working should be reflected in positive reinforcement from customers and TfW alike.

People: A suite of internal KPIs will be used to track people performance which extends to our supply chain. The following KPIs have been submitted for the scorecard; Performance appraisal completion with 50% succession plans completed and joint employee recognition. Trajectories have been developed by the Route HR team and reflect our own ambition to deliver a step change in our internal delivery capability by investing in the right skills and capability so we deliver our mission and vision [Section 1].

Sustainability and Asset Management: Measures focus on our asset reliability and volume delivery. Asset reliability is anticipated to improve by 8-9% compared to the CP5 exit position due to key re-signalling and level crossing renewals and the benefits of the intelligent infrastructure programme.

Long term forecasting in Appendix F for our submission projects that sustainability will decline by less than 2% within CP6 as our plans prioritise performance and reliability within the available funding envelope. As set out in Appendix D, additional funding opportunities are included to move towards a sustainable level of activity. We have validated deliverability of asset volumes through close working with partners and the supply chain.

Financial performance: The Route will include all other “centrally

directed” measures. Determination of achievability has been developed through consultation with key members of the Route that have accountability for the delivery of activities that impact upon KPIs within the Route scorecard.

Outperformance

Recent guidance from ORR has required Network Rail to consider how further funding to catch-up with work that has been deferred in CP5 might be prioritised.

We have carefully considered this with stakeholders and have identified a prioritised list of initiatives detailed in Appendix D that would improve performance across our scorecard. In particular:

- Additional funding to reduce level crossing risk
- Additional funding to improve train performance.
- Additional funding to address asset sustainability, providing value for money in the long term by reducing the burden in future control periods.

Regulatory floors

In order to give greater clarity on the minimum levels of performance and sustainability expected by the regulator (ORR), our plan includes regulatory floors for the key metrics in these areas. These floors, set out in the following table, will act as a level below which ORR would consider undertaking formal investigation for licence breach. Further information on the methodology used to calculate these regulatory floors is in Appendix L.

Regulatory floors	19/20	20/21	21/22	22/23	23/24
Consistent Route Measure – Performance (CRM-P)	2.00	2.00	2.00	1.99	1.99
Freight Delivery Metric (FDM-R)	92.7%	92.7%	92.7%	92.7%	92.7%
Network Sustainability	90.0%	90.0%	90.0%	90.0%	90.0%

Scorecard for remaining years of CP5

Wales Route Scorecard 2017/18



Safety	AIP % WEIGHTING		WORSE THAN TARGET	TARGET	BETTER THAN TARGET
Lost Time Injury Frequency Rate (LTIFR)	20%	5%	0.377	0.359	0.341
Close calls raised		2%	5,475	7,300	9,125
YTD close calls closed within 90 days		3%	80%	85%	90%
Top 10 Milestones to reduce level crossing risk (based on risk profile agreed)		4%	6	8	10
Severe safety incidents		2%	5	3	0
% reduction in overall precursor events		4%	5%	10%	15%
Financial Performance	AIP % WEIGHTING		WORSE THAN TARGET	TARGET	BETTER THAN TARGET
Financial Performance Measure (FPM) - Gross excl. enhancements (£m)	20%	10%	£(12.7)m	£0m	£12.7m
Financial Performance Measure (FPM) - Gross enhancements only (£m)		5%	£(16.4)m	£0m	£16.4m
Cash Compliance –Income & Expenditure		5%	£(4.4)m	£0m	£22.2m
Investment	AIP % WEIGHTING		WORSE THAN TARGET	TARGET	BETTER THAN TARGET
Top Investment Milestones (inc. Digital Railway Must Win)	10%	5%	60%	80%	100%
Top investment milestones (3rd party)		5%	50%	75%	100%
Asset Management	AIP % WEIGHTING		WORSE THAN TARGET	TARGET	BETTER THAN TARGET
Reduction in service affecting failures	10%	4%	-2.5%	0.0%	2.5%
7 Key Volumes		5%	90%	95%	100%
Top 10 adverse camber sites risk based plans agreed		1%	80%	90%	100%
Train Performance	AIP % WEIGHTING		WORSE THAN TARGET	TARGET	BETTER THAN TARGET
ATW PPM	24%	8%	92.8%	93.5%	93.6%
ATW CASL		2%	2.60%	2.34%	2.31%
ATW Joint T-18 and T-12 delivery		2%	95%	98%	100%
GWR Right Time Departures leaving wales route at Severn Tunnel Junction		2%	52%	56%	60%
Delay per Incident (DPI)		1%	21.3	19.4	17.5
TSR targets		1%	49	44	40
Seasonal Preparations (Milestone'v' Target)		2%	80%	90%	100%
Joint reduction in Autumn attributed delay minutes		2%	13,852	12,721	12,554
Freight Delivery Metric (FDM)		4%	93.7%	94.7%	95.7%
Locally Driven Customer Measures	AIP % WEIGHTING		WORSE THAN TARGET	TARGET	BETTER THAN TARGET
Joint assembly member favourability	16%	3%	-2%	0	2%
NR/ATW joint media use of 'working with...'		2%	58	65	72
Passenger satisfaction (NPS)		4%	80%	82%	85%
Reduction in Railway Work Complaints		1%	433	429	390
Joint strategic events with employees		2%	9	12	15
Joint employee recognition		2%	1	3	5
Culture of continuous improvement in support of op. excellence.		1%	80%	90%	100%
Performance management conversations		1%	80%	90%	100%
	100%				

Achievability definitions (applies to "target" value)	
RED	Very challenging, likely to require substantial organisational and cultural change to achieve and/or highly dependent on third party involvement
AMBER	Challenging, likely to require moderate organisational and cultural change to achieve and/or dependent on third party involvement
GREEN	Achievable, builds on existing organisational and cultural capabilities and little or no dependency on third parties for delivery

Long-term scorecard

Safety	Targets	18/19	19/20	20/21	21/22	22/23	23/24	24/25	Achievability
Lost Time Injury Frequency Rate (LTIFR)	Worse than Target	0.500	0.390	0.378	0.363	0.348	0.334	0.321	
	Target	0.410	0.350	0.326	0.303	0.233	0.170	0.170	
	Better than Target	0.370	0.350	0.326	0.303	0.233	0.170	0.170	
Train accident risk reduction measures	Worse than Target	60%	60%	60%	60%	60%	60%	60%	
	Target	80%	80%	80%	80%	80%	80%	80%	
	Better than Target	100%	100%	100%	100%	100%	100%	100%	
Top 10 Milestones to reduce level crossing risk	Worse than Target	8	8	8	8	8	8	8	
	Target	10	10	10	10	10	10	10	
	Better than Target	12	12	12	12	12	12	12	
RM3	Worse than Target	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	Target	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	Better than Target	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Train Performance	Targets	18/19	19/20	20/21	21/22	22/23	23/24	24/25	Achievability
Consistent Route Measure - Performance	Worse than Target	1.63	1.64	1.66	1.72	1.75	1.78	1.78	
	Target	1.55	1.54	1.54	1.54	1.53	1.52	1.52	
	Better than Target	1.48	1.45	1.42	1.37	1.31	1.26	1.26	
Freight Delivery Metric (FDM-R)	Worse than Target	93.0%	93.0%	93.0%	93.0%	93.0%	93.0%	93.0%	
	Target	94.4%	94.4%	94.4%	94.4%	94.4%	94.4%	94.4%	
	Better than Target	94.8%	94.8%	94.8%	94.8%	94.8%	94.8%	94.8%	
Average Passenger Lateness	Worse than Target	2.74	2.75	2.77	2.86	2.90	2.94	2.94	
	Target	2.60	2.57	2.56	2.53	2.51	2.50	2.50	
	Better than Target	2.45	2.38	2.31	2.26	2.20	2.14	2.14	
PPM	Worse than Target	91.30%	91.30%	91.20%	90.90%	90.80%	90.70%	90.70%	
	Target	91.80%	91.90%	91.90%	92.00%	92.10%	92.10%	92.10%	
	Better than Target	92.30%	92.50%	92.70%	92.90%	93.10%	93.30%	93.30%	
GWR Right Time Departures leaving Wales Route at Severn Tunnel Junction	Worse than Target	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	
	Target	44.5%	44.5%	44.5%	44.5%	44.5%	44.5%	44.5%	
	Better than Target	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	
Cross Country - On Time Departures From Cardiff	Worse than Target	67%	70%	71%	72%	73%	74%	75%	
	Target	72%	75%	76%	77%	78%	79%	80%	
	Better than Target	77%	80%	81%	82%	83%	84%	85%	

Customer	Targets	18/19	19/20	20/21	21/22	22/23	23/24	24/25	Achievability
Passenger satisfaction (NPS)	Worse than Target	80%	82%	82%	82%	82%	82%	82%	
	Target	82%	86%	86%	86%	86%	86%	86%	
	Better than Target	84%	88%	88%	88%	88%	88%	88%	
Your Voice Actions	Worse than Target	75%	75%	75%	75%	75%	75%	75%	
	Target	85%	85%	85%	85%	85%	85%	85%	
	Better than Target	100%	100%	100%	100%	100%	100%	100%	
Joint Employee Recognition	Worse than Target	1	1	1	1	1	1	1	
	Target	2	2	2	2	2	2	2	
	Better than Target	3	3	3	3	3	3	3	
Reduction in railway work complaints	Worse than Target	428	433	433	433	433	433	433	
	Target	386	429	429	429	429	429	429	
	Better than Target	347	390	390	390	390	390	390	
Stakeholder perception survey	Worse than Target	-2%	-2%	-2%	-2%	-2%	-2%	-2%	
	Target	0%	0%	0%	0%	0%	0%	0%	
	Better than Target	2%	2%	2%	2%	2%	2%	2%	
Joint strategic events with employees	Worse than Target	4	4	4	4	4	4	4	
	Target	6	6	6	6	6	6	6	
	Better than Target	8	8	8	8	8	8	8	
Sustainability/Asset Management	Targets	18/19	19/20	20/21	21/22	22/23	23/24	24/25	Achievability
Reduction In Service Affecting Failures (SAF)	Worse than Target	-2.5%	-0.5%	0.0%	0.0%	0.4%	0.0%	-1.5%	
	Target	0.0%	2.0%	1.5%	1.5%	1.9%	1.5%	0.0%	
	Better than Target	2.5%	2.3%	1.7%	1.7%	2.4%	1.9%	1.5%	
CRI ¹	Worse than Target	7.4%	0.6%	0.6%	0.6%	1.1%	1.1%	-1.1%	
	Target	10.6%	1.7%	3.0%	4.3%	5.9%	7.2%	0.0%	
	Better than Target	13.8%	2.1%	3.6%	5.1%	7.3%	9.0%	1.3%	
7 Key Volumes	Worse than Target	90%	90%	90%	90%	90%	90%	90%	
	Target	95%	95%	95%	95%	95%	95%	95%	
	Better than Target	100%	100%	100%	100%	100%	100%	100%	
Top Investment Milestones	Worse than Target	60%	60%	60%	60%	60%	60%	60%	
	Target	80%	80%	80%	80%	80%	80%	80%	
	Better than Target	100%	100%	100%	100%	100%	100%	100%	

¹ CRI is re baselined to control period exit position

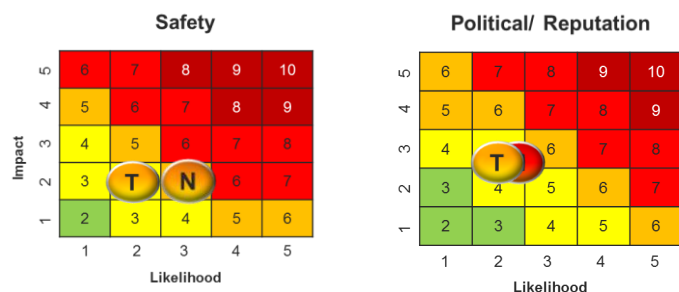
Sustainability/Asset Management	Targets	18/19	19/20	20/21	21/22	22/23	23/24	24/25	Achievability
Network Sustainability – measure to be defined	Worse than Target	TBC	TBC	TBC	TBC	TBC	TBC	TBC	
	Target	0.3%	TBC	TBC	TBC	TBC	-1.5%	TBC	
	Better than Target	TBC	TBC	TBC	TBC	TBC	TBC	TBC	
Financial Performance	Targets	18/19	19/20	20/21	21/22	22/23	23/24	24/25	Achievability
Financial Performance Measure (FPM) - Gross Excl. Enhancements (£m)	Worse than Target	£(10.7)	£(5m)	£(5m)	£(5m)	£(5m)	£(5m)	£(5m)	
	Target	0	0.000	0.000	0.000	0.000	0.000	0.000	
	Better than Target	5	£5m	£5m	£5m	£5m	£5m	£5m	
Financial Performance Measure (FPM) - Gross Enhancements only (£m)	Worse than Target	£(11.2)	£(6m)	£(6m)	£(6m)	£(6m)	£(6m)	£(6m)	
	Target	0	0.000	0.000	0.000	0.000	0.000	0.000	
	Better than Target	6	£6m	£6m	£6m	£6m	£6m	£6m	
Cash Compliance – Income & Expenditure	Worse than Target	£(10.7)	£(3m)	£(3m)	£(3m)	£(3m)	£(3m)	£(3m)	
	Target	£(5.4)	0.000	0.000	0.000	0.000	0.000	0.000	
	Better than Target	0	£10m	£10m	£10m	£10m	£10m	£10m	

Scorecard Stakeholder Endorsement

Wales Route has been developing the long term scorecard in collaboration with Welsh Government (WG) and Transport for Wales (TfW) due to the imminent franchise change. A representative for TfW has outlined to the ORR the close working relationship experienced with the Wales Route during the production of the Route Strategic Plan, along with the commitment to maintain this strong relationship into the new Wales and Borders franchise. A copy of this correspondence is included within Appendix A.

4. Safety, Health & Environment (activity prioritisation on a page)

Summary of objectives		Our SHE objectives are: to get everyone home safe every day, to maintain and improve our passenger and public safety performance, and to minimise our impact on the environment.		
No	Key constraints, risks and opportunities	What we plan to do	Owner	Timescale
1	O: Reduce Level Crossing Risk	Asset management plan in place to continue to risk assess, inspect and maintain existing level crossings. Investment identified to fund targeted closure and upgrade works with options to fund further level crossing risk reductions included within Appendix D. Operational risk reduction improvements will be made through the continuation of the risk based approach to sighting distances and the wider vegetation funding increases	DRSAM/HoRSHE	CP6
2	O: Reduce intended or unintended misuse and access to our railway infrastructure	Continue to develop and implement innovative solutions to reduce the risk to passengers and public. Working with industry partners and local communities to efficiently and effectively mitigate risks (including electrification) aligned to risk and train performance impact	HoRSHE	CP5 - CP6
3	O: Improve our management of our environment, sustainability, energy and social performance portfolio	Implement an Environment Management System (EMS) compliant to ISO140001:2015 and an Energy Management System (EnMS) aligned to ISO 55000 to enable proactive management of environmental and energy risks and opportunities. Increase our specialist resource to improve our environment, social policy and ecology management in line with legislative requirements and our policies and standards	DRSAM/HoRSHE	CP5 - CP6
4	O: Workforce Safety – reducing the risk exposure of our workforce	Implement the Route SHE Strategy. This is structured around 6 key areas: Safety Leadership, track worker safety, system safety, risk management and assurance, health and wellbeing and developing a Learning Culture. Elements that support this include the Home Safe Plan, access point and safe cess planned volumes, close call fund, fatigue risk management funding, mobile welfare provision, driving safely improvements and continued application of the Wales Route Risk Management Procedure	HoRSHE/COO/DRSAM/SPM (electrification)	CP5 – CP6
5	R: Increase Train accident risk due to re-prioritisation of adverse weather mitigation schemes for more policy aligned interventions	Mitigation is structured around key areas: Route proposal to use seasonal timetables to mitigate adverse weather, an increase in reactive maintenance funding for structures, and improved data quality, increase in identified funding for fencing & drainage, and the use of Intelligent Infrastructure (II) supporting a predict and prevent approach to asset management	DRSAM/COO	CP6
6	R: Earthworks failures impact train operations and passenger safety	Increase in CP5 levels of investment for Geotechnical and Drainage assets in CP6 to maintain tolerable risk profile across the route	DRSAM	CP5-CP6



Summary of risk outcome

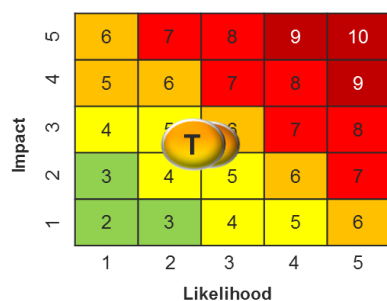
The Wales Route net safety output is within the corporate risk appetite.

Improvements in workforce, passenger & public safety and developments in our approach to the environment, sustainability, energy & social performance moving the route from our current position (net) to a forecast (target) position.

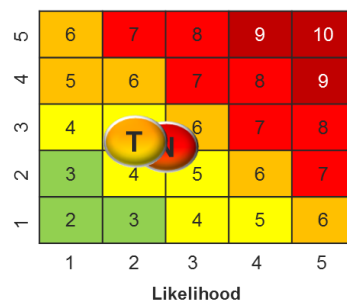
Train performance

Summary of objectives		Increase the focus of the route on the end user experience (passenger / freight), prioritising operational effectiveness, robust timetables and a closer alignment with end user demand. Whole system performance trajectories alignment with franchise aspirations.			
No.	Key constraints, risks and opportunities	What we plan to do	Owner	Customers impacted	Timescale
1	C: Passenger growth forecast to continue across the network	Operational effectiveness improvement activities increasing visibility of sub-threshold delays at and between stations. Rolling stock strategy	COO	All TOCs	CP5 / Early CP6
2	R: Additional train service aspirations across network and interaction with Core Valleys Lines	Assess impact of additional services on train performance to inform industry timetable development decisions	DRS / HoP	All TOCs	CP5 / Early CP6
3	O: Operator performance improvement (Rolling stock strategy, Train crew, Stations delays etc.)	Continued engagement with WG / TfW to ensure latest assumptions are captured to inform scenario planning	RPD / HoP	All TOCs	CP5 / Early CP6
4	O: Performance outputs alignment (metrics, franchise outputs, schedule 8)	Performance reporting, analysis and forecasting shift to passenger focused measures such as on-time across all stations and average passenger lateness. Collaboration with TfW to ensure performance trajectory aligned with franchise outputs	RPD / HoP	All TOCs	CP5 / Early CP6
5	O: Incident and Service management capability	Introduction of Traffic Management System (TMS) and Senior Incident Officer (SIO) organisation to lead response to incidents and recovery of train service. A key focus for the remainder of CP5 is to embed the implementation of agreed recovery plans with TOCs and NR	COO	All TOCs / FOCs	Late CP5
6	R: Desired level of renewals funding to mitigate performance risk adequately	Increase in investment into OpEx activities for Track, Off-track and drainage	DRSAM	All TOCs / FOCs	CP6
7	O: Vegetation management funding	Additional investment to clear vegetation back to reduce signal and level crossing sighting issues along with reduction in adhesion issues	DRSAM	All TOCs / FOCs	CP6
8	O: Scheme development sponsor guidelines / modelling capability	Improve investment framework by increasing focus on defining train performance requirements through GRIP along with developing timetable modelling capability	DRS / HoP	All TOCs / FOCs	CP5 / Early CP6

Performance



Political/ Reputation

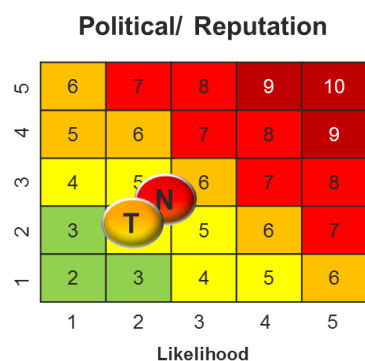


Summary of risk outcome

Assuming no change to current train service levels and operator performance improvements are delivered there is confidence to improve performance throughout CP6. However, we have undertaken scenario planning alongside TfW to quantify the impact of the proposed changes in train service aspirations. This presents a performance risk, but there are also opportunities to mitigate this by a change in rolling stock

Locally driven customer measures

Summary of objectives		The Wales Route is committed to working closely with all of our stakeholders to ensure we align to the needs of our customers.			
No.	Key constraints, risks and opportunities	What we plan to do	Owner	Customers impacted	Timescale
1	○ Customer Events	Annual meeting for information sharing and relationship building with our customers	CRE	All TOCs and FOCs with a Wales Route interface.	CP5 – CP6
2	○ Support Category A Events in the capital.	Route Scorecard Measure (2016/17) S15. Support ATW with mass transit through Cardiff Central Station by providing command structure and Station Support Volunteers	CRE	ATW and passengers	CP5 – CP6
3	○ Passenger Information During Disruption :PIDD	Route Scorecard Measures (2016/17) S11 and S61. Support ATW with customer information during times of perturbation	CRE	ATW and passengers	CP5 – CP6
4	○ Community Rail [Ref A.24 & A.28]	Assist User Groups/charitable bodies to become custodians of non-operational locations that decreases our maintenance burden and potentially increases customer satisfaction	CRE	User Groups	CP5 – CP6
5	○ Passenger Satisfaction: Measured through National Passenger Survey conducted twice yearly	Continue to support our lead TOC through actions agreed on the joint action plan	CRE	ATW	CP5
6	○ New Route Scorecard	Continue to support our customer through developing new scorecard measures that align to our customer's needs	CRE	ATW	CP5 – CP6



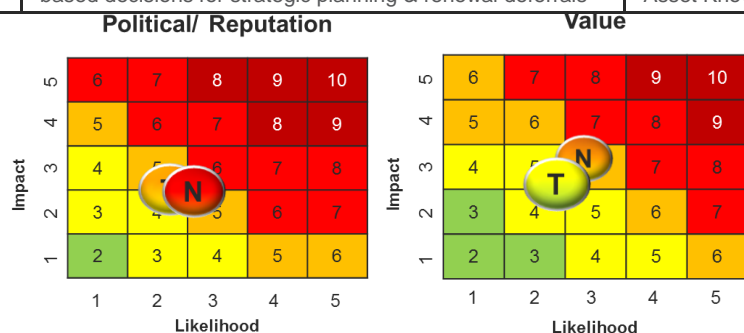
Summary of risk outcome

CP6 brings a new franchise for the routes lead TOC and the onset of Metro. We must ensure this is managed effectively, and adapt to these changing situations as the outlook regarding these changes becomes clearer.

Regular communication with Transport for Wales (TfW) during the upcoming franchise and Metro tendering process will generate a stronger working relationship and opportunity to better align our activities with our customers

Sustainability & asset management capability

Summary of objectives		To maximise the value of the rail infrastructure within Wales and Borders through effective, coordinated activity between the route, its stakeholders, and delivery partners.		
No.	Key constraints, risks and opportunities	What we plan to do	Owner	Timescale
1	R: Asset Management team is not sufficiently resourced to both remit and review proposed CP5 work bank, which will impact upon our CP6 start position	A critical review of staffing within the team has been completed with significant recruitment having been undertaken to date with proposals for the future being developed	DRSAM	Present to end of CP5
2	R: Asset data is not mature enough to be used effectively to identify 'at-risk' sites to enact a 'predict and prevent' intervention methodology	The improvement of asset data and further adoption of RCM technology is a high priority activity within the route for CP5 and through CP6. Currently data quality initiatives are ongoing, which should greatly improve the routes understanding of data accuracy	RASIM / DRSAM	2017/18
3	R: The governance of asset data is not robust, and therefore there is a risk of uncontrolled manipulation / inclusion of erroneous data sets	The improvement of asset data is a high priority activity within the route for CP5 and through CP6. Currently the Asset Data Governance (ADG) workshops are being undertaken in route which should greatly improve the routes understanding of where data threats are present	RASIM / DRSAM	Ongoing CP5 -> CP6
4	R: Weather resilience is re-prioritised with core renewal activities leading to an increase in seasonal related service affecting failures	Weather resilience is aligned with policy (Earthworks & Drainage), and is used in the decision process for all assets. The WRCCA plan exists with the CP5 DU asset management plans (AMPs) and if further funding is identified additional schemes will be added to this plan to be delivered in CP6. Proposed additional funding is included within Appendix D.	RASIM / RAM (GOD) / DRSAM	Ongoing CP5 -> CP6
5	R: Under delivery of renewals volumes in CP5 leading to a reduction in the route Composite Reliability Index (CRI) and Sustainability Index (CSI) scores leaving assets in a less sustainable / reliable state at the start of CP6	The under delivery of the remaining renewals portfolio is a key route risk which is continually updated through our risk management systems. Regular periodic renewals reviews and change control are in place to maximise delivery. Projections of CRI are included within Section 3 of this report	DRSAM	March 2019
6	O: Improved planning will reduce variation post GRIP stage 3, controlling costs & reduce the risk of project cancellation	The development of the eight year Route Strategic Plan will enforce a more forward looking planning process, which should improve the collaboration between the route and its delivers	DRSAM / IP / WD	2016- 2024
7	R: Asset Management Excellence Model (AMEM) score deteriorates due to constraints enforcing decisions that do not realise the maximum benefits from the routes assets	A move towards certification to ISO55001 at a route level and an increase in training aligned to the AM role based competency framework. This will increase the capability in the route to maximise strategic opportunities when and where they arise	RASIM / DRSAM	2019 - 2024
8	O: No available tools/methodologies for informed system based decisions for strategic planning & renewal deferrals	The route is pursuing opportunities both externally and internally through Enabling Better Asset Knowledge (EBAK) to source these capabilities	RASIM / DRSAM	2016 -2024

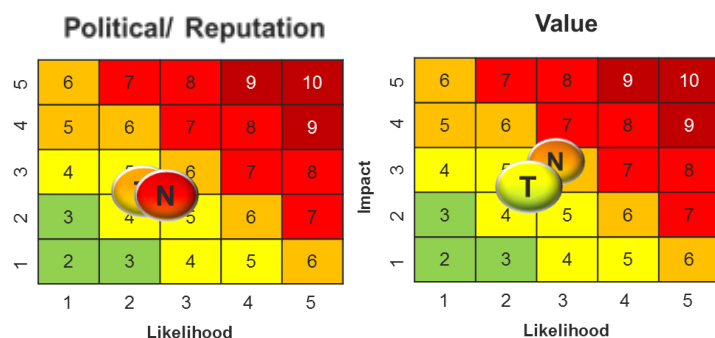


Summary of risk outcome

We aim to maintain asset sustainability and to manage the risk to asset condition within funding constraints. This target will be put at risk if there is a failure to achieve a 'predict and prevent' maintenance strategy with integrated cross functional multi-disciplinary delivery plans. Failure to implement programmes under the Intelligent Infrastructure programme will additionally hamper efforts to maximise the whole life cost of assets through implementation

Financial performance

Summary of objectives		To provide excellent value for money to the tax-payer through the efficient use of resources to maximise benefits for our stakeholders			
No.	Key constraints, risks and opportunities	What we plan to do	Owner	Customers impacted	Timescale (start/finish)
1	O: Business Development Director (BDD) remits to identify potential revenue and capital investment opportunities	Trial the implementation of a BDD initially in CP5 to quantify the level of opportunities and investment proposed by the new position	Route	All	CP5 – CP6
2	O: New Wales and Borders Franchise from 2018 will provide potential for transformational change with a view to build improved collaborative relationships	Work collaboratively alongside the new TOC to achieve synergies where possible	Route	All	2018 - CP6
3	R: Renewals delivery mechanism	Planning and working collaboratively with all deliverers in a timely manner to ensure safe delivery of renewals portfolio and committed efficiencies; both quantifying deliverables and providing alternatives where necessary as information becomes readily available	DRSAM / Deliverers	All	CP5 – CP6
4	R: Electrification assumptions are inadequate	Monitor the situation throughout CP5 to ensure a continuous improvement in understanding of Financial requirements, and ensure robust plans are in place to adequately account for the operational and renewal requirements of Electrification	Route	Route	CP5 – CP6
5	C: Timing of Electrification Enhancement delivery	Continue to interface with our key deliverer to understand the variability in timing of completion of Electrification and the constraints it poses to the Route in being able to mitigate the risks of inadequate assumptions surrounding the projects implementation	DRSAM	All	CP5 – CP6

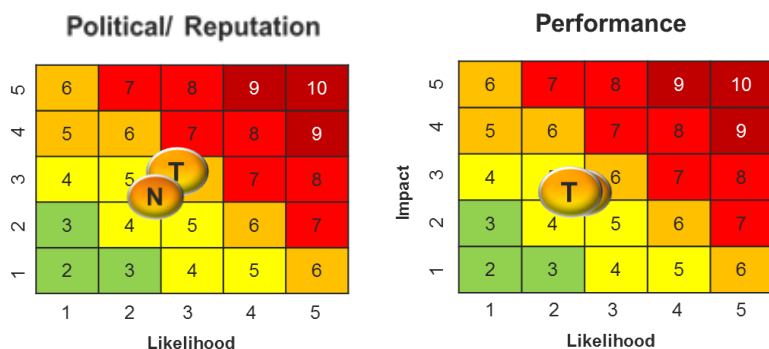


Summary of risk outcome

The key financial risks for CP6 remain with the delivery of the renewals portfolio, alongside the realisation of proposed efficiencies. The risk of under achieving either of the aforementioned, impacts the delivery of the portfolio in its entirety due to work bank prioritisation. Mitigation measures are already under way with work streams quantifying the robustness of required portfolio with both deliverers and supply chain

Investment: capacity & growth

Summary of objectives		CP6 and longer term connectivity and capacity requirements, identified in the Welsh Route Study. The CP6 interventions have all have been presented as 'Choices for Funders'.			
No.	Key constraints, risks and opportunities	What we plan to do	Owner	Customers impacted	Timescale (start/finish)
1	R: Affordability of the enhancements set out in 'Choices for Funders' to meet capacity and growth in CP6. This will limit the scope for new CP6 enhancements other than those set out in the Hendy plan	Continue to make the case for funding through CP planning process and with third parties for CP6 choices for funders	System Operator	All	IIA early 2017 and beyond
2	O: Further devolution and the new Wales and Borders Franchise	Support Transport for Wales in renewing the Wales and Borders rail franchise, providing support on addressing key capacity constraints and growth corridors. Also aligning objectives between Network Rail and the franchisee to deliver for passengers	System Operator / Wales Route	All	Franchise renewal Oct 2018, and beyond.
3	O: Bringing in commercial investment into the railway to fund or part fund enhancements	Our initial focus is on the commercial opportunities around development using our footprint at stations and we are currently working up options for Cardiff Central as the first case	System Operator	All	CP5 & CP6
4	R: Passenger demand for major events in Cardiff will test the capacity of city stations and also the capacity of the train operator's fleet	Continue to work collaboratively with industry partners on effective demand management and crowd organisation for events	Wales Route	All	On-going
5	O: Introduction of new class 800 train fleet and cascaded diesel trains will provide more capacity for passengers between South Wales, Bristol and London	Work with GWR to optimise the timetable to maximise additional capacity of new rolling stock	Wales Route	All	2018 and beyond.



Summary of risk outcome

The key risk for delivery of identified 'Choices for Funders' in CP6 is the availability of funding, and the affordability of the schemes, in context of more pressing capacity issues currently elsewhere on the GB network; along with the affordability of the overall GB CP6 portfolio.

If these schemes aren't funded then future demand may not be met.

Mitigation includes optimising the current network by lengthening more services and fully utilising existing capacity.

5. Activities & expenditure

5.1. Cost and volume summary

This plan is predicated on the key assumptions laid out in Appendix B and will be impacted as these assumptions change

RENEWALS COSTS (post headwinds and efficiencies in 17/18 prices)

	Unit of Measure	Funded by	CP5 (£m)						CP6 (£m)						CP7 (£m)
			14/15	15/16	16/17	17/18	18/19	CP5	19/20	20/21	21/22	22/23	23/24	CP6	24/25
Track	£m	Renewals	32.9	59.9	70.4	60.4	27.5	251.1	44	53	50	44	40	231	81
Conventional Signalling	£m	Renewals	47.3	53.9	57.1	61.5	26.6	246.4	26	42	83	71	21	242	12
Structures	£m	Renewals	31.2	35.7	37.6	34.9	20.0	159.5	32	40	35	29	31	168	40
Earthworks	£m	Renewals	4.6	10.7	13.0	9.4	4.6	42.3	12	11	11	9	6	49	10
Drainage	£m	Renewals	0.0	0.0	0.0	0.0	0.0	0.0	2	2	2	2	2	10	3
Buildings	£m	Renewals	7.7	7.9	6.7	8.4	9.5	40.2	17	14	14	9	8	62	15
Electrification & Fixed Plant	£m	Renewals	1.7	1.6	1.1	2.0	5.0	11.3	9	10	6	5	5	35	5
Other	£m	Renewals	0.0	0.1	0.1	1.2	1.5	2.9	0	0	0	0	0	0	0
Total Renewals	£m	Renewals	125.4	169.8	186.0	177.8	94.7	753.7	142	173	201	169	113	798	166
Digital Railway	£m	DR Programme	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0
Total Renewals + Digital Railway	£m	All	125.4	169.8	186.0	177.8	94.7	753.7	142	173	201	169	113	798	166

N.B: Digital Railway (DR) has been included within the data room for the Cardiff Metro tendering process, and as such, if the preferred bidder proposes to utilise this solution it will be funded by Welsh Government and not the Wales Route renewals portfolio. However, due to the time it will take to transition, DR is unlikely to occur until late CP6. Interface, asset responsibilities and potential NR costs will not be known until such time as the preferred bidder makes the decision to utilise DR or not.

We do not want to be in a position where we have to re-plan our activity every time a risk materialises in CP6 as this would be very inefficient. Therefore, our strategic plan includes £32m of route headroom, which has been created by holding back some SoFA funding from Network Rail's overall CP6 plan. This route headroom is particularly for the business performance risk we face in the control period.

Ideally, actual results will be in line with our CP6 plan and we will be able to release our route headroom to invest it in improving the railway – this headroom can be considered as contingent investment.

If needed, we will also have the opportunity to access portfolio headroom in CP6, particularly for inflation risk. Again, we will ideally spend this on further investment to improve the railway. Portfolio headroom will be controlled through our corporate business planning process. Increased investment will depend on successful delivery of the company's plans and good business cases.

KEY VOLUMES

	Unit of Measure	Funded by	CP5						CP6						CP7 (£m)
			14/15	15/16	16/17	17/18	18/19	CP5	19/20	20/21	21/22	22/23	23/24	CP6	24/25
Plain Line	Linear track m	Renewals	61,028	105,781	104,749	97,846	40,227	409,631	70,414	87,735	83,019	82,519	73,014	398,100	72,020
S&C	No. of S&C units	Renewals	34	77	101	60	59	331	37	50	49	42	42	220	42
Conventional Signalling	SEU	Renewals	114	99	264	245	0	722	14	66	71	303	20	474	20
Digital Railway	SEU	DR Programme	0	0	0	0	0	0	0	0	0	0	0	0	0
Embank/Soil Cut/Rock Cut	No. of	Renewals	18	574	458	527	357	1,934	441	455	478	421	396	2,191	396
Underbridges	Number of assets intervened on	Renewals	5	13	26	4	4	48	8	8	7	6	6	35	6
Underbridges	m2 plan deck area worked on	Renewals	6,243	10,882	12,077	7,107	1,104	37,413	5,787	6,405	4,947	4,196	4,815	26,150	4,815
Wire runs	No. of	Renewals	0	0	0	0	0	0	0	0	0	0	0	0	0
Conductor Rail renewal	Km	Renewals	0	0	0	0	0	0	0	0	0	0	0	0	0

OpEx COSTS (post headwinds and efficiencies in 17/18 prices)

		CP5 (£m)					CP6 (£m)						CP7 (£m)		
		14/15	15/16	16/17	17/18	18/19	CP5	19/20	20/21	21/22	22/23	23/24	CP6	24/25	
Track	excl. B&C	21	22	21	26	26	116	26	26	25	26	26	130	26	
Off-track		4	5	7	6	6	28	10	10	10	10	7	45	7	
S&T		11	11	12	13	12	59	12	12	12	12	12	60	12	
E&P		3	3	3	4	4	17	4	4	4	4	4	22	4	
DU HQ		3	6	6	6	6	27	6	6	6	6	6	28	5	
DU/WD Maintenance		41	47	49	55	54	246	58	58	58	58	55	286	54	
Non DU Maintenance		8	9	9	14	15	55	6	5	4	3	3	20	3	
Civils: Buildings Maintenance				4	3	3	11	3	3	3	3	3	15	3	
Civils: Structures Maintenance				2	2	2	6	2	2	2	2	2	11	2	
Civils: Earthworks Maintenance								0	0	0	0	0	0	0	
Total Maintenance Costs			51	49	56	64	75	295	68	68	67	66	63	332	63
Operations			36	37	37	26	27	163	42	42	41	41	41	207	41
Support		1	1	2	4	4	12	1	1	1	1	0	4	1	
Operations & Support Costs		31	37	37	38	30	31	43	43	42	42	41	211	42	
Total Controllable Costs		86	94	103	104	106	493	112	110	109	108	104	544	105	
Non-Controllable Costs															
Headcount															
Permanent		1,331	1,402	1,556	1,701	1,698	1,698	1,688	1,678	1,677	1,677	1,672	1,672	1,672	
Agency		5	5	9	4	4	4	0	0	0	0	0	0	0	

Activity Based Planning submissions have been used to develop maintenance volumes and costs. These activities and costs have been formulated in collaboration with Maintenance, Asset Management and Finance.

ENHANCEMENTS COSTS (in 17/18 prices)

Programme Name	Project Name	Scheme category	CP5 £m						CP6 £m						CP7 £m
			14/15	15/16	16/17	17/18	18/19	Total	19/20	20/21	21/22	22/23	23/24	Total	24/25

DIGITAL RAILWAY (in 17/18 prices)

					Development stage:	N/A	BCR	N/A	
					Expected delivery year	N/A	Appraisal period	N/A	
<u>Summary description</u>									
Wales Route has no identified SOBC or Category 1 Enhancement in CP6 or beyond therefore no DR deployment has been included as per RF Guidance.									
Implementation cost (£m)					Assumed funding source (£m)				
	CP5	CP6	CP7 & beyond	Total		CP5	CP6	CP7 & beyond	Total
Digital Infrastructure	0.0	0.0	0.0	0.0	Core Route Budget (OMR)	0.0	0.0	0.0	0.0
Business Change	0.0	0.0	0.0	0.0	National Productivity Investment Fund	0.0	0.0	0.0	0.0
Freight/OTMs in-cab fitment	0.0	0.0	0.0	0.0	Finance to address up-front affordability	0.0	0.0	0.0	0.0
Sub-Total (assumed core NR funded)	0.0	0.0	0.0	0.0	Sub-Total (assumed core NR funded)	0.0	0.0	0.0	0.0
Passenger in-cab fitment	0.0	0.0	0.0	0.0	Franchise in-cab fitment	0.0	0.0	0.0	0.0
Civil Engineering Enhancements	0.0	0.0	0.0	0.0	Enhancements (MoU)	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.0	TOTAL	0.0	0.0	0.0	0.0
Scheme benefits ²									
<u>Quantified output benefits</u>									
<u>Note:</u> Wales Route is funding no digital infrastructure however it should be noted that DR is installing an Isolated TM system at the Wales Route Operating centre in CP5. The system will require a comprehensive trial before it can be used for operational decision making. It is therefore not possible at this time to determine performance and capability or be clear about what benefits can be assumed for CP6.									

² Benefits quoted for schemes may be subject to delivery of other enhancement schemes not yet integrated into this plan

<u>Financial benefits (£m CP6)</u> TOC revenue benefits: 0.0 Reductions in NR OMR: 0.0 Net benefits to consumers and private sector: 0.0 TOTAL: 0.0	<u>Financial benefits (£m NPV over 60 years)</u> TOC revenue benefits: 0.0 Reductions in NR OMR: 0.0 Net benefits to consumers and private sector: 0.0 TOTAL: 0.0
<u>Other qualitative benefits</u> TM benefits are still in the process of being determined.	
<u>Other dependencies</u> None at this stage.	

Digital Railway Ready Specification

Passive provision

For like-for-like renewal (e.g. no capacity enhancement), provision for DR Ready Specification is termed **passive provision**. For these schemes, a DR Ready Specification is assumed not to add material cost. This is based on the following assumptions:

1. No change to train detection and therefore no need to design a separate ETCS compliant option.
2. Competitive procurement arrangements embedding the DR Ready Specification from inception of the scheme.
3. Support is given to the Routes by a core team (DR, STED and IP) to ensure a consistent interpretation of the specifications.

Active provision

Where signalling renewals coincide with the need for an increase in capacity, based on a need identified in the Route Studies, there would be an increase in project scope to comply with the DR Ready Specification. This scope is termed **active provision** and is driven by additional train detection requirements.

The table below illustrates the assumed cost changes (drivers, efficiencies and net) for each signalling scheme affected:

Scheme	Provision type	Activity/scope changes (£m)		Net change to plan (£m)	Funded by
		Drivers	Efficiencies		
N/A. Wales Route has no identified SOBC or Category 1 Enhancement in CP6 or beyond.	Passive	0.0	(0.0)	0.0	Renewals
N/A. Wales Route has no identified SOBC or Category 1 Enhancement in CP6 or beyond.	Active	0.0	(0.0)	0.0	Renewals
TOTAL		0.0	(0.0)	0.0	Renewals

5.2. Asset intervention strategy

5.2.1. Summary route asset strategy [to include cross-asset prioritisation and M/R balance]

Asset area	Intervention strategy
Cross Asset Prioritisation & Alignment	<p>Prioritisation</p> <p>Prioritisation of the renewals work bank has been an iterative process throughout the CP6 planning cycle. This process has been undertaken through meetings between the DRSAM and RAM teams to meet budgetary constraints, whilst prioritising the work-bank to meet our stakeholder needs by identifying areas where a reduction in funding would be acceptable. Prioritisation of activity for additional funding is included within Appendix D.</p> <p>An opportunity has been recognised to deliver Port Talbot West Phase 2 (PTW2) signalling renewals more efficiently through track rationalisation. This requires more stakeholder engagement and development to optimise the potential to save money and improve reliability, and as such has not been explicitly recognised within the Track Cost & Volume template. Early indicators suggest a reduction in capital expenditure in CP6 for Signalling, and an increase to Track expenditure, although both assets will see savings in future control periods. The Track RAM is party to these discussions, and is supportive, and has retained flexibility over worksite allocation in YR4 to accommodate this opportunity should it be required. The overall cost to the Wales route will be less than £1m, although this will result in the abandonment of circa 58 point ends representing efficiencies in excess of £10m for renewals in future control periods.</p> <p>In the context of a constrained budget the route has prioritised safety and performance using a variety of output failure data such as Wrong Side Failures (WSFs), Service Affecting Failures (SAFs), Train Accident Risk, and asset specific reliability outputs. Following this process funding beyond CP5 levels has been directed towards assets where, in some cases, historical under investment has been experienced due to lack of asset knowledge / focus therefore presenting opportunities to make a greater impact upon these discussed outputs.</p> <p>Balance of OpEx and CapEx expenditure</p> <p>The distribution of funding between maintenance and renewal has been an asset specific process to maximise the benefits of available expenditure. The activity based planning tool has been used to understand the implications of the renewals plans upon maintenance volumes and this is represented in our plan. A key adjustment in CP6 is the increase in volumes of Track & Off-Track maintenance activity into address emerging issues as the plan has been in operation during CP5. CapEx expenditure has also been directed in OpEx to invest in activities that will have an indirect benefit to the business, such as:</p> <ul style="list-style-type: none"> • A Social Performance Fund • The Implementation of Environmental Management System • The Implementation of Energy Management System • Managing the compliance risk of Welsh Environmental Legislation • A Waste Management Programme • Community Safety Investment

Asset Strategy SHE Improvements	<p><u>Workforce Safety</u></p> <p>There are a number of activities in the renewals plans that align to improvements in workforce safety including:</p> <ul style="list-style-type: none"> • Safety by design: Enhancement of signalling life extension schemes to address working at height issues. Gradual replacement of concrete catch pit lids with GRP to reduce manual handling issues with a projected 30% replaced by end CP5 and 58% by end CP6. New Electrification assets have safety by design principles intrinsic to the new design range and will be operated under the latest isolation processes developed to comply with the Electricity at Work Regulations 1989. • Targeted increases in off track volumes supporting safe access and safe ccess to reduce slips, trips and falls and manual handling issues. • Technology: Increased application of train borne inspection reducing workforce exposure to track and train hazards. • Known asset hazards: In CP5 we are identifying the location and risk associated with hidden tunnel shafts and works will be undertaken in CP6 to mitigate. Removal of asbestos from identified high risk sites across our portfolio of assets. This will reduce the short and long term health and safety risks to our staff. Specific ring fenced funding: Close Call management providing timely and effective risk mitigation and continued drive to embed an improved safety culture within the Route. <p>Implementation of the fatigue risk management standard as part of the Home Safe Plan supported by recruitment of additional signallers and improved rostering of staff. Welfare provision for mobile workers across the route will be enhanced in CP6 and three of our main locations will be replaced at Shrewsbury, Canton and Ebbw. These measures will improve the workforce health, safety and wellbeing of our staff</p> <p>Areas we are continuing to develop: Safer Trackside Working & aligning to the Manual Handling strategy. The route is working with STE to fully understand the technology available and the best way to delivery these improvements within CP6. As the solutions to these improvements and associated costs become more mature these will be clearly represented within our strategic plan.</p> <p><u>Train accident risk</u></p> <p>Our focus in CP6 is to reduce train accident risk precursors. The plan includes:</p> <ul style="list-style-type: none"> • Safety by design: Replacement of assets with known track precursors; pre 1976 rail and jointed rail. Renewal of 12 platforms with improved Passenger Train Interface (PTI) and compliance with RSSB cross fall requirements. • Targeted increases in planned off track volumes. CP6 sees a step change in vegetation management delivering compliance with the current standard by end CP6. In CP6 we are increasing our fencing renewal volumes building on our CP5 approach which shows a reduction in boundary related incidents. This approach supports a reduction in train collision risks and risks associated with signal sighting. • Increased drainage funding in CP6 will support improved management of our track quality and improve our levels of weather resilience. • Technology: Increased application of train borne inspection providing consistent asset data condition information enabling efficient and effective asset management.
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	<p><u>Public Safety</u></p> <p>CP6 plans include managing and where possible reducing the risk to people interacting with our railway by:</p> <ul style="list-style-type: none">• Level Crossing risk reduction: In CP6 we plan to close 30 level crossings, upgrade 15 passive to active crossing, and renew 20 active crossings. Compliance with current vegetation management standard by end CP6 supports effective risk mitigation at sighted only crossings where closure/ upgrades are not viable. This is aligned to the Wales Route's strategy to reduce public and passenger risk at level crossings. <p><u>Environment</u></p> <p>Our CP6 plans support development of our knowledge and understanding of our environmental portfolio including energy, weather resilience and climate change. Our intention is to meet our legal obligations and comply with our own relevant policies and standards. Specific examples include: Replacement of the Sudbrook pumps, which offers a 5% reduction in energy consumption and installation of energy efficient points heating strips. A range of investments in energy efficiencies and renewable technologies where we are undertaking depot replacement or refurbishment works. Targeted increases in Off Track planned volumes including drainage offering improved weather resilience and climate change capability.</p>
Asset Strategy Performance Improvements	<p><u>Key drivers for improvement within the asset OpEx and renewals portfolio are:</u></p> <ul style="list-style-type: none">• Reduction in level crossing failures from the renewal of 20 active type crossings, some of which will be renewed with road barriers where they do not currently exist, plus the installation of 15 passive crossing safety upgrades.• Reduction in Service Affecting Failures from the Port Talbot Phase 1 re-signalling scheme during the first year of CP6• Reduction in Service Affecting Failures from the Port Talbot Phase 2 re-signalling scheme benefit in the last two years of CP6• Reduction in Service Affecting Failures through the conversion from obsolete and scarce Aster track units to modern, reliable axle counters in West Wales. <p>Decrease in the number of Points and Track Circuit Failures within the route by detecting asset failures earlier through the Intelligent Infrastructure initiative.</p>

Track[Ref A.41, A.42, A.43, A.44 & A.47]	<p>The Wales Route Track asset covers a vast geographical area and is very diverse in terms of asset age and type. The maintenance and renewals plans have been tailored to address these two aspects by learning the lessons from the CP5 strategy; how it was implemented, how the route has performed following its creation (c.6 years ago) and ensuring better alignment of maintenance and renewals volumes. Coupled with the improved use of asset data, use of decision support tools, further embedment of technology such as PLPR, Eddy Current, Rail Milling, a structured approach to risk based renewals and a programme to roll out competency profile across critical roles (TMEs, ATMEs, SAEs, etc.); all supports our plan for Track.</p> <p>We have been realistic regarding our ability to plan effectively and as such retain flexibility to realise opportunities to rationalise the quantum of assets and deliver strategic renewals where obsolete components exist. Subsequently, the CP6 plan sees the reduction of activities of a strategic nature (such as High Output track renewal [Ref A.7]) in favour of a more tactical approach (such as Heavy Refurbishment) intended to:</p> <ol style="list-style-type: none"> 1. Deliver volume where it is most needed. 2. Sustain effective track maintenance to maintain safety of the line and train performance. 3. Enable a more flexible approach to delivery to meet emerging conditions. <p>Plain Line Renewals - Although volumes are substantially reduced when compared to modelled volumes, some renewals will be required and indeed present the best whole life value option for higher trafficked routes. Modelling of the reduction in renewals shows a sustainability risk, the life of the asset we are using compared to the life we are restoring results in a modelled deficit of 1.5%. Whilst this reduction could have the potential to slightly increase safety risk, this will be managed through the increase in remote condition monitoring and the application of speed restrictions meaning the overall impact will be a performance risk in CP6. Increases in volume to recover track sustainability in future control periods have the potential to pose deliverability risks for future control periods.</p> <p>7km of renewals are allocated to replacing jointed track with continuously welded rail on the Cambrian line, where the line-speed is 80mph, reducing the risk to train safety and performance. High Output Ballast Cleaning has been included in the plan but rather than targeting strategic renewal it will be used on routes where we are currently managing poor condition through increased maintenance and in some cases through Temporary Speed Restrictions (TSRs).</p> <p>Plain Line Refurbishment - Will be used to sustain the low criticality rural and freight lines and by completing single component replacement where identified as life expired. The work bank is being developed towards a three year rolling planning horizon, allocating specific sites in line with a proportion of the modelled volumes.</p> <p>The Wales Route delivery teams (Works Delivery and Maintenance) will work together to carry out reactive work to resolve repeat track geometry exceedances and avoid Temporary Speed Restrictions (TSRs), key items include:</p> <ol style="list-style-type: none"> 1. Continuing the successful policy started in CP5 to sustain rural routes by 1 in 3 patch re-sleepering. 2. Freight lines will receive ad-hoc work based on condition and recognition that their future is uncertain. 3. Increased volume of re-railing to target removal of pre-1976 rail removing the risk of known defects from the manufacturing process. 4. The introduction of Rail Milling will allow us to use more of the design life of post 1976 rail through removing rolling contact fatigue cracks. <p>S&C Renewals – the work bank has been allocated for the whole of CP6 by point number and includes the last remaining 1970s/1980s timber layout on the South Wales Main Line. This meets the definition phase of the ‘GRIP4Track’ lifecycle, which increases confidence in successful delivery. In CP5, re-signalling plans drove the renewals work bank, this will not be the case in CP6 and the reduction in volume reflects this. However the track team are working closely with the Signalling team to ensure that the opportunity to undertake the Port Talbot West Phase 2 scheme can be realised.</p> <p>[Ref A44]</p>
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Track (cont.)	<p>S&C Refurbishment - will become more important in CP6 to sustain S&C that will not be renewed (following the lack of condition led renewal in CP5 and reductions in CP6). The work bank is condition driven with a focus on:</p> <ol style="list-style-type: none"> 1. Removal of obsolescent component designs in higher criticality track to improve maintainability and reliability. 2. Upgrading of older S&C (for example by the provision of crossings with weldable leg ends to eliminate fish plated rail joints) 3. Correcting track gauge issues in switches leading to improved performance 4. Improving track geometry and eliminating repeat track geometry faults and the risk of TSRs 5. Improving maintainability <p>As with Plain Line, the work bank is being developed towards a three year rolling horizon, allocating specific sites in line with a proportion of the modelled volumes.</p> <p>There is a strong desire to deliver ballast renewal of S&C when a cost-effective standalone method becomes available [A.10]</p> <p>S&C abandonment – The route will target abandonment of S&C units as part of the S&C renewal programme but none have specifically been identified as part of the latest submission. However, opportunities may exist should network change proposals for disused freight lines be approved. We will seek to remove these S&C at the time in lieu of refurbishment elsewhere should it present an overall benefit to the route.</p> <p>Maintenance Works – The maintenance work bank has been built up using the ‘<i>Activity Based Planning Tool</i>’ for both Cardiff and Shrewsbury IMDMs areas. The lessons learnt from CP5 has resulted in a number of changes such as:</p> <ol style="list-style-type: none"> 1. Increased volumes on some work types following an under estimation of the work required in CP5; 2. Better targeting of the On-Track Machine fleet to target track quality areas 3. Increased volumes to account for recent standard changes 4. Reduction in inspections to account for introduction of PLPR, RBM and Eddy Current 5. Reduction in specific work types following re-signalling projects (Cardiff DU assumption that Port Talbot West Phase 2 is completed [Ref A43]) <p>The increased reliance on train mounted inspection / measuring equipment provides a significant safety benefit, removing staff from interacting with trains in the operational railway.</p>
Signalling	<p>Signalling asset performance is measured through the Composite Reliability Index (CRI). Signalling CRI is improving and the replacement of track circuits with axle counters through the Cardiff Area Signalling Renewal project is expected to continue that trend as it has encompassed four out of the five worst performing areas. A key part of the signalling asset intervention plan is to replace obsolete Aster track circuit equipment between Carmarthen and Whitland and obsolete axle counters in the Dee Marsh area with modern-form axle counters, thus seeking to continue the improvement in reliability.</p> <p>With major resignalling projects in CP5 covering the wider Cardiff area, Port Talbot to Swansea and the National Operating Strategy (NOS) scheme from Rockliffe Hall to Abergele inclusive, the CP6 plan is based upon the minimum renewals necessary to operate the railway based upon safety, regulatory compliance and asset condition. Further NOS Modular Signalling schemes have been replaced by reduced-cost life extension schemes until such time as whole life business cases can be made for upgrading to digital systems along the relevant signalling corridors.</p>

Signalling (cont.)	<p>The plan to continue immunisation of signalling systems along the South Wales corridor to allow for electrification to Swansea will continue with the in-progress Port Talbot resignalling however, immunisation of the resignalled area of Port Talbot East has been placed on hold following the cancellation of electrification to Swansea.</p> <p>Due to its poor condition and infrastructure age, Port Talbot West (phase 2) is a key resignalling project in CP6. In common with power signal boxes of that era the wiring and cables are becoming fragile and susceptible to wrong side failures. Removal of these aged assets through resignalling projects is part of a long-term strategy in line with an ORR requirement set in 2000.</p> <p>Park Junction and Tondy mechanical signal boxes have previously been subject to enhancement proposals by Welsh Government. CP6 provides an opportunity for Network Rail and Welsh Government to reinvigorate those proposals to provide the optimum solutions at each location. Joint decision making early in the process will mean more efficient delivery for both parties whilst introducing modern signalling systems for improved performance.</p> <p>The future recontrol/resignalling of signal boxes within the Core Valley Lines will be determined by options progressed by Cardiff Metro.</p> <p>Life extension work will be undertaken through the Mid and North Wales areas to keep them operational until Digital Railway is available. These schemes will seek to address Working at Height issues in mechanical signal box areas.</p> <p>A minor works provision has been made to allow for tactical asset intervention based on condition or reliability. This funding is to account for non-delivery of NOS Modular Signalling schemes planned in CP5 and CP6. Signalling Infrastructure Condition Assessments highlight areas of greatest concern at each site. These assessments drive the vision of asset longevity to provide a mechanical life extension strategy that is considered to be the best use of funding and resources until the point at which there is a business case for upgrading to digital systems. The mechanical skillsets are becoming scarce due to an aging specialist workforce. This challenge needs to be addressed if mechanical signal boxes are to continue to control a safe, operational railway. To manage obsolescence, spot recovery or conversion of track circuits and conversion of elderly signal heads to LED will be planned for all signal boxes subject to life extension. In particular, the provision of LED signal heads reduces the requirement for staff to go on the trackside when maintained under a Risk Based Maintenance approach.</p> <p>Provision is made for interventions at 20 active level crossings due to component obsolescence and wire degradation and will see these sites fitted with modern form equivalent infrastructure. Any AOCLs identified for renewal as part of these works will be upgraded to ABCLs which will introduce road barriers to reduce misuse by road users. [Ref A.5]. New technologies will be considered and employed where it is feasible to do so. Level crossing life extension works will be considered where tactical intervention is more appropriate to extend the life until the next full resignalling of the relevant area.</p> <p>Signalling maintenance strategies are based upon scheduled tasks as per company standards and risk based maintenance. A greater investment has been made into rapid response and faulting teams to accommodate life extension strategies aligned to the roll out of Digital Railway.</p>
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<p>Structures</p> <p>[Ref A.22, A.23]</p>	<p>The Wales Structures strategy for CP6 has been developed based on our experiences gained in CP5, with increased asset knowledge and opportunities to improve efficiencies. For structures activities maintenance is defined as either Minor Works (as defined in the Cost & Volume handbook), which is funded from CAPEX, or Planned Preventative Maintenance (PPM) activities. In CP6 there will be an increase in maintenance activities (both Minor Works and PPM) with reduced renewal interventions. This approach will concentrate on prioritising renewals on structures where continued maintenance is not viable. This will extend the life of our assets and enable us to mitigate the impact of forecast deterioration and performance impacts.</p> <p>We will focus resources on primary routes, whilst maintaining availability to lower criticality areas of the route. We have already demonstrated that reductions in unit rates are possible in CP5, through trialling different contracting strategies with greater engagement and partnership with our suppliers. The gains we have made in improved asset knowledge will allow us to roll out this approach in CP6 across more asset types.</p> <p>Our strategy is reliant upon an effective re-structuring of the delivery organisations within the Wales route to accommodate the shift of the Structures work bank from IP to Works Delivery, with steps already underway to have an organisation ready to deliver CP6. We have improved our asset knowledge in CP5, as demonstrated with coastal assets going from minimal information to creating an award winning coastal strategy. Similar improvements have been gained with tunnel and timber assets. This improved knowledge is allowing us to start integrating examinations with asset maintenance to improve the whole life management and drive cost savings. Specific details of the different structures asset types are as follows:</p> <p>Coastal, Estuarine and River Defences(CERDs) [Ref A.16, A.25]</p> <p>The strategy is to increase maintenance through PPM activities of the existing defences to improve their resilience to storm events whilst targeting improvements to our highest risk assets. We have taken a lead in Coastal Asset Management, surveying all our CERDs and developing a new tool that enables us to analyse these assets and risk assess them under various conditions. Our CP6 plan is modelled on a 50 year return period for a storm event. We have embarked on a trial PPM plan utilising experienced external contractors, working together with Coastal Engineers, to carry out maintenance to our North Wales Coastal walls. Early feedback is showing significant cost savings that we are looking to extend into CP6. Wales Route experienced four significant asset failures in CP5 due to storm events with a greater than 1:200 return period. Modelling demonstrates the frequency of these events will increase in CP6 however we expect our strategy to focus on maintenance, which may not always prevent a breach or overtopping onto the railway, but will reduce the time it takes to recover the railway operations.</p> <p>Overbridges</p> <p>Whilst there is currently an increasing trend of overbridges on the route not meeting load requirements, we are proposing to carry out targeted repairs on these assets to prolong their life. The 'Bridgeguard 3' analysis gives us our shared responsibilities with Local Authorities. We are working in conjunction with them to meet our liability while meeting their needs for operation of highway traffic, which sometimes results in load restrictions over the bridge. We will be maximising the efficient delivery of schemes in CP6 by continuing the CP5 strategy of carrying out joint funded replacements or major refurbishments with Local Authorities on the highest priority assets.</p> <p>Underbridges</p> <p>Our strategy for Underbridges is to carry out other associated works at the same time as essential strengthening and repair works to prolong the life of the asset, maintain the capability of lines and working towards a more sustainable approach. The letting of new minor works contracts will allow us to carry out rolling programmes of repair and painting works at lower costs, using Specialist Contractors, with the aim to increase volume throughout the control period. High risk (Level 1) Scour will also be addressed as part of the Underbridge work bank. Under bridges are high risk assets and have had the greatest structures impact to the railway over CP5, and we have allocated the largest proportion of our budget to their maintenance and renewal. We will also explore how we can use remote condition monitoring and improving surveying techniques to improve our understanding of how these assets are performing. This will allow us to improve the effectiveness of our interventions.</p>
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Structures (cont.)	<p>Tunnels</p> <p>The knowledge of our tunnels has significantly improved through CP5 which supports the further development of our Tunnel Maintenance Strategy. This addresses delivery challenges and promotes collaborative working between all parties to drive efficiencies. We have already trialled joint examinations and scoping visits to improve clarity of work load and eliminate waste. A rolling contract will be used to allow the Contractor to plan and deliver repairs more effectively and will see an increase in the volume of work. Further savings are proposed in the management of tunnels on the Ffestiniog Branch (LJT1) by increasing examinations and minor works in lieu of renewals.</p> <p>An allowance has been made to address any required mitigation associated with identified hidden shafts and addressing risk to tunnel portals following the Scout Tunnel incident. Asbestos surveys in tunnels are being carried out at the time of writing, until the outcome of these surveys are known funding has not been allocated, however this will be reviewed upon completion.</p> <p>Footbridges</p> <p>We are collaboratively working with our Buildings colleagues to benefit from efficient delivery approaches they are adopting for footbridge works. In addition to these improvements in delivery, we are running a ‘Footbridge Challenge’, which is initially looking at developing a low cost footbridge to replace foot crossings in CP6. This is progressing well and should result in a cost effective solution for the replacement of footbridges in the future.</p> <p>Retaining Walls</p> <p>To maximise available funding a continuation of the multiskilling in the PPM teams will see them able to examine as well as carry out more significant repairs to our retaining walls. This will also improve our asset knowledge and our ability to plan for future renewal activities. We have already trained a number of PPM staff to examine these structures, which will lead to more effective working practices.</p> <p>Culverts</p> <p>The strategy to carry out campaigns of repairs to culvert packages in CP5 proved successful therefore we will continue with this approach in CP6. This will address some of the known worst condition culverts on main lines. We have trained PPM staff to be able to examine our culverts, which along with increasing their capability; will see improvements in asset knowledge and preventative repairs.</p> <p>Major Structures</p> <p>In CP6 we are prioritising works to Barmouth Viaduct. This is a listed iconic structure and now requires substantial renewals intervention. This will predominantly cover the metallic spans and some work to the timber spans, with further works on-going into CP7. Development works are already underway with new construction techniques and materials being trialled on other similar viaducts, in order to drive down costs to Barmouth.</p> <p>Some allowance has been made for minor works interventions and mitigation to cracking of masonry lintels at Britannia Bridge.</p> <p>Minor Works</p> <p>The minor works budget incorporates the reactive and maintenance elements of the structures portfolio allowing us to address any immediate safety concerns. This is in addition to other non-asset specific projects such as Road Vehicle Incursion (RVI), bridge strike mitigation and Hidden Critical Elements (HCE) investigations. New contracts will be in place for CP6 which will see a shift to using ‘Tier 2’ specialist suppliers directly instead of through ‘Tier 1’ contractors.</p>
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Civils Examinations / Assessments	<p>Inspections (Civils Examination/Assessment Framework Agreement (CEFA / CAFA) [Ref A.36, A.37]</p> <p>CAFA contracts will remain unchanged from CP5 with the use of multiple suppliers throughout the control period. CEFA Structures inspections are currently proposed to streamline to match asset type and exam type. These work-streams will be tendered out by the Route to multiple suppliers to deliver the inspections throughout the control period. CEFA Earthworks and OPI will continue with the same delivery strategy as CP5.</p>
Earthworks	<p>The CP6 plan includes an increase in maintenance activity (double the modelled minimum volume) and a reduction in the more costly renewal and refurbishment activity. This enables the route to undertake intervention work on more of the asset base but does not meet sustainability requirements (Appendix F).</p> <p>There will be a focus on rock cuttings (campaign style de-vegetation and rock scaling work) and earthwork crest drainage on soil cuttings. To mitigate the risk of reduced renewal volume, an increased use of remote condition monitoring (RCM) is being included in the plan.</p> <p>Overall asset condition is likely to marginally deteriorate by CP6 exit the modelled CP6 exit Earthwork Condition Score was 2.04 compared to the current score of 1.97). Further modelling will be undertaken following the route plan submission in December 2017. Performance is therefore likely to be similar to CP5 but it should be acknowledged that the asset is more vulnerable during long periods of wet weather or short intense rainfall events. The frequency of such events is more likely to influence performance rather than non-weather related natural asset degradation.</p> <p>The CP6 mining policy has recently been issued and is considered impractical by the route given the high number of currently identified “high risk” locations generally associated with historic mining activity. A pragmatic approach has been adopted for the plan that includes a desk study to be undertaken at 20% of the high risk sites with follow up Ground Investigation (GI) at the top seven prioritised sites. The plan also includes intervention work to be undertaken at three locations to be determined following review of GI data. Overall the allocation for mining equates to circa 5% of the total Geotechnical submission (similar to the CP5 submission).</p>
Electrification & Plant [Ref A.8 & A.11]	<p>Renewal expenditure is increasing in CP6 when compared to CP5 due in part to the benefits of devolution leading to better asset knowledge and an Asset Management team local to Wales and the Borders. This budget is additionally affected by variable proportioning for the renewal of the pumps at Sudbrook pumping station for the Severn Tunnel which is a 3-4 Control Period renewal activity, and provision for Electrification (due to the change in asset base) that assumes the enhancement works currently underway deliver a compliant and reliable asset.</p> <p>The CP6 plan will deliver steady state asset performance. The asset category that has the greatest impact upon train performance is signalling power & distribution for which a significant proportion has been renewed in CP5 as part of a cross-asset AM strategy with Signalling renewals. There is a continued reliance on Intelligent Infrastructure to maintain cable asset performance.</p> <p>There is a life extension project proposed for HABD equipment at favourable rates delivered by maintenance that will ensure continued reliable operation until the potential introduction of new technology.</p> <p>Renewal of 50 year old HV distribution assets at Canton TMD and Hereford Station. This has a strong safety case, as well as significantly reducing operational risk of failure at Canton depot. This work has been deferred from CP5.</p> <p>For maintenance of the new electrification asset, volumes have been derived by the Great Western Electrification programme utilising Reading DU ABP, and have been incorporated into our Wales Route submission.</p>

Off-track	<p>The route is expecting a step change in vegetation management in CP6 which includes a plan to be compliant to the vegetation standard by the end of Year 4 (March 2023). Shrewsbury DU has submitted an approved Technical Variation (TV) that aligns with this vision, whilst Cardiff DU are currently working on a revised TV but expect to be compliant or nearing a compliant position by the control period. This work will result in improved safety via provision of positions of safety on track, a reduction in treefall, improved signal and level crossing sighting, and improved rail adhesion. In order to enhance the safety and performance benefits, we will also be targeting the removal of prioritised high risk trees (Tier 1&2) throughout CP6 with a desire to remove lower tier risk trees in subsequent control periods.</p> <p>The fencing renewal allocation has been increased, enabling marginally more volume to be delivered. This is a continuation of the CP5 strategy where the trend is for a decreasing number of animal incursion incidents.</p> <p>A specific allocation for access points/RRAPs is included in the submission to account for the increased asset knowledge and focus in this area. This will tackle several access points now closed due to their unsafe condition. The upgrade and re-opening of access points will result in a reduction in response time for Operations and Maintenance teams to intervene following an incident [Ref A.12, A.13, and A.14].</p> <p>Consequently, the CP6 Off-track OpEx allocation has been significantly increased. With the above initiatives we expect a reduction in incidents relating to animals on the line/trespass and falling trees with associated safety and performance improvements.</p> <p>Given the risk to third party property and a recent court case ruling in favour of a homeowner, the identification and treatment of invasive species, particularly Japanese Knotweed, is expected to increase significantly in CP6.</p> <p>The route will be using geospatial software to track trends and assist prioritisation of sites for drainage, de-vegetation and fencing work. Due to cyclical inspections, an increase in data knowledge/accuracy, and improvements in Ellipse management, we will be in a position to confidently set Maintenance volume to achieve a sustainable condition & review resource/plant requirements.</p> <p>We expect increased efficiency via work bank planning within the RAM (Geotechnical, Off-track & Drainage) Team that was set up in mid CP5, and is now well established.</p>
Drainage	<p>As in CP5 the Track drainage budget will be combined with the Civils drainage budget in CP6 and delivered through the Route Drainage Engineer as this facilitates delivery of effective drainage systems with cross-asset benefits.</p> <p>Utilising the Drainage Decision Support Tool (DDST), intervention work will be targeted at:</p> <ul style="list-style-type: none"> • Severn Tunnel 6' and cess drainage improvements [Ref A.17] • Areas of wet beds with no/poor drainage • Soil cuttings with blocked or no crest drainage • Areas of flooding outside and within our boundary. <p>In addition to these interventions there will be an increased use of RCM at key locations and a continuation in drainage inspections & improvements in data quality.</p>

Buildings [Ref A.45, A.46, A.49]	<p>The Buildings Plan for CP6 is a continuation of CP5 Buildings Asset Policy, with supplementary drivers to account for emerging issues in CP5, including the outputs from Operational Property Structural Assessment Programme (OPSAP). Condition data collated through the Operational Property Inspection (OPI) regime is used to carry out degradation modelling in order to forecast which assets will meet intervention criteria in CP6. Asset Policy outlines thresholds for interventions based on the following measures collated via annual visual and five yearly detailed OPIs:</p> <ul style="list-style-type: none"> • Percentage Asset Remaining Life (PARL) • Average Risk Score (ARS) <p>The following information is also used as supplementary drivers:</p> <ul style="list-style-type: none"> • Structural assessments • Defect reports • Reactive fault information • Electrical inspection condition report <p>Assets have been prioritised in accordance with the Corporate Risk Matrix in order to meet funding targets. This has resulted in the following focus across each category of building types:</p> <p>Stations [Ref A.18, A.20]</p> <p>Footbridges, canopies, platforms, electrical rewires and relighting account for the majority of interventions at franchised stations due to impact on safety, reputation and to a lesser extent, performance.</p> <p>Lineside buildings</p> <p>Cooling systems renewals (including Wales Railway Operating Centre (WROC) chillers), and demolition of redundant assets have been identified across the lineside building portfolio. A proportion of sites have been included in the plan in which would be assessed and ranked in order of impact on performance in order to fully inform the works required in this area.</p> <p>Light Maintenance Depots [Ref A.19]</p> <p>The renewal of the exhaust extract system and mast lighting at Canton LMD account for the majority of renewals at Light Maintenance Depots due to the performance and safety impact these assets have.</p> <p>Maintenance Delivery Units</p> <p>There has been a large uplift in renewals at MDUs vs CP5 due to the asset condition of this element of the portfolio. Generally, MDUs occupy modular porta-cabin type buildings, many of which are approaching the end of their useful life. Renewal of these assets will increase welfare and office provision for frontline staff whilst reducing cost associated with operating these buildings.</p> <p>Other Investment</p> <p>Asbestos removal across 50% of medium risk sites in CP6. This extends the works currently underway in CP5 to remove all high risk sites. The remaining 50% of medium risk sites are planned for removal in CP7. This represents a consistent approach to removing asbestos at a manageable rate, whilst reducing the requirement to survey sites. Additional funding has been allocated to platform renewals in order to complete remedial works to remove the risk of non-compliant cross fall at high risk locations.</p>
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Telecoms	<p>The Wales route works in collaboration with the Network Rail Telecoms team to ensure that the telecoms plan supports the Wales route plan. The telecoms plan for Wales and Borders, to be funded through the Telecoms Business Plan includes the following:</p> <p>Wales Route Renewals</p> <ul style="list-style-type: none"> •Network - The primary budget is based on power support elements of the network. This is based on the current age profile of the network •Operational - Budget targeted at level crossing improvements (including migrations to Network Rail services to suit performance). Limited telephone concentrators and voice recorders •SISS - Significant budget evenly allocated on PA/PAVA, CIS and CCTV •Other - Reactive minor works budget, including cable and route <p>NRT CP6 Themes</p> <ul style="list-style-type: none"> •Transition to a single IP telecommunications network - Improve availability, performance & Exploit new technology and extend use of assets for passengers •Standardise assets and services - Deliver open architecture enabling secure ‘plug and play’ reduce cost and complexity •Mitigate decline of asset sustainability level - Rectify underinvestment in assets from previous control periods •Extend the use of assets and infrastructure - Underpin the digital railway, mobile connectivity on trains and digital inclusion for lineside neighbours
Level Crossings	<p>The Wales Route level crossing strategy will build upon the activity undertaken in CP5 to reduce public and passenger risk. The approach will always be to pursue closure prior to investment at a level crossing, and where this is deemed viable, funding is ring fenced within the core submission.</p> <p>Where closures are not viable, at our highest risk locations the strategy is to install OSML systems to provide a warning to users and by doing so reduce the risk to users at these locations.</p> <p>As mentioned within the Signalling strategy, interventions are planned at 20 active level crossings due to component obsolescence and wire degradation, and will see these sites fitted with modern form equivalent infrastructure, which will increase reliability and safety.</p> <p>Increased investment in Off track assets will also benefit the level crossing portfolio as this will lead to an increase in investment in surfaces and vegetation which will improve the walking conditions and sighting, all of which will have a benefit to the safety of the user.</p> <p>To move the management of level crossings from a tactical to more strategic approach funding has been included to tackle the options design for some of the more challenging locations for closures so we are ready to invest in their removal in future control periods.</p>

Asset Data	<p>The Route's data strategy will be a continuation of the CP5 move to improving and sustaining accurate asset-related data that will be driven by the key principle of treating data as an asset in its own right. A central component to this will be the implementation of a policy for data that is analogous to those that support physical assets such as track, signalling and structures. The Wales Route is building the capability and governance structures it needs to effectively manage data within CP5, and this investment will be maintained in CP6.</p> <p>The data policy is based on - ISO8000 Master Data: Quality Management System. In addition to the benefits of using tried and tested methods, this approach will also enable the Route to grow its benchmarking and best practice sharing capability beyond traditional comparators.</p> <p>Our use of policy aims to coordinate, but not dictate, data management activities across the Route. We will work with central functions to define the outputs, and clarify interfaces, activities, constraints and ensure we have a competent and capable workforce required to deliver objectives. This approach will enable the Route to take advantage of the opportunities presented by devolution by implementing locally developed data quality improvement initiatives (in addition to those delivered centrally) without compromising the consistency and integrity of the national data set.</p> <p>Wales Route will make use of existing assurance regimes and implement, where necessary, additional assurance in line with the existing three tiered assurance framework. This will include, but not be limited to; self-assurance, supervisor and manager inspections/monitoring, functional special topic audits, engineering verification, asset data confidence assessment and internal/external review. This risk based approach to assurance will focus on the leading measures associated with governance to direct improvement and maintenance of an "A" grade level Management System through our route Asset Data Governance plan (ADG).</p> <p>Working with the Digital Railway directorate, the Route will take advantage of the opportunities presented by Asset Information and the STE Intelligent infrastructure Programme in CP6. Asset Information has been created within the Digital Railway directorate as a data to intelligence business unit providing a range of offerings to the route.</p> <p>Asset Information has based its vision and strategy around the National Intelligence Model, a data to intelligence model founded on the five capabilities of data; collection, evaluation, collation, analysis and communication. The Asset Information vision will transform these five capabilities throughout the business during CP5, and will be extended upon in CP6 to enhance and enable the Asset Management System.</p> <p>Through the ORBIS programme, by the end of CP5, the route will have the:</p> <ul style="list-style-type: none"> • Tools to capture, maintain and access high quality asset data, • The ability to join and view asset data in collaborative environments, • Decision support tools to better manage the asset <p>Wales Route intends to continuously exploit the key capabilities offered by Asset Information, Intelligent Infrastructure (II) & the Enabling Better Asset Knowledge (EBAK) project in order to improve asset data and this strategy is a key enabler to the broader Wales Route adopted initiatives such as Risk Based Maintenance, Predict & Prevent, and reliability centred maintenance.</p> <p>Data Processing - Master Data Management has defined the national data specifications known as Asset Information Specifications. These Asset Information Specifications define the minimum data quality required to deliver business process and serve as the foundation requirement that data quality will be collected to. The Route will make sure data is managed in accordance with the Asset Information Specifications. We will also support the Asset Information function in the Lifecycle management of Asset Information Specifications with subject matter expertise so that they always remain fit for purpose.</p>
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Asset data (cont.)	<p>We will continue to equip our frontline workforce with mobile device technology and tools to collect accurate data. Mobile works management and fault code look up will provide an opportunity to significantly reduce the risk of incorrect data capture and increase the efficiency of our data processing activities.</p> <p>The management of the handover/hand back of data from Enhancement and Renewals projects is of central importance to the accuracy of asset data. The Exchange of Asset Information programme will improve the clienting capability of the Route so that accurate data is exchanged and processed throughout the lifecycle of Enhancement/Renewal activities in a timely manner.</p> <p>Data requirements will be embedded into all Enhancement/Renewal programmes and enhance the capabilities already offered by the asset management planning process.</p> <p>We will create an environment whereby locally held data that sits outside master asset registers (spread sheets, unsupported bespoke applications) is safely processed into corporate systems.</p> <p>Data Quality Measurement - Geo Viewer and location data improvement enable us to visualise our assets using image capture techniques such as LIDAR, birds' eye and oblique photogrammetry. This capability will continue to provide the Wales Route with a new perspective of the railway that will highlight instances of inaccurate data previously not easily visible. Asset Data Store will create a single version of the truth for our infrastructure and enable a means of profiling data to identify areas where asset does not meet business rules. We will use this capability to identify areas for improvement and assure the delivery of improvement strategies/plans.</p> <p>The Rail Infrastructure Network Model (RINM) is a model of the railway as a system. The programme will enable the RINM to be viewed both topographically as a map and topologically as a schematic. RINM will bring together infrastructure data sets describing what, where, work bank, condition and system level data sets of capability, utilisation and performance. It will enable a step change in data quality business rules that can be applied to assess inaccuracy and direct subsequent improvement activities.</p>
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5.2.2. Research and development

Wales Route realises the importance of research and development to exploit new technology and ways of working and to strive to be more efficient and effective into the future.

The Asset Management team has fostered excellent relationships with universities in South Wales during CP5 and plans to build on these relationships into CP6.

Cardiff University provides a six month paid placement for MSc students. This also affords them the opportunity to complete a thesis in conjunction with assisting Network Rail in asset management improvements. The relationship has resulted in eight placement students over the last three years gaining permanent full-time employment with Network Rail. Network Rail have also recently engaged a company with research links to and based at Swansea University to assist with the management of Japanese Knotweed (JKW) in the route which includes trialling treatment of JKW at a site in Neath.

The Wales Route Track team are heavily involved with the development of new rail management techniques including:

- The roll out of Eddy Current testing to the route which will provide better asset knowledge and allow timely intervention particularly with Rolling Contact Fatigue (RCF) defects
- Introduction of Rail Milling as a new tool. Milling is a cost effective alternative to re-railing and when combined with the eddy current testing and our better understanding of RCF will help target defects accurately and maximise the life of post 1976 rail
- Use of B-Scan ultrasonic testing equipment that will improve our understanding of, and management of rail defects

Wales Route have developed a portal based asset management plan that will improve collaboration and integration throughout CP6

5.2.3. Weather resilience

Wales Route is committed to reacting to the challenges of climate change to ensure the long-term resilience and sustainability of all assets [Ref A.39].

All Earthwork renewal schemes shall fully consider the potential effects of climate change and, where reasonably practical, incorporate long-term resilience measures to mitigate the effects of adverse weather events into scheme designs.

In CP5 the Wales Route has developed a Weather Resilience and Climate Change Plan targeting highest risk sites where performance and safety have the potential to be compromised. Some of these sites will rollover into CP6 and other adverse weather sites will also be incorporated into the strategy. In some circumstances the use of RCM will be employed to manage the risk. Operational practices such as vegetation clearance will also be implemented to maintain reduced levels of vegetation on newly electrified routes.

In addition to the asset related initiatives detailed below, the Wales Route is planning to increase flexibility to special and seasonal events through the production of bespoke timetables to limit performance, reputational and safety risks during these times.

It is assumed that any works to reinstate the asset following an extreme weather event will be funded from a centrally managed risk allocation fund.

Track

Within the horizon of CP6 the main weather resilience concern for Track is to continue with the programme of drainage works. To this end as in CP5 the Track drainage funding will be combined with those in the Lineside and Earthworks plans and delivered as combined drainage solutions that maximise benefit to the whole railway infrastructure. The design of drainage renewal and refurbishment works makes allowance for modelled extreme weather events.

Signalling

The use of axle counters for train detection has significant advantages over other track-circuit based systems that rely on the rails for operation. Route strategy is to provide axle counters in flooding zones and known areas of poor track formation. In addition, the diagnostic capability within axle counter systems can be used for advance warning of potential failure. Life extension schemes may opt to install weather resistant equipment such as GRP enclosures and corrosion resistant signal posts although the costs need to be balanced against the expected life of the equipment prior the next major renewal.

Modular signalling equipment housings and signalling equipment could be raised onto staging in flood prone areas along with the use of high IP rated rail level equipment housings.

Consideration can be given to the use of S60 type level crossing machines at Obstacle Detection and Manually Controlled Barrier type crossings as they are installed in elevated positions as opposed to being ground mounted, however these would require specific redesign against typical for circuits. High Performance Switch System point operating equipment is proven to be flood resilient and will be considered for future use on projects where conditions allow. Additional power surge and lightning strike protection will be considered for strike-prone areas.

Electrification & Plant

The main concern in weather resilience for E&P is pump availability at the Sudbrook pumping station, renewal of these pumps giving greater availability is catered for in this submission. Route asset policy includes the fitment of Point Heating retainer strips to aid performance and reduce energy consumption.

Structures

Bridge scour is the most common form of bridge failure and the predicted increase in rainfall may increase this risk. Current focus on assets with a high scour risk is invariably leading to the establishment of site specific management plans to manage the risk of failure through CP6.

Coastal assets cover a length of 34 miles across the Wales Route and are vulnerable to overtopping, coastal erosion and storm surges. The Route manages the largest number of coastal assets within Network Rail.

With respect to CERD assets, the routes objectives through CP6 are to:

- Use an established coastal weather forecasting system and asset monitoring to manage locations vulnerable to adverse weather.
- Build upon the existing coastal and estuarine asset management strategy to identify and develop plans to mitigate future weather risks across the CERD asset portfolio.
- Develop and implement work banks using the Planned Preventative Maintenance (PPM) approach to intervene and repair low to medium risk defects before they adversely impact upon the performance of the asset. This approach will reduce the need for replacement and/or large scale maintenance of high risk or poorly performing assets.
- Improve our asset knowledge and develop new inspection and maintenance regimes in order to support the long term strategic approach for managing Climate Change and Sea Level Rise including the enhancement of the assets to meet this challenge to Coastal Structures.

Earthworks & Drainage

The improvements to the six foot drain in the Severn tunnel will greatly improve resilience to one of the key assets on the route.

Further work is required to understand Natural Resource Wales' Shoreline Management Plan, particularly where the strategy is to adopt "No active intervention" or "Managed realignment". This will potentially impact on embankments where they will in effect be used to retain water for which they are not designed.

The improvement in earthwork and drainage asset condition is considered to be a BAU activity. Following an extreme weather incident that causes flooding or damages assets that are not included within the CP6 Plan, works will be re-prioritised accordingly.

Opportunities for increases to the drainage budget are explained in Appendix D. The impact of greater investment in drainage has a multi asset impact associated with improved weather resilience.

Buildings

All franchised buildings within the route are currently being assessed for Energy Performance in accordance with the Energy Act (2011). Once complete, a plan to meet minimum performance requirements will be developed to increase the efficiency of the franchised portfolio within the route.

Budget has been assigned to energy reduction and generation schemes in CP6, including PV Solar initiatives and passive ventilation systems. These schemes will reduce operating costs for the route as schemes yield returns over time, and also reduce the carbon footprint of our operations.

The renewal of cooling equipment within lineside buildings, including Chillers at WROC, will improve resilience of the infrastructure to variances in temperature. Critical equipment is housed in these buildings and without adequate cooling provision, failures can result, causing delays.

5.3. Operational plan

5.3.1. Train performance strategy (linked to plans in Section 4)

The train performance strategy will shift emphasis to becoming more focused on passenger experience. Measures will be focused on passenger lost time and improvement activity will be prioritised on key passenger flows. We will continue to work closely with TfW to provide input into the franchise procurement process taking a holistic view where train performance outputs are taken into consideration alongside frequency of service and overcrowding measures.

Focusing on line of routes will also lead to increased engagement and accountability of outputs across the network and will be supported by the rollout of continuous improvement techniques focusing on the resilience and delivery of the timetable each day. This will also help inform prioritisation of future enhancement schemes that are aligned with forecast growth in passenger numbers, along with improving poorer performing lines of route. The process of developing enhancement schemes will be improved with clearer guidelines developed for sponsors on how to set performance requirements of schemes and to inform option selection stages of investment process. This will require improved access to performance modelling tools and work will be undertaken to review the existing internal tools available alongside those available by external providers.

The key drivers of the bottom-up forecast are train operator performance improvements that are in line with franchise output levels and an operations strategy that will deliver benefits through the embedding of a command and control structure, timetable enhancements and traffic management technology. There are also improvements due to increased off-track volumes, specifically vegetation clearance which would improve performance during autumn along with a targeted strategy to remove high risk trees. Passenger growth has been factored in as a risk based on a forecast growth of 5% across the control period. Traffic growth has also

been factored in as a risk in the central scenario. This is primarily due to increased traffic levels forecast at the end of CP5 in the LNW route, with limited material change in services assumed within the Wales route. In relation to the Great Western electrification programme, we are working with the Western route to understand performance impact associated with the development IET timetable.

Reviewing the train service aspirations of the new franchise indicates a possible increase of up to 20% in traffic on the Wales and Cross Borders network (circa 10% increase in services overall). The impact of the additional services due to increased congestion has been factored into the worse than target trajectory. Note the risk estimated does not factor in the possible opportunity associated with a change of rolling stock which could reduce the impact of increased congestion.

A review of Western and LNW plans indicates alignment of strategies, with an increased focus on operations performance but with no additional improvement or risks forecast related to asset management plans.

The baseline position is a causal forecast that takes us from the current position to 91.8% by the end of CP5. This includes improvement from traffic management, additional response teams, command and control structure as well as risk from emerging trends has been factored.

5.3.2. Route operations strategy

The Wales Route operating strategy is assumed to not significantly change prior to the new franchise agreement, which is due to be let towards the end of CP5. The Cardiff Area Re-signalling Scheme (CASR) is completed and offers a step change improvement in capacity on the Cardiff Valley Lines network, with the opportunity to run 16 trains per hour through the central core between Cardiff Queen Street station and Cardiff Central station.

CASR allows train services, particularly in the peak, to be optimised through the provision of new platforms and new turn-backs at Cardiff,

Barry, Caerphilly, Tir-Phil and Pontypridd. The realisation of these benefits for passengers in the Cardiff journey-to-work area rests with Welsh Government who will be the awarding authority for the next Wales and Borders passenger franchise.

Network Rail is working extensively with Welsh Government to inform their aspirations around future capacity and capability on the core Valley Lines network (those routes which radiate North of Cardiff Queen Street), for which they are developing proposals which may include new modes of transport and different connectional strategies.

Other investments in Wales may lead to increased capability of the network and drive improvements to service levels. Of note, Welsh Government has funded the redoubling of the railway from Rossett to Saltney (between Wrexham and Chester) which provides the capability to run additional services if these are specified in the new franchise. Development work is also underway to investigate the signalling capability of Wrexham General Station to enable more services to be turned back at that location if the franchise requires this.

Wales Route is actively working with TfW to evaluate models which include deeper collaboration with the ODP as part of the Re-franchise, these range from 'soft' and 'deep' alliances to full integration.

We are currently co-located with ATW control in the WROC and have been for the past 10 years and will look to develop & strengthen this into a full joint control and command organisation with a view to creating a centre of operational excellence.

We will improve operations in CP6 through:

- Further joint control and co-location of the Wales Route and ODP teams across operational functions
- Better alignment of commercial incentives between Wales Route and the ODP including risk sharing
- Focusing on key passenger flows, taking a holistic view that

considers operational performance alongside service frequency and usage

- Leveraging the benefits of the CASR which will allow train services, particularly in the peak, to be optimised through the provision of new platforms and new turn-backs at Cardiff, Barry, Caerphilly, Tir-Phil and Pontypridd
- Maximising the benefits of Re-signalling on the North Wales Coast
- Maximising the introduction of new and different rolling stock on sectional running times.
- Improving the way we collect, analyse, and share operational performance data, so that we make better decisions
- Making best use of access opportunities on current infrastructure between Newport and Shrewsbury.
- Initiatives to improve resilience to weather and other unplanned disruptions. This includes building on the Weather Resilience and Climate Change Plan we developed in CP5.
- The Route will continue to provide a dedicated resource to manage, co-ordinate and resolve close calls and public complaints.
- Improved Line Manager to Signaller ratio for better management of SSM's, MOM's & Signallers.
- Security being led by and over seen by our new Incident Officer team led by the Senior Incident Officer to align with the National strategy being led by the Director of Incident Management and Operational Security.

Traffic Management (TM) installation and review will be completed for the Cardiff area in CP5, where the benefits of the system will be evaluated. Further rollout of TM on the Wales Route in CP6 will be based upon the support of a viable business case and the availability of funds within the control period.

Operator training for new schemes (CASR/ Port Talbot/ traffic management/North Wales Coast) will be completed in CP5. However we have the recently appointed two Competency And Training Specialists (CATS) that report to the Current Operations Manager who will be leading on a programme of training and development starting with the new signalling workstations and traffic management in CP5 and, continuing through out CP6.

As we move into CP6 the CATS will be utilised for continual development of signallers and controllers to maximise new technology and processes derived from the implementation of the Incident Officer deployment, TM and Train Running Controllers. CATS will deliver initial electrification AC signaller training to support Electrification to Cardiff, as well as running a programme of safety critical communications training and development to support the close out of recommendations from level 1, 2 and 3 operational accident and incident investigations.

The link to investigation outputs is our driver to reduce operational risk/ train accident risk and requires collaboration with our TOC and FOC industry partners. Train Accident Risk Reduction is a Route scorecard measure driven by the Route Safety & Operations and Asset Management teams.

During CP5 we have set up a resource working group in Wales and Borders, the quorum of which is HoOD, COM and OMs, Finance and HR. The terms of reference is to continually review, develop and improve our frontline operations teams (signallers, MOMs and SSMs), this group has an objective to reduce fatigue, reduce overtime worked and improve the resilience of rostered teams leading to more robust business continuity. This change will require an increase in operations headcount that will stabilise by the start of CP6. In CP6 it is anticipated that there will be greater stability with regard to new signalling workstations/ technology and signalling schemes as our largest schemes in CP5 will be in and operating.

Electrification whilst bringing a change of operational process will not change signaller/ MOM/ controller headcount. There is no plan for an Electrical Control Room (ECR) on the route in CP6 [A.35].

In the remainder of CP5 we are seeking to lay the foundations for the above by working with ATW to streamline service recovery and improve joint operations and joint decision making. This includes the introduction of the Senior Incident Officer team to collaboratively improve control and command of incidents whilst delivering plans to predict, prevent and reduce all failures; fleet, asset and external. This includes establishing joint governance arrangements formalised in a Collaboration Charter and Joint Operations Board.

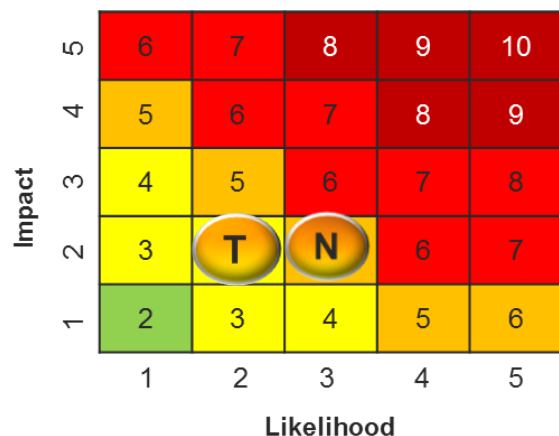
Key lessons learnt incorporated from CP5: A collaborative whole railway view to what's best for the customer is key to making the right decisions as an industry partnership.

5.3.3. Approach to resilience

The Wales Route understands the importance of maintaining a resilient infrastructure to maintain business continuity. Overall route reliability is important, although within any given geographical section of railway there are a number of assets that are deemed to be critical; these are not necessarily assets that have caused significant impact in the past, but those assets that have the potential to cause significant safety events, major disruption, environmental incidents or statutory / legal liabilities should a failure occur.

Critical assets are identified by considering all parameters, such as age, condition, location, interface with other assets, bespoke design, obsolescence, deferred renewals. Such assets are listed within the Wales Route Asset Management Plans (RAMPs), and in some cases have bespoke asset management plans, and are protected from volume reductions due to cost pressures to ensure that their operation is maintained throughout CP6 and beyond. An example is the renewal of the pumps in Sudbrook Pumping Station which has added a significant uplift to the E&P renewals submission, but cannot be life extended beyond CP6 due to the critical task that these assets perform to avoid the service implications should a complete failure occur.

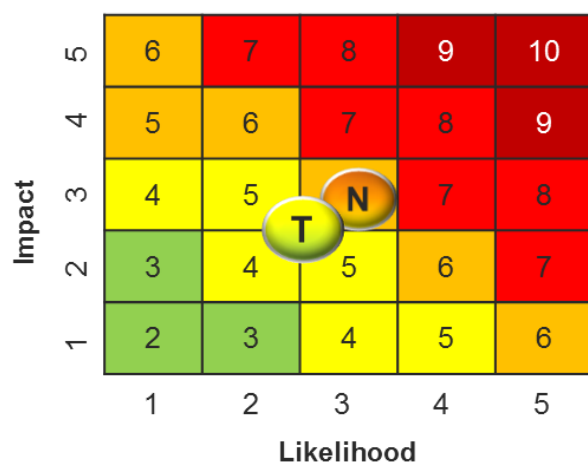
We are refining our Operational Resource Plan following signalling renewals, electrification and changes to the fatigue management standard. This will enable resilient and robust business continuity, leading to consistent, high performing operational delivery. An additional funding opportunity has been included within Appendix D to enable us to bring the WROC facilities up to the current company standard, which will see improvements to our security and WROC resilience which is the heart of our Operational area covering the South Wales Main Line (SWML) from Bristol through to Swansea.

5.4. Output summary5.4.1. Risk**Safety**

The Wales Route net safety output is within the corporate risk appetite.

Improvements in workforce, passenger & public safety and developments in our approach to the environment, sustainability, energy & social performance moving the route from our current position (net) to a forecast (target) position.

Application of the Wales Route Risk Management procedure facilitates ongoing reassessment of our risks and controls based on Bow Tie methodology in support of continuous improvement.

Value

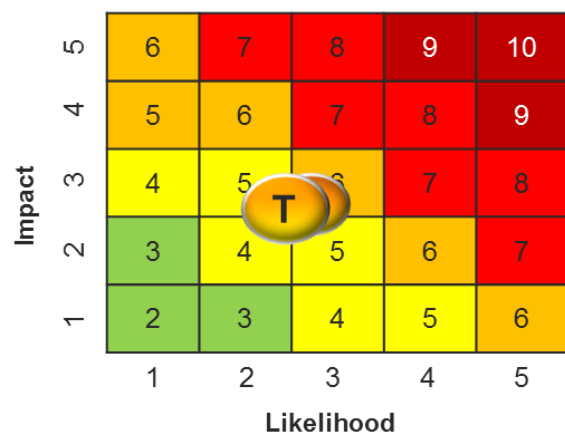
We are managing value within the route inside the corporate risk appetite.

At the start of CP5 the Wales Route was in its infancy, and as such long term planning timescales were also not well established.

Throughout CP5 this position has continued to improve, and in CP6, with the additional development of the RAMP, ABP, integrated planning combined with improved data quality and devolved functions there will be value benefits.

Although the overall confidence in improved value will continue to increase, the introduction of an electrified asset, and its impact on current value assumptions will introduce uncertainty, and will therefore impact confidence in those areas.

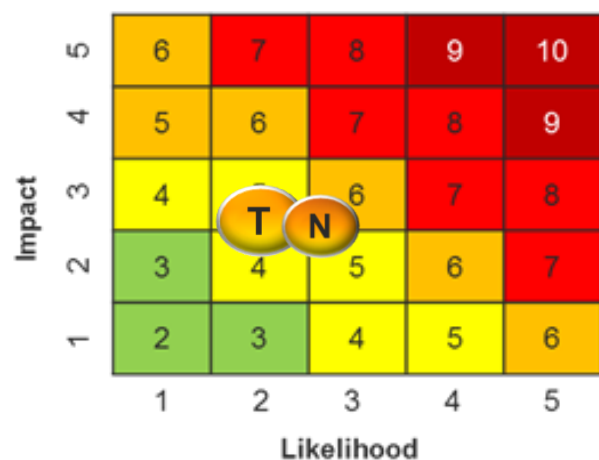
Performance



We are managing performance risk within risk appetite, with the expectation that the improvements in assets such as Off-track counteract additional reliability failures in others.

Scenario planning has focused on understanding performance risk associated with train service aspirations along with opportunities to offset this. Engagement with TfW / WG continues to develop whole system performance output levels to identify any gaps in outputs forecast.

Political/ Reputation

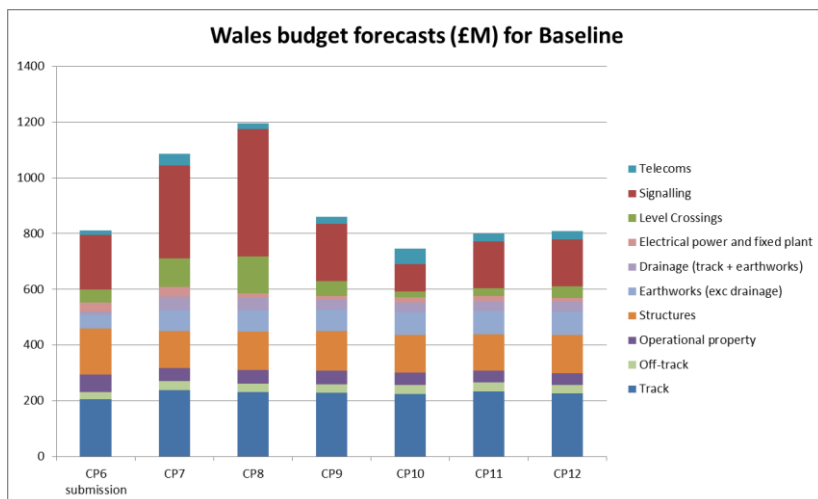


Reputational risk is within the corporate risk appetite. There is still the potential for negative reputational / political impact due to a significant asset failure such as the loss of service along the Cambrian Coast, but as these events impact severely upon other transport networks this is not anticipated to draw significant focus upon the Wales Route.

It is felt that the availability of a route risk allocation and focusing on improving recovery of significant incidents can actually convert these risks into an opportunity such as the sea wall repair at Dawlish on the Western Route. The Route believes that this improved incident planning, together with a more customer focused approach will bring the reputational risk within the corporate risk appetite.

5.4.2. Long run forecast

Details of the long term forecast are summarised below and included within Appendix F.



Wales	CP6	CP7	CP8	CP9	CP10	CP11	CP12
Track	204	192	195	192	189	192	195
Signalling	196	276	180	195	255	159	168
Level Crossings	46	64	64	64	64	64	64
Operational property	62	46	48	48	44	42	42
Telecoms	16	42	19	24	35	11	45
Structures	167	133	137	142	136	131	138
Earthworks (exc drainage)	49	55	58	61	64	66	69
Electrical power and fixed plant	34	34	18	12	12	20	17
Off-track	27	22	22	22	22	22	22
Drainage (track + earthworks)	11	33	33	26	26	26	26
All assets	812	895	773	785	848	733	785

Expenditure and implications

The long term expenditure profile for Wales is fairly flat with the exception of signalling with a spike in CP7 & CP8 from which point expenditure requirements return to approximate CP6 levels.

It should be noted because financial forecasts are only shown against SPS there is no provision for the wholesale refit of Sudbrook pumping station in the next 3-4 control period's, this is anticipated at circa £60M at current prices. Life extension works in CP5 & 6 will provide asset reliability in the interim

Mitigations

Further work will be required to understand the key drivers for the increase in signalling in CP7 / CP8, and if the Digital Railway strategy could ease this projected hump in expenditure.

6. Customer focus & capacity strategy

6.1. Capacity & timetabling

Transport for Wales (TfW) is currently procuring the next Wales and Borders franchise, which is planned to commence in October 2018. TfW are seeking solutions to improve outcomes for passengers that will potentially drive changes to the timetable across the franchise map after this time and throughout the period of the franchise, depending on the specification developed by the successful bidder. Network Rail will work with TfW to help them to assess the franchise bids. This will ensure that there is better alignment between the future train service plans and the requirements of the route.

As part of work supporting Transport for Wales in the procurement of the Wales and Borders franchise, including the potential transformation of the Core Valley Lines as part of the Metro, Network Rail has been involved in advising of known current and future forecast capacity constraints, and potential solutions to address these, as identified in the Welsh Route Study.

6.2. Future capacity & growth

The Welsh Route Study was published in March 2016 in collaboration with industry, funders and wider stakeholders, and sets out 14 choices for funders to delivery capacity and connectivity constraints in CP6. These are:

	Description	Outputs
1	More passenger capacity on Valley Lines for commuters	More seats for passengers & more services
2	Phased programme of enhancements on Valley Lines – linked to Cardiff Metro joint work between Welsh Government & NR	More frequent services and faster journey times

3	Upgrading Relief Lines between Cardiff and Severn Tunnel Junction to create a 4 track passenger railway	More services and faster journey times
4	Redevelopment of Cardiff Central - a station fit for a capital city	A better customer experience with more space and more services
5	Continued programme of Level Crossing Closures	Public safety and faster journey times
6	Improved generalised journey times on Heart of Wales Line	More services and faster journey times
7	Selected train lengthening on Cardiff to Manchester services	More seats for passengers
8	Modernisation of the North Wales Coast Main Line	More services and faster journey times
9	Improved line speeds on the North Wales Coast Main Line	Faster journey times
10	Improved connectivity to Deeside	More services with better connections
11	Further programme of capacity improvements: Chester -Wrexham	More services and faster journey times
12	Improved line speeds between Wrexham and Bidston	Faster journey times
13	Improved all day frequency on the Cambrian line	More services
14	Improved frequency in the Ebbw Vale line with new line to Abertillery	More services and new services

Following the UK Governments cancellation of electrification between Cardiff and Swansea, the Secretary of State has announced a number of priorities for enhancing the network in Wales and Borders. These include:

- Line speed improvements to support improved journey times on the Relief Line between Severn Tunnel Junction and Cardiff Central and between Cardiff Central and Swansea;
- Line speed improvements to support improved journey times between Wrexham and Bidston;
- Line speed improvements to support improved journey time along the North Wales Coast Main Line; and,

- Capacity improvements at Cardiff Central to accommodate growth in passenger numbers and station users.

We are working with UK Government to identify funding to take forward strategic outline business case work and early development work to make the case for these investments. Change control processes will need to be in place for adjustments to the plan if funders commit to delivering some of these enhancement choices.

6.3. Digital Railway

Digital Railway is a rail industry-wide programme, designed to benefit the economy of Great Britain by accelerating the digital enablement of the railway. It could create more capacity on the most congested urban networks, while making trains more reliable, safer and greener and our network far more resilient to disruptions.

The Welsh Route Study took the opportunity to assess the opportunities for Digital Railway to address future network capacity constraints, specifically where there may be opportunities to provide outputs in a more affordable and efficient manner if major civil engineering works are not required.

Group Digital Railway have been focusing on working collaboratively across the rail industry and Government to build the investment cases for targeted delivery which addresses key local issues and challenges and finds the appropriate solutions.

Welsh Government and Transport for Wales have been involved in discussions particularly around how Digital Railway could support the capacity constraints on the Core Valley Lines and in South East Wales.

Through the procurement of the next Wales and Borders franchise, TfW is considering a range of options for this part of the network including digital train control which would enable a step change in capacity to be achieved, if WG/TfW do decide on a DR solution, Network Rail would be as a supplier to TfW and it will be on the CVL which will be a TfW asset and will not affect Wales Route assets.

An Isolated Train Management system (ARAMIS) is undergoing installation at the Wales Route Operating Centre in preparation for trials to determine the benefits that it could provide. The benefit assessment and lessons learnt will be fed out to the wider Digital Railway programme for inclusion in future national plans.

Projects initiated in CP6 and beyond will explore opportunities for passive provision i.e. DR readiness.

6.4. Communications

Our communications work for CP6 will focus on:

Media relations

Ensuring media (paper, online & broadcast) in Wales and Borders is engaged and utilised to increase our profile and promote our work. Focusing on innovative and creative new ways to engage

Community Relations

Improve lineside neighbour and public favourability by demonstrating we care – be informative and engaging

Passenger Communications

Explain planned disruption, push benefits, and raise awareness of Check Before You Travel (CBYT). Highlight challenges and demonstrate how we are working (collaboratively) to address them – deliver joint plan / manage joint Communications board.

Public Affairs

Build strong, mutually beneficial and trusted relationships with Welsh and UK Government representatives

Stakeholder Engagement

Champion the work of the Wales route to grow advocacy and build relationships and deliver positive climate for investment

Internal Communications

Help create an engaged workforce with an understanding of industry priorities

Developing on the introduction of a joint NR/TOC communications board, we will be looking further ways to work with our partners and speak as one voice for the rail industry in Wales and Borders. Following the refranchising, we will be looking to work with our new lead TOC to support our joint scorecard measures to drive collaborative behaviour.

We will seek to protect and enhance Network Rail's reputation in Wales and Borders and ensure that messages are consistently delivered to the right audiences at the right time. Our communications will explain and promote how Network Rail is delivering a safe, reliable, affordable and growing railway for our customers.

6.5. Property

The route works collaboratively with Property and requires strategic property and town planning advice together with associated property acquisitions and transactions to support the delivery of operational, maintenance, renewals and enhancements on the Wales Route, currently with particular support and emphasis on:

- Great Western Route Modernisation

- CP6 Structures work
- South Wales Metro
- All other major enhancement projects.

Continued focus will be on engaging with Property and planning projects at an early stage in order that appropriate delivery strategies can be put in place to enable projects to be delivered efficiently. Early engagement will lead to joint planning of the delivery of projects via Transport & Works Act Orders or Development Consent Orders where appropriate.

Land Strategies

We will also look to develop detailed land strategies with Property to help inform the optimum use of land, realise additional benefits, such as better operational facilities where that may release development land, and leverage in third party investment.

The System Operator, Business Development Director and Sponsor teams, with the support of Property, will continue to build on the good record of the Wales Route to attract inward investment to the business (such as through legal agreements between Local Authorities and developers (S.106 contributions) making best use of Property/Route expertise and experience in commercial activities and initiatives particularly for station and network enhancements. In particular:

- Wales Route land strategy;
- Cardiff Central Station Masterplan

Disposals and Income Generation

The route will work together with Property, helping to fund Network Rail's Railway Upgrade Plan by selling assets not core to Network Rail operations and seeking to release surplus railway land for housing to achieve Welsh Government aspirations. In line with the steering group for integrated land disposal for housing use has been formed between

Network Rail and Welsh Government. Key sites being worked on include Cogan, Newport and Swansea Burrows sidings.

In addition, the disposals programme may be supplemented by identifying surplus freight sites but only where the value release proposal protects current traffic generating operations and in a way that uses land strategy to optimise freight operations on the route. All sites that are being considered for disposal will be subject of early consultation with the Route teams in order that operational uses can be protected, and where possible, enhanced.

The route/Property team will work together to dispose of land where it presents a liability to the Route as in the case of Llandow and Pontypool

The route/Property team is also seeking to work more collaboratively with the Train Operator to look at joint disposals where this benefits the industry through reduced costs or enhancing passengers' experience

The route in partnership with the Property team will continue to help grow Property's sustainable growth model by generating income to reinvest and create a better railway for a better Britain. This will include increasing retail income and passenger outcomes, and working with Asset Protection to generate income where developers seek to use or develop Network Rail land.

7. Cost competitiveness & delivery strategy

The starting point for our delivery strategy for CP6 is a considered analysis of the volumes delivered against the proposed CP5 work bank, and the related programming issues that emerged. We have analysed the available information, interrogating in-year performance as well as anticipated outturn from the full five years of CP5. Taking the lessons learned from this analysis, our CP6 delivery strategy for both maintenance and renewals has been developed from extensive consultation with key partners including the Route Asset Management team, Director of Sponsorship, Route Delivery Director and wider management team in IP along with the wider supply chain.

Overview of CP5 lessons

Immaturity of the Wales Route at the time of preparing the CP5 SBP limited the opportunity for well-established work bank preparation which contributed in under-delivery of volumes in Year 1. The Route has since been working to recover from this and even at the end of five years a significant amount of work will have to be deferred. A lack of robust asset data meant that the CP5 volumes were high level estimates for the majority of work banks. This meant that what turned out to be the 'real' delivery programme was not effectively planned. The route also struggled to achieve supply chain management efficiencies that should have been derived had the underlying plan been robust.

The legacy of pushing back the Year 1 CP5 work banks as a result of poor planning has included:

- Inefficient use of access;
- Reduced productivity;
- Concentrating supply chain activity into a shorter programme duration thereby giving rise to issues of capacity.

Year 1 issues also put additional pressures on the route as we had to re-

profile work banks, reschedule activities and understand a new critical path for effective programme delivery.

A further issue encountered was that in certain areas, the route has been unable to exercise sufficient controls over the end to end value chain to guarantee effective delivery. An example is High Output Track Renewal - a nationally led delivery function which has a particularly sensitive value chain.

7.1. Summary route deliverability statement

Large proportions of this submission represent similar or slightly reduced volume when compared to CP5. Although track access opportunity is anticipated to be reduced east of Cardiff on the South Wales mainline due to Electrification, this reduction in access has been accounted for in this OMR submission.

Early deliverability reviews have been undertaken with both Infrastructure Projects and the Works Delivery Team to develop effective strategies, with a Level 1 deliverability assessment undertaken in August 2017, which is detailed in Appendix I. Works will be targeted at the most appropriate delivery team dependent upon financial value, level of complexity and competency of resource. To facilitate these discussions a cross-asset renewals work bank has been uploaded into a GIS system to enable geographical representation of the current plans and proposed timeframes for activity.

In January 2018 a cross disciplinary meeting including Asset Management, Deliverers, Access Planning and Route Services was held to review the overall CP6 renewals work bank. This review interrogated the criticality of activities and flexibility for movement within the control period in line with access availability.

This meeting has identified geographically where key schemes are, and

what the access availability is like in these areas. Schemes that have been identified as being flexible within the control period can now be planned around these key schemes to start to formulate the delivery plan for the route. In more rural routes it has been decided that line of route campaigns will maximise efficiency, and in these areas there will be a sponsorship lead identified to oversee the multi-asset delivery following integration of the work banks in these areas.

Future development will include collaborative strategic planning sessions with deliverers and framework Contractors towards final SBP. The opportunity will be to optimise the available access by aligning asset interventions and efficiency benefits of multi-asset renewal activity as part of multifunctional projects. Working closely with our supply chain will provide the platform to capture successes we have had in previous control periods as well as areas to improve. This will support our efficiency challenge with credible initiatives and minimise unproven proposals.

Visualisation of work banks and use of systems such as GeoRINM will improve planning of works and alignment of resource with our work bank.

To demonstrate this collaborative approach each of the key deliverers for the Wales Route has provided deliverability statements that are included alongside the L1 deliverability assessment within Appendix I of this report.

7.2. Access

The upcoming Wales and Borders franchise represents a significant opportunity to build a strong case for substantial engineering possessions to be incorporated into the requirements. Any agreed increase in access to the railway infrastructure throughout CP6 will enable the route to deliver far more for the available funding and also tackle some of the more challenging issues within the route such as the effective management of vegetation within rural lines [Ref A.6].

The working assumption is that there will be no loss of engineering access as a result of the new franchise. New electrification assets present a reduction in available working time within possessions (due to isolation requirements) which has been accounted for in ABP for maintenance activity, and headwinds for renewals.

As discussed in the previous section is access planning is ongoing within the route to maximise the safety, productivity and efficiency of disruptive access in CP6.

7.3. Maintenance delivery

The Wales Route maintenance strategy is based upon increased CP5 volumes and access availability, with additional rollout of risk based maintenance and use of plain line pattern recognition; refinements in planning and separation of faulting and maintenance supporting improvements in work bank management, and mechanising work delivery where possible to support safer and more productive delivery.

The key variations from CP5 into CP6 include increased volumes in track, Off Track and the overarching implications of electrification Severn Tunnel through to Cardiff. An increased focus on asset reliability and delay per minute will be delivered through an additional point care team resulting in two teams; these increased volume changes have been recorded within the Activity Based Planning submissions.

The increase in Track maintenance volumes and associated cost relate to the requirement to deliver maintenance activities listed within the Maintenance Handbook FRM702, that were assumed to be transferrable into the Track Refurb work bank within the CP5 SBP. This proposal has proved difficult to deliver as these activities do not meet the scope required to be undertaken in line with the Cost and Volume Handbook for renewals. These volumes are asset strategy statements and are represented within Section 5 of this document. There is an increased volume associated with welding, switch replacement and inspections which support the change in track standards (NR/L2/TRK/053 and 054) and an increase in volume for rail changing due to the increasing nature of rail defects identified through UTU and Eddy Current testing. Additionally increased volume to support improvements in track geometry, specifically level 2 twist faults, and the lower tolerance levels associated with vertical longitudinal split defects in track.

The uplift in Off-track maintenance volumes is to tackle the vegetation challenge within the Wales Route which has suffered historical neglect. The increased investment is in line with the national vegetation strategy,

with the Wales Route reaching, and maintaining compliance by the end of CP6, with further discussion within Appendix B of this report (Ref A.15). As part of the routes commitment to apprenticeships per year, the route is exploring opportunities to create an Off-track apprenticeship scheme to assist with the expected increase in Off-track related maintenance volume. There is good operational and reputational opportunity in this area. There is considerable volume increase in the first four years to achieve compliance to standard with a subsequent slight decrease in year five and into CP7 to sustain the improvement.

Delivery will include the use of drainage lorries to undertake drainage maintenance and the Earthworks related drainage will be undertaken by the specialist Planned Preventative Maintenance gangs.

Electrification to Cardiff in CP5 will have a significant impact upon maintenance activities. This will impact inspection and maintenance of assets with further detail included in Appendix B of this document (Ref A.9, A.19, A.29, A.31, A.35, A.37 & A.38) and notwithstanding the increased work associated with the maintenance and faulting of this new equipment.

The implications of these additional assets related to electrification have been initially estimated to represent an increase of eight heads in CP6 on the Wales Route as presented within Section 5.1.

Where lines have been electrified in CP5 between Severn Tunnel and Cardiff provision has been made to account for the reduced access/productivity of maintenance activities required upon non E&P assets over and above an incremental increase for the actual maintenance of the E&P asset.

The impact of resignalling schemes is broadly neutral with regards to signalling and telecoms maintenance. Increases to infrastructure volume e.g. bi-directional signalling through South Wales are offset by risk-based maintenance of LED signals. Similarly, for North Wales Coast any increase in infrastructure volume is offset by appropriate reduced maintenance

regimes.

The current level of planned introduction of level crossing safety initiatives such as Covtec Supplementary Audible Warning systems and Vamos Miniature Stop Light overlay systems will require an increase to the maintenance workload however this is again offset by a reduction in routine maintenance in areas of resignalling and life extension.

A significant increase in Covtec and Vamos throughout CP6, as proposed by the Level Crossing Risk Team, will certainly require additional resource to undertake faulting and maintenance tasks although this cannot be quantified until funding, volumes and delivery timescales are confirmed.

7.4. Project delivery

Track

The suppliers for the Track Capital Expenditure programme are both internal and external to the Wales Route. They include Infrastructure Projects Track (IP Track) and Works Delivery (WD).

IP Track will specialise in the larger scale and high complexity works for the route covering Plain Line, High Output and S&C Renewals. This includes the Development works (GRIP1-3) on behalf of the Wales RAM Track team.

The WD team will specialise in the lower complexity and single component renewal that forms part of the Capital Expenditure programme. They will supplement their workforce with the maintenance DU teams to undertake works such as re-padding and 1 in 3 re-sleepering.

Off-track

Internal Wales Route Works Delivery teams will undertake refurbishment/renewal/new build work relating to drainage, level crossing surfaces, access points (including RRAPS), this follows on from the development of this team in CP5. Fencing will be delivered through our framework contractors managed by Works Delivery to ensure

delivery to the required standards.

Signalling

Delivery of major projects will be undertaken by IP Wales as standalone schemes or as a continuation of existing projects e.g. Port Talbot West (Phase 2) extends from phase 1. There may be opportunities to effectively sub-contract work to the maintenance CapEx team but this must be carefully managed so as to not impact delivery of their own core requirements. Minor works will generally be undertaken by Works Delivery.

Level crossing renewals will be delivered by IP either as standalone or localised bundled renewals or as part of larger schemes where efficiencies can be made by virtue of joint possessions. Spot renewal of assets will continue under the current regime of DU management

E&P

Current CP5 strategy is to use IP Crossrail & Western to deliver the portfolio as they are accepted as having E&P engineering specialism. Portfolios of work are to be combined to make commercially interesting packages that give an opportunity to reduce overheads. In CP6 the intention is to place delivery with IP Wales in line with the devolution model to generate efficiencies.

The IP Wales team have recently grown an experienced team of E&P professionals who are currently engaged on development of the CP6 portfolio. Some of the work will be directly remitted to Works Delivery Wales where appropriate.

Buildings & Civils

Currently, all CP6 Buildings schemes are proposed to be delivered by Wales Route Works Delivery, with the exception of Swansea Platform 4 due to scale and complexity. Works Delivery will utilise framework contractors, bidding for schemes under a competitive tender process.

Delivery of major structures and standalone renewals schemes will be undertaken by IP Wales. Maintenance works will be delivered by Works Delivery.

Earthworks & Drainage planned renewals / emergency works & large campaign style refurbishments will be delivered by IP Wales who will engage at least one specialist geotechnical contractor under a new Framework. Works Delivery will undertake refurbishment work and RCM installations. Track drainage to align with Track renewals.

In CP6 we will be placing an additional PPM gang in Shrewsbury DU to supplement the existing one established in early 2017 which is based in Machynlleth. The gang will be required to predominantly undertake vegetation management and drainage maintenance with work items identified by the Earthworks RAM Team and the Off-Track team via MSTs in Ellipse. Cardiff DU has two PPM gangs undertaking this type of work since 2015. It provides a mechanism to combine geotechnical, drainage, and general "Off-Track" work and deliver it in the most efficient way.

Closer alignment of the Structures Asset management and Works Delivery teams to progress the pro-active maintenance approach initiated in CP5. The Network Rail design group will develop to provide greater technical support, working closer with the Route to develop and design both renewals and maintenance schemes which will offer additional efficiencies over what they provide in CP5.

New contract strategies will be developed to target common work streams to improve speed of delivery, quality and reduce costs.

7.5. Supply chain

Track

IP Track is currently assessing their delivery contract based around the intended volume the Wales Route want to contract through the intended PL/S&C Alliance (being implemented in CP6) and the High Output Alliance. The PL/S&C Alliance is likely to cover multiple routes following

the similar model of the S&C South Alliance that covers six routes.

WD recognises the need to strengthen its team to satisfy 'GRIP4Track' 'Engineering Management for Projects' and 'CDM2015' requirements. Based on these factors and recent outturn in CP5, it has presented higher unit rates for CP6.

Maintenance have built bottom-up volumes for CP6 using the 'Activity Based Planning Tool', this provides a base for tighter control, better informed decision making, as well as the granularity to see the cause and effect of varying maintenance strategies.

Challenges for the route in CP6 are:

1. Recording and making use of asset information to reduce risk.
2. Development of WDs use of GRIP4Track.
3. Tracking and understanding WDs unit rates to ensure value for money vs IP Track.
4. Work with the deliverers to develop an efficient method for conventional ballast renewal with the sleepers and rail in-situ, particularly through S&C.
5. Working with other routes to gain economies of scale whilst ensuring the right size solution for Wales.

Signalling

Over the last five years, the number of suppliers for major signalling projects & level crossing renewals has reduced. This is mainly due to mergers but a few suppliers have moved away from the signalling arena. The reliance on a reduced number of suppliers within CP5 has hindered the opportunity to plan for renewals as resources may be utilised over several projects.

Within CP6 there is an industry wide expectation that more suppliers will enter into the marketplace and this will have a benefit upon our plans within the control period.

This improved diversity in the marketplace will assist in meeting the

challenges for the supply chain in CP6 to:

1. Deliver renewal projects within agreed SEU rates.
2. Provide an effective method of bringing new technology through the approval process such that it can be deployed more swiftly.
3. Provide an efficient method of project delivery that allows for delivery away from the traditional holiday breaks which creates peaks of demand for scarce resources e.g. testers.

Major contributors to signalling renewals cost in CP5 to overcome are:

1. Data preparation for layouts which requires specialist resource.
2. Lack of suitable possession availability due to delivery 'bottlenecks' which can cause a project to be extended.
3. Increasing costs of level crossing renewals

E&P

In CP6 the E&P renewals portfolio will be transferred to IP Wales. We are currently working on a development budget with the IP Wales team during CP5 to facilitate this smoothly. Current deliverability assessment undertaken by IP Wales suggests that the plan is deliverable to programme and budget.

Off-Track

The RAM Team have held discussions with the Contracts & Procurement (C&P) team with respect to the supply chain. It is considered that there is sufficient Contractor/sub-Contractor resource to deliver drainage and fencing volume. However, there will be a step change in vegetation management typified by large scale tree/vegetation removal. C&P will be preparing vegetation Contracts in year four of CP5 to ensure the supply chain have time to develop/train adequate resources to meet the challenge in CP6.

Earthworks

The low complex work required, combined with a primary focus on refurbishment and maintenance type interventions is considered to comprise straightforward, generally small scale work. Due to this there are anticipated to be sufficient suppliers to meet the demands of the Geotechnical work bank. Notwithstanding this, the large Civils Projects in the area (M4 Relief Road, Hinkley Point, and Swansea Lagoon) are expected to impact market forces by way of inflating costs rather than the ability to deliver. Whilst there will be an increase in the use of Remote Condition Monitoring to manage risk, this is not considered to be an issue to the supply chain with several suppliers able to meet the demand.

Structures

The Route Contracts & Procurement team are engaging with lower tier suppliers to provide specialist services. This offers an efficiency opportunity to the present use of Tier 1 suppliers who frequently sub-contract to the specialist Tier 2 suppliers.

Buildings

Buildings renewals will be delivered by framework contractors who will bid for works via competitive tender. The framework contractors are a mixture of national and local contractors, who in turn, utilise local and national subcontractors. Many contractors operate in multiple markets, therefore railway works are subject to market fluctuations in the wider construction industry.

Civils Examinations

CEFA delivery issues have been experienced throughout the CP5 national contract. Our strategy for CP6 is to contract with multiple specialist suppliers to enable a broader choice and flexibility of delivery, whilst still maintaining access to the national contract.

7.6. Contestability

Network Rail's response to the Hansford Review committed Network Rail to publishing a "pipeline of opportunities for third parties" by the end of 2017, including "opportunities for activities to be directly competed in the market". To assist with this process Wales Route has identified a high level selection of opportunities to the value of £23.1m that could be considered to meet the criteria for contestability. Further details of these activities are presented below.

Track / Signalling

At the time of writing there are no schemes that meet the criteria for contestability for Track and Signalling renewals.

Structures

£1.7m of CERDs renewals and £0.75m footbridge have been identified as potential schemes that could be considered for Contestability.

Buildings

£5.5m of Maintenance Delivery Unit (MDU) renewals, £2m of Light Maintenance Depot renewals and £6.1m of energy and carbon reduction schemes have been identified as potential schemes that could be considered for Contestability.

E&P

£2.3m of Switchgear renewals, £0.47m of water tank renewals, £3.1m in points heating renewals, £0.1m of level crossing lighting renewals and £0.7m of DNO renewals have been identified as potential schemes that could be considered for Contestability.

Geotechnical, Off track and Drainage

£0.42m of Soil cutting crest drainage schemes have been identified as potential schemes that could be considered for Contestability.

This is an early assessment of the Wales Route work bank to the end of CP6. As our understanding of the work develops, it is anticipated that more schemes will be identified for selection for contestability.

7.7. Route Services & IT

On the Wales Route we work closely with Route Services throughout the development of Service Catalogues, and identified our mission critical services, which we jointly review periodically. We include senior members of the Route Services leadership team in our key meetings, including Route Exec, Periodic Business Review (PBR) and weekly Visualisation.

As examples of working together, Route Services has supported the Wales Route in improving road vehicle safety, creating electronic Visualisation boards, delivering the IT services for the Wales and Borders HQ move, and jointly creating a prioritised business case for the improvement of network capacity and the installation of Wi-Fi at maintenance depots.

Our strategic business plans are closely aligned, with some specific areas of efficiency and opportunity identified, including:

- Introduction of Rail milling which will deliver significant Route volume and efficiencies;
- Increased focus on growing the Welsh economy, and working with Welsh suppliers;

Route Services supplies the Wales Route with the services best provided from a national team. This approach enables national coordination, and for Network Rail to benefit from economies of scale and greater efficiency this specialised delivery.

Route Services consists of four primary functions. Supply Chain Operations (SCO) delivers the logistics, materials, components and fleet that enable the maintenance and renewal of our railway infrastructure. IT shapes, builds and runs the technology services needed to support our railway, now and into the future. Business Services manages and delivers support services on our behalf such as shared services, and training and Contracts & Procurement (C&P) secures and manages the national

contracts and supplier relationships which we rely on.

Through the services they deliver, we look to Route Services for subject matter expertise, access to their supply chain, and strong delivery partnerships with suppliers, to get the best value and quality possible for our Route. Route Services is responding positively to our challenge to them to deliver the outstanding performance, cost competitiveness and commercial approach which we expect.

The introduction of Service Catalogues with customer-facing KPIs has enabled us to hold Route Services to account at a local level, as well as identify mission critical services for the Route, and collaborate on joint improvement plans.

Route Services – services offered to the Route

Supply Chain Operations	Information Technology	Business Services	Contracts & Procurement
Aerial Survey Breakdown Recovery Delivery of Materials by Rail Delivery of Materials by Road High Output SISOs Lifts and Escalators Mechanical Electrical Lock Fitting Mobile Flash Butt Welding National Signalling Works On Track Plant Operational Property Helpdesk Overhead Line Condition Renewal Works Product Management Project Engineering Project Management Services Rail Profile Treatment Grinding and Milling Recycling Road Fleet Seasonal Autumn Seasonal Summer Weedspray Seasonal Winter Stoneblowing Tamping	Building Infrastructure IT (BIIT) Projects IT Delivery Projects IT Helpdesk IT Strategy and Planning Services Local IT Delivery Management Technology Infrastructure Services	Accounts Payable Apprentices Billing and Income Collection Business Intelligence Team Competency Assurance Content Management COOM (Call-off Order Management) Energy Bureau Engineering Graduates Expenses HRSS Employee Records HRSS Medicals HRSS Payroll HRSS Recruitment Leadership and Professional Development Organisational Data Maintenance PPE Helpdesk Records Management Schedule 4 Compensation Taxation and Accounting Technical Competencies TOC Billing and Income Collection	Category Management Contract and Supplier Management Governance and Assurance Procurement

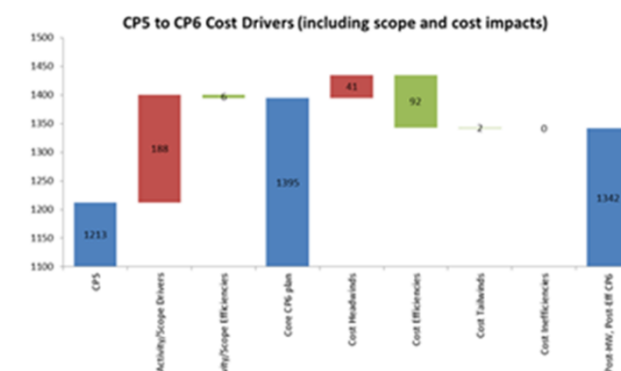
7.8. Costing approach

Asset	Supplier of cost	Basis of cost	% of asset covered (volume)
Track (Plain Line)	IP Track – PL & HO	Bottom up costing using historical outputs of existing CP5 contract performance	10%
	Works Delivery	Historic contract rates	10%
			80%
Track (S&C)	IP Track – S&C	Bottom up and Comparison Estimates provided based on work bank	23%
	Works delivery	Historic contract rates	77%
Signalling	NR HQ	Centrally costed SEU rate	75%
	Works Delivery	Historic delivered rates	25%
Earthworks [Ref A33]	IP	Historic delivered rates (CAF)	20%
	Works Delivery	Historic delivered rates	80%
Off-track (Fencing)	Works Delivery / C&P	Unit rate based upon CP5 delivered volume	100%
Drainage	Works Delivery / C&P	CP5 delivered unit rates	60%
		Centrally costed unit rates	40%
E&P [Ref A.34]	IP	CP5 delivered unit rates	40%
		Centrally costed unit rates (E&P Handbook)	60%
Operational Property	Works Delivery / C&P	Unit rate based upon CP5 delivered volume	92.5%
	IP	GRIP 1 estimate	7.5%
Structures	IP	CP5 delivered unit rates	60%
		Centrally costed unit rates	40%

7.9. Cost drivers, headwinds and efficiency

Summary of route efficiency

Totex (O,M,R)	Year			Year					CP6 total
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	
Pre-efficient plan ³ (£m)				259	297	325	291	229	1,400
Activity/scope efficiencies (%)				-0.43%	-0.38%	-0.34%	-0.39%	-0.49%	-0.40%
Core plan (£m)				258	296	324	290	228	1,394
Head winds (%)				3.4%	2.8%	2.6%	2.7%	3.1%	2.9%
Efficiency (%)				-4.9%	-7.1%	-6.6%	-6.7%	-7.6%	-6.6%
Tailwinds (%)				-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%
Inefficiency (%)				0%	0%	0%	0%	0%	0%
Post-HW, post-Eff spend (£m)				254	283	310	278	217	1,341



³ Note that pre-efficient plan is equivalent to core CP6 plan + 2a (activity/scope efficiencies) in the waterfall

Route headwinds and efficiency by theme

Theme	Area	Description	Net change %
Access (3)	Efficiency (3a)	Optimisation of access (use, agreement, planning), through similar work-types and geographic mix.	-0.23%
	Tailwind (3b)	NA	
	Inefficiency (3c)	NA	
	Headwind (3d)	Effect of additional Electrification, along with increased traffic from Franchise impact.	
Work bank planning (4)	Efficiency (4a)	Stable work bank - understanding work bank mix to incorporate low level preventative works and heavy maintenance, reducing the need for major intervention.	-0.30%
	Tailwind (4b)	NA	
	Inefficiency (4c)	NA	
	Headwind (4d)	Changes in work bank mix for Signalling and lack of early development funding available for Full Conventional scheme.	
Technology (5)	Efficiency (5a)	Mixture of II, EBAK and other technology benefits.	-0.69%
	Tailwind (5b)	NA	
	Inefficiency (5c)	NA	
	Headwind (5d)	Increased investment in obsolete technology, and investment in performance modelling technology.	
Delivery (6)	Efficiency (6a)	LEAN (Right First Time delivery, Better Every Day, Structured Continuous Improvement) & Development of Works Delivery capabilities.	-0.86%
	Tailwind (6b)	NA	
	Inefficiency (6c)	NA	
	Headwind (6d)	Delivery HW associated to isolation costs of Electrified assets.	
Design (7)	Efficiency (7a)	Early contractor involvement, early scope definition, and use of minimum specification solutions with the main benefit arising from Signalling schemes and in-house design resource for Buildings.	-0.57%
	Tailwind (7b)	NA	
	Inefficiency (7c)	NA	
	Headwind (7d)	Early development of CP7 work bank designs to maintain supplier and work bank continuity.	
Commercial (8)	Efficiency (8a)	Improved contracting strategies/rates (Inc. packaging of works) & Supply Chain Organisation initiatives.	-1.39%
	Tailwind (8b)	NA	
	Inefficiency (8c)	NA	
	Headwind (8d)	Remobilisation costs driven by market pressures, and increased initial cost following CP5 ramp down.	
Other (9)	Efficiency (9a)	Structured continuous improvement and LEAN processes throughout organisation.	0.25%
	Tailwind (9b)	CP6 Costs now funded via AIS including PLPR, Eddie Current and S&C Dynamics.	
	Inefficiency (9c)	NA	
	Headwind (9d)	Impact of HS2, M4 Relief Road and other GB infrastructure projects; along with Fatigue Management Policy.	

A detailed asset specific breakdown of efficiencies & headwinds are included within C&V templates and Cost Drivers sheet that should be read in conjunction with this section.

7.10. Risk and uncertainty in the CP6 plan

This section provides an explanation of the how we have built up our overall plan and sets out our estimate of the degree of financial uncertainty within this plan.

Pre-efficient costs in our plan are based on 'current rates' but include any additional scope needed to deliver the outputs in the plan. We have used 2016/17 unit rates to develop our capital expenditure forecasts and CP5 exit rates for support, operations and maintenance expenditure forecasts. Drivers of rate increases (headwinds/inefficiencies), or rate reductions (efficiencies/tailwinds), where there is a reasonable expectation they will occur, have been identified separately from the core CP6 plan.

The combination of our core CP6 plan, headwinds/tailwinds and efficiencies/inefficiencies is our 'submission' and represents the 'most likely outcome' for CP6. The content of our plans reflect funding aligned to the Statement of Fund Available (SoFA) announcement in October 2017. We consider this plan to be realistic and, therefore, deliverable in CP6.






Current unit rates are likely to include some risks that were not originally included in CP5 plans but that have materialised during the current control period. As a result of this approach, there is a potential that some risk and uncertainty is already included in our core CP6 plan.

Whilst it is difficult to precisely estimate the likelihood of delivering our plan in CP6, it seems reasonable to suggest that; overall, there is a 45% to 55% likelihood of the outputs in the plan being delivered for the forecast cost in our CP6 plan. This means that for approximately half of the time, we will be able to deliver our plan for the forecast cost. It is anticipated that delivered schemes that fall outside of this range will be within the stated variances within our submitted C&V templates.

This uncertainty varies between expenditure categories. For example, we consider that there is significantly more uncertainty in our renewals plan than in the support, operations and maintenance plans in CP6. The main drivers of uncertainty in our plan are identified in the table below.

Uncertainty ranges for CP6

The information in the table below presents our estimate of the overall range of uncertainty across our expenditure and income for CP6. We have also identified the main drivers of the uncertainty ranges. The information in this table is based on the detailed inputs provided in our OpEx, renewals and income submissions. Headwinds/tailwinds and efficiencies/inefficiencies are included in the spot estimates.

Area: (R, M, O, S, Income)	Potential range (low – spot – high)	Summary of key drivers of range	% Range of driver
Renewals	<p>Low (-£46m) Spot (£798m) High (+£140m)</p> 	<ul style="list-style-type: none"> • Scope Uncertainty • Supply Chain capability • Level of competition within the supply chain • External influences e.g Major Civils projects (Hinkley, HS2, M4 Relief Rd) • Integration with enhancement schemes (currently unknown) 	<ul style="list-style-type: none"> • 25% • 15% • 10% • 10% • 25%
Maintenance	<p>Low (-£4m) Spot (£332.3m) High (+£22m)</p> 	<ul style="list-style-type: none"> • Delivery of efficiencies relating to maintenance strategies. • Uncertain maintenance needs from new asset (Electrification) • Uncertainty around efficiencies for organisational change. 10% 	<ul style="list-style-type: none"> • 10% • 70% • 10%
Ops & Support	<p>Low (-£3m) Spot (£211.5m) High (+£13m)</p> 	<ul style="list-style-type: none"> • Uncertain workload from new asset (electrification control) • Headwind uncertainty surrounding impact of Fatigue Management Policy in Ops • Efficiency uncertainty relating to indirect organisation optimisation plan. 	<ul style="list-style-type: none"> • 50% • 20% • 20%
Total expenditure	<p>Low (-£53m) Spot (£1,341m) High (+£175m)</p> 		
Income	<p>Low (-£10m) Spot (-£96m) High (-£0m)</p> 	<ul style="list-style-type: none"> • Key uncertainty surrounding actual level of Schedule 4 Passenger compensation. The current submission has been derived with the aid of the ARUP & Business Support model that is accepted by the majority of Routes as a robust basis for determining amounts of Schedule 4 based on operational and renewals activity levels. The model output for SBP has been adjusted to reflect CP5 realised rates. 	<ul style="list-style-type: none"> • 100%

8. Culture strategy

8.1. Safety

Wales Route is committed to getting everyone home safe every day. Our workforce is a key part of delivering this outcome for those who work in the industry, our passengers and the public. We have a relatively stable and engaged workforce. This is evidenced by the number of close calls reported exceeding our targets, our positive engagement results through our Your Voice surveys and our “innovative approach and lets fix it attitude” (*ORR Wales Annual Report 2016/17*).

We recognise that this is the start of a journey to move us to a place where we achieve excellence in health and safety management.

In CP6 we will build on our CP5 foundations by not only implementing, but embedding the Home Safe Plan. This is supported by the application of the Wales Route Risk Management Procedure and the use of RM3 to assess our health and safety management maturity.

Developing our culture and specifically our safety culture is key to delivering safety and performance hand in hand. In CP6 we aspire to a culture in which:

- Our workforce understands and own our H&S risks and controls;
- Reporting and proactive closure of Close Calls in a blame free environment is business as usual;
- Everyone feels included and contributes to improving their own and others health and safety;
- An accident, incident, near miss, close call and successful delivery are all seen as opportunities to learn and be better every day;
- We seek out and learn from our own and others best practice.

Our Corporate Plan, SHE Strategy and Strategic Business Plan for CP6 support delivery of a maturing safety culture across the route.

Within the Wales Route we recognise that we have a responsibility to develop the safety culture of the public who interact with our railway. During CP5 we have developed innovative approaches using the 4Es; education, enabling, engineering and enforcement in partnership with organisations including British Transport Police, our TOCs and FOCs, local communities, Samaritans and other groups. In CP6 we have identified further investment in Community Safety recognising the importance of this activity particularly in areas where we have electrified the railway. This will enable us to expand our targeted route crime reduction activities and continue to target a reduction suicide within the route.

8.2. Change (Transformation)

In CP6 we will utilise the devolution of services to support the transformation of the Route to operate as an autonomous business, accountable for delivering value for its customers and supporting our people to develop their skills and capability.

Through an embedded structured continuous improvement culture we will continue to use core tools, such as Visualisation, Practical Problem Solving, Workplace Org and Process Mapping, to identify and eliminate wastes within our business. In doing so, we will create safer working environments, increase productivity and deliver financial efficiencies. Key areas of focus in CP6 will be overhead spend, specifically fleet management and utilities expenditure, and fundamental processes within our business; rostering, procurement, maintenance activities and planning of work.

We are committed to supporting the delivery of centrally driven change programmes forecasted to deliver safety, productivity, people & efficiency benefits; Intelligent Infrastructure and Home Safe Plan. We will look to build upon our progress towards a Digital Railway based upon robust business cases.

The Wales Route will continue to share good practice and provide strategic direction to drive further benefit realisation within our business

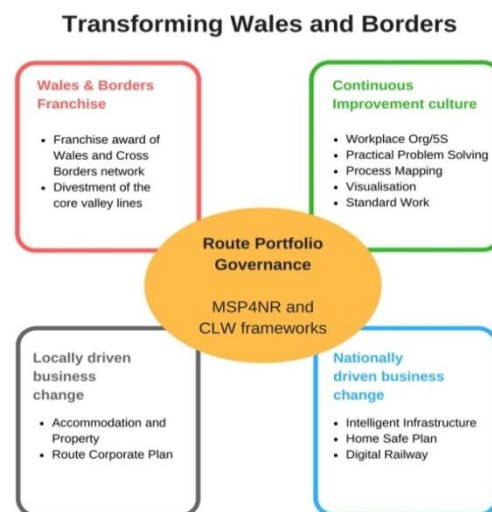
and support learning across Network Rail, as we transform for the future.

The transformation team in the route will continue to provide a net benefit to the route business through locally & nationally driven transformational programmes, ranging from bottom up Structured Continuous Improvement (SCI) through to digital technologies.

The portfolio of change will continue to be managed through our matrix structure, as outlined in the figure below.

This brings together the four elements of the portfolio, this is driven by strong governance under MSP4NR for programmes and our route project methodology 'Change lifecycle Wales' CLW at project level.

The corporate risk management framework is applied throughout and reported through our route driven governance framework to our change portfolio board.



8.3. Organisational capability

Our people are our greatest asset; throughout CP6 the Wales Route people plan will continue to create a culture where all our employees feel valued and engaging with in a transparent, ethical and inclusive way.

The Wales Route strategy for organisational development will ensure that we have an organisation that is fit for CP6 by having the right people in the right place at the right time with the right skills. We will ensure there is a robust workforce available to undertake the roles required to provide

a safe, reliable, customer-focused, value-for-money railway for the people of Wales and Borders.

Through effective talent management the route will attract and retain our workforce to improve performance, enhancing skills through effective succession planning and minimise the short to long term skills gap risks for the business during CP6.

This will be done though early engagement with local education providers and support organisations across the route with a view to build a pipeline of external succession through our Apprentice and Graduate programmes.

We recognise the importance of personal development, ensuring we unlock and maximise the potential of our people. The Wales Route talent strategy will ensure that our people are offered the right learning and development opportunities in accordance with our business needs as well as their career plans, whilst also developing a pipeline of internal succession for our key roles. People Manager Capability is a priority and will ensure that our Managers develop as strong and inspiring leaders with the right skills to support, coach and develop their people. We aspire to have an engaged, motivated workforce passionate about the service they deliver to the people of Wales and Borders.

8.4. Social & environmental performance

To help achieve our vision of “a better railway for a better Britain, to meet the need of our customers”, the Wales Route is committed to minimising our impact on the environment and improving our social performance within the resource constraints of our funded RSP. Our CP6 plans facilitate a step change in this area, and development of improved ways of working leading to efficiencies in CP7. By 2024 we want to achieve:

1. Environment:

The implementation of an Environmental Management System (EMS) aligned with ISO 14001 to pro-actively manage environmental risk and opportunities.

The aspiration for CP6 is to focus on three priority areas:

- Energy and Carbon
- Resource management
- Ecology

2. Social Performance:

Network Rail's social performance strategy includes 10 key outcomes; there is an opportunity to deliver a step change in the management of social performance.

The aspiration for CP6 is to focus on three priority areas:

- Engaging communities
- Reducing anti-social behaviour
- Maximising socio-economic benefits

3. Community Rail:

In CP6, the Welsh Government will be looking to place greater importance on the role of Community Rail in Wales, particularly its role in creating an integrated transport plan. They will likely be placing obligations on the incoming Franchisee to invest in Community Rail. The Wales Route will need to be ready for an increased sense of responsibility to support Community Rail and therefore should make provision to support such schemes, particularly given the important role they play to local communities and bringing people onto the network in rural areas. The rise of 'rail user groups' will also be pertinent in CP6 as their interests feed the strategic direction of the Community Rail partnerships that serve a specific line of route. Further interaction with these groups at an early stage may be required, to gain early support.

Community Rail lease applications have increased in CP5 and have the potential to increase further into CP6. The groups behind these applications often have strong community and political support which Network Rail will have to manage carefully.

- Lineside Neighbour metric to improve from the CP5 exit.
- Further reduction in the number, and average age of community relation service requests from CP5 exit.

8.5. Diversity & inclusion

We aim to become a more open, collaborative and diverse organisation, providing a great working environment that recognises that people from different, backgrounds, experiences and abilities can bring fresh ideas and innovation to improve our business and practices.

Through active engagement with internal networks and external organisations we will continue to raise the profile of the Wales route as an inclusive employer, widening our pool of attraction and thus becoming an employer of choice.

8.6. Quality

Wales Route is committed to deliver high quality business performance to meet the expectations of our customers and stakeholders. The Wales Route recognises the Network Rail corporate strategy for Quality and is engaged in delivering the objectives of the strategy under the headings of Governance, Assurance and Improvement.

Governance

The Integrated Management Systems (IMS) programme is a companywide programme to deliver a single management system for Network Rail that is based on an agreed process architecture and ownership and accountabilities. The IMS will make it easier for employees to find and understand what is expected of them, and ensure that content is current, well managed and compliant with the applicable

standards and legislation. The delivery of an IMS is recognised as a significant enabler for improving compliance, driving safety performance and delivering business improvement.

The Wales Route is engaged and supportive of the IMS programme, and acknowledges that delivery of the IMS will ensure that the route achieves compliance with ISO9001 (Quality), ISO14001 (Environment), OHSAS18001 (Safety) and ISO55001 (Asset Management) standards – achieving standards or performance for a management system. The Wales Route will also continue to progress decision making via data quality improvements through continuation of the Asset Data Governance plans (ADG) and emerging capability provided through EBAK.

Assurance

The Wales Route will use the RM3 model to define what excellence in risk management looks like and allow us to assure ourselves that our risk management approach is operating to an adequate standard, and we have a route map to help continuously improve towards excellence in health and safety management. The Route will deliver RM3 self-assessments as a basis of benchmarking maturity; this will be supported by both RM3 assessments as part of the L2 assurance undertaken in the route. We will use the results of the self-assessment and L2 assurance as the basis for improvement, and will be tracked through our joint scorecard in CP6.

Network Rail operates a three level model for Assurance, where First Line or Supervisory assurance focuses on management of day to day operational risk and control activities (or self-assurance). Second Line focuses on overall effectiveness of individual policy and controls, and Third Line is fully independent assurance of the overall control frameworks.

With increasing levels of devolution, the Wales Route will review and enhance the governance arrangements in the route, so that the Route Leadership are assured that the three levels are operating, and the results of the assurance activity are properly considered and acted upon.

Improvement

The Wales route has a clear vision for improvement that is in line with the Network Rail Better Every Day programme. The introduction of quality into our work extends beyond accreditation and corporate management systems which include:

- Driving continuous improvement using LEAN tools, such as standard work and visualisation
- Optimisation of the planning processes and productivity from each possession
- Planning and delivery of safe work Phase 2
- Getting work 'right first time' through the reduction of repeat faults

Through the effective implementation and usage of these systems and processes, the route is setting itself up for CP6 success.

The Wales Route improvement programme has committed to the company wide objective of training 50% of its staff with business improvement skills during CP5 and the remainder in CP6. This training is underpinned by frameworks that will capture improvement ideas and initiatives, prioritise and select them, and then manage the delivery and benefits in a structured way governed by our SCI board.

8.7. Information Technology

Wales Route will align to the national IT strategy, and will look for IT to enable the aspirations of the route to exploit opportunities to utilise:

- Increased automation, aligned with improved data governance and technology built with its user in mind will enable greater confidence, repeatability and benchmark of the business decisions we make every day.
- Modern, intuitive technology as an enabler for being better every day and for attracting and retaining talent.
- Greater opportunities to explore the potential for new, unexpected business outcomes through modern IT environments.
- Greater convergence of the IT assets of the railway and the Operational Technology (or engineering) assets of the railway. This is to improve data driven decisions based on sensing the state of the railway and for greater automation in asset and train control.
- IT is becoming an ever more valuable part of the Critical National Infrastructure with greater controls to predict, prevent and recover from threat. This includes improved whole system view and change of IT across the matrix businesses and broader industry.
- Improved ability to collaborate in real-time with industry partners, sharing data through well-defined and managed channels.
- Clear whole life accountabilities for IT in a devolved organisation such that empowered decisions can be made for safe and efficient IT lifecycle decisions from strategy, procurement, design, build and operations.

The route IT strategy will need to be flexible to accommodate the requirements that are generated out of internal route data steering groups and the national Community of Practice (CoP).

9. Strategy for commercial focus – third party cash funded contributions

The potential schemes in this section would require third party investment to proceed. No government funding can be assumed to be available.

9.1. Current and planned third party funding

Wales Route is the smallest in Network Rail by several measures, but since its formation in 2011 it has been very successful in capturing third party funding for railway enhancements, in particular from the Welsh Government, which has the right to invest money into rail infrastructure under the terms of the 2014 and 2017 Wales Acts (arising from the St David's Day Agreement, 2015) and has invested £185m to date. Examples of this investment & projects in CP5 are:

- Taff Rhonda turn back facility,
- Redoubling of track between Wrexham and Chester and upgrading of level crossings on sections of this track,
- Platform height raising enhancement scheme,
- Talerddig footbridge to replace level crossings on the Cambrian line,
- Substantial station enhancement schemes at Rhyl, Ystrad Mynach, Port Talbot, Aberystwyth and Pontypridd,
- Station access improvements, including new footbridges, lifts or ramps, at Chirk, Llandaff, Ystrad Mynach, Machynlleth & Radyr.

This is entirely discretionary spending and is a vote of confidence in the place of rail in the Welsh economy. There is no secured funding for enhancements projects in CP6, although the route is working with Welsh Government on opportunities within this timeframe. There are a number of other third parties who have funded, or are in the process of funding,

additional network capacity, mostly station improvements. With a large asset base and relatively low infrastructure usage, the Wales Route sees avoided costs and liabilities as important to its third party strategy, transferring risk and accountability as appropriate.

This strategy proposes that the route maintains its third party funding by directing effort towards the greatest reward through:

- An effective and efficient delivery for Welsh Government
- Third party funding in the public and private sectors, transferring liabilities where appropriate
- Opportunities arising from local knowledge and development of potential that are not otherwise available.

In the emerging national reorganisation of route structures, the accountability for the External Funding Strategy sits with the Business Development and Route Sponsorship directors, orientated broadly to “non-rail” and “rail”, respectively. These changes are intended to improve the already good track record of delivering more investment in Wales, building on the good work of and in co-operation with the Property function. Further details are included within the Wales Route External Funding Strategy document for 2016/17.

9.2. Capability & business development

The profile of Sponsorship has been strengthened in the route by the appointment of a Director of Sponsorship. It is key that sponsors work across the internal organisation as well as with external stakeholders to guide enhancement and renewal projects throughout their lifecycle, acting as a link between the client, funder, system operator, delivery agents and stakeholders.

Governance for project delivery is in place through GRIP and corporate investment procedures. This will be further enhanced by working with the system operator and delivery agents to clarify responsibilities and provide more robust governance at the interfaces to allow a more seamless transition through the organisation and look to simplify where appropriate to give easier understanding and visibility to developers and funders. It is important that the route demonstrates that it is safe, effective and efficient in delivery of its schemes. A key challenge is guiding funders through the feasibility phases of a project, where there are many unknowns that can impact on cost, time and output whilst managing expectations in terms of available funding and any other constraints. More robust governance around initial commitment, visibility, management and mitigation of project risks will assist with this.

TfW are setting up infrastructure delivery frameworks and we will work with them to maximise the opportunity this new delivery mechanism brings to Wales and Borders in terms of contestability and innovation, whilst managing the resources available to the industry to prevent cost escalation.

Our analysis of schemes in development suggests that third party investment is feasible through CP6, with the potential for further benefits when integrated with our renewals portfolio.

Business development links into our Land strategy, disposal & income generation with the Property team as referenced in section 6.5 identifying opportunities for investment, disposal or lease which will support the routes needs.

9.3. Focus for third party involvement

Stakeholder engagement is at the heart of the Wales Route Strategic Plan. The route has a diverse network of stakeholders as discussed within Section 2 and Appendix J) who have different interests in the railway. Our stakeholders can be broadly classified into three areas:

- Funders and Regulators
- Partners
- Passengers and Public

We have dedicated teams working with each of our stakeholders with clear stakeholder communication plans as covered in section 2

We are looking to develop better joint ways of working to:

- Develop delivery plans that meet stakeholder needs
- Develop deep working partnerships with WG and TfW
- Support Development of a model that enables WG, TfW and ODP to collaborate optimally
- Identify opportunities for third party investment

A Route Supervisory board will explore third party capital investment opportunities from Welsh Government, TfW (allowing closer ties with port authorities, airports, etc.) and private sector actors including property developers, water companies and telecoms companies, with a current emphasis on Cardiff Railway Station, Cogan Sidings, The Great Spring and prospects for 5G in Wales.

10. CP6 regulatory framework

This chapter sets out the funding and financing implications of our plan for CP6, which runs from 1 April 2019 to 31 March 2024.

10.1. Expenditure forecast

Table 10.1, below, sets out our forecast of CP6 route expenditure. It includes all costs that are directly incurred by the route and those that are allocated / attributed to the route.

Table 10.1: CP6 forecast of route expenditure

<i>£m in 2017/18 prices</i>	18/19	19/20	20/21	21/22	22/23	23/24	CP6
Route expenditure							
Support	2	1	1	1	1	0	4
Operations	45	42	42	41	41	41	207
Maintenance	59	68	68	67	66	63	332
Renewals & Options	99	142	172	201	170	113	798
Enhancements	154	0	0	0	0	0	0
Schedule 4 & 8	10	6	8	8	10	6	38
Allocated / attributed expenditure							
Traction electricity	3	1	1	1	1	1	4
Industry costs and rates	20	13	13	13	16	16	71
System Operator	0	4	4	5	4	4	21
Support and operations	23	26	28	26	26	25	131
Schedule 4 & 8	1	2	2	2	2	2	8
Renewals	47	30	32	40	25	21	148
Group Portfolio Fund	0	16	20	30	30	38	135
Non – SoFA expenditure							
BT Police costs	4	3	3	3	3	3	17
Financing costs	83	74	63	53	43	37	270
Corporation tax	0	22	29	30	21	21	123
Total Expenditure	548	451	485	521	460	390	2,308

CP6 variances for Operations and Maintenance are summarised in the document above, main headwinds include a proportion of the asset base being newly electrified; also changes in track categories will increase maintenance costs.

Movements in renewals are spread over various asset types against a reduced CP5 exit due to phasing of renewals during CP5, tailing off in the final year. Main differences are due to the option scenarios included in CP6; these are relating to various performance and resilience measures put forward; including Barmouth Bridge a major structure, weather resilience management for earthworks and coastal assets, as well as Safety to aid level crossing closures and access point improvements.

Schedule 4 and 8 assumptions for CP6 follow guidance to use an iteration of the ARUP model derived by the central Income team as the basis for Sch. 4 and zero Sch. 8 due to recalibration. Volumes for CP6 will be similar to CP5, hence similar Sch. 4 costs. CP5 Yr5 renewals activity has tailed off as per plan, which explains the increase into CP6. The uncertainty levels submitted within this document in relation to Sch. 4 reflect a potential reduction to the figure displayed in Table 10.1 surrounding the differences between the ARUP model and actual costs to date.

10.2. Income forecast

The expenditure set out in Table 10.1 needs to be paid for. In Table 10.2, below, we provide a breakdown of the income that we expect to receive during CP6 from access charges, commercial income and grants from governments to cover the expenditure in our plan. Breakdowns of access charges and other single till income are provided in Appendix E.

Table 10.2: Total CP6 income

<i>£m in 2017/18 prices</i>	18/19	19/20	20/21	21/22	22/23	23/24	CP6
Variable and station charges	(25)	(14)	(14)	(14)	(14)	(14)	(70)
EC4T	(3)	(1)	(1)	(1)	(1)	(1)	(4)
Schedule 4 ACS	(6)	(8)	(9)	(9)	(12)	(7)	(44)
FTAC / Network Grant (SOMR)	(236)	(267)	(295)	(333)	(296)	(248)	(1,438)
Grant for tax, financing and BTP	(87)	(100)	(95)	(87)	(68)	(61)	(410)
Income from FNPO	0	(57)	(66)	(73)	(65)	(55)	(315)
Other single till income	(7)	(5)	(5)	(5)	(5)	(5)	(26)
Subtotal (gross revenue requirement)	(364)	(451)	(485)	(521)	(460)	(390)	(2,308)
Capital grant for enhancements	(13)	0	0	0	0	0	0
Total Income	(377)	(451)	(485)	(521)	(460)	(390)	(2,308)

Please note: Government grants for corporation tax, financing costs, BT Police costs and enhancements will be agreed outside of the periodic review but we have included them in our forecast of income for completeness.

Network Rail continues to be a corporate entity. Therefore, whilst our funding arrangements will change for CP6, we think that it is important to keep the key elements of the regulatory framework to maintain transparency of our performance and to retain flexibility for the future. This includes keeping the regulatory building blocks approach to calculating our CP6 revenue requirement.

We have calculated the CP6 route revenue requirement in Table

10.3, below, using a similar approach to CP5 (i.e. similar to the adjusted WACC approach), which focuses on the funding we need to pay for expenditure during the control period (excluding funding for enhancements). The net revenue requirement in Table 10.3 is the amount of income that we need to recover from regulated access charges, and government grants, in lieu of fixed charges in CP6. This presentation of CP6 funding also supports our calculation of the appropriate amount of fixed costs to recover through Fixed Track Access Charges (FTACs) paid by train operators.

Table 10.3: Financial metrics

<i>£m in 2017/18 prices</i>	19/20	20/21	21/22	22/23	23/24	CP6
Route support, operations and maintenance	112	110	109	108	104	544
Allocated support and operations	26	28	26	26	25	131
Traction electricity, industry costs and rates (including BTP)	17	17	17	21	21	92
Schedule 4 & 8	8	10	9	12	7	46
System Operator	4	4	5	4	4	21
Group Portfolio Fund	16	20	30	30	38	135
Allowed return	74	63	53	43	37	270
Amortisation	172	204	241	195	134	946
Tax	22	29	30	21	21	123
Gross revenue requirement	451	485	521	460	390	2,308
Other single till income	(5)	(5)	(5)	(5)	(5)	(26)
Income from FNPO route	(57)	(66)	(73)	(65)	(55)	(315)
Net revenue requirement	389	413	443	390	330	1,966

Please note: Following the creation of the Freight and National Passenger Operator (FNPO) route in April 2017, Network Rail's CP6 plan separately identifies the fully allocated costs of the FNPO route (i.e. including costs from central functions and geographic routes). In Table 10.3, above, we show the amount of income we expect our route to receive from the FNPO route. This 'Income from FNPO route' is based on the share of our costs that are allocated to freight and national passenger operators on our route. The allocation reflects where, and how much, freight and national passenger operators use our route infrastructure.

10.3. CP6 financial information

The changes to our CP6 funding arrangements will address our concerns about unsustainable increases in our debt – our debt will fall over CP6 as new enhancements are grant funded, or funded/financed by third-parties, and maturing debt is paid down. As a consequence, the value of our RAB will not increase (in real terms).

Table 10.4 sets out the impact of our CP6 funding approach and forecast expenditure on key financial metrics.

Our CP6 plan includes funding for risk and uncertainty (the 'Group Portfolio Fund'). Ideally, actual results will be in line with our CP6 plan and this funding will be gradually released to invest in improving the railway. In CP6, some of this funding will be held at a route-level, with the remainder held at a portfolio-level. There is no 'central' route in our SBP submission so we have allocated all funding for risk and uncertainty to routes and System Operator. Table 10.4, below, includes our allocation of the Group Portfolio Fund for CP6.

Table 10.4: Financial metrics

<i>£m in 2017/18 prices</i>	18/19	19/20	20/21	21/22	22/23	23/24	CP6
Closing net debt	(2,605)	(2,078)	(1,766)	(1,407)	(1,256)	(1,113)	(1,113)
Closing RAB	3,596	3,593	3,593	3,593	3,593	3,593	3,593
Average net debt / RAB	72%	58%	49%	39%	35%	31%	31%
Group Portfolio Fund		16	20	30	30	38	135
Route		6	6	6	6	6	32
Portfolio		9	14	24	24	31	102
Maturing debt		485	286	334	140	135	1,380
Working capital		21	(17)	(8)	(0)	5	0
Cash requirement (incl. working capital and debt repayment)		485	522	524	465	444	2,441

11. Sign-off

This document and accompanying templates are owned by the Route Managing Director (RMD).

Submission of this document indicates confirmation that:

- All appropriate level 1 assurance activities have been undertaken (see separate advice on definition of level 1 assurance);
- The RMD is satisfied with the quality, currency and appropriateness of the content of this document as well as the cost, volume and activity projections to which it refers;
- The signatories are satisfied that the plan has been assessed as deliverable, subject to the assumptions articulated in Appendix B.

Authorised by:



Andy Thomas
Route Managing Director

February 2nd 2018




Jeff Davies
Director Route Safety & Asset Management

February 2nd 2018



Andrew Banks
Route Finance Director

February 2nd 2018



Francis McGarry
Route Delivery Director

February 2nd 2018

Arriva Trains Wales (ATW) has supported the development of the activity prioritisation. Wales Route will continue to liaise with TfW as Franchise tendering progresses as discussed in Section 2 to support scenario planning, with a letter of support included on the following page outlining the engagement and collaboration experienced with the Wales Route. Values displayed below are aligned with ATW / NR performance strategy for the end of the existing franchise during October 2018. A signed version of this appendix will be included within the Jan 26th final submission.

Appendix A Performance activity prioritisation by lead route TOC

This plan is predicated on the key assumptions laid out in Appendix B and will be impacted as these assumptions change

Train Performance	Route	Current	Lower	Expected	Upper	Achievability	Timeframe
ATW PPM	Wales	92.1%	91.3%	91.8%	92.3%	Amber	End of Franchise
ATW Level of Cancellations	Wales	1.72%	1.9%	1.8%	1.7%	Amber	End of Franchise
ATW Average Passenger Wales Lateness	Wales	2.45	2.74	2.60	2.45	Amber	End of Franchise
ATW On Time at all Wales recorded stations		62.5%	59.9%	60.7%	61.5%	Amber	End of Franchise
No.	Key constraints, risks and opportunities	What we plan to do				Owner	Timescale
1	Rolling stock availability / capability	Focus on reviewing unit allocation against passenger demand until new rolling stock secured along with adaptations to ensure rolling stock compliant with Persons with Reduced Mobility (PRM) requirements.				TOC	CP5 / CP6
2	Train crew availability	Signed rest day working agreement and recruiting extra conductors.				TOC	CP5
3	Service management	Introduction of TMS along with development of agreed service recovery plans.				TOC / NR	CP5 / CP6
4	Passenger metrics / Operations performance focus	Continue to report and target improvements in passenger lateness measures, improve accuracy of data capture across manual reporting points and implement new iTED reporting suite to increase access to data. Increase visibility of sub-threshold delay.				TOC / NR	CP5 / CP6
5	Scheme development	Increased engagement in development of large schemes to inform development				NR	CP5 / CP6
6	Seasons management	Working more closely with operators to prioritise off-track work-bank, along with development of long term vegetation clearance plans				TOC / NR	CP5 / CP6
7	TSR management	Temporary speed restrictions removal prioritised based on impact to customers				TOC / NR	CP5 / CP6
8	Passenger demand and overcrowding	Review of peak and off-peak traffic along with securing additional units to allow longer trains in peaks				TOC	CP5 / CP6
9	Attribution process	Review existing processes to improve accuracy on day 1 and support understanding of sub-threshold delays				TOC / NR	CP5 / CP6



Letter of support received on the 13th January from the Department for Economy and Transport in the Welsh Government

**Adran yr Economi a Thrafnidiaeth
Department for Economy and Transport**



SEND BY EMAIL: Andrew.Thomas2@networkrail.co.uk

Andy Thomas
Route Managing Director
Network Rail Wales

13 January 2018

Dear Andy

I welcome the development of the first Business Plan for Network Rail's Wales Route. It has been an important opportunity to set out the requirements, outputs and funding required for the rail network in Wales in Control Period 6.

In light of the current contract of the main provider of services on the Wales Route's infrastructure, Arriva Train Wales, ending shortly, I welcome the engagement that has been possible between Network Rail and Transport for Wales, who are procuring the next Wales and Borders franchise on behalf of the Welsh Government. It will be important that the Welsh Government's ambitions for the increases in services that we expect to see, and will be finalised over the coming months as the procurement concludes, are considered through the business planning process.

As your plans are developed, I look forward to working together to ensure that every opportunity is taken to consider opportunities for delivering enhancements efficiently to realise capacity, journey time, and reliability benefits for passengers on the route. Efficient scheme design and delivery will also, I hope, allow the route to deliver more with less and I expect that any savings achieved by the route through efficiencies and rationalisation will be allowed to be reinvested in the Wales Route.

The Welsh Government wishes to support the Route in whatever way it can to secure the resources identified to operate, maintain and renew assets during CP6 to the level needed to deliver improved outcomes for users. If, as work progresses to finalise the plan, you become concerned that you will not be likely to secure the resources needed, please inform me at the earliest opportunity.

Parc Cathays • Cathays Park
Caerdydd • Cardiff
CF10 3NQ

03000 25 8854
simon.jones@gov.wales

As you are aware, following the cancellation of electrification between Cardiff and Swansea, the UK Government has identified several schemes to enhance the capability of the network in Wales. It will be important that we work together to ensure that their development and delivery are resourced and prioritised, their outputs are deliverable and ambitious, and that they meet the needs of passengers, the economy, and communities of Wales.

I am copying this letter to Chris Hemsley, PR18 Programme Director, [QRR](mailto:CHRIS.H@qrr.gov.uk).

Yours sincerely

Simon Jones
Director, Economic Infrastructure

cc: Chris.Hemsley@qrr.gov.uk

Appendix B Key Assumptions

Ref no.	Topic	Assumption	Areas of spend impacted
A.1	Boundary Change	The likely transfer of ownership of the valley lines network has not been accounted for in the Wales Route RSP because the final solution isn't determined by the WG prior to the final submission and so both scorecard measures, maintenance and renewal volumes have not been adjusted to account for this.	All assets
A.2	Franchise Change	Volumes within the RSP are derived on the basis that the upcoming new franchise is materially unchanged from the existing agreement and doesn't take into account any potential train service requirement changes arising from the re-franchise.	All assets
A.3	Resignalling works	<p>The overarching plan for the route is:</p> <ol style="list-style-type: none"> 1. Port Talbot West (phase 2) which will see the closure of Port Talbot Panel and control of the railway westwards to Ferryside or Carmarthen transferred to the Wales Railway Operating Centre (WROC). This is planned for development in CP5 for delivery in mid – late CP6. 2. Ebbw Vale Frequency enhancement scheme {Park Junction} is a resignalling/recontrol aspiration of the Park Junction SB area which is 80% funded via the Welsh Government. This transfers control to Wales Railway Operating Centre (WROC) as part of a national strategy. 3. Tondur is a resignalling scheme that may include enhancement if there is appetite by the Welsh Government. 4. Life extension schemes in lieu of NOS Modular Signalling schemes to keep the railway operational until such time as a business case can be made for DR implementation. 	All assets
A.4	Track Criticality	The plans have been developed using the revised CP6 Track Criticalities by Strategic Route Section (SRS) and latest Track Categories. (issued May 2017)	All assets
A.5	Level Crossings	The level crossing portfolio is included within the Signalling renewals submission.	All assets
A.6	Access	Any opportunities that can be gained through early engagement with TfW during the franchise process will be dependent upon other routes, FOC and TOCs agreement and will need to align with the national timetable and existing possession planning within the route. Additionally it is assumed that track access will not materially	All Assets

Ref no.	Topic	Assumption	Areas of spend impacted
		change due to the introduction of the IET fleet.	
A.7	High output Delivery	Volumes have been packaged in the plan on the assumption that delivery by the HO team will be in campaigns similar to those delivered in CP5 with an emphasis on mid-week delivery where practicable. Acceptable track access windows are subject to consultation with the TOCs and FOCs. Anticipated minimum midweek eight hour possessions (protection and isolation time on top) and 10 hours weekend (protection and isolation on top)	Track assets
A.8	Overhead Line Equipment	The strategy is based on the delivery of a series 1 OLE solution on route sections 8&9 from the boundary to Cardiff in CP5.	E&P Assets
A.9	Wales ROC	The Wales ROC is known to not meet the minimum standard requirements. The capacity for the building has not been confirmed to meet the space requirements for electrification and Digital Railway. In light of this represents a risk until the optimal resolution is developed.	Renewals
A.10	On Track Plant	It is assumed that suitable plant will be available in sufficient quantity to deliver S&C Heavy Refurbishment (re-ballasting in-situ) in CP6.	Track
A.11	E&P renewals	No renewal of points heating associated with re-signalling schemes as it is assumed that these can be re-used and re-connected.	E&P / Track CapEx
A.12	Level Crossing Surfaces	Level Crossing Lift and Replace (MNT128) will be increased to maximise the effectiveness of on track machine treatments on the overall 1/8 th track geometry readings.	Track/ Off-track & Signalling
A.13	Access Roads	Wales Route have a number of access roads within the asset portfolio; these often provide access to third party properties as well as access to the railway. As with all assets these require works to maintain their condition, an assumption has been made to the length of road as asset information is poor.	All assets
A.14	Access Points	This asset has been neglected over several control periods and many are not fit for purpose. A renewal/refurbishment plan is therefore required to improve workforce safety and reliability. The costs within the plan (£1.3m pa pre-efficient) assume that improvement work can be undertaken at 43 access points pa with the cost being based on the work undertaken in years 3-4 of CP5.	All assets

Ref no.	Topic	Assumption	Areas of spend impacted
A.15	Vegetation Works	The CP6 Wales Route vegetation strategy includes a significant quantity of vegetation management to achieve a compliant position. The plan assumes that track access (particularly for flailing plant) is available as planned and not restricted especially given that access for off-track work on this scale has not been requested before.	All assets
A.16	National Habitat Compensation Project (NHCP)	The OMR budgets with the Wales Route RSP do not accommodate any change of asset use to provide sea defence, or habitat replacement in locations where managed retreat has been identified as a long term strategy by Natural Resources Wales (NRW). Any changes are viewed as enhancements to the infrastructure, and so would fall outside the scope of this document. Network Rail is working to understand the implications of this potential issue via our memorandum of understanding with NRW.	All assets
A.17	Drainage	The CP6 Plan includes drainage improvement in the Severn Tunnel based upon the assumption that access is available to undertake this work.	All assets
A.18	Buildings Portfolio – Managed Stations Volume and Budget	No franchised stations will become NR Managed Stations during CP6: There has been no provision for Managed Station maintenance, renewals or Asset Management resource on the Wales Route during CP6. Allowances for these budgets would be required in the event of any stations within the route changing from Franchised to Managed Estate.	
A.19	Operational Property – Light Maintenance Depot	The LMD portfolio will remain in a steady state during CP6: Any changes during the control period, through electrification or transfer of assets currently managed by Western Route (such as Llandore LMD), have not been accounted for as the position of these assets is currently unclear.	
A.20	Operational Property – Franchised Stations	Franchised Stations will remain on traditional leases to one TOC: Any changes to the operation, inspection or maintenance arrangements at franchise change would impact on annual costs. A consistent interface with one operator is also assumed.	
A.21	Safety	Funding to meet the implementation of NR/L1/ENV/100 Environment and Social Performance Policy or the ten key social performance outcomes is included within the core submission.	
A.22	Third party Constraints	Certain works will need consents and funding agreements from Third Parties, e.g. Environmental, Listed Building, BG3, etc. Assumed that all consents will be gained to meet timescales for delivery of volumes.	Structures Assets

Ref no.	Topic	Assumption	Areas of spend impacted
A.23	Volumes	It is assumed that the structures that are planned for renewal due to Level 1 Policy requirement intervention (e.g. strengthening to meet the required capability) will also have any Level 2 policy volumes carried out as part of that renewal (e.g. Repair/Preventative) in order to maximise delivery efficiency.	Structures Assets
A.24	Safety	Increases in Community Safety funds have been included within the core submission.	
A.25	CERDs	No national policy so volumes based on current information. Further development of the work-bank will be on-going as understanding of risks from climate change and how to manage the resilience of the railway improves.	Structures Assets
A.26	BCR	To complete the assets that have not been aligned to BCR within CP5 funding will continue to be supplied from STED. The implications of this change initiative have not been quantified, and therefore have not been accounted for in this submission.	All Assets
A.27	Safety	Funding to meet the requirements of new legislation introduced into Wales (e.g. Environment (Wales) Act 2016) has been included within the core submission.	
A.28	Community Rail	Where reference is made to the development of Community Rail leases, the current process relies on sufficient human resource being available off route in the Freight Property team centrally. The route doesn't have the technical expertise to progress this lease internally as 'Wales Route'. We brief lease schemes that they will be charged for the time of the freight team but the Freight Property team also have their substantive responsibilities to manage, of which Community Rail isn't one of those responsibilities.	
A.29	Electrification to Cardiff	Reduction in track access between Boundary and Cardiff due to additional isolation requirements impacting possession length. It is assumed that this reduction will lead to ~20% less productive time than currently experienced for a large number of track / lineside maintenance activities.	OpEx / All Assets
A.30	Asbestos	There has been no allowance for the removal of asbestos in CP6 with the exception of Buildings.	All Assets with the exception of Buildings

Ref no.	Topic	Assumption	Areas of spend impacted
A.31	OpEx	The basis of OpEx assumption is CP5 exit with major strategic asset management changes noted and considered, including electrification. Costs have utilised the ABP tool for both Cardiff and Shrewsbury DU	All Assets
A.32	Impact of the Digital Railway programme on track	While in the long term, Digital Railway deployment is expected to include plans for Wales Route, this is not in the life of the current Route Strategic Plan, so no track volume has been built into the track plan beyond that which is reasonably foreseeable as being needed to support conventional resignalling (described in A.3).	
A.33	Unit Cost (Geotech)	The unit costs used in the submission are based on a combination of National figures derived from CAF data and route unit costs obtained from schemes delivered in years 1-3 of CP5.	
A.34	E&P Unit Rates	It should be noted that where possible the latest IP unit rate book has been adopted. Where these revised rates have not been provided locally delivered rates have been used where better route knowledge exists like Severn Tunnel pumping.	E&P CapEx
A.35	ECRO support	It has been assumed that ECRO support for Electrification to Cardiff will be covered by Western Route throughout CP6.	Electrification
A.36	CEFA Asset Count	This submission is based upon a change in asset count for Electrification, although there is an appreciation that improvements in asset data quality will see numbers increase.	Electrification Asset Data Quality
A.37	CEFA & Electrification	The impact upon CEFA activities under or adjacent OLE has been considered within this submission although it only affects a relatively small number of assets with electrification only going to Cardiff.	Electrification
A.38	Electrification Manpower	The plan assumes that the output of the safer faster isolations work stream will be completed before EIS on the Wales Route.	Electrification OpEx
A.39	Extreme Weather Events	The plan assumes that there is no allowance for Extreme Weather Events in the plan and that the works to reinstate the asset will be funded from a central contingency pot and not from the Wales Route budget.	All Assets
A.40	TOC Fleet	Performance analysis has assumed that the fleet in the new franchise remains in a maintainable condition.	Performance

Ref no.	Topic	Assumption	Areas of spend impacted
A.41	On Track Machines	Is it assumed that suitable and sufficient tamping / stone blowing resource will be available from the supply chain post the award of a new contract by Route Services.	
A.42	Volumes	Track volumes are below the Centre modelled volumes achieving a cash constrained target. The net effect of asset age and performance will see deterioration throughout CP6 and future control period unless additional funding is obtained in CP7 and beyond.	Track
A.43	Port Talbot Re-signalling	Track maintenance volumes in Cardiff DU take into account that this project is completed as anticipated in Year 3 of CP6.	Track
A.44	Port Talbot Re-signalling	GRIP1-3 development works have just been commissioned and the track rationalisation works are unknown, assumption is that the reduction in SEUs will fund resulting works in other assets that are affected but the route will need to review when GRIP3 report is completed.	Track
A.45	Energy Performance	There are currently no works planned to increase the Energy Performance of the franchised estate as the route is in the early stages of assessing its portfolio. The energy efficiency of the portfolio is therefore currently unclear. The Wales and Borders refranchise would be the first required to meet minimum energy efficiency standards (MEES) criteria under the Energy Act 2011, this is a clear risk to the route and has been included as a headwind in the buildings portfolio.	Operational Property
A.46	Accessible Stations	Application of the DfT's Code of Practice for Accessible Stations is also a headwind within the Buildings portfolio as the requirements for many of the schemes proposed in CP6 are currently unclear until Diversity Impact Assessments are completed for the proposed schemes.	Operational Property
A.47	Track contracting strategy	PL and S&C contracting strategy for CP6 are confirmed such that new commercial arrangements are in place for July 2019.	Track
A.48	LTIFR metric	Adjustments will need to be made to the definition that Network Rail use to determine LTIs in CP6. These adjustments will better provide a level playing field with LTI measures used by other global industries.	Scorecard measure
A.49	Accessibility at stations	The operational property plan does not allow for upgrades to stations for accessibility where maintenance interventions are planned.	Operational property

Appendix C Route context

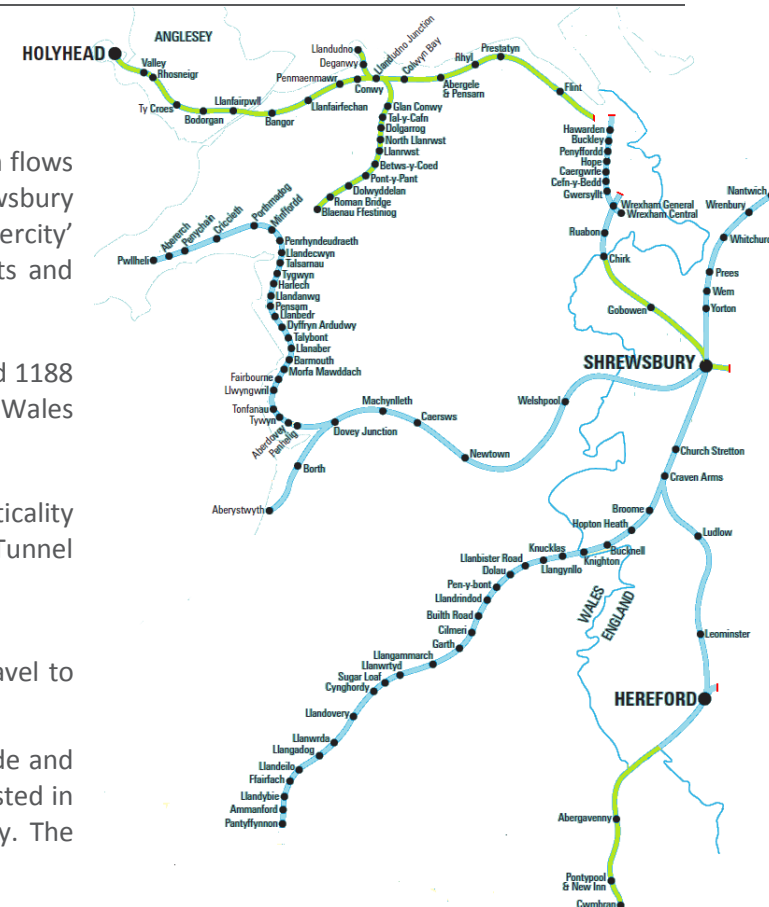
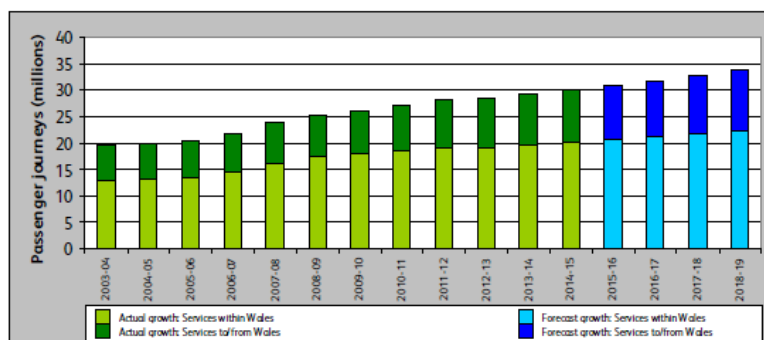
The rail network in Wales and Borders serves a diverse range of markets, from long distance interurban flows to significant daily commuting to Cardiff and Swansea and, to a lesser extent, Wrexham, Newport, Shrewsbury and Hereford. It also includes the western end of the Great Western and London North Western 'intercity' main lines which facilitate travel to England and Scotland. There are also a number of rural markets and considerable freight flows, both within Wales and cross-border.

In total, the route covers some 923 route miles and 1,545 track miles. On Mondays to Saturdays, around 1188 passenger services run on the route per day and there are around 32 million rail passenger journeys in Wales every year.

Wales Route is divided in two delivery units, Cardiff and Shrewsbury, with track categories a mix of criticality bands from 1 to 5 with the higher criticality 1 being located between the Severn Tunnel and Severn Tunnel Junction. The CP5 criticality map for Shrewsbury and Cardiff delivery units is presented below.

Wales is well connected to the national network and there are strong cross-boundary markets for travel to and from England. The railway is vitally important to the economy in Wales and the border regions.

In Wales, there has been significant growth over the last 10 years with 46 per cent more journeys made and this keeps growing (graph below). Wales is well connected. Funders and the railway industry have invested in more capacity and more services to meet growing demand. This is at the heart of the success story. The railways in Wales serve different markets and this contributes to a rich and diverse baseline.



Appendix D Scenario planning

Part (1): Tactical scenario planning for CP5

Scenario planning was undertaken in the expectation that accelerated funding from DfT / HMT would be announced in the budget. This has not materialised, and therefore the costs that we put forward in the RF6 submission for Civils and Geotechnical assets have been returned to our CP6 core submission.

Additional CP5 funding has been made available centrally, and so the development of Off-track and Signalling investment papers is progressing with a view to present in December Investment Panel:

Asset	Year 4-5 outstanding spend	Potential investment increase	Benefits of increased expenditure			Comment on benefits
			Performance	Sustainability	Reputation	
Off-Track	£12.8m	£8.3m	G	G	G+	We are targeting 16 drainage problem sites – which will reduce incidents and improve performance. Fencing allows additional high risk sites to be renewed reducing animal incursion and trespass risk with associated safety and performance benefits. The increase also assists the supply chain in maintaining resource level ahead of CP6 Year 1 where funding level will be similar to Year 5 if budget is accelerated. Access Points - Improved access for maintenance staff - reduce safety risk, address close calls, improve staff morale, and enable quicker response time to incidents with associated performance benefits. Level Crossing Surfaces - Improved public safety/reduced maintenance intervention
Signalling		£6.5m	G	G	G	Development funding for four resignalling/ recontrol projects. Early development will maximise opportunity to explore efficiency in both cost and delivery
Total		£14.8m				

Key to risk colours

A: no additional benefit

G: some additional benefit

G+: considerable additional benefit

Part 2: CP6 strategic investment options

Since the start of the CP6 business planning process additional funding has been provided to the Wales Route through the release of central risk budgets. Rather than investing this money into the assets that were able to bring forward activity into CP5, the money has been distributed between investment options that had been identified in previous CP6 submissions within Appendix D. This adjustment of our plans highlights the routes commitment to delivering this additional activity, and the lists below have been reduced to reflect this change.

The Wales Route will hold an £32m of funding that will act as a risk fund to protect against unforeseeable financial pressures that are outside of our capacity to accommodate within the OMR route submission. Should these risks not materialise within the control period this will provide the opportunity for the route to release funding to invest in the options we have outlined within this section.

To add clarity, the list of investment options has been prioritised within the table below:

Benefits by investment prioritisation

Rank	Description	Qualitative impacts	Quantitative impacts
1	Legislative compliance: Removal of asbestos (£1.3m)	Improved workforce safety, enhanced reputation.	Removal of 50% of lower risk ranked yellow sites. OpEx savings in inspections approx. £100k per annum. Reduce risk of delay through critical equipment rooms being inaccessible in the event of a suspected contamination.
2	Safety: Further removal of high risk non-compliant platform cross fall (£2.25m)	Improvement in passenger safety. As accessibility improves across the network, there have been an increased number of incidents where wheelchairs or pushchairs have rolled off station platforms onto the track. Many older platforms require significant works in order to remove the risk of non-compliant crossfall. Risk mitigation plans have been implemented in CP5 and CP6, although this does not remove the risk completely.	Reduction in number of safety incidents on stations. Reduction in delay caused by incidents of people on the line.
3	Performance and Resilience: Increased Underbridges and Overbridge volume (£5m)	Reducing potential performance impacts of asset failures/issues by intervening at the right time. Also ensuring high priority overbridges meet liability requirements.	Increased underbridge and overbridge volume. Improved capability and condition of assets ensuring increased number of policy compliant assets.

4	Performance and Resilience: S&C Track Renewals work (£5.82m)	<p>Increases the volume in CP6 plan towards a sustainable level as modelled. This will avoid the fall of in performance predicted by the model with the volumes identified in the cost constrained plan.</p> <p>At Shrewsbury the modelled volumes has identified 12 point ends for renewal on a modelling basis but budget is set at six due to CP6 + 15% limited. This also includes abandoning two units as part of the works.</p>	<p>Currently identified 12 point ends for renewal but only budgeted for six therefore:</p> <ul style="list-style-type: none"> • S&C Full renewal –six units for £4.92m • S&C Abandonments – two units for £0.9m (Shrewsbury) <p>Significant reduction in the age profile of the S&C assets at Shrewsbury, conversion to modern equivalent format and rationalisation of point ends. Results in a reduction of Inspections, potential S053 and S054 failures, refurbishment would be eliminated on these points (14 units) and reduce the risks associated with performance and safety at this location.</p>
5	Performance and Resilience: Plain Line Track Renewal work (£29m)	<p>Increases the volumes in the CP6 plan towards a sustainable level as modelled. This will avoid the fall off in performance predicted (broken rails and service affecting failures including TSRs) by the model with the volumes identified in the cost constrained plan.</p>	<p>Increase in Full renewal volume by 23km for £29m to eliminate obsolete components and target further condition of Track sections on the Wales Route</p> <ul style="list-style-type: none"> • 7km on North Wales coast (BJB fastening and 109lb rail) • 7km on South Wales Main Line to target F19s and condition led renewals • 2km specifically for Newport Old Tunnel renewal following the deferral due to GWEP • 7km for arising condition of track sites throughout CP6 to remove / prevent TSRs and fall in CRI. <p>All the above will result in better CRI levels, improve the asset age profile and reduce the amount of reactive maintenance works. The use of the Decision Support Tool will help target / confirm the 7km of arising Condition of Track sites.</p>
6	Performance and Resilience: Plain Line Track Renewal – Steel Sleepers works (£20.51m)	<p>Increases the volumes in the CP6 plan towards a sustainable level as modelled. This will avoid the fall off in performance predicted (broken rails and service affecting failures including TSRs) by the model with the volumes identified in the cost constrained plan.</p> <p>Particularly steel sleeper relaying on the Cambrian lines and Wrexham to Bidston routes will remove jointed track that will reduce maintenance effort by eliminating task solely associated with this track form (fishplate lubrication, lifting and packing joints etc.).</p>	<p>The following have been identified::</p> <ul style="list-style-type: none"> • Steel Sleeper Relay - 13.0km for £11.6m (total of 30km on Cambrian in CP6) • Steel Sleeper Relay – 8km for £8.91m on Wrexham to Bidston eliminating the worst jointed track <p>Equates to a reduction in 2400 jointed which eliminates the need for fishplates oiling (1200 annually as done every other year), eliminates the potential speeds for fishplates breaking, removes L2 fault correction at 1200 locations and removes the volumes of 1 in 3 re-sleepering on these sections (9000 sleepers over three control periods).</p>

7	Performance and Resilience: Drainage Asset Renewal and Refurbishment Programme (£10m)	The Drainage Decision Support Tool (DDST) takes the condition of the individual drainage assets and compares them with many other parent asset indicators to provide an asset driven work-bank. As our asset information improves the requirement to undertake work across the portfolio increase. The current submission includes wet bed sites as the primary indicator, however, there are many sites across the route that require attention in which the lack of or poor drainage asset condition has not manifested itself as wet beds. When DDST is filtered based on poor drainage and poor/v-poor/s-red track quality there is a considerable amount more to do. This £10m will help to tackle these areas and see not only drainage asset condition improvement but also track and earthworks and ultimately performance improvement.	By undertaking this work we anticipate savings in performance and an improvement in ride quality. The Routes Performance Team will be analysing the “potential” impact of TSRs at high risk sites to assist with quantifying the benefit. The data will be available by mid-January 2018.
8	Safety: LX Package 1 & 2: Targeted closure in CP7/8 for Beavers Hill, Manorbier Newton, Newcastle Road, Shrewbridge Road, Harlescott and Craven Arms level crossings. (£2.45m)	Newcastle and Shrewbridge Road are high risk with high usage by children walking to and from school or the local park. Newcastle will be replaced by a road bridge and Shrewbridge Road will be closed for vehicles and scoped for a footbridge replacement. Feasibility study/crossing = £30k which includes road traffic surveys/topographical surveys and diversity impact assessments. Other costs include Liabilities and Project costs – Sponsor OR Development manager through Grip 1-4. CP6 costs are for development only with local highways. Closure scheduled for CP7/8. Benefits: Vulnerable users risk removed. 8th & 11th highest risk crossing on the route. Significant developmental work planned in CP6. High level of confidence that closure will be achieved in CP7/8 subject to funding.	Current FWI (0.0273) reduced to (0) in CP7/8
		Beavers Hill and Manorbier Newton are open crossings on the Pembroke line. One is in the centre of a village and there have been two collisions at the other within the last 12 months. Although not high risk there is an opportunity in the route to divert these two crossings to a nearby road over rail bridge which is planned for renewal. The route seeks to replace the level crossings with the appropriate road or ramped/stepped footbridge. These level crossings are for development in CP6 with local highways. Feasibility study/crossing = £30k which includes road traffic surveys/topographical surveys and diversity impact assessments. Other costs include Liabilities and Project costs – Sponsor OR Development manager through Grip 1-4. CP6 costs are for development only with local highways. Closure scheduled for CP7/8. Benefits: Vulnerable users risk removed. 86th and 52nd highest risk crossings on the route. Significant developmental work planned in CP6. High level of confidence that closure will be achieved in CP7/8 subject to funding.	Current FWI (0.0067) reduced to (0) in CP7/8

		<p>Harlescott OD level crossing on town road with high traffic levels and problems with blocking back; significant retail development completed in that area. The route is working with Shropshire Council to close as part of a wider scheme to improve traffic flows around the county town. This will require a pedestrian bridge to facilitate closure. CP5 survey works completed in with Council to review. Development of project continuing during CP5 and into CP6 with vehicle closure in CP6 and full closure early CP7. Requires work to signalling system to remove asset.</p> <p>Benefits: Performance risk removed, improved vehicle traffic flows and benefits to local businesses. Maintenance risk reduction. 47th highest risk crossing on the route. Significant developmental work planned in CP6. High level of confidence that vehicle closure will be achieved in CP6 and full closure in CP7 subject to funding.</p>	Current FWI (0.004322) reduced to (0) in CP7
		<p>Craven Arms MCB level crossing adjacent to A49 with high traffic levels leading to an industrial estate. This will enable the expansion of the industrial park adjacent to the railway as part of the local development plan for the area. A vehicle bridge is required to replace the crossing and a nearby public footpath level crossing. Work is in partnership with Shropshire Council and local business user to match fund.</p> <p>Benefits: Rail derailment risk removed, improved vehicle traffic flows and significant benefits to local businesses. Maintenance risk reduction. 112th highest risk crossing on the route. Significant developmental work planned in CP6. High level of confidence that vehicle closure will be achieved in CP7 subject to funding.</p>	Current FWI (0.0017) reduced to (0) in CP7
9	Performance and Resilience: Black bridge flood mitigation – study only (£1m)	Reduce likelihood of flooding by increasing the height of the structure (which is the low point along that section). This would include altering the vertical profile of the track substantially.	Track and structures volume, reduced performance issues along the section that are caused by flooding annually
10	Weather Resilience: CERD's Study (£1m)	An in depth study into the improvement requirements for coastal assets to reduce risks of overtopping and ensure they are adequate to cope with climate change.	Reduced performance issues due to weather events that effect sections of the network adjacent to the coastline.
11	Safety: LX Package 3: Removal of further 25 passive level crossings with OMSL (£3.75m)	<p>The route seeks to reduce the risk on all passive vehicle and footpath crossings focussing on high risk locations, trains in long sections and sighted only.</p> <p>For all passive crossings closure will be the preferred option with conversion to OMSL the secondary option. Where crossings remain we will upgrade to overlay miniature stop light at suitable locations. Fifteen are planned for CP6 with the potential to increase this number dependent on risk fund release. Cost per crossing to install OMSL = £150k +.</p>	FWI reduction where OMSL fitted.
12	Asset life cycle and obsolescence: Workplace Improvements (3.2m)	With the devolution of workplace management, the route has the responsibility to provide workplace provisions across its corporate offices, Maintenance Delivery Units and Signal Centres and boxes. Funding to focus on improvements in these areas will result in improved workforce health and wellbeing and enhance reputation.	

13	Safety: Fencing Renewal Plan (£10m)	Currently the fencing renewals work-bank is growing at a greater rate than the funding allows and therefore many of the sites requiring renewal are failing, in many cases this leads to animal incursion, this poses a safety risk to the passage of trains. There have been many examples over the last control period of incidents involving animals on the line, many of these have led to derailment. The current plan for CP6 allows the Wales Route to start reducing the backlog in the work-bank as well as dealing with the constant flow of new proposals. However, the advent of the paperless asset inspection system (MyWork App), has improved the data quality and feedback from the inspectors. This extra funding will have a marked difference in the number of animal incursions experienced on the route by the end of CP6. This work will reduce the risk of a train striking an animal and reduce derailment risk.	This work will result in safety, performance and sustainability benefits. Analysis of the data indicates that the funding will result in a sustainable position by the end of the Control Period, such that by CP7, the work bank will only comprise of sites identified for renewal in the latter part of CP6.
14	Performance and Resilience: Demolition of redundant lineside buildings (£1.25m)	Potential reduction in delays due to safety incidents, trespass, arson. Improved image and reputation and promotes tidy railway and improves lineside relations.	
15	Performance and Resilience: Major structure – Britannia bridge Study (£2m)	Intervening at the right time on a critical asset in the route. The bridge is currently owned between Network Rail and the Welsh Government and due to its location access is a major issue. There is evidence of deterioration to both the rail and highway decks and the paint system is deteriorating in a number of places.	Intervention at the right time will remove the risk of corrosion and further deterioration which could significantly expand the works required to the structure. The structure is also listed so we would be open to prosecution should the condition reduce to an unacceptable level.
16	Asset life cycle and obsolescence: WROC Spatial Requirements (4.5m)	WROC does not comply with national ROC specification in various areas including physical security measures to access the building and its functions. Additionally; an increase in the number of staff based in this facility means there is limited welfare and space provision at this location.	
17	Legislative compliance: Treatment of Japanese Knot Weed (1m)	The treatment of Japanese knotweed as per our legal obligation, this increased funding will allow the route to step up from managing the reputational risk sites allowing us to tackle the growing problem of this invasive species taking a hold of the Wales Route operational estate and therefore avoiding the risk of legislative action against the business. JKW also has a profound impact on our overall delivery plan and significantly impinges on our ability to deliver projects in a cost effective manner across disciplines.	
18	Asset life cycle and obsolescence: Track Circuit conversion West Wales (£3m)	Conversion from obsolete and scarce Aster track units to modern, reliable axle counters. The Aster TCs are multi-track systems which take significant resource to trace faults. Provision of an axle counter system will provide fault resilience and make a big safety improvement by reducing the amount of trackside work needed by staff undertaking quarterly maintenance and faulting duties.	Replacement of qty x 28 Aster track circuits will remove the need for quarterly servicing and replacement of failed units.

Appendix E CP6 regulatory framework – Breakdown of Access Charges and Other Single Till Income

In Table E.1, we present our forecast of income from each regulated charge in CP6. Our charging income forecast reflects our latest forecast of CP6 traffic levels and is consistent with our total CP6 income forecast set out in Section 10.

As ORR has not yet concluded on the structure or level of CP6 charges, we assume the continuation of CP5 (2018/19) access charge rates. However, we have not included a forecast for the Capacity Charge because ORR has already concluded it will not continue in CP6. .

Table E.1: Charging Income

£m in 2017/18 prices	18/19	19/20	20/21	21/22	22/23	23/24	CP6
Route charging income							
Variable Usage Charge	(7)	(5)	(5)	(5)	(5)	(5)	(24)
Electrification Asset Usage Charge	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Schedule 4 Access Charge Supplement	(6)	(8)	(9)	(9)	(12)	(7)	(44)
FTAC / Grant (SOMR)	(323)	(267)	(295)	(333)	(296)	(248)	(1,438)
Station Long Term Charge	(9)	(9)	(9)	(9)	(9)	(9)	(45)
FNPO income	0	(57)	(66)	(73)	(65)	(55)	(315)
Charging income allocated to routes							
Electric Current for Traction	(3)	(1)	(1)	(1)	(1)	(1)	(4)
Total charging income	(347)	(346)	(384)	(429)	(387)	(324)	(1,871)

Table E.2 provides a breakdown of forecast other single till income for CP6, which is included in Table 10.2 and 10.3, above. Other single till income

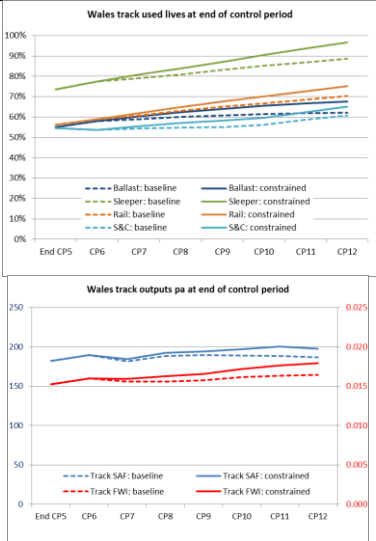
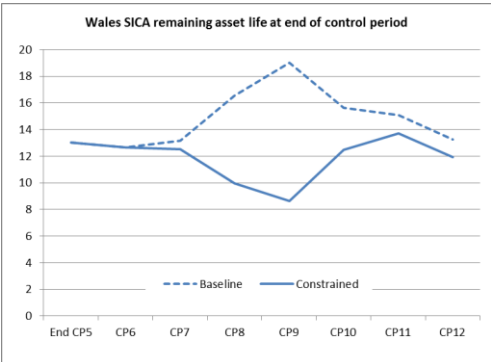
represents Network Rail income that is received from sources other than access charges and network grants.

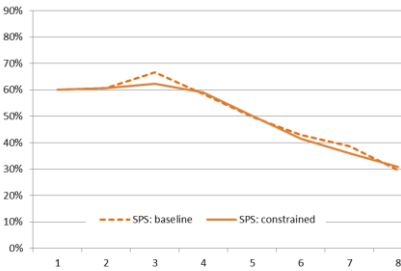
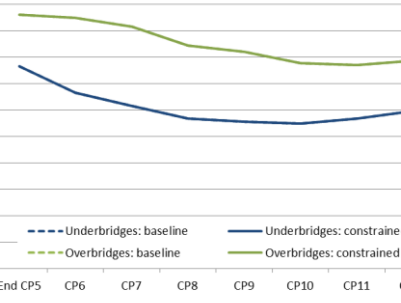
Table E.2: CP6 forecast of other single till income

£m in 2017/18 prices	18/19	19/20	20/21	21/22	22/23	23/24	CP6
Route income							
Managed station QX	0	0	0	0	0	0	0
Franchised station lease income	(1)	(1)	(1)	(1)	(1)	(1)	(7)
Open access fixed contractual contribution	(0)	0	0	0	0	0	0
Depots	(3)	(1)	(1)	(1)	(1)	(1)	(7)
Finance charges (e.g. Crossrail)	0	0	0	0	0	0	0
Facility charges	0	(1)	(1)	(1)	(1)	(1)	(6)
Other route income	(0)	(0)	(0)	(0)	(0)	(0)	(1)
Income allocated to routes							
Property rental	(1)	(1)	(1)	(1)	(1)	(1)	(5)
Property sales	(1)	(0)	(0)	(0)	(0)	(0)	(1)
Total other single till income	(16)	(5)	(5)	(5)	(5)	(5)	(26)

Please note: We no longer include stations long term charge income, open access income (with the exception of the open access fixed contractual contribution) or freight income in other single till income.

Appendix F Long Term Forecast

Asset	Condition trajectory	Comment
Track	 <p>Wales track used lives at end of control period</p> <p>Wales track outputs pa at end of control period</p>	<p>During CP5 and into CP6 the percentage life used of the Wales Route S&C will fall principally due to the completion of the CASR, North Wales Coast and Port Talbot West (Phase 1) re-signalling schemes in CP5. The Newport – Shrewsbury re-signalling would have also effected a further reduction but this has now been abandoned. The CP6 S&C programme, which currently comprises condition driven domestic renewals, is insufficient to sustain the reduction in service life used and from mid-CP6 the service life used for S&C will start to rise.</p> <p>For the other key components of the track asset (rail, sleepers and ballast) the percentage life used will rise as was predicted by the CP5 plan. There is a small potential to reduce the S&C used service life in CP6 through efficiencies and track rationalisation in the Port Talbot West Phase 2 re-signalling project. The scheme is currently in development and has not currently been included in the long term forecast. Discounting this potential reduction, in all cases the RF6 constrained plan, with the associated reduced volume of work leads to a bigger increase in service life used; an effect that becomes more apparent when the current volumes of work are projected into future control periods.</p> <p>To an extent this rise in service life used is an effect of Track Asset Policy. With the exception of the route from Pilning to Swansea which is Criticality Band 2 in CP6 the remainder of the Wales Route is Criticality Bands 4 and 5. Track Asset Policy dictates that lower criticality track is sustained by a strategy based on refurbishment rather than renewal thus the without the clock being reset by renewal the percentage of asset life used will, in general, increase.</p> <p>The implication of this increase in service life used is the performance of the track assets (measures in terms of Service Affecting Failures (SAF) and Fatality Weighted Index (FWI)) will not be sustained. These will manifest as condition of track speed restrictions and broken and defective rails. It must be born in mind however that the track asset has only a small impact on performance (0.16% of PPM at Q4 of 16/17) so the impact on the overall Wales route performance will be small.</p>
Signalling	 <p>Wales SICA remaining asset life at end of control period</p>	<p>The baseline would have seen an improvement in signalling asset condition from the end of CP6 through to mid-CP9 due to resignalling schemes and the introduction of Digital Railway (DR) ETCS L3 with the need for only limited life extension works. The condition of assets would remain manageable as areas not subject to re-signalling would be maintained by focussed renewals in smaller areas until DR. Following DR intervention there would be a steadier decline as the assets would be of a similar age. The decline in condition could then be managed evenly across the Route.</p> <p>The pattern of asset condition within the constrained work bank shows the marked contrast in asset life as infrastructure degrades prior to the introduction of DR. This is due to a reduction in the number of mechanical area resignalling schemes and the reduction in available funding for life extension works and general minor works. In addition, there are significant concerns for level crossing renewals where reduced funding means that less of the level crossing estate can be renewed each control period. This can only be mitigated by undertaking less work on other signalling infrastructure or by supplementary funding bids.</p> <p>Post DR intervention indicates an improvement in asset life until the DR equipment itself becomes aged or obsolete as is inevitable with computer-based systems. The timing of ETCS L3 in CP8/9 is based upon the last known train fitment plan and rollout is not yet confirmed. The long term consequence for this option is deterioration in performance until DR intervention which is expected to make an improvement until asset condition degrades once more.</p> <p>For all scenarios the introduction of ETCS L3 will be dependent upon a positive business case combined with an integrated delivery assessment for national rollout and confirmation that the train fitment plan is robust.</p>

Asset	Condition trajectory	Comment
E&P	<p data-bbox="414 252 813 272">Wales E&P % asset remaining life at end of control period</p> 	<p data-bbox="884 252 2042 331">The SPS baseline figure shows a slow managed reduction in average asset age life after CP8 from the completion of what is assumed to be Signalling power renewals in CP6 &7. This is consistent with Digital railway as it is unknown at this stage how power is to be provided lineside it is anticipated not as distributed lineside infrastructure.</p> <p data-bbox="884 355 2042 435">Whereas The RF2+constrained shows a slow gradual reduction of average asset age from the end of CP 5. Worryingly the expenditure graphs appear to make no cognisance of the fact that at some time in the next 3-4 control periods Sudbrook Pumping station will require a major refit at circa £60m in today's money.</p>
Structures	<p data-bbox="414 598 813 619">Wales % bridge PLBE in poor condition at end of control period</p> 	<p data-bbox="884 582 2042 630">The Wales Route is recognised as having the highest percentage of bridge PLBE in poor condition across all the Routes. We have experienced an increase in the percentage over CP5 and expect this to continue over CP6 with the constrained budget.</p> <p data-bbox="884 654 2042 821">The graph shows this higher percentage of poor assets however it has assumed a ratio of the CP6 budget is allocated to addressing the number of poor PLBE whereas in reality this ratio is lower within the Wales Route due to the need to focus on specific risks such as Tunnels and CERDs. Funding and volumes are similar in CP6 compared to CP5 however there will be more maintenance and less renewals works. We are also carrying out a major 'one off intervention' to Barmouth Viaduct. Taking account of these and other budget allocations mean that the more likely graph will show a gradual increase in the % of poor PLBE that will be managed through increased maintenance activity.</p>

Asset	Condition trajectory	Comment
Earthworks	<p>Wales earthworks outputs at end of control period</p> <p>Y-axis: 1.0 to 2.5. X-axis: End CP5, CP6, CP7, CP8, CP9, CP10, CP11, CP12.</p> <p>Legend: Earthwork ECS: baseline (dashed blue), Earthworks ECS: constrained (solid blue).</p>	<p>The baseline sees by the end of CP12 that there is an overall projected 13% increase in earthworks condition score (indicates deteriorating asset condition) which results in Wales Route recording the worst condition score of all the routes by the end of CP12. This scenario also sees a similar increase in the route risk score between the end of CP5 and CP12 compared to the national average risk score increasing by only 5%.</p> <p>Whilst this scenario manages the national condition and risk score in a sustainable manner, the implications to the Wales Route are a likely increase in earthwork failures with associated increased risk to safety, performance and reputation.</p> <p>The constrained scenario suggests that by the end of CP12 there is a significant increase (17%) in earthworks condition score (indicates deteriorating asset condition) which results in the Wales Route recording one of the worst condition score of all the routes by the end of CP12. This scenario also sees a 32% increase in the route risk score between the end of CP5 and CP12 which is aligned to the national score increase.</p> <p>This scenario demonstrates that the current risk management of earthworks is unsustainable nationally and by route. The implications to the Wales Route are an increase in earthwork failures (above the baseline scenario) with associated increased risk to safety, performance and reputation.</p>
Operational Property	<p>Wales Ops Property condition at end of control period</p> <p>Y-axis (left): 0% to 70%. Y-axis (right): 0% to 7%. X-axis: End CP5, CP6, CP7, CP8, CP9, CP10, CP11, CP12.</p> <p>Legend: Weighted PARL: baseline (dashed blue), Weighted PARL: constrained (solid blue), PARL<20%: baseline (dashed red), PARL<20%: constrained (solid red).</p>	<p>Percentage Asset Remaining Life (PARL) across the operational portfolio is predicted to decline slightly during CP6. This is reflective of the approach to intervene on block types on a prioritised basis to meet funding requirements; with renewals during the control period focused on Footbridges, Canopies, Platforms and electrical items, as these items have the biggest impact on Safety, Performance and Reputation. Remaining block types such as buildings and waiting shelters will be maintained via reactive and minor emerging works budgets throughout the control period. Platform volume has been reduced overall to fund a one off larger, complex platform rebuild. This is expected to further reduce overall asset condition as fewer interventions are carried out across the portfolio.</p>
CSI	<p>Wales CSI at end of control period</p> <p>Y-axis: -20% to 10%. X-axis: End CP5, CP6, CP7, CP8, CP9, CP10, CP11, CP12.</p> <p>Legend: Baseline (dashed blue), Constrained (solid blue).</p>	<p>CSI is projected to deteriorate 1.7% to the end of CP6 at which point baseline sustainability decline is maintained at an average of 0.2% per control period until CP9 where the decline increases to a rate of 1.5% per control period. The constrained scenario of spend will see far greater levels of decline at a rate of 1.9% per control period, with a plateau in CP9 to CP10, at which point the decline will return at the previous rate. CSI should be considered at a national level, and Wales Route does track well against the national trend until CP9, at which point the route experiences an increase beyond the national reduction.</p> <p>This increase in sustainability deterioration post CP9 presents a future concern for the route, and will require further interpretation to smooth line future funding to avoid the need for significant investment to reverse this worsening trend post CP12. It is felt that the implementation of Digital Railway within this timeframe will assist in the smooth lining process, but details over this timescale are currently in development.</p>

Appendix G FNPO

Wales Route & Freight & National Passenger Operators (FNPO) Route

This summary sets out how the Wales and FNPO routes will work together to deliver the Route Strategic Plan for Wales and Borders. It outlines existing FNPO activity, and then describes the impact of the plans and aspirations of FNPO customers to grow and develop their businesses. It summarises what Network Rail needs to do to deliver these strategies and how, in doing so, efficiencies can be identified and realised.

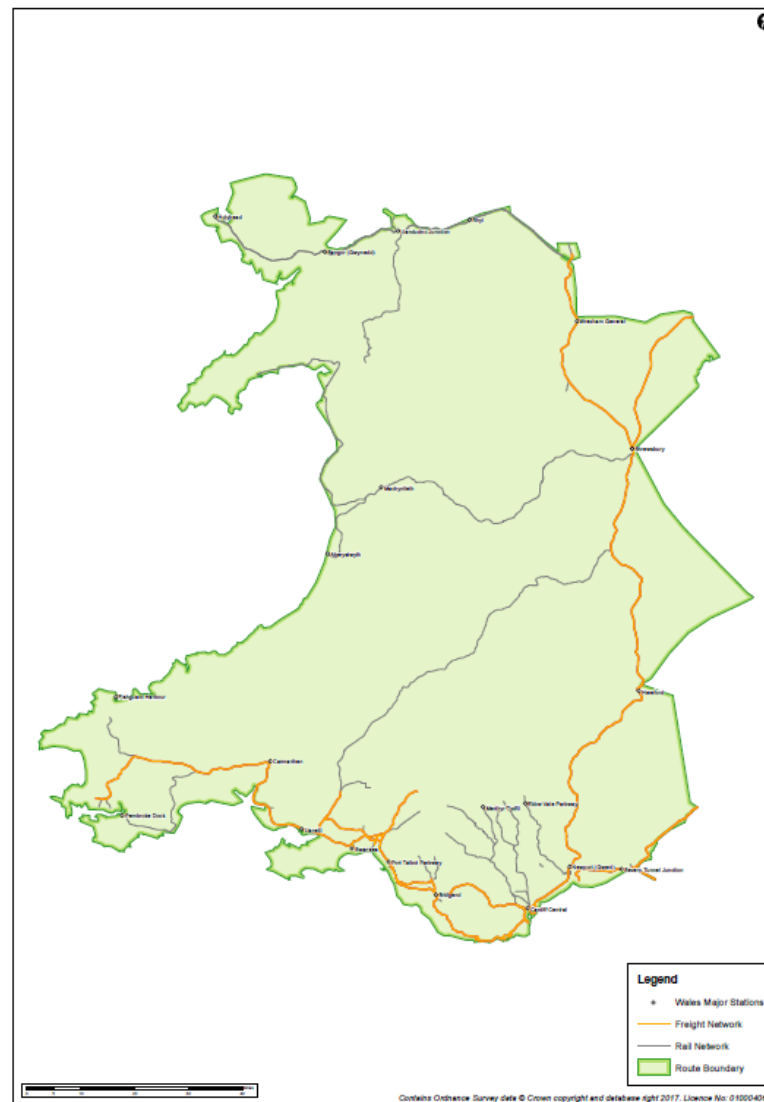
National Passenger Operators:

CrossCountry is a regular user of the Wales route and key issues include right time improvement for services arriving and departing Cardiff, as well as operational resilience around Cardiff.

Charter trains also operate across the Wales Route, especially at weekends, to a variety of leisure destinations being hauled by both standard and heritage steam and diesel locomotives. This leisure market is expected to grow during CP6.

Challenges and Opportunities

No	Key Challenges, Risks and Opportunities	What we plan to do
1	Aggregate Growth O: Volume growth from quarries in Wales and South West R: Infrastructure not able to cope with traffic demand	<ul style="list-style-type: none"> Explore opportunities for longer and heavier trains maximising loco capability Support the introduction of new wagons that maximise payload/length ratio Support Terminal and Yard developments when identified Support introduction of 'pop-up' terminals, bringing out of use infrastructure back into use and increased use of lineside loading Develop the inbound movement of aggregate and spoil from Cardiff Docks
2	Domestic & Deep Sea Intermodal Growth O: Volume growth from Ports / Terminals (Felixstowe, London Gateway, Southampton, Liverpool) will feed into Wentloog R: Train paths and SRT discrepancies with longer, heavier trains R: Gauge enhancement to Wentloog does not go ahead	<ul style="list-style-type: none"> Work with customers to maximise opportunities to increase length of trains Increase Average Journey Speed origin to destination Recognised Diversionary routes with adequate capability, review of the Vale of Glamorgan to see if any improvement feasible beyond W6 Explore the opportunity for a terminal development on the Llanwern site in conjunction with Tata



No	Key Challenges, Risks and Opportunities	What we plan to do
3	Commodity Traffic Growth O: Tata to source more coal from UK sources O: Growth of finished steel to EU via rail O/R: Coal burn at Uskmouth may be replaced by Biomass O: Steel traffic increase as Liberty Steel expansion continues including inbound scrap movement if arc furnaces reinstalled R : Cwmbargoed coal traffic could be impacted by Cardiff Metro development	<ul style="list-style-type: none"> Explore opportunities for longer and heavier trains maximising loco capability Terminal / Yard developments to support traffic growth where possible Ensure heavy freight requirements are incorporated into Cardiff Metro plans Work with stakeholders to assess feasibility of re-instating rail link into Liberty site in Newport
4	Franchise changes R: Refranchising of TOC in Route seeks greater capacity on shared lines	<ul style="list-style-type: none"> Retain adequate capacity, capability and flexibility for existing and forecast freight Review Impact on possession strategy from new flows Review stabling plans for new rolling stock / change of locations
5	Construction projects O: Opportunity for spoil and waste out and aggregate and other commodities in to support construction O: Site clean-up at Port Talbot may generate spoil movement opportunity	<ul style="list-style-type: none"> Work with FOCs and End-customers to offer solutions to demands of major projects e.g. M4 relief road at Newport, Swansea Bay Tidal Barrier Terminal / Yard developments ('pop-up' terminals / lineside loading potential) e.g. Swansea Burrows
6	SRFI Terminal Development O: SRFI terminal development supports intermodal growth especially addressing demand for inland terminals C: Securing of sufficient capacity to support SRFI developments through planning and into use	<ul style="list-style-type: none"> Work with Developers to understand SRFI proposals progression through planning Offer NR support to proposals when adequate strategic fit and capacity Work with System Operator to support funded early stage timetable work for SRFI developers
7	End User-customer service O: Closer working with FEU's enables greater understanding of customer priorities for future (e.g. Tata, Celsa and Liberty House)	<ul style="list-style-type: none"> Work with end-customers to develop business growth and support modal shift to rail Work with end-customers to strengthen service delivery and support Work with FOCs to investigate wagonload possibilities (shared services) for multiple customers
8	Review of redundant and unused assets O: Following traffic changes in CP5 and structural change in energy market, opportunity exists to review size and organisation of non-passenger network	<ul style="list-style-type: none"> Identify opportunities to reduce maintenance costs and remove unneeded infrastructure Regularise the status of freight assets (actual v published) Explore potential to transfer ownership of redundant lines / assets to secure better opportunities for redevelopment
9	Yards and sidings infrastructure R: Yard and Siding Infrastructure asset condition is critical to avoid derailment events and customer LTI's	<ul style="list-style-type: none"> Working with Routes and customers to review asset condition on regular basis, Working with Routes and customers to establish and benchmark walking route use and condition Liaise with DBC to focus on critical interfaces at Margam and Llanwern
10	Timetable Review O/R: Timetable Improvements to closely reflect capability of trains and capacity of network required on busier network	<ul style="list-style-type: none"> Continuation of CP5 work to review path usage Work with System Operator and customers to review opportunities to improve average speed origin-destination Review with System Operator and customers suitability of current systems to capture network constraints and traction capability (Loads Book, Timing Loads, Lengths)
11	Digital Railway O: Successful introduction of Digital Railway offers potential for growth on busiest corridors	<ul style="list-style-type: none"> Act as internal client on behalf of freight to build sympathetic capability for freight traffic needs

CP6 Plan

Section	Key Themes	Strategy	Specifics	Owner	Timescale
Safety	Lost Time Incidents	Reduce LTIs through concentration on Network Rail yard infrastructure, connecting sidings and walking routes conditions.	<ul style="list-style-type: none"> Published rolling programme of joint health and safety visits with customers (FOCs/TOCs) to agreed sites, including Cardiff Tidal Pengam, East Usk, Margam Knuckle Yard and Llanwern Complete review of authorised walking routes/crew change locations per customer Subject to funding, a programme of improvements will be specified and implemented 'Go Look See' with customer within two weeks of any reportable customer LTI event on network infrastructure 	FNPO Operations and Safety Manager/ SRFM	Initial Programme to be published March 2018 then annually during CP6
	Freight Train derailments	Reduce freight train derailments through concentration on Network Rail yard and sidings infrastructure.	<ul style="list-style-type: none"> Published rolling programme of joint health and safety visits with customers to agreed sites End Customer Forum to be implemented to share issues of concern around connection points and maintenance either side of boundary point Subject to funding, a programme of improvements will be specified and implemented 	FNPO Operations and Safety Manager/ SRFM	Initial Programme to be published March 2018 then annually during CP6
	FNPO SPADs	Reduce freight SPADs by collaborative working	<ul style="list-style-type: none"> SPAD Forum to be implemented with FOCs to share learning and best practice 	FNPO Operations and Safety Manager	Creation of Forum by April 2018. Meeting regularity proposed quarterly.
Performance	Right time departure performance at key hubs and terminals	Use Strategic Freight Corridors to focus delivery Measuring Right Time Departures from terminals at the start of the journey	<ul style="list-style-type: none"> Local Working Groups (e.g. South Wales corridor) Use of Control Rooms and Visualisation at major sites (e.g. Margam Knuckle Yard) Re-brief Freight Strategy – 'Freight Delivery Matters' and linkage between RTD and FDM delivery 	SRFM/ FNPO Performance Manager	Existing Working Groups to continue into CP6. Quarterly FNPO review of terminal engagement
	Measuring FDM and FDM-R	Focus on defined key routes: <ul style="list-style-type: none"> - Asset Performance - Asset Resilience - Effective contingency plans 	<ul style="list-style-type: none"> Target FDM-R Route target for end CP6 of 94.4% Input to Route CP's for consistent application of freight contingency arrangements FSDM input to incident recovery real-time to build consistency Asset Reviews with Route Asset teams to share traffic forecasts and asset challenges with SRFM Influence at RSPG to define future asset strategy in terms of renewals to support freight growth 	SRFM/FNPO Performance Manager	Annual target setting during CP6. Periodic review of FDM-R delivery and key influencers
	Joint Freight Performance Improvement Strategies	Agreed joint strategy with each FOC including details of plans to reduce each delay area	<ul style="list-style-type: none"> Complete plan annually with each FOC concentrating on primary delay categories Agreed industry information share Regular reviews against plan with each Route and FOC customer 	FNPO Performance Manager/CRE	Joint Strategy Plan per Operator to be published annually during CP6 and reviewed quarterly

Section	Key Themes	Strategy	Specifics	Owner	Timescale
Capacity & Capability	Identifying future capacity and capability needs.	Bring together all freight capacity plans: <ul style="list-style-type: none"> Route Studies SFN Customer specific 	<ul style="list-style-type: none"> All future project specifications to include a specific output level for freight services, reflecting the SFN specifications and forecast future traffic requirements. Future Capability needs assessment to be undertaken – RA, Gauge, HAW – future plans for improvement to meet capacity requirements Interactive maps for Gauge, RA to be created and maintained Continued support for longer, heavier trains programme 	Project Sponsor/SRFM SRFM/ FNPO Head of Strategic Capability/ FNPO Head of Network Management	Future capability programme definition by April 2018 and delivery per strategic route
	Review existing capacity constraints	Undertake Capability Review	<ul style="list-style-type: none"> Improved gauge and operational flexibility on key freight corridors Robust gauge cleared diversionary routes, for example for containerised traffic departing Margam Transparent network capability per route for customers 	SRFM/ FNPO Head of Strategic Capability/ FNPO Head of Network Management	Existing capacity constraints review definition by April 2018 and delivery per strategic route
	Freight Train Average Speed	Undertake Average Speed Review	<ul style="list-style-type: none"> Establish framework for average speed measurement and improvement Work with Stakeholders to target specific flows and services Annual plan in connection with annual timetable change 	FNPO Head of Performance/ FNPO Head of Strategic Capability/ FNPO Head of Network Management	Measurement framework to be agreed by industry May 2018. Flows to be agreed for Dec 2018 TT change and annually thereafter
	Connections to new terminals and SRFIs	Facilitate connections to the network and associated capacity	<ul style="list-style-type: none"> Work with FOC's, Freight End Users and Developers to identify potential new connections, including development of SRFI's Information share of prospective sites via RSPG Facilitate new network connections where required Identify potential sites (new connections, bringing out of use infrastructure back into use and increased use of lineside loading) to facilitate growth, e.g. Liberty House connection on the Birdport Branch line Advice to System Operator of future sites and flows to understand timetable and capacity impact Timetable studies for major terminal developments, e.g. SRFI's 	SRFM/ FNPO Business Development Managers	Forward programme of FEU and Developer engagement to be agreed annually during CP6. Freight Developments Register to be held by SRFM for review at RSPG quarterly.
	Delivery of agreed CP6 freight enhancement programme	Continuation of Strategic Freight Network funding and industry governance group	<ul style="list-style-type: none"> Promotion of potential freight projects and enhancement schemes Prioritise funding to best meet demand and facilitate growth Align SFN proposals with Route and National proposals to deliver a coherent forward strategy which best meets overall requirements 	FNPO Head of Freight Development/ System Operator	Ongoing

Section	Key Themes	Strategy	Specifics	Owner	Timescale
Capacity & Capability	Consideration of incremental freight improvements in all schemes	Structured review process with Route planners and Sponsors	<ul style="list-style-type: none"> Work with FOC's and System Operator to identify opportunities for incremental freight enhancements as part of the development of enhancement and renewals proposals, e.g. faster entrance/exit speeds into loops and through crossovers. Defined and consistent engagement process to be agreed with Route Planning team and Sponsors Look for opportunities within the Cardiff Metro development to enhance freight's opportunities 	SRFM/ System Operator	Defined engagement process and inputs to be in place with Route Strategy by April 2018
Network Availability	Engineering plans that meet both FNPO customer and Route needs.	Regular and co-ordinated freight input into <ul style="list-style-type: none"> Engineering Access Statements Access Planning Requests 	<ul style="list-style-type: none"> Engineering plans that are; <ul style="list-style-type: none"> Transparent and well understood co-ordinated consistent across Routes planned well in advance and take into consideration contingency arrangements for long distance services 	SRFM/ FNPO Capability and Planning Manager	Annual review of process/requirements between FNPO and Engineering Planning from March 2018 incorporating end to end Access process
Freight Asset Management Plans	Effective asset management arrangements for yards and sidings infrastructure	Create a joint understanding of maintenance responsibility, traffic level changes and asset condition	<ul style="list-style-type: none"> Enable Asset Management and Engineering teams to plan the targeted maintenance and renewals requirement of each site Ensure appropriate standards in use at each location. Ensure that changes in market demand are communicated 	SRFM/ Route COO/ RAM	Biannual review of yard and sidings maintenance priorities / traffic flows commencing 2018
	Review of Locomotive and Heavy Axle Weight (HAW) restrictions	Establish potential/cost for removal of restrictions	<ul style="list-style-type: none"> Input into track/structures renewals and maintenance plans 	SRFM/ Route COO/ RAM	Review definition and programme issued by April 2018. Delivery per strategic route to be programmed.
	Review Freight Only lines and other infrastructure	Understand the potential to reduce OMR.	<ul style="list-style-type: none"> Review based on existing & predicted future use Input into track/structures/maintenance plans Outputs to be agreed with customers/ORR Close scrutiny on the impact of Valley coalfields decline e.g. Cwmgrach and Hirwaun branch lines Gaerwen to Amlwch branch status to be reviewed, also the Waterston branch 	SRFM/ Route COO/ RAM	Definition of Review by Dec 2017. Delivery of initial opportunities report by July 2018. Agreed Action Plan through CP6 per Route
	Removal of TSRs / PSRs in timely fashion	Establish removal plan recognising freight impact	<ul style="list-style-type: none"> Continue to work with the Route teams to identify the impact of speed restrictions on freight services and work collaboratively to remove them 	SRFM/ Route COO/ RAM	Periodic review of performance impact of TSRs to be agreed by Route

Appendix H CP5 Performance

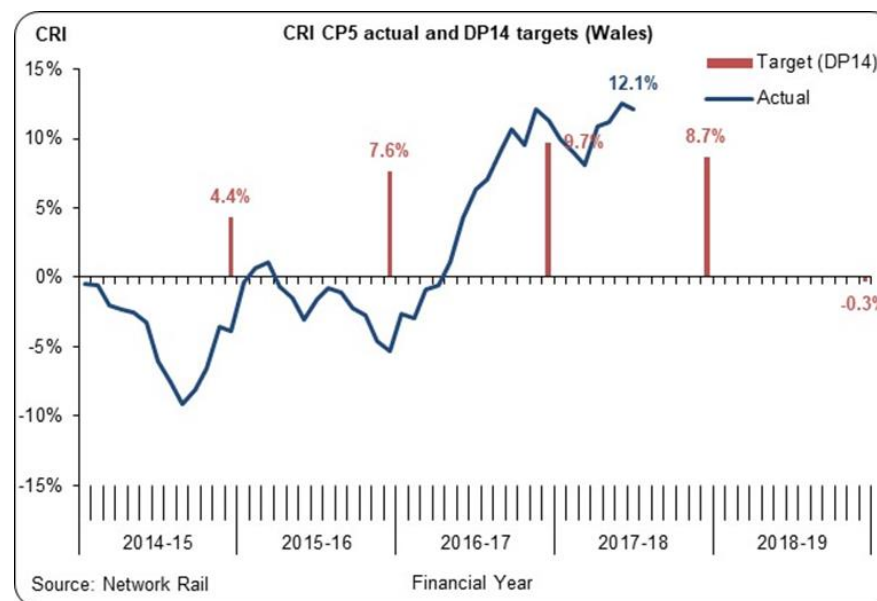
Overview of annual performance

Metric	Out-turn			
	Year 1	Year 2	Year 3	Year 4 (P9)
Assets: CRI				
Actual	4.1%	5.4%	11.1%	10.8%
Target	4.4%	6.2%	7%	8.9%
Assets: CSI				
Actual				
Assets: 7 Key Volumes				
% delivered	36%	96%	99%	99%
Safety: LTIFR				
Actual	0.489	0.534	0.559	0.521
Target	0.489	0.509	0.46	0.440
Performance: PPM				
Actual	93%	92.2%	91.9%	92.3%
Target	93.5%	94.0%	94.2%	93.3%
Performance: CASL				
Actual	3%	2.71%	2.94%	2.65%
Target	2.4%	2.3%	2.2%	2.30%

The table below summarises the results achieved in asset reliability and sustainability, safety and performance over the first three years of CP5.

In overview, safety and performance measures have seen a slight decline in CP5 to date. However, the route continues to perform ahead of

national benchmarks and performance is within close range of the target. However, movement in CRI fell short of target in both Year 1 and Year 2 with reliability actually deteriorating. This can largely be attributed due to a material failure to deliver key volumes – only 36% were delivered in year one. As the chart below illustrates, as volume delivery has got back on track, CRI, has begun to improve notably.



To provide further detail of CP5 performance to date, and the context against which our plans have been developed, we summarise below current issues around:

- Volume delivery, asset condition and sustainability for each of our key asset types
- Safety and operational performance.

Volume delivery, asset condition and sustainability

Signalling All CP5 signalling schemes which are safety led or critical to operational performance will have been completed by the end of CP5. The CP5 programme did suffer a number of cost and programme overruns – including £86m on CASR. This is because the initial planning was over-ambitious. Our response to overruns has been to defer those CP5 projects which are largely efficiency led and not performance critical (Newport - Shrewsbury and the schemes at Park Junction and Tondur). Signalling asset reliability as measured by Service Affecting Failures (SAF) hit target in 2016/17.

Electrification & Plant (E&P) CP5 has seen the Wales Route invest strategically in our E&P resource and capability – we now have a dedicated and skilled team. This is because at the start of the CP5, a combined lack of engineering resource in IP significantly constrained delivery. In preparation for CP6, our team has shared its plans iteratively with IP Wales who we intend to partner with. An ongoing programme of inspection and garnering of knowledge from local teams is helping us better understand existing asset condition. SAFs are now trending at one incident every two months.

Track Wales Route has the lowest rail breakages nationally and track geometry is the best in the country. In 2016/17 SAFs improved 34% compared to the previous year. This high level of track reliability is the result of a proactive approach to the removal of defects in CP5. We are on target to meet volumes due to well established relationships with IP Plain Line and Works Delivery. We are in the process of securing contracts with both of these parties for CP6 to protect future delivery. High Output, the strategic focus in CP5, has been more challenging and is approximately 20% behind planned volumes. This is in common with other NR Routes.

Structures CP5 saw a large amount of reactive work on Structures – for example £15m was spent on remedial works following the storm that hit

the Cambrian Coast in 2014. Lack of availability of contractors has meant that significant work (in particular tunnels, overbridges and culverts) has been deferred or completed on a “patch and repair” basis rather than on a whole life cost basis. Poor asset knowledge is partly to blame and, to address this we have invested in a programme of inspections. However, with over 10,000 structures, some of which are 200+ years old, this programme will run well into CP6. Reliability as measured by the number of open work items with a risk score of 12 has met target every year.



Storm damage - Llanaber

Off-Track Wales Route pioneered the split of Off-Track from Track, setting up a dedicated team to ensure appropriate focus on reducing SAFs. Fencing works have focused on tactical prevention of animal incursion and trespass, a common cause of safety and operational incidents. Management of vegetation in CP5 has been focused on complying with policy but bigger benefits are envisaged from adopting a risk based approach and the Wales Route is driving policy change in this area. For instance we have proactively identified the 15,000 trees most at risk of falling onto the track and have already begun to tackle them as part of CP5 earthworks schemes. CP5 made no provision for maintaining Access Points and whilst some funding was diverted from other schemes affordability constraints have led to many points being closed.

Earthworks CP5 activity focused on renewals (netting) of those rock cuttings and rock slopes which pose the highest safety and performance risks. We made a slow start to CP5 because contractors were not in place early enough. We were also hampered by a limited knowledge of the asset base or its condition during the planning stages for CP5. For this reason we took a 100% policy aligned (outcome focused) approach to

specifying the work bank and delivery was backed-off to suppliers. This led to sub-optimal interventions and cost escalation.

To secure better VfM, the design remit has now been brought back in-house and headcount has been aligned to delivery and management of risk. We use CIV 28 failures to measure earthworks reliability. 2016/17 performance has seen improvements on 2015/16.

Safety

During CP5 we developed and are now implementing the Home Safe Plan – 21 key projects that will help us achieve our safety vision of “everyone home safe every day”.

- **Level crossings:** we have reduced the safety risk by closing 32 crossings, downgrading one. We have also implemented technological enhancements (Covtec) and improved risk assessment and level crossing management.
- **Planning and Delivering Safe Work (PDSW):** we have implemented initiatives to improve identification and mitigation of workforce risks
- **Community Safety Initiatives (CSIs):** we have launched initiatives including an education module on rail safety that forms part of the Welsh Baccalaureate
- **Close Calls:** we have introduced a Close Call reporting system and Weekly Safety Hours; these are helping to embed a safety culture across the route and our supply chain.

Our focus for the remainder of CP5 and into CP6 is to continue to deliver the Home Safe Plan by:

- Further reducing level crossing risk
- Extending CSIs by developing joined up approaches with partners to maximise our impact and leverage matched funding opportunities
- Improving our LTIFR performance by concentrating on the key risk areas of manual handling, hand and arm vibrations, working with electricity, and working at height
- Continuing to promote reporting of Close Calls and their closure

- Implementing PDSW and embedding the underpinning cultural and behavioural changes including new ways of working
- Implementing measures to improve the physical and mental health of our workforce.

We will also continue to:

- Safely comply with our environmental requirements
- Reduce our energy and carbon impact
- Work to make our network, assets, and our operations resilient to future changes in the climate.

Performance

Over the past year 92.3% of ATW trains have arrived within five minutes of their planned time. Recent improvements have resulted from less congestion on the Valleys network at Cardiff Central following capacity enhancements and a joint initiative completed with ATW, Project Tiger, which identified a series of improvement measures. The variance to the original CP5 target of 94.5% is due to a number of factors. Firstly, planned improvements in reliability following resignalling schemes were not realised because some schemes were deferred and planned improvements in service recovery relied on the implementation of Traffic Management Systems - also deferred. In addition to this, the impact of passenger growth was underestimated with increased delays at stations. The key challenge going forward is to reduce the impact of incidents by improving our incident response and service management capability as well as targeting failures in critical locations in order to minimise impacts. We also need to increase the focus on operational performance across the business. A key enabler of this is the development of a reporting suite focused on the end user experience utilising more granular level of data such as GPS.

Appendix I CP6 Deliverability Assessments & Statements

L1 Deliverability Assessment Scores – September 2017 [RF6]

	Year 1 - 19/20					Year 2 - 20/21					Year 3 - 21/22					Year 4 - 22/23					Year 5 - 23/24				
Asset Base	Work bank Definition	Key Resources	Access Requirements	Cost Confidence	Delivery Agent	Work bank Definition	Key Resources	Access Requirements	Cost Confidence	Delivery Agent	Work bank Definition	Key Resources	Access Requirements	Cost Confidence	Delivery Agent	Work bank Definition	Key Resources	Access Requirements	Cost Confidence	Delivery Agent	Work bank Definition	Key Resources	Access Requirements	Cost Confidence	Delivery Agent
Track	4	4	4	3	5	3	2	3	3	5	3	2	3	3	4	3	3	3	3	4	2	2	3	3	4
Signalling	5	4	3	2	4	4	4	3	2	4	4	4	3	2	4	4	3	3	2	4	4	3	3	2	3
E&P	5	3	4	3	5	5	3	4	3	5	5	3	4	3	5	5	3	4	3	5	5	3	4	3	5
Structures	5	4	3	4	3	4	3	3	4	3	3	3	2	3	3	3	3	1	2	2	3	3	1	1	2
Geotechnics	5	4	4	3	5	5	4	4	3	5	5	4	4	3	5	5	4	4	3	5	4	4	4	3	5
Buildings	3	3	3	3	3	3	3	4	3	3	3	3	4	3	3	3	3	4	3	3	3	3	4	3	3
Drainage & OT	5	4	4	3	5	5	4	4	3	5	4	4	3	3	4	4	4	3	2	4	3	4	2	2	3
Funded Enhancements	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Deliverability Assumptions are included within Appendix B of this report.

Details of the information underpinning the scores from the L1 assessment in the table above are presented in the table below.

Asset Base	Work-bank Definition	Key Resources	Access Requirements	Cost Confidence	Delivery Agent
Track	S&C defined and ready to Develop. Year 1 to 3 development started with Year 1 scheduled to conclude GRIP4Track Stage 3 in 1718. Plain line has seen less progress due to re-working of priorities with the TMEs across the route but recovery plan agreed with delivery agents. High output defined, due to track access request, plan split over 4 year vice 2.	Score for Plain Line and refurbishment lower than S&C and HO. Existing IP Framework contracts being reviewed with change in Year 1 of CP6 likely and with it some uncertainty reflected in the scoring. IP currently deliver S&C, PL and HO, Works Delivery team and maintenance deliver refurbishment. Lower scores in these areas are considered to be lesser risk and therefore carry less weight in the summary score.	Access in year 1 published for S&C but still being confirmed for Plain Line. As years increase conflict checking / confirmation lessens. HO also confirmed and published year 1, understood but not confirmed and published for year 4. Plain Line understood in volume not planned / booked. Refurbishment work will look to Rules of Route / take opportunity of other works disruptive possessions, but flexibly in approach for this, therefore lesser risk.	CP6 costs have taken into account increased costs of Works Delivery (but these are rising further in CP5) team in CP6. S&C based on current contract rates, but estimates take into account scheme complexity. Plain line – costs based on previous output and CP5 contractual terms. HO costs for each campaign.	The scoring is based on the sharing and delivery of plans with delivery teams, IP, Works Delivery and maintenance. The scoring decreases a little over the years, as the procurement vehicle may be subject to review.
Signalling	Work bank is produced using SICA and to some extent DST (Decision Support Tool) which is under development. There is one major renewal in the control period plus two smaller scale schemes. The work bank and CP6 plans were discussed and developed at a workshop in Westwood with deliverers (IP/Works Delivery) participating.	There is uncertainty in the level of resources required until GRIP 4 has been completed for each scheme. Route teams are working with deliverers to keep them aware of the situation. There is concern regarding currently available skills and equipment such that if the workload remains uncertain, skills developed for the CP5 programme may be disbanded and lost to Route and / or market. Impact of Metro skills / equipment requirement as yet unknown. Level crossing equipment e.g. VAMOS is built into the programme of works but there are implementation / technical issues that require addressing.	Broad access requirements assessed for major interventions but not booked or conflict checked. Smaller schemes will be using 'rules of the route' availability. Changes on Metro are seen as the biggest risk with regards to impacting access.	Estimates have been carried out by team using SEU rates for major interventions. Concern for accuracy of SEU rates is reflected in these scores as an adjustment has not been made in estimating to allow for this.	Delivery agents (IP / Works Delivery / Maintenance) participated in CP6 workshop at Westwood. There is supply chain confidence however, there is concern regarding currently available skills and equipment such that if the workload remains uncertain, skills developed for the CP5 programme may be disbanded and lost to route and / or market. Work not yet allocated to delivery partner or framework contractor is reflected in the score. If Port Talbot West phase 1 is pushed to CP6 year 1, this can be accommodated with some impact, but further slippage will require analysis on overall work plan.
Structures	Years 1&2 contain deferred work. After this work is prioritised in asset condition database but this is not shared with deliverers.	New frameworks being set up Jan / Feb 2019. Condition assessments are outstanding which will assist in work-bank for years 3-5.	Only considered for years 1 and 2, scores reduce years 3 to 5 due to work-bank uncertainty.	Asset Manager has used national rates and adjusted these for local rates.	Not identified.

E&P	Work prioritised by site and detail of asset. Started working on the detail of CP6 requirements – 85% confidence on accuracy, 15% sites estimated to change. Detail of exact sites etc. reviewed and confirmed 18 months out using asset condition assessments and tacit knowledge.	‘Must do’ sites given to IP for each year in CP6, allowing flexibility of the remainder to allow IP to work with Asset Manager for economies of delivery. Cost and plan understood; resources to be allocated by IP.	Very little work to be carried out outside ‘no booked service’	Based on E&P unit rates – Asset Manager has adjusted these by an uncertainty factor where he feels appropriate, taking into account complexity, experience of reliability of rates etc.	One major intervention in CP6, Sudbrook Pumps. Details have been shared with IP team and work spec agreed. Asset Manager reviews work with IP in line with 18 month look ahead and shared forecast of work for CP6.
Geotechnics	Defined on the basis of previous years, 1- 2 schemes per line approx. No reactive / unexpected work included.	Three existing framework providers being extended to improve quality. No difficulty with availability. Shared and agreed with delivery teams. Calculations per scheme not in place (although probably not required at this detail at this stage for this type of work).	90% + of interventions based on rules of route access. Where more complex access required this is usually for betterment of delivery, not a requirement of implementation. Access not yet booked.	CP5 rates reviewed and adjusted for CP6.	Plans shared and agreed with delivery agent (IP)
Buildings	Only one major intervention in CP6, Swansea Platform 4. Rest of work-bank is split into mechanical / electrical (which has annual budgets and a five year inspection programme, rewiring and lighting based on average life span, others decided one year ahead, cost based on engineering judgment) and building fabric (work-bank based on condition survey and a new derogation model – in progress).	Works Delivery team use up to six framework contractors to allow for competition. No forecast resourcing issues. No specialist requirements.	Year 1 disruptive possession for Swansea platform (not booked in yet but will meet planning timescales), other year’s rules of the route.	Mechanical / electrical – no estimates yet for specific items as reviewed in year before. Building fabric – used adjusted unit rates from CP5. Taken into account range of completed projects to adjusted rates. Based on measured volumes.	All works via Works Delivery, proven on CP5. CP6 work-bank not yet shared – Asset Manager looking to do this, although work-bank still changing in specific detail.
Drainage & OT	Work-bank defined but accuracy reducing over years of CP6 due to inability to forecast / specify location of works (particularly fencing), volumes remain stable.	Works Delivery teams implement this work, new frameworks about to be awarded so not all supply chain currently engaged.	90% + of interventions based on rules of route access. Where more complex access required this is usually for betterment of delivery, not a requirement of implementation. Access not yet booked.	New fencing frameworks due part way through control period (Years 4 /5) leading to some uncertainty for fencing costs	Assuming that resources available to implement work remain the same as current levels through the next control period.
Funded Enhancements	There are no Enhancements funded within the Wales Route in CP6 currently. Welsh Government has funding for Bow Street but it is not clear who the deliverer will be (may be external to Network rail) and no agreement has been reached regarding this. There are other enhancements that may come to agreement in CP6 but no agreement reached on these to date. The System Operator forecast is not included. The score is therefore N/A.				

Deliverability Statements

Francis McGarry – Route Delivery Director IP Wales

Volume Delivery

As proposed volumes levels are similar to CP5 level confidence in delivery of volume is high, the Wales Route Infrastructure Projects team have now been in place for circa 4 years and are fully established in Wales alongside the route team. The likely reduction in volume of enhancement work will benefit the IP Wales team with those wishing to stay in Wales potentially being able to be transferred.

Unit Rates Delivery

On hard structures a joint analysis of the difference between the CP5 national rates and the actual cost of delivering CP5 schemes to date has been carried out with Asset Management. The information indicates that most Wales structures worked upon in CP5 are on the lower end of the bell curve (e.g. small volume single spans on secondary routes with restrictive rural access).The leads to disproportionate impact on unit rate delivered due to significantly higher access and setup costs for the volume to be delivered, higher volume schemes however are much more aligned to national CP5 rates.

The teams have developed a unit cost for the small volume single span structures and agreed to assume that 80% of schemes in CP6 will reflect this type of intervention, with the remaining 20% being aligned to the agreed National Unit rate. Based upon this pragmatic approach there is a high degree of confidence meeting the unit rate on this basis.

Supply Chain Strategy for Delivery

CP6 Deliverability strategy for Wales is similar to that of CP5, current thinking is to further evolve the “closer to fewer” concept and ensure that sustainable development principles are enhanced (local labour, use of SME’s, Apprentices etc.). The framework “Lots” will be assessed

to understand if moving away from multi-disciplined geographical areas to route wide work type frameworks (e.g. Scour, Structures, and Earthworks) will release a perceived efficiency opportunity around retention of staff and quality of work due to a consistency of work. An option of ‘mini competitions’ between framework contractors will also be explored. Learning lessons from the start of CP5, the intention is to extend current frameworks to “overlap” with new frameworks to ensure consistency of work through put and to be ready for CP6 on day one.

Main Delivery Risks

The stability of work banks remains a key risk to delivering cost and volume. The introduction of enhancements schemes throughout the control period will affect how efficiently access and resources can be utilised. The movement of works between IP and Works Delivery following completion of optioneering has the biggest impact on delivering efficiently and increases late access requests. Clarity in use of IDG and their resources to deliver are also key considerations / success factors.’

Nick Grubb, Head of Development, IP Track

The Route Asset Management Team for Track and Infrastructure Projects Track has been working closely together to determine a deliverable, affordable and efficient plan over Control Period 6. This relates to proposed volumes to be instructed through IP Track (which are similar to those identified in CP5 but can be spread more evenly across CP6) and no other delivery agents although this is an opportunity for the route team as IP Track does have the capacity and capability to undertake more works.

The result of the collaborative effort is:

- *An agreed set of unit rates for Plain Line, S&C and High Output renewals where work is spread over CP6 in terms of PL and S&C whilst smoothed nationally in terms of High Output.*

- *IP Track have identified and incorporated into their submission a number of efficiencies and headwinds that the route have taken into account but further works post RF9 and throughout CP6 will be needed to identify and firm up proposed and further efficiencies.*
- *An agreed programme of delivery for S&C and High Output over the Control Period with resources aligned to these disciplines. Track access has been identified and requested for year 1 and the remaining years will follow through the regulatory process*
- *Commenced development works on years 1 and 2 of the S&C work bank; year 1 of the Plain Line and High Output work bank.*

Christian Irwin – Project Director Western and Wales IP Signalling

‘Regular deliverability reviews are held between the Wales Route and the IP Signalling department who are strongly established in the Wales and Borders through their recent CP4 & CP5 successes of delivering major projects have built an experienced, competent and capable team to provide further project delivery in CP6.

Located at key strategic depots and offices they have also established collaborative relationships with local and National suppliers and subcontractors via framework contracts in order to deliver signalling works, efficiently and effectively.

IP Signalling are used to working with internal Delivery Units where they are an essential part of an integrated multi-disciplinary Project Team delivering weekend enabling works and significant Possession works, therefore, are well suited to deliver combined packages of minor renewals and refurbishments alongside essential signalling life extension works and major projects within CP6.’

Dave Stanbury – Route Programme Director (Works Director) Wales and Borders

‘Within the Route Programmes (Works Delivery) function, we will work in close partnership with the Wales Route Asset Management

team to ensure that we deliver all key milestones to the agreed timescales. We will ensure that each scheme is adequately resourced, planned and designed with safety foremost in the thinking of the team.

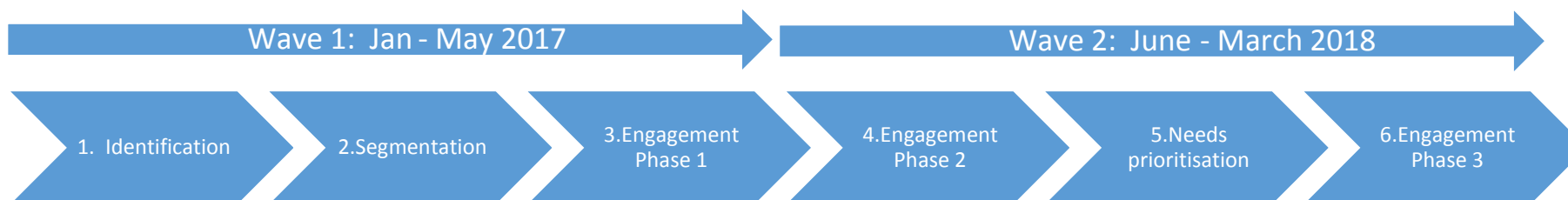
We will ensure that our deliverables are in line with interests of our Key stakeholders and end users. As a team we will ensure that we deliver a product or service that meets with the budgetary requirements of the route. To quantify the above in more detail we have developed:

- *An organisation that can deliver the volumes required for CP6 with safety and quality at the forefront of our peoples thinking. We have developed an organisation that has engineering assurance at its core in each of our delivery areas. We are changing and reshaping the structure of the group to meet the needs of the asset managers. We are treating our suppliers as partners and not as contractors*
- *Ongoing reviews of my business to ensure it fits the demands of CP6 and ensures a smooth transition from CP5*
- *A close working partnership with our commercial and procurement teams to change the way we contract so that we adopt longer term strategy’s that are specific and bespoke to the needs of our customer and maximises and utilises the supply chain in Wales*
- *Strategies to review all of our end to end process so that we drive out inefficiencies and simplify the processes for the end user*
- *We are moving away from unit rates and are developing an ‘in house’ estimating function to provide the business with more accurate bottom up costs for investment and delivery*
- *we have developed frameworks that better suit the business needs and we are moving away from national frameworks in certain areas’*

Appendix J Stakeholder Engagement Programme

Wales Route stakeholder engagement programme

In preparing for CP6, Wales Route is undertaking a comprehensive engagement programme.



In Wave 1 we have worked with key industry and regional partners to carry out a full stakeholder identification exercise. This has been used to segment our stakeholders by relationship type and “need” to make engagement as effective as possible. The stakeholders we identified are set out in the “Stakeholder Wheel”. Our approach to segmentation and engagement is set out in the table.

Our strategy has to balance the requirements of a diverse set of stakeholders

We believe that rail infrastructure is fundamental to the economy, connecting people with their jobs and linking communities across Wales, the Borders and beyond.

Wales Route has a diverse network of stakeholders who have different interests in the railway. We have dedicated teams working with each of our main stakeholders.



Stakeholder	Directly Engaged	Level of interest	Method's
• Arriva Trains Wales	Yes	High	Directors periodic liaison, External Workshop
• Office of Rail & Road	Yes	High	Direct route engagement sessions, external workshop,
• Welsh Government	Yes	Med	Direct route engagement sessions, external workshop,
• Transport for Wales	Yes	High	Direct route engagement sessions, external workshop, 1-1 with key contact
• DB Cargo	Yes	Med	External workshop
• Abellio Rail Cymru	Yes	Med	External workshop
• Department for Transport	Yes	High	Direct route engagement sessions, external workshop
• Rail Delivery Group	Yes	Med	External workshop
• Great Western Railway	Yes	Med	External workshop
• Rhondda Cynon Taf County Borough Council	Yes	Low	External workshop
• Welsh Local Government Association	Yes	Low	External workshop
• Cambrian Railways Partnership	Yes	Low	External workshop
• British Transport Police	Yes	Med	External workshop
• Transport Focus	Yes	Med	External workshop
• Heart of Wales Line Development Co Ltd	Yes	Low	External workshop
• KeolisAmey	Yes	Med	External workshop
• MTR Corp. Wales	Yes	Med	External workshop

• National Assembly for Wales	Yes	Low	External workshop
• Unions	Yes	Med	Internal comm's
• Other NR Routes	Yes	Low	BRT feedback
• Commercial and residential developers	Yes	Low	Via WLGA
• Lineside neighbours and local rail interest groups	Yes	Low	Via WLGA
• Elected Representatives	Yes	Low	Via WG
• TOCs: Virgin, Cross country, London Midland (i.e. not just those that have an interest in the future ODP)	Yes	Med	RDG
• Supply chain partners	Yes	High	Internal workshop
• IP	Yes	High	Internal workshop, direct input
• Wales Route staff		high	Internal comm's & Yammer

Stakeholder needs identified in Wave 1

Having completed stakeholder identification and segmentation we engaged with key stakeholders during an open forum event on the 23rd February 2017. We provided an outline of what CP5 is delivering with the latest figures on delivery and plans for the remainder of CP5 and then a look ahead to what we are developing as our CP6 plan. We asked the attendees to provide their thoughts on what they wanted to see from Network Rail in CP6. Feedback from the event has been collated centrally by the Wales Route DRSAM and used to shape our CP6 plans and our future approach to engagement.



Wave 1 of our engagement programme identified the following five themes that the CP6 plan needs to address:

Safety

- Safety will continue to be a priority for the Wales Route's stakeholders throughout CP6 - in particular Level Crossing safety and the safety of our customers and staff

Reliability

- Asset reliability to provide the service levels expected from our stakeholders is key. The aspirations of WG/TfW to provide an enhanced service through the new ODP procurement requires reliability and investment in the infrastructure

Growth

- There has been significant growth in rail demand in Wales over the last 15 years and this is predicted to continue. WG/TfW want to address this with the new Franchise. NR will be required to be part of the solution through careful prioritisation of our investments.

Collaboration:

- Stakeholders want to see closer collaboration with TOCs / ODP so passengers see "one railway". Particular areas of focus need to be i) more flexibility in how works are delivered ii) making journeys 'door to door' rather than 'station to station' iii) supporting promotion of a 7 day railway, particularly on rural routes
- Strategic alignment between WG, TfW and TOC / ODP Partners to gain a shared understanding of passenger priorities and to put passengers at the heart of future decision making around investments

Specific investment needs:

- Better investment in rural routes (and challenging the national standards that have prevented this from happening previously)
- Freight customers want better alignment of track access for engineering work with their needs and early warning of disruption
- Certain stakeholders want a longer term view with planning looking at CP6, CP7 and beyond. This will give a clearer plan for designing enhanced network capability such as goods loops. It will also ensure that short term savings that impede future growth are avoided (e.g. replacing a double line bridge with an unused span with a single line bridge).

Plan for Wave 2

The five themes above have been used to shape the CP6 plans that we have set out in our RSP submission. These plans formed the cornerstone of Wave 2 of our engagement programme which we summarise below.

Second open stakeholder forum. At this forum, in July 2017, the DRSAM presented to the stakeholder group. This presentation:

- Set out the Purpose, Role, Vision, and Mission of Wales Route
- Explained how the Wales Route is regulated and funded
- Described the CP6 processes and the affordability constraints that the plan is predicated on
- Set out the Wales Route's CP6 plan including how schemes have been prioritised
- Highlighted areas where plans are still in flex and where there is scope for stakeholders to influence what is prioritised. Within the "areas of flex", particular focus will be placed on the additional funding that is potentially available following the recent ORR Guidance. This is because the reality is that the base plan built up within the funding envelope (SoFA), has very little genuine flexibility or room for manoeuvre. The limitations of the CP5 + funding envelope means that activity has had to be carefully prioritised by asset management experts in order to maintain base standards of reliability and safety. There is limited scope to change the base plan – the flexibility is in how any additional funding might be prioritised
- Set out a formal process for stakeholders to feedback to the route.

1-2-1 engagement and Needs prioritisation. Following this event, we are engaging on a 1-2-1 basis with key stakeholders as part of our needs prioritisation. At these forums we will follow up on feedback received from the open session in July, exploring the issues raised in more detail. We will also use the sessions to update stakeholders on our plans as they have developed – including explaining how stakeholder feedback has been incorporated in updated versions where possible.

Targeted engagement and follow up. During late July and into the end of CP5 we will engage with stakeholders on an as required basis to finalise our CP6 plans.

As set out above the outcome of the Welsh and Borders ODP competition could potentially have a significant impact upon the Wales Route CP6 plan. Engagement is ongoing with both Welsh Government (WG) and TfW to ensure that the Wales Route is as aligned, as far we can be, to their requirements. In doing so, we have engaged with bidders and procurement teams to make sure that early risks are raised, and opportunities are maximised. We will also continue to liaise with Arriva Trains Wales (ATW) through the Director's liaison forum - particularly where we need an immediate TOC perspective on the impact of our plans on key performance / operational issues on the route.

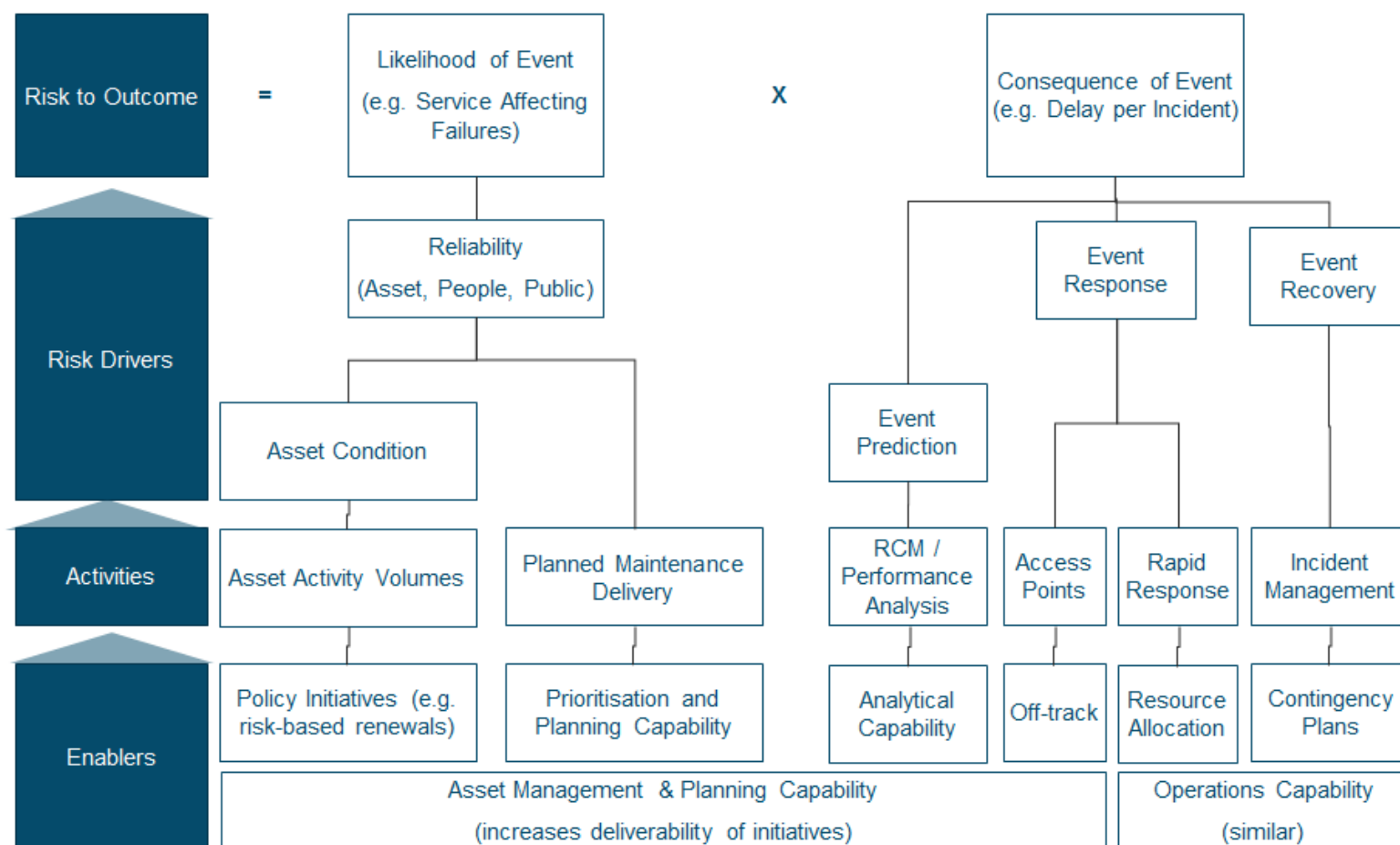
Appendix K Supporting information - Long Term Route Scorecard

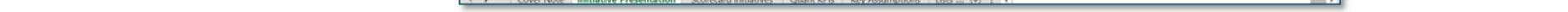


Outcomes Review

Outcomes Framework and Logic Map, Analysis and Sensitivities

Logic Map – Activities to Outcomes





Appendix L Regulatory Floor Methodology

Freight Delivery Metric (FRM-R)

The regulatory floor is calculated following the same methodology as is used for the FDM-R target. Using a two year average of historical data the FDM-R methodology establishes, by route, the number of allowed delay failures each route should contribute in order to achieve the national FDM target of 94%. The regulatory floor calculation adds 30% to these allowed delay failures.

Consistent Route Measure - Performance (CRM-P)

The CRM-P floor has been set using a consistent, simple to understand, methodology across all routes to derive a floor which should only be breached when a route is displaying signs of being in systematic failure. The floor has been set on the basis that ORR will first investigate a breach of the floor and check whether the route is doing everything reasonably practicable to manage the relevant issues before taking regulatory action. This recognises that CRM-P can be impacted by extreme events outside the direct control of the railway (including weather) and potentially by major changes in the reliability of TOC operations.

We are proposing that the floor for the route CRM-P is based on setting a “buffer” which becomes for that route a fixed absolute level of allowed deviation away from the proposed trajectory for each year in CP6.

The buffer is set at:

- 30% of the Period 10 2017/18 value of CRM-P (MAA) for that route

So for instance:

- Current CRM-P for a route is 4.00 minutes
- The buffer for the route would be 1.2 minutes (i.e. 30% of 4 minutes)
- If expected CRM-P in 2021/22 for the route is 3.80 minutes the floor would be set at 5.00 minutes (i.e. 1.2 mins worse than the trajectory).

This logic keeps the proportional level of failure for all routes similar and follows the current methodology used by the DfT to set Breach levels around the TOC on Self Delay target within the franchise agreements. It does though recognise that confidence in delivery of improvement is slightly less than the confidence of delivering current performance.

The 30% level is between the 25% used by the DfT in the South Western Railway franchise and the 40% proposed by the DfT for the South Eastern franchise. It also aligns to our proposal for the floor on the FDM-R measure for freight performance.

Network Sustainability [TBC]

The Sustainability assurance has identified a small part of the overall plan that can be deferred and remain deliverable in future control periods. The regulatory floor for sustainability is therefore set at this level which has been assessed to be limited to a 10% loss in proposed plan activity across the control period.

Routes will therefore be required to demonstrate that delivery is kept to a level to perform above the 90% threshold and demonstrate that forward plans will allow this to remain the case at the end of the control period.

In addition to the regulatory floor, Network Rail internal assurance and review will monitor route delivery through an annual route specific threshold. Where a single year’s delivery falls to <85% of the plan a route specific improvement plan will be required for Executive approval & monitoring.

This measure of sustainability reflects a balance which, whilst allowing a certain amount of re-phasing, also requires a retained margin within the overall control period headroom, supporting remedy ahead of any regulatory breach.