Route Strategic Plan
Wessex Route



Moving People, Building for the Future

Version 3.75 February 2018

Contents

1. Foreword and summary

This Strategic Plan is the first step on a sustained period of growth that extends beyond the horizons of CP6 to deliver our vision of "trusted by our customers to deliver a safe and reliable railway".

We have come a long way in CP5, establishing a route based structure, building the first deep alliance between NR and lead TOC, establishing a new route operational centre at Basingstoke, strengthening the leadership structure and delivering the most complex engineering enhancement project at Waterloo in a century.

There is now much to do in CP6. First and foremost, safety is the fundamental prerequisite of how we run our business. We operate a safe railway for our passengers and continually invest in ways to reduce the risk of harm to our workforce. In CP6 we will remain committed to improving public safety, particularly in reducing risk at level crossings.

Our punctuality will improve through making smarter use of information and technology to prevent more Asset Failures than ever and adopting a bold, fully devolved operating model, in partnership with South Western Railway, to recover more quickly from an incident. However, the benefits of these initiatives are constrained by the fact that the growth in demand is overwhelming the capacity of our existing network.

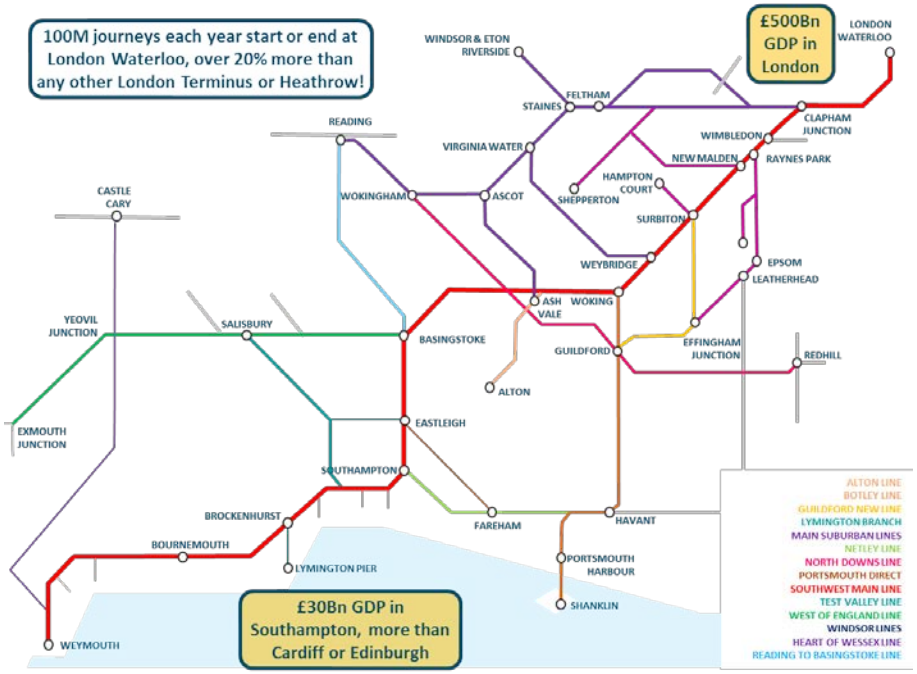
So here the really exciting challenge begins … we will commence the development and design of a complex programme of capacity enhancements, namely CrossRail2, Digital Railway and Clapham Junction redevelopment for implementation in CP7 and CP8. Key to this long term outlook is that in CP6 we must prepare the infrastructure to seamlessly absorb the necessary service alterations, including DR enabled resignalling schemes at Feltham and Farncombe to Petersfield, securing much needed 3rd party funding and creating a framework for a diverse and adaptive organisation, agile processes and new technology in order to direct the whole energy of the business to bringing about the improvements our customers deserve.

Andy Mellors, Managing Director, South Western Railway:

"We support the plan that NR Wessex has submitted and sign up to the vision and outcomes that the Wessex Route aspires to achieve in the long term. However, SWR are not able to sign off on the PPM targets included within the submission due to the shortfall between these and the franchise targets set. We, at SWR, urge the ORR to take up all the options that the Wessex Route has included within its costed options which will further help to deliver the much needed performance of this essential part of the rail network. "

1.1. Summary

Wessex Route provides a vital economic artery into London; 80% of the 234m journeys per annum are commuters who rightly expect a reliable and available seat to work, in return for a £1bn passenger revenue.



We operate and maintain Waterloo Station, the busiest station in the UK and Clapham Junction, which has 2,000 train movements a day and is the busiest interchange station in Europe.

Much of the capacity on the network has already been exploited; in the peak hour, 24 trains per hour operate on the mainline. Strong demand and finite capacity present a significant performance challenge, through dwell times, sub-threshold delay from crowding and tight headways. Consequently, the route struggles to recover service from incidents in key areas at peak times.

Works in CP5 have lengthened platforms at Waterloo to enable a 10 car suburban service, and later in the control period we will bring the former international terminal back into service providing extra capacity and much needed performance resilience on the Windsor lines.

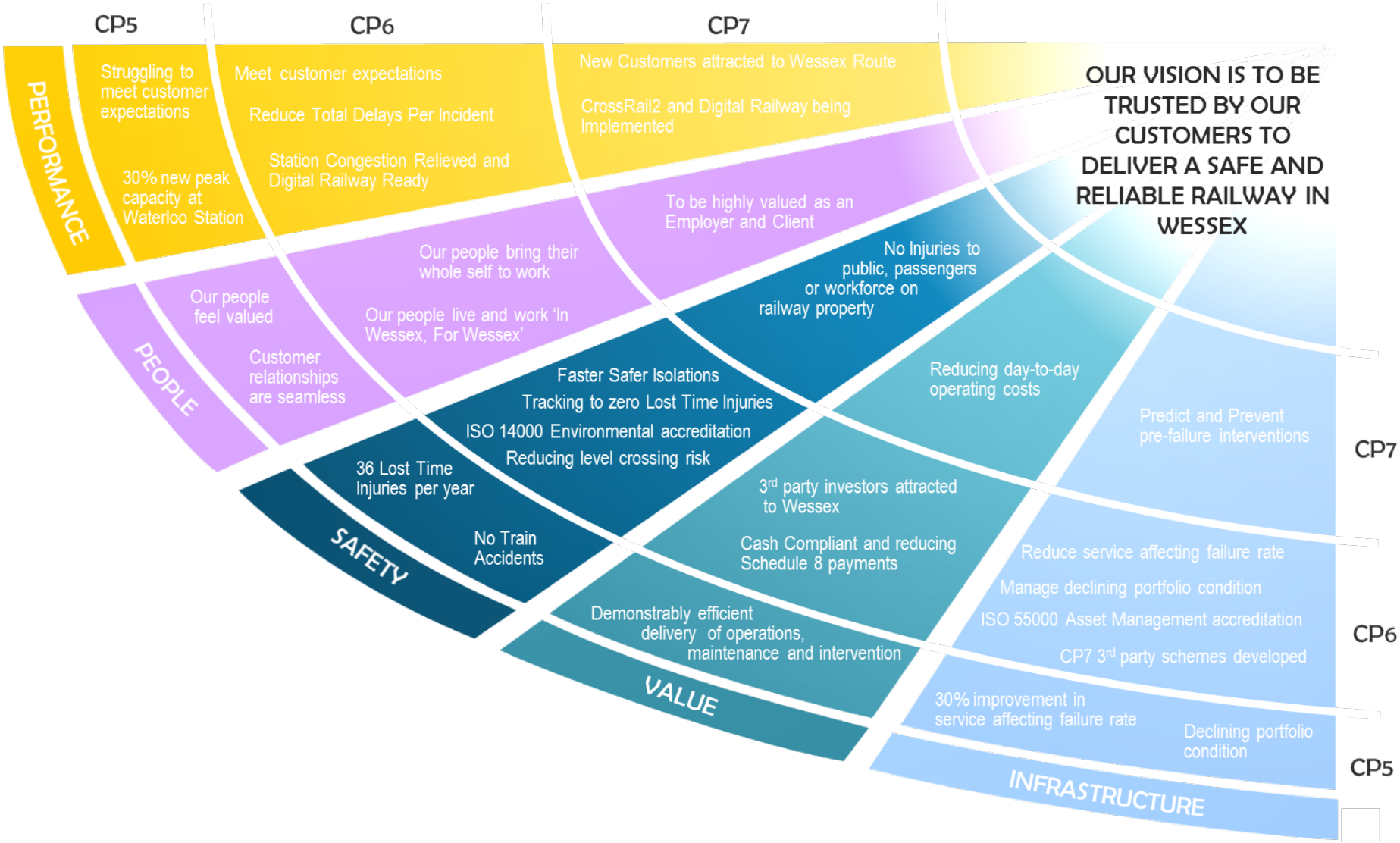
Furthermore, there are other important journeys on the route. The freight link between Southampton and Basingstoke allows export goods to travel from the Midlands to the growing port at Southampton. Other areas such as Weymouth, Dorset and the South coast are popular destinations for recreational travel. The new franchise South Western Railway is keen to exploit these opportunities as well as growing connectivity on the South Coast.

These factors combine to provide challenging access periods in which to maintain and renew heavily used ageing assets. Wessex has the shortest average access period on the UK Network. The last train leaves Waterloo at 01.05 arriving in Southampton at 02.56, and the first empty coaching stock moves start again at 04.05.

A key output for CP6 must therefore be to improve the efficiency of constrained access opportunities, through further evolution of planned, preventative maintenance. Faster Safer Isolations, Standard isolations, improved planning, cyclic access and the intelligent infrastructure plan will all support this.

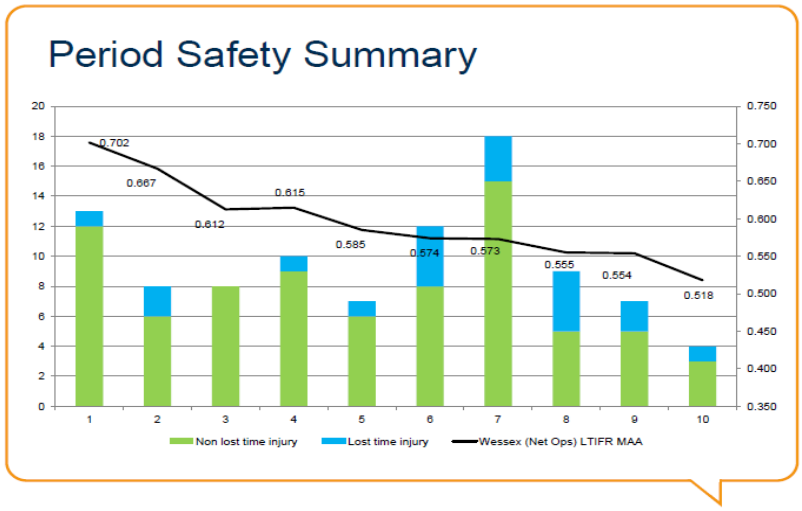
Our Strategic Route Objectives for CP6 are shown in our 'Vision and Objectives Sunburst' diagram.

Wessex Route Vision and Objectives 'Sunburst Diagram'



Deliver a safe railway

Our Route Objectives for CP6 are to reduce track worker safety risk and risk to our passengers and the public, shown in the Vision Sunburst. Our Route Scorecard measures our success through tracking LTIFR, Close Calls and Level Crossing Safety Risk.



Since April 2017, Wessex has reduced LTIFR by 26% and the number of Lost Time Injuries is 20% below target, a pattern we work hard to sustain until we can bring 'Everyone Home Safe Everyday'.

Over CP6 we aim to reduce Lost Time Injuries period average to zero. We will do this with continued support from the Central STE Home Safe Plan of our Route Home Safe Plan, which includes:

- improved behavioural safety, through a change in culture, supported by using the close call system to reduce injuries arising particularly from manual handling, slips trips and falls and driving
- investment in technology to reduce exposure of workers to third rail risk, including Eddy Currents, PLPR and Faster, Safer Isolations
- improved workforce accommodation to support a higher standard of safe working environment

Our Asset Management Plans will create safer conditions for our passengers and members of the public in CP6. We will:

- Reduce Level Crossing risk through a concentrated effort to eradicate Automatic Half Barrier crossings across the Route
- Improve passenger safety at stations through canopy and platform renewals, congestion relief and Passenger/ Train Interface improvements at Clapham Junction and Basingstoke Stations
- Continue to reduce infrastructure failures by managing asset condition in line with asset policies

We will get better at managing our impact on the environment by developing a robust environmental management system, upon which we can build our plans to reduce carbon emissions in our operations, maintenance and renewals to better contribute to good air quality in Britain's busiest cities.

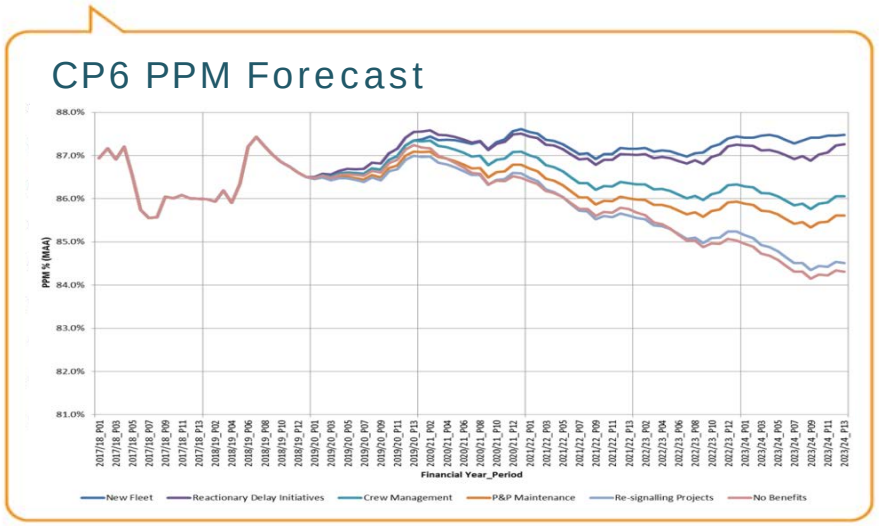
Deliver a reliable railway

Our CP6 Route Objective to 'meet customer expectations' depends on:

- a reduction in Service Affecting Failures through the reliability of our infrastructure, see below
- faster recovery from incident, through stronger operational response and new capacity to address the underlying effects of network congestion

In CP5, performance has declined, despite a 30% reduction in service affecting failures, but also a 20% rise in delay per incident. We have undertaken extensive analysis to understand this trend in order to

identify and treat the root causes. This drives our performance improvement initiatives, both internally and collaboratively with our operators. We have derived our CP6 target using underlying trend and a forecast performance impact of our CP5|6 interventions, chart below.



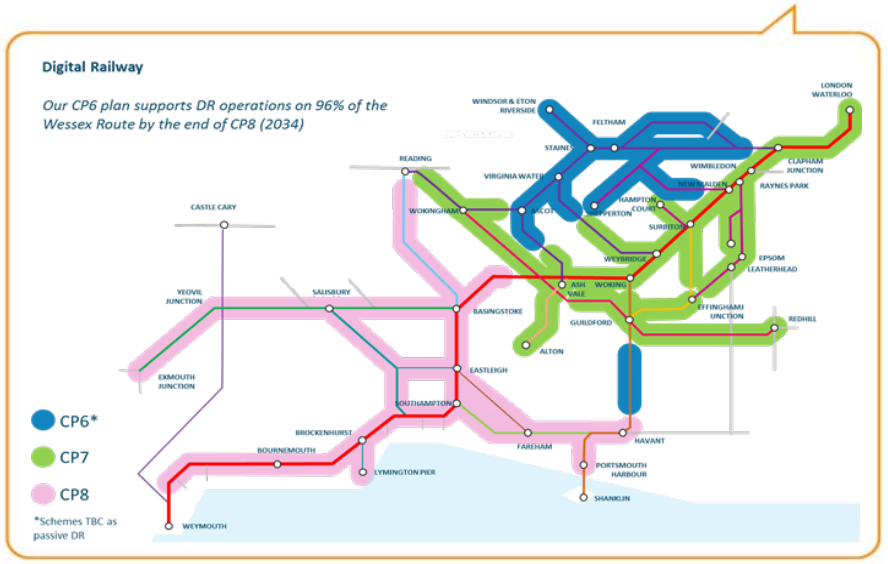
Currently there is a significant disparity between the SWR franchise PPM target and the Route PPM target. In order to realise the SWR franchise PPM target, the Route and SWR have a framework in place to jointly manage our performance opportunities and risks to greatest effect. In CP6 we will:

- Improve infrastructure reliability through our maintenance and renewal plans
- Drive joint NWR/ TOC service recovery plans to reduce delays, including additional maintenance and operational resources
- Support TOC led initiatives e.g. fleet and crew
- Improve performance and resilience by seeking enhancement funding to support delivery of a new capability of an isolated traffic management system as part of a future Digital Railway

Increase capacity to meet the growing demand

In CP6, Wessex Route will help meet the need for more passenger seats and more freight tonnage, delivered in conjunction with the new timetables proposed for December 2018 and December 2020, through:

- Early, efficient access planning for routine preventative maintenance activities
- Implementing a localised Traffic Management scheme to better
- manage congestion at key sections of the Route
- Developing the enabling strategies for our long term Digital Railway vision, to roll out the Digital Railway Route-wide by 2034.
- Develop our portfolio of 'London Gateway' enhancements and third party schemes, scheduled for CP7.



Deliver Value for Money

Our Route teams will continually seek efficiencies and identify business development opportunities that will increase our value to the taxpayer. In CP6 we plan to:

- Work to develop greater 3rd party funding of our network
- Maximise revenue opportunities from new managed stations at Clapham and Guildford
- Deliver significant financial efficiencies through adopting 'lean' principles to continuously improve our processes
- Embed lessons learnt from relevant infrastructure enhancements to minimise the risk of unplanned disruption to passengers

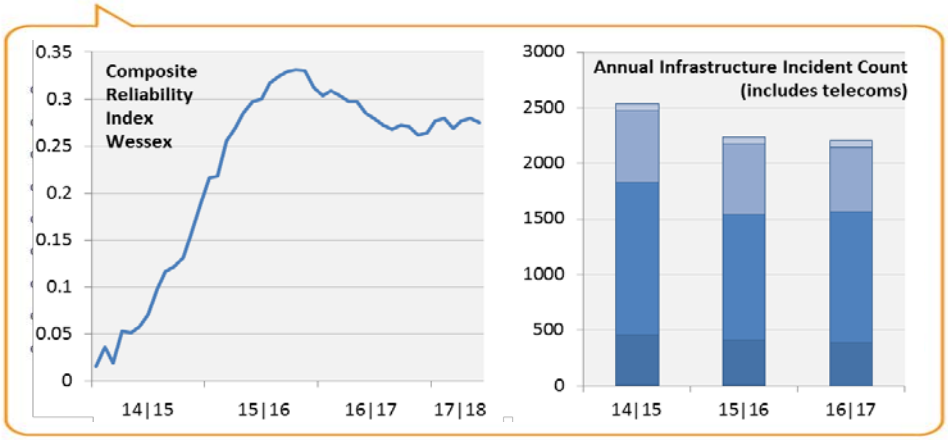
Delivered by Amazing People

Our People Objective for CP6 is for our teams to 'bring their whole self to work'. This means we will broaden the diversity and inclusivity of our workforce to maximise individual potential and business performance. In CP5 we integrated our TOC and Route teams in the Basingstoke Campus facilities to create a more inclusive culture. In CP6 our plans will:

- Continue to build on the successful foundations of a deep alliance with our key TOC
- Build on the Route's culture of developing our people by creating structured development programmes for our frontline leaders and people managers
- Continue to engage our D&I champions, managers and employee networks to promote and deliver our route action plans
- Deliver a route based STEM early engagement pipeline with local schools and colleges
- Attract new applicants from a wider range of the regional workforce and increase our female population

Built on reliable Infrastructure

Our Infrastructure Objective is to improve reliability against a trend of an aging asset population. The Composite Reliability Index shows that we



have improved the management our assets, successfully reducing the overall number of service affecting failures by 30%. This also contributes to a decline in annual infrastructure incident count.

To perpetuate this trend we will:

- Continue development of our technological capabilities to predict and prevent the failure of critical and vulnerable assets
- Increase maintenance planning capability to increase proactive maintenance volumes rather than reactive
- Develop our organisation to demonstrate our asset management excellence, aligned to IS055000, which will help us achieve an optimal balance of renewal, maintenance and operation.

This plan sets out further detail of how we will do this.

2. Stakeholder priorities

2.1. Who our stakeholders are

Our route customers consist of four freight and five train operators, who directly serve the needs of over fifty local authorities, a major port, local and national transport organisations and five international airports. The diagram below represents the external stakeholders with whom Wessex is currently engaging with on potential CP6 opportunities.

South Western Railway assumed the Wessex franchise from August 2017 for seven years and has committed to deliver a £1.2billion investment programme, including better trains, more seats and quicker journeys.

This chapter of the Route Strategic Plan sets out how Wessex will continue to capture and prioritise the franchise commitments of all its operators in order to deliver best value to the people we serve.

2.2. How our stakeholders have been / are engaged with

Wessex Route meets regularly with its stakeholders, as shown in the Stakeholder engagement plan. A programme of additional stakeholder workshops has been run to inform the Route Strategic Planning process, to capture and develop the needs and expectations of Local Authorities, F/TOCs and wider NR teams.

Stakeholder Engagement Plan	Lead TOC		Other TOCs and FOC	Local Authorities	MPs
Weekly	Joint Exec	Visualisation	-	-	-
Periodic	Performance Board		-		-
	Safety Board | Route Customer Forum | CRE Engagement				
Quarterly	Route Investment Group | Senior Management Update |Stakeholder Board			-	-
Ad Hoc	Strategic Workshops				As req'd

This report has also made use of the findings from other engagement activities. More details are provided in Section 6.2:

- National Freight Strategy (FNPO, August 2017, Appendix H)
- Wessex Route Study (Strategic Planning, August 2015)
- Route Specification, Wessex (NWR, March 2016) and
- National Rail Passenger Survey (Transport Focus, July 2017)

Wessex Route is in an early phase of alliance with its new lead TOC, South Western Railway and is building the shared goals, responsibilities and processes that will facilitate good collaboration. Against the collaborative maturity model this relationship is moving from the 'exploring' to 'defined' phase for CP6 and will aim to have the necessary processes and systems in place to achieve 'Adaptive' at the commencement of CP6.

Collaborative Maturity	Unaware	Exploring	Defined	Adoptive	Adaptive
Shared Goals	None	Discussing	Agreed	Enacted	Continual Alignment
Shared Responsibilities	None	Recognise need	Oversight team formed	Reporting system in place	Ongoing evaluation and evolution
Shared Processes	None	Developing	Reports and workflows designed	Process and technology in place	Integrated Continuous Improve-ment

2.3. How stakeholder needs have been prioritised

Wessex has applied MoSCoW principles as follows, in order to prioritise stakeholder needs:

Must do needs are critical to all stakeholders immediately or continuously and are strongly aligned to Network Rail asset strategies and key performance indicators for CP6.

Should do needs are important but not immediately or continuously critical to a majority of stakeholders or may have a dependency on the completion of a 'must do' activity.

Could do needs are requirements that benefit fewer stakeholders and may be included in CP6 if low cost solutions are available.

Won't do needs are those requirements which are unachievable in CP6,

or which present least value to our stakeholders in CP6. They may be reconsidered in future Control Periods.

The importance and urgency (timeframe) of the stakeholder requirements has been qualitatively assessed at the route strategy stakeholder workshops. Factors informing the assessment included:

- Who/ how many stakeholders are affected?
- What is the impact in CP6?
- Dependency on completion of other needs
- When is the benefit needed?

2.4. The results of the prioritisation of needs

The key themes raised by the majority of stakeholders were:

Better consultation in possession planning

- Value for money possession options through sharing cost information
- Early engagement
- Aligned with other routes during disruptive possessions
- Less late notice changes with better possession planning

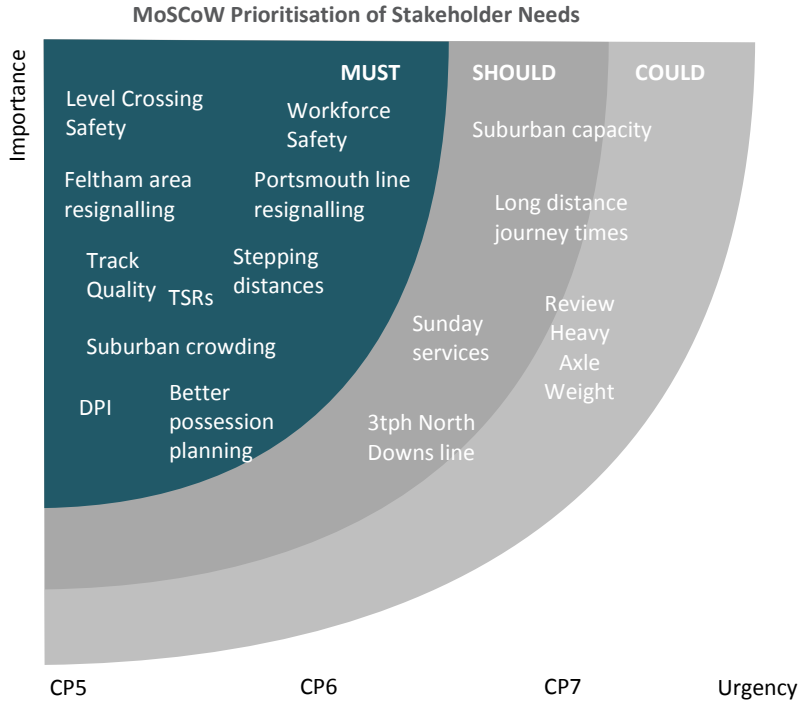
Better Asset Reliability

Smoother and quicker journeys with better track quality and the removal of Temporary Speed Restrictions (TSRs)

- Increased capacity and reliability by delivering Feltham and Farncombe to Petersfield re-signalling schemes
- Reduced Delays Per Incident (DPI)

Growth

- Missed revenue as Sunday passenger numbers rise
- Release fast line capacity with the installation of the Woking flyover
- Overall journey time improvements, which are key for long distance operators
- W10 freight diversionary route to allow works on Reading to Basingstoke (BKE)
- Three trains per hour on the North Downs line (from 2 tph)



Further needs have been identified through Wessex Route's broader engagement activities:

Freight and National Passenger Operators, FNPO

Further details of the FNPO Strategy are in Appendix H, key needs are:

- Reduce journey times from Southampton to Reading
- Increase East West services for growing aggregate market
- Southampton to West Midlands/ WCML train lengthening
- Reduce risk of derailments through effective maintenance and renewals plans for sidings and yards
- Review and establish the value of removing Heavy Axle Weight, HAW, Restrictions where applied on track / structural assets.
- Better TSR/ PSR management and removal plans

Route Study

Further details of the Route Study are provided in Chapter 6. The key needs identified are:

- Operation of the full capability of the Windsor Lines
- Extension of the Up Relief Main Line and re-configuration of the lines between Queenstown Road and Waterloo
- Increase long distance main line capacity with Woking flyover
- Increase long distance main line capacity with Basingstoke flyover
- Increase peak capacity of suburban lines with CrossRail2, ETCS or 12 car operation
- Increase frequency and speed of long distance journeys by station capacity works at Guildford, Southampton Central and Clapham Junction stations

National Rail Passenger Survey

The National Rail Passenger survey finds the greatest passenger dissatisfaction relates to: availability of Wi-Fi and power sockets, car parking, toilet facilities, shortage of seats, overcrowding and value for money. The key issues relating to Network Rail's Infrastructure are:

- Overcrowding,
- Stepping distances,
- train punctuality and reliability and
- train frequency

The highest collective stakeholder priorities in Wessex are:

- Capacity and reliability of commuter flows into London from Hampshire and Surrey
- Connectivity and journey time to London from Dorset
- Improving track quality and removing TSRs.

The Line of Sight in Chapter 4 shows the connections between our Stakeholders' Needs and Route Priorities and how the outcomes of our infrastructure investment will be measured. Also, we strongly support our TOCs in building joint operational contingency plans for recovery of service. The final element of achieving customer satisfaction is in our enhancement programme, which is discussed in more detail in Chapter 9. Whilst the funding of enhancements is separate to this Strategic Plan, we have taken great care to coordinate our workbanks with those proposed by enhancements to facilitate their development and implementation.

2.5. How do these priorities link to short and long term route objectives

There is a complex and long term programme of works to deliver these benefits that necessarily transcends Control Periods.

Capacity and Reliability

- CP5: reduce DPI through improved operational response, better access planning and increased capacity from the Waterloo enhancement scheme
- CP6: improve asset reliability through urgent, critical re-signalling

schemes on the Portsmouth Line and Feltham, targeted asset management and reduce dpi through greater business resilience

- CP7: Digital Railway and development of CrossRail2 revolutionise capacity and control systems.

Best Practice Asset Management

- CP5: Improve consultation with lead TOC for possession planning. Increase use of Activity Based Planning for robust maintenance plans and efficient possession usage
- CP6: Optimise asset reliability through aligned maintenance and renewal plans and planned, preventative interventions, enabled through increased Intelligent Infrastructure. Develop complex integrated schemes for CP7. Faster removal of TSRs to prevent spread of reactive delay for long distance and freight operators.
- CP7: Growing predict and prevent capability to reduce disruptive interventions through improved use of data and technology.

Improving Safety

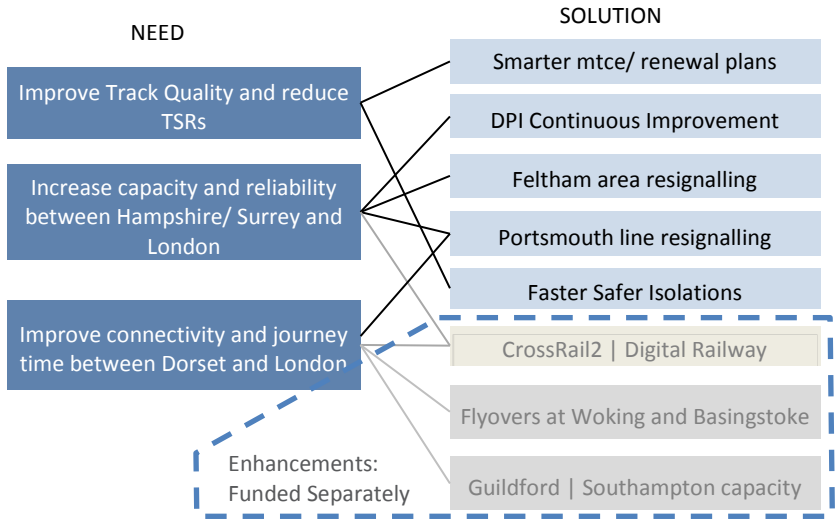
- CP5: Level Crossing programme addresses risk at the most critical locations through closure and improvement. Technology introduced to enable Faster Safer Isolations creates better protection for track workers
- CP6: resignalling schemes will reduce risk at key level crossing locations. Faster Safer Isolations will be fully rolled out.
- CP7: Digital Railway enables safer working in the rail environment

Suburban Capacity / Reliability / Frequency

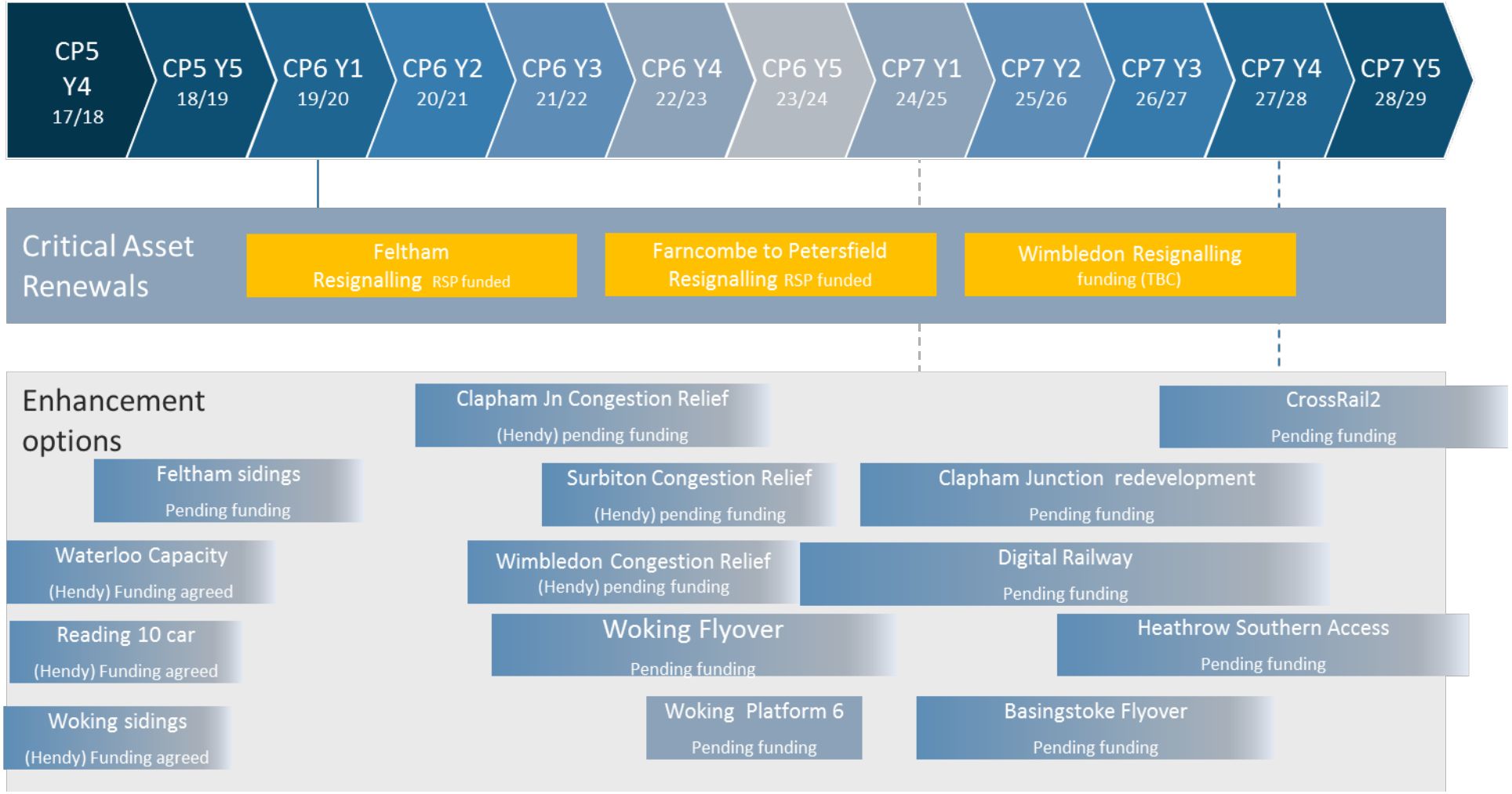
- CP5: Waterloo upgrade enables 10car services to run on suburban lines and increase capacity
- CP6: Feltham and Farncombe to Petersfield resignalling schemes reduce asset failures and enable CP7 enhancement schemes. Farncombe to Petersfield resignalling will improve journey reliability on this core line. Enhancements funding will deliver key elements of Waterloo Capacity Phase 2
- CP7: Implementation of CrossRail2 and Digital Railway

Long distance Journey Improvements

- CP5: potential timetable adjustments by SWR in Dec 18 may enable a service improvement
- CP6: Development of CP7 London Gateway scheme and develop the Woking enhancement scheme, which includes grade separation and platform works, for implementation in late CP6/ early CP7.
- CP7: Digital Railway will provide capacity for additional long distance services , alongside Basingstoke Flyover and Guildford Platform Capacity enhancement schemes



CP6 to CP7 Timeline



One of the most important drivers for our CP6 Route Plan is the co-ordination of critical asset renewals with proposed enhancements within our most congested sections of route throughout CP6 and CP7, in order to avert significant service disruptions in CP7. Based on our enhancement and renewal aspirations, the timeline shown highlights a prolonged period of demand for resources such as specialist skills and track access.

3. Route objectives

Wessex has derived 10 Route Priorities that will help us deliver for our customers. They provide a structured link between our stakeholder needs and our Route Objectives, described in our Vision Sunburst diagram in Chapter 1. Our scorecard sets out proposed measures, and where possible, targets, for measuring our success in achieving our objectives.

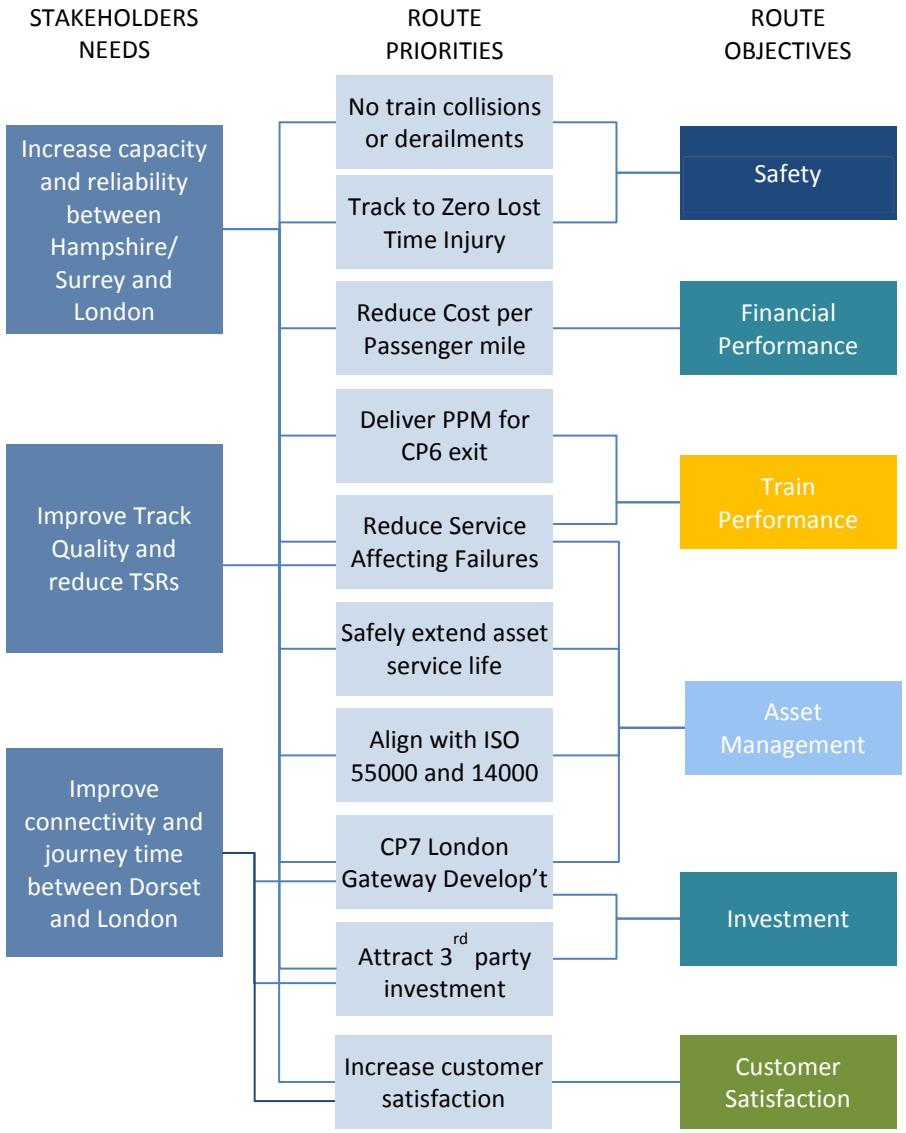
Our plan is predicated on the key assumptions laid out in Appendix B and will be impacted as these assumptions change. The scorecard outputs align to the requested funding requirement, inclusive of options. The options in our plan will contribute to improvements across a number of measures, including performance, should the funding be available.

Safety

The Wessex Route workforce safety objective for CP6 is to track to zero Lost Time Injuries. Our proposed LTIFR trajectory moves towards this with funding included within our plan to make the improvements we need in the areas that cause most harm to our people. Wessex Route has the following Safety Measures for CP6, which are delivered by our Route Safety Plan in Chapter 4.1.

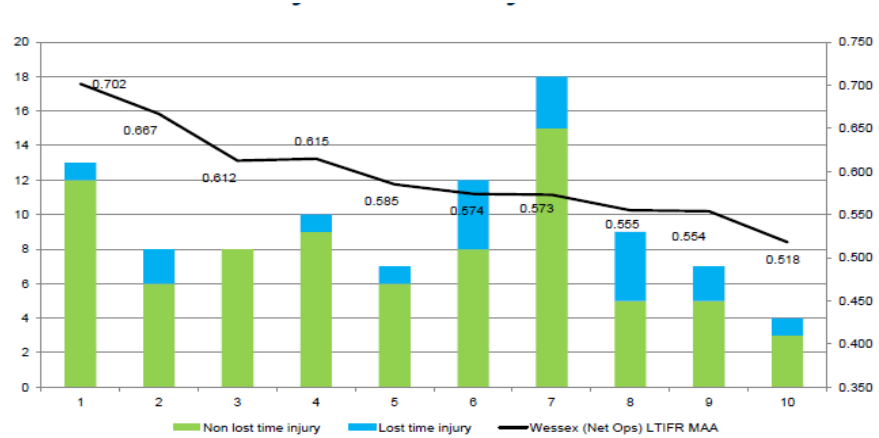
- Nil exceedances of working time regulations
- Better quality site supervision and PGSI
- Focus effort to increase the quality of behavioural close calls
- Implement 'Faster, Safer Isolations'
- Year on year reduction in repeat-cause incidents

The LTIFR target set is a National target, aligning to our vision of being a leader in workforce safety. However, achieving this will be a major challenge for CP6. Clarity is being sought with RSSB to agree the



methodology behind the measure and a thorough review is underway to align the outputs of our national and local safety strategies to meet this challenge.

LTIFR CP5 Y4 P1 to P10



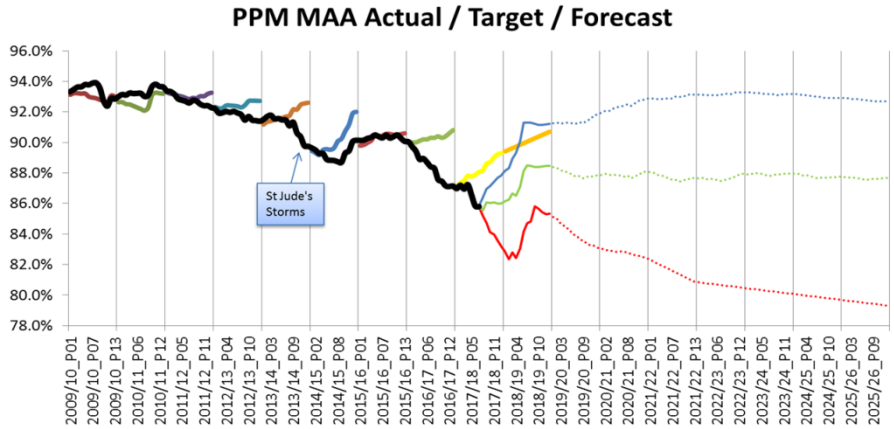
Performance

In CP5, Project related delays have accounted for much of our annual PPM attrition in Year 4, as shown in the graph '2017/18 PPM MAA Waterfall forecast'. In Year 5 we expect to see this trend recover as the effects of this event reverse out of the MAA.

However, there is significant risk associated with proposals for increased traffic volume in the new timetables, proposed for December 2018 and 2020. The changes may reduce timetable contingency and access, whilst increasing infrastructure wear and track access demand for maintenance. A safe balance between level of service and infrastructure maintenance is at the heart of the timetable consultations, which are currently underway

At the heart of the train performance trajectory for CP6 is the assumption that South Western Railway continue to invest in new fleet and drive towards better integration of performance data into Network Rail asset management plans. Delivery of our performance improvement plans set out in Chapter 4.2 and Appendix A is essential if we are to mitigate some of the impact of rising passenger numbers which leads to increases in sub-threshold delays at a time when SWR are required to reduce dwell times significantly.

Further pressure on train performance will also be brought to bear by the planned re-signalling schemes we know will lead to a short term decline in performance, as well as the TOC's planned introduction of new rolling stock, plus a proposed timetable change which will see an increased Sunday service and more early morning trains.



A summary of assumptions for the CP6 PPM trajectory graph above, has been derived jointly between SWR and the Route and is provided in the table below.

CP6 PPM Forecast Assumptions	Worst Case	Mid Case (Target)	Best Case	Notes
Timetable Change	0.4% ↓ Y2 0.8% ↓ Y3	NA	0.4% ↑ Y2 0.8% ↑ Y3	Comparison with 2005 Timetable change that increased PPM by 7%
Feltham Resignalling	0.375% ↓ Y1	0.25% ↓ Y1 0.35% ↑ Y2	0.525% ↑ Y2	Impact is based on comparison with Waterloo Capacity
Farncombe-Petersfield Resignalling	0.375% ↓ Y1	0.25% ↓ Y1 0.35% ↑ Y2	0.525% ↑ Y2	Impact is based on comparison with Waterloo Capacity
Extreme Weather events	0.5% ↓ Y1	NA	0.3% ↑ Y1	Comparison to St Jude's storm
Predict & Prevent mtce	NA	0.1% ↑ Y1 thru to 0.4% ↑ Y5	0.15% ↑ Y1 thru to 0.6% ↑ Y5	Mid Case: progressively increase number of trains arriving on time per day by 2 in Y1 to 8 in Y5
Crew management	NA	0.25% ↑ Y1 0.05% ↑ YoY	0.375% ↑ Y1 0.075% ↑ YoY	Mid Case: increase number of trains arriving on time per day by 4 in Y1
Reactionary Delay	NA	0.2% ↑ Y1 0.02% ↑ YoY	0.3% ↑ Y1 0.03% ↑ YoY	Mid Case: increase number of trains arriving on time per day by 3 in Y1
Passenger Numbers	0.39% ↓ YoY	0.3% ↓ YoY	0.12% ↓ YoY	Central model with uplift for regional bias
New Fleet	0.4% ↓ Y1	0.2 ↓ Y1 0.3% ↑ Y2 0.04% ↑ YoY	0.45% ↑ Y2 0.06% ↑ YoY	Increase number of trains arriving on time per day by 3 in Y1

Although no TOC attributed benefit / risk activity has been considered for the performance trajectory, crew management during standard operations or disruption confers a reduction in NR caused delay minutes. The mid and best case trajectories both see a positive factor applied due to the reduction in reactionary delay that these schemes may deliver.

Further reductions in reactionary delay should result from the full introduction of the SIO / IOs, ongoing review of the route contingency plans and adopting standardised practices. These have all been considered within the performance trajectory model.

Continuous Improvement plans are in place and will continue throughout CP6 to help us be 'Better Every Day'. Our Performance Improvement team has been established and resourced to use Lean principles in analysing delays, identifying containment and sustaining prevention measures. Our Train Performance Plans are shared in Chapter 4.2 and align to our Train Performance Strategy described in Section 5.3.1.

In order to give greater clarity on the minimum levels of performance and sustainability expected by the regulator (ORR) for CP6, 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 K.

Customer

The customer section of our scorecard includes measures which link directly to passenger satisfaction and we will agree metrics with SWR aimed at improving satisfaction on our network. Whilst we have started engagement we are in the initial stages as at the time of writing we have a new TOC whom we will work with over the coming months to further

develop our measures.

We consider our relationship with lineside neighbours to be extremely important and constantly strive to improve the way we notify, interact and perform work that impact our neighbours with the aim of continuing our downward trend in customer complaints.

Asset Management

Over CP5 we have consistently delivered the volumes of work we committed to year on year; we have improved our Composite reliability index by nearly 30% and we aim to continue to do so throughout CP6.

In CP5 Wessex has managed cash compliance carefully within reduced financial targets, which has necessitated making tough decisions to trade between long term sustainability and short term asset performance. More detail of our long term sustainability is presented in Section 5.4.2.

In CP6 we must deliver the deferred re-signalling scheme at Feltham as a priority, alongside other strategically important targeted renewals. There is a strong focus on well-resourced maintenance plans, particularly for Track and Signalling, to proactively prevent failures impacting on train services and passengers.

The successful delivery of well-planned maintenance is proven to improve asset reliability, which in turn will reduce infrastructure incidents and create a reduction in Schedule 8 payments. Our CP6 Asset Management plans are outlined in Chapter 4.4, and described further in Section 5.2 Asset intervention strategy.

Financial Performance

In CP5, one of our biggest challenges has been to manage our Schedule 8 overspend due to poor train performance. Furthermore, the Route Security Strategy has driven costs of £650k pa through additional requirements at Waterloo Station and Basingstoke ROC.

We will demonstrate effective and efficient investment over the course of CP6. Efficiency will not be created through reducing headcount but through improving the effectiveness of our processes to be right first time: a better quality of work, more safely delivered will reduce rework and backlog and improve asset performance.

Efficient processes will rely heavily on building a strong collaboration with our renewals deliverers, through alignment of goals and sharing of resources and information. We will continue to operate a strong governance structure for managing our renewals portfolio, in order to demonstrate our effective use of government funds.

Regulatory Floors for CP6 Scorecard

In order to give greater clarity on the minimum levels of performance and sustainability expected by the regulator (ORR) for CP6, 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 K.

Regulatory Floors	19/20	20/21	21/22	22/23	23/24
Consistent Route Measure - Performance	3.10	3.09	3.05	3.10	3.01
Freight Delivery Metric (FDM-R)	91.7%	91.7%	91.7%	91.7%	91.7%
Network Sustainability	90%	90%	90%	90%	90%

3.1. Scorecard for 2017/18 and 2018/19

2017/18

Safety - (AIP 20%)	AIP % WEIGHTING	AIP Weighting	Worse than Target	Target	Better than Target
Lost Time Injury Frequency Rate (LTIFR)	20%	5.0%	0.433	0.412	0.392
Close calls raised		2.0%	3,525	4,700	5,875
YTD close calls closed within 90 days		3.0%	80%	85%	90%
Train Accident Risk Reduction Measures		5.0%	60%	80%	100%
Level Crossing Milestones		5.0%	6	8	10
Financial Performance - (AIP 20%)	**AIP % WEIGHTING**	**AIP Weighting**	**Worse than Target**	**Target**	**Better than Target**
Financial Performance Measure (FPM) - Gross Excl. Enhancements (£m)	20%	10%	-12.9	0.0	12.9
Financial Performance Measure (FPM) - Gross Enhancements Only (£m)		5%	-18.4	0.0	18.4
Cash Compliance –Income & Expenditure		5%	-4.0	0.0	20.2
Investment - (AIP 10%)	**AIP % WEIGHTING**	**AIP Weighting**	**Worse than Target**	**Target**	**Better than Target**
Top Investment Milestones	10%	10%	80%	90%	100%
Asset Management - (AIP 15%)	**AIP % WEIGHTING**	**AIP Weighting**	**Worse than Target**	**Target**	**Better than Target**
Reduction in service affecting failures	15%	5%	0%	4%	7%
7 Key Volumes		5%	90%	95%	100%
Train Performance Measures - (AIP 20%)	**AIP % WEIGHTING**	**AIP Weighting**	**Worse than Target**	**Target**	**Better than Target**
South Western Railway PPM	20%	11%	87.6%	89.3%	90.7%
South Western Railway CaSL		2%	4.0%	3.5%	3.0%
GWR - Amalgamated PPM on North Downs and Portsmouth Cardiff Route		2%	82%	84%	86%
CrossCountry Right Time Arrivals at Reading		2%	35%	40%	45%
Freight Delivery Metric (FDM)		3%	91.8%	93.1%	94.4%
Level 2 Scorecards - (AIP 18%)	**AIP % WEIGHTING**	**AIP Weighting**	**Worse than Target**	**Target**	**Better than Target**
Govia Thameslink Railway NR & TOC & TOC Delay minutes (on route)	18%	2%	85,325	77,561	71,348
Safety Maturity		2%	3.33	3.5	3.62
Passenger Satisfaction (Waterloo)		2%	85%	86%	87%
Reduction in Railway Work Complaints		2%	493	468	443
Customer Satisfaction Survey (SWR results)		10%	56%	56%	57%
People Measurement - (AIP 2%)	**AIP % WEIGHTING**	**AIP Weighting**	**Worse than Target**	**Target**	**Better than Target**
Performance Management	2%	2%	75%	80%	85%

Note: definitions for scorecard measures are given in Appendix J

2018/19

Safety	PRP % WEIGHTING		WORSE THAN	TARGET	BETTER THAN
Lost Time Injury Frequency Rate (LTIFR)	*20%*	5%	0.525	0.466	0.412
Close Calls Closed within 90 days		5%	80%	85%	90%
Passenger train accident risk reduction measures		5%	60%	80%	100%
Top 10 Milestones to reduce level crossing risk		5%	6	8	10
Financial Performance	**PRP % WEIGHTING**		**WORSE THAN**	**TARGET**	**BETTER THAN**
Financial Performance Measure (FPM) - Gross excl. enhancements	*20%*	5%	tbc	£0m	tbc
Financial Performance Measure (FPM) - Gross enhancements only		5%	tbc	£0m	tbc
Cash Compliance –Income & Expenditure		10%	tbc	£0m	tbc
Investment	**PRP % WEIGHTING**		**WORSE THAN**	**TARGET**	**BETTER THAN**
Top Investment Passenger Milestones	*10%*	10%	60%	80%	100%
Asset Management	**PRP % WEIGHTING**		**WORSE THAN**	**TARGET**	**BETTER THAN**
Reduction in service affecting failures	*10%*	5.0%	-3.5%	1%	3.5%
7 Key Volumes - [this is a consolidation of the below 7 volumes]		5%	90%	95%	100%
Train Performance Measures	**PRP % WEIGHTING**		**WORSE THAN**	**TARGET**	**BETTER THAN**
SWR Right time (right time departures Waterloo)	*20%*	2.0%	69.2%	74.8%	77.8%
On time to 3		0.0%	79.4%	83.7%	86.4%
NR Wessex Delay Minutes (effecting SWR on Wessex route)		6.0%	1,302,687	1,034,534	858,118
Freight Delivery Metric (FDM-R)		2.0%	91.8%	93.6%	94.4%
PPM (SWR)		2.0%	82.7%	86.5%	88.5%
CasL (SWR)		2.0%	4.7%	3.7%	3.1%
GWR Measure (PPM North Downs line)		1.0%	78.6%	82.6%	84.6%
X Country Measure (right time arrivals at Reading)		2.0%	21%	24.0%	27.0%
GWR Measure (Portsmouth - Cardiff)		1.0%	65%	70.0%	75.0%
GTR Measure (NR delay minutes Wessex)		2.0%	94810	87810	80810
Locally Driven Customer Measures	**PRP % WEIGHTING**		**WORSE THAN**	**TARGET**	**BETTER THAN**
Performance Management	*20%*	2.0%	60%	80%	100%
Reduction in Railway Work Complaints		2.0%	463	421	379
Your Voice Action plans completed		2.0%	60%	80%	100%
Level 2 Scorecard Achievement		14.0%	30%	50%	70%

3.2. Long term scorecard

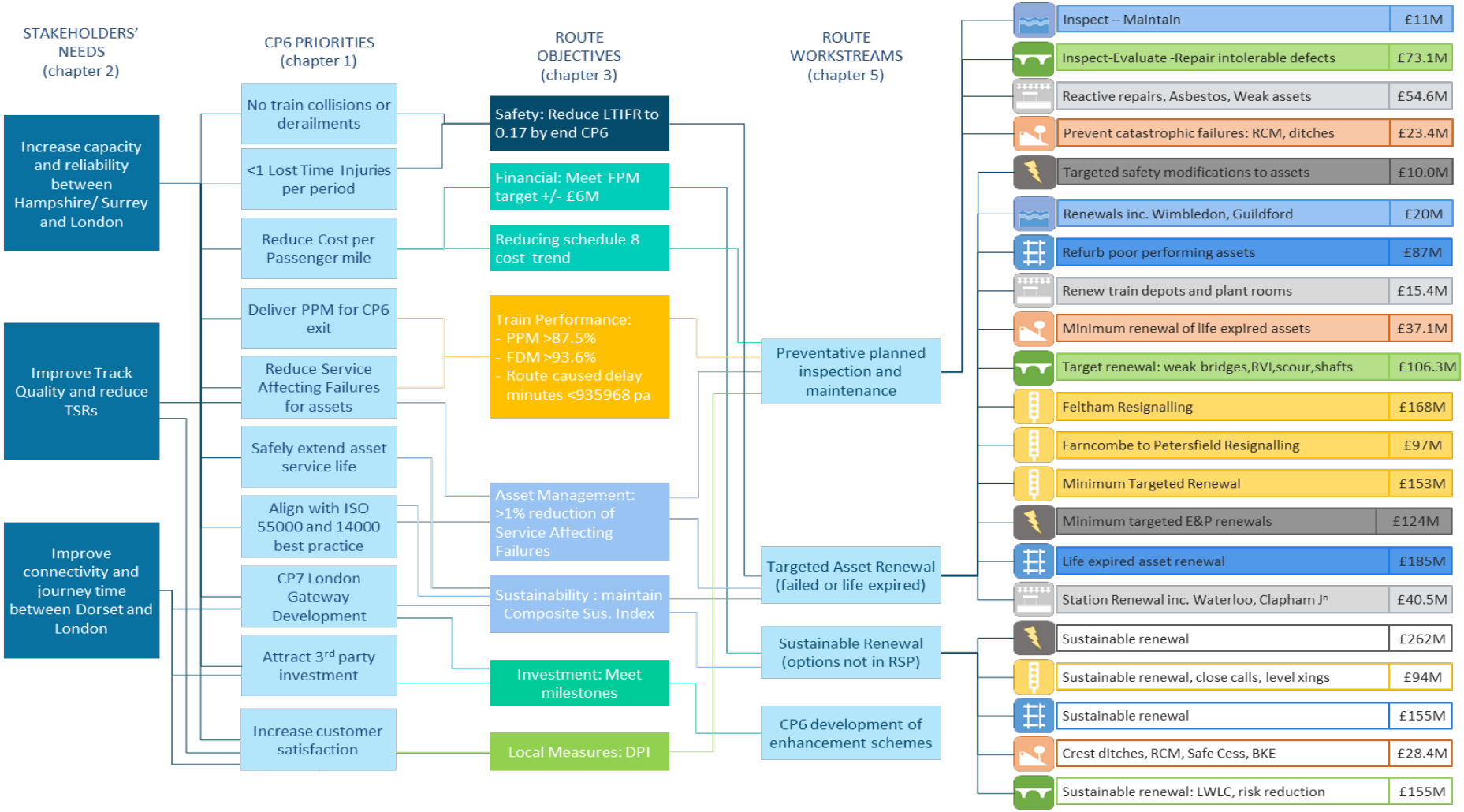
Safety	Targets	18/19	19/20	20/21	21/22	22/23	23/24	Achievability
Lost Time Injury Frequency Rate (LTIFR)	Worse than Target	0.525	0.468	0.400	0.331	0.263	0.196	
	Target	0.466	0.407	0.348	0.288	0.229	0.170	
	Better than Target	0.412	0.407	0.348	0.288	0.229	0.170	
Passenger train accident risk reduction measures	Worse than Target	60%	60%	60%	60%	60%	60%	
	Target	80%	80%	80%	80%	80%	80%	
	Better than Target	100%	100%	100%	100%	100%	100%	
Top 10 Milestones to reduce level crossing risk	Worse than Target	6	6	6	6	6	6	
	Target	8	8	8	8	8	8	
	Better than Target	10	10	10	10	10	10	
RM3	Worse than Target	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	
	Better than Target	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**	**Achievability**
Consistent Route Measure - Performance	Worse than Target	2.81	2.83	2.86	2.89	2.97	3.05	
	Target	2.36	2.35	2.30	2.36	2.27	2.22	
	Better than Target	2.07	1.99	1.97	1.91	1.84	1.73	
Freight Delivery Metric (FDM-R)	Worse than Target	91.7%	91.7%	91.7%	91.7%	91.7%	91.7%	
	Target	93.6%	93.6%	93.6%	93.6%	93.6%	93.6%	
	Better than Target	94.1%	94.1%	94.1%	94.1%	94.1%	94.1%	
Average passenger lateness	Worse than Target	N/A	3.31	3.46	3.60	3.67	3.74	
	Target	N/A	2.43	2.38	2.45	2.42	2.40	
	Better than Target	N/A	1.60	1.57	1.54	1.52	1.50	
NR Wessex Delay Minutes (effecting SWR on Wessex route)	Worse than Target	1,302,687	1,321,740	1,383,133	1,436,763	1,464,990	1,493,216	
	Target	1,034,534	978,081	956,911	985,138	971,025	963,968	
	Better than Target	858,118	650,653	639,362	628,777	619,604	610,430	
On time at all recorded stations	Worse than Target	N/A	58.1%	56.8%	55.6%	55.0%	54.4%	
	Target	N/A	65.6%	66.0%	65.4%	65.7%	65.9%	
	Better than Target	N/A	72.7%	72.9%	73.1%	73.3%	73.5%	

Level of cancellations	Worse than Target	N/A	3.3%	3.5%	3.6%	3.7%	3.8%	
	Target	N/A	2.3%	2.3%	2.3%	2.3%	2.3%	
	Better than Target	N/A	1.4%	1.3%	1.3%	1.3%	1.3%	
PPM	Worse than Target	82.7%	82.4%	81.6%	80.8%	80.4%	80.0%	
	Target	86.5%	87.3%	87.6%	87.2%	87.4%	87.5%	
	Better than Target	89.0%	91.9%	92.1%	92.3%	92.4%	92.5%	
GWR Measure (PPM North Downs line)	Worse than Target	78.6%	78.6%	78.6%	78.6%	78.6%	78.6%	
	Target	82.6%	82.6%	82.6%	82.6%	82.6%	82.6%	
	Better than Target	84.6%	84.6%	84.6%	84.6%	84.6%	84.6%	
X Country Measure (right time arrivals at Reading)	Worse than Target	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	
	Target	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	
	Better than Target	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	
GWR Measure (Portsmouth - Cardiff)	Worse than Target	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	
	Target	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	
	Better than Target	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	
GTR Measure (NR delay minutes Wessex)	Worse than Target	94,810	94,810	94,810	94,810	94,810	94,810	
	Target	87,810	87,810	87,810	87,810	87,810	87,810	
	Better than Target	80,810	80,810	80,810	80,810	80,810	80,810	
Customer	**Targets**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**23/24**	**Achievability**
Performance Management	Worse than Target	70%	70%	70%	70%	70%	70%	
	Target	80%	80%	80%	80%	80%	80%	
	Better than Target	90%	90%	90%	90%	90%	90%	
Reduction in railway work complaints	Worse than Target	463	0%	0%	0%	0%	0%	
	Target	421	-5%	-5%	-5%	-5%	-5%	
	Better than Target	379	-10%	-10%	-10%	-10%	-10%	
SWR level 2 scorecard	Worse than Target	0%	0%	0%	0%	0%	0%	
	Target	50%	50%	50%	50%	50%	50%	
	Better than Target	100%	100%	100%	100%	100%	100%	
Your Voice action plans complete	Worse than Target	70%	70%	70%	70%	70%	70%	
	Target	80%	80%	80%	80%	80%	80%	
	Better than Target	90%	90%	90%	90%	90%	90%	

Sustainability / Asset Management	Targets	18/19	19/20	20/21	21/22	22/23	23/24	Achievability
Reduction In Service Affecting Failures (SAF)	Worse than Target	-4%	-4%	-4%	-4%	-4%	-4%	
	Target	1%	1%	1%	1%	1%	1%	
	Better than Target	4%	4%	4%	4%	4%	4%	
CRI	Worse than Target	N/A	-3.5%	-7.1%	-10.9%	-14.8%	-18.8%	
	Target	N/A	1.0%	2.0%	3.0%	3.9%	4.9%	
	Better than Target	N/A	3.5%	6.9%	10.1%	13.3%	16.3%	
7 Key Volumes	Worse than Target	90%	90%	90%	90%	90%	90%	
	Target	95%	95%	95%	95%	95%	95%	
	Better than Target	100%	100%	100%	100%	100%	100%	
CSI	Worse than Target	-	-	-	-	-	-	
	Target	-2%	-	-	-	-	-5%	
	Better than Target	-	-	-	-	-	-	
Top Investment Milestones	Worse than Target	60%	60%	60%	60%	60%	60%	
	Target	80%	80%	80%	80%	80%	80%	
	Better than Target	100%	100%	100%	100%	100%	100%	
Financial Performance	**Targets**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**23/24**	**Achievability**
Financial Performance Measure (FPM) - Gross Excl. Enhancements (£m)	Worse than Target	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	
	Target	0.0	0.0	0.0	0.0	0.0	0.0	
	Better than Target	20.0	20.0	20.0	20.0	20.0	20.0	
Financial Performance Measure (FPM) - Gross Enhancements only (£m)	Worse than Target	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	
	Target	0.0	0.0	0.0	0.0	0.0	0.0	
	Better than Target	10.0	10.0	10.0	10.0	10.0	10.0	
Cash Compliance – Income & Expenditure	Worse than Target	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	
	Target	0.0	0.0	0.0	0.0	0.0	0.0	
	Better than Target	10.0	10.0	10.0	10.0	10.0	10.0	

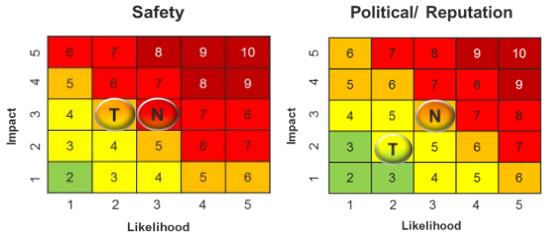
RED	Very challenging, likely to require substantial organisational and cultural change to achieve and/or highly dependent on third party involvement
AMBER	Challenging, likely to require moderate organisational and cultural change to achieve and/or dependent on third party involvement
GREEN	Achievable,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

Our Line of Sight Diagram



4.1. Safety

Summary of objectives		To reduce passenger, train, workforce and public accident risk and in doing so deliver a sustainable improvement to business safety by 2024. The ability to continuously monitor and improve our planning and delivery of safe work is central to our Route Safety Strategy.		
No.	**Key constraints (C), risks (R) and opportunities (O)**	**What we plan to do**	**Owner**	**Time scale**
1	R: There is a risk of train collision, crash or derailment caused by Asset Failure, causing passenger fatalities or harm	This risk is managed through the Wessex Train Accident – Derailment ERR and supported in local risk logs. We will reduce Service Affecting Failures by intervening on our high safety risk assets, in order to mitigate the risk of loss of system control, loss of train support and objects on the line.	DRSAM	Apr 2024
2	R: There is a risk of passenger harm due to slips, trips and falls at stations caused by large stepping distances and overcrowding	This risk is managed through our Buildings Asset Management Risk Log. We will deliver a combined operations and infrastructure plan (including operational property and stations) that improves passenger safety at stations, including platform/train interface at Clapham and Basingstoke, and congestion relief schemes	DRSAM RAM(B)	Apr 2024
3	R: There is a risk of workforce fatality or harm from being struck by a train whilst working in the live railway environment	This risk is managed through the Wessex Workforce Safety ERR. We will reduce the amount of time spent working on certain tasks by establishing technological solutions to reduce trackside access i.e. Eddy Current, Plain Line Pattern Recognition (PLPR) and Faster, Safer, Isolations plan. We will reduce the number of injuries through our behaviour safety plan, which is supported by the central home safe plan.	DRSAM	Apr 2024
4	R: There is a risk of Workforce harm arising from inadequate or misapplication of processes and procedures	This risk is managed through the Wessex Workforce Safety ERR. We will reduce LTIFR through encouraging growth of behavioural solutions to improve our techniques in manual handling, driving and slips, trips and falls. We will improve our facilities to improve safety in our work places and reduce tolerance of unsafe working environments. We will enable and inspire our workforce to embed Planning and Delivering Safe Work (PDSW) as best practice	RMD	Apr 2024
5	R: There is a risk of poor workforce wellbeing arising from prolonged exposure to noise, vibration and operational working	This risk is managed through the Wessex Workforce Safety ERR. We will reduce occupational ill-health, including Hand Arm Vibration (HAV); noise induced hearing loss, fatigue and stress through awareness, training and resources. We will continue to use training and technology to reduce road risk, and we will manage fatigue through capped work|travel	COO	Apr 2024
6	R: There is a risk of trains striking members of the public at Automatic Half Barrier level crossings, resulting in public fatality	This risk is managed through the Wessex Level Crossings ERR We will upgrade 40% of our 26 Automatic Half Barrier (AHB) level crossings on passenger lines to Manually Controlled Barrier - Obstacle Detectors (MCB-OD) and Manually Controlled Barrier - Closed Circuit Television (MCB-CCTV).	DRSAM	Apr 2029
7	R: There is a risk of Route Crime from trespass and vandalism which could result in Public harm	This risk is managed through the Wessex Route Crime ERR. We will continue to reduce risk of trespass at level crossings with closures, renewals or enhancements. NSRP will provide funding to make security improvements around our key buildings and stations. We will maintain our partnerships with the British Transport Police (BTP), organisations and local communities to identify priority locations and prevent trespass.	DRSAM	Apr 2029
8	O: There is an opportunity to reduce our carbon emissions	We will maximise our environmental benefits through achieving the ISO 14000 standard for our Environmental Management System upon which we will develop strategy and plans to reduce carbon usage throughout our operations.	DRSAM	Apr 2029

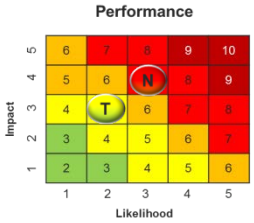


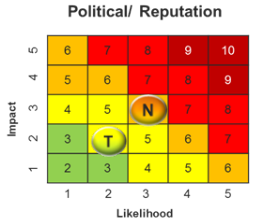
Summary of risk outcome (T = Target and N = Now, Heat map methodology is given in Appendix I)
Workforce Safety risk will be managed by prioritising behavioural safety initiatives that offer greatest value. Asset interventions target highest risk areas that benefit from safe asset vision investment until 2029. We will refresh PDSW to improve safety benefit and efficiency. Electrical safety, both in workforce risk and infrastructure compliance with the Electricity at Work Act Regulations, is also a significant factor.

4.2. Train performance

Summary of objectives	To recover PPM in the short term through a reducing trend in Service Affecting Failures and managing the deterioration in DPI by a better every day culture. In the longer term, service improvements may be delivered from Digital Railway, new rolling stock and timetabling that corrects persistent sub-threshold delays.

No.	Key constraints (C), risks (R) and opportunities (O)	What we plan to do	Owner	Customers impacted	Timescale
1	R: There is a risk that PPM reactionary delay will rise following the service growth committed for timetable changes in Dec 18 and Dec 20	This is managed through the Wessex PPM Target ERR. We will collaborate with train operators to build a successful timetable, allowing for dwell time lessons learnt and track access plans for proactive maintenance and renewal activities, alongside increasing our Incident management capability to rapidly recover service.	HoCR	All TOCs	Dec 2018 and Dec 2020
2	C: DPI is increasing due to growing congestion and cancels out improvements in asset reliability	This is managed through the Wessex PPM Target ERR. We will implement joint performance improvement plans to expedite recovery (see Appendix A). Including increasing number of incident officers to mitigate reactionary delays.	COO	All	Apr 2024
3	R: There is a risk of increased Service Affecting Failures due to an aging asset profile, causing TSRs	This is managed through the Wessex PPM Target ERR. We have targeted renewals on the most vulnerable and critical assets and have maintenance volumes assigned to mitigating risk over the portfolio. We are growing 'predict prevent' capability, in line with Asset Policy, to better target our planned proactive maintenance.	DRSAM / COO	All	Apr 2024
4	O: There is opportunity to improve performance through a revision of agreed contingency plans with SWR	This forms part of our Joint Improvement Plans. We are improving the flow of data between asset management, performance and maintenance teams in order to target areas where remote condition monitoring can be deployed to trigger preventative intervention prior to service affecting failure. We will improve our investment framework by setting defined performance criteria through GRIP.	COO	All	Apr 2024
5	O: There is opportunity for Traffic Management and Digital Railway to transform performance	We will install Digital Railway enabled technology in our CP6 resignalling schemes, develop our DR programme for CP7 implementation and derive a business case for isolated Traffic Management.	DRSAM	All	CP7
6	O: there is opportunity to reduce short notice change and improve planning efficiency	We will produce robust maintenance and renewal plans and engage early in TOC/ Route track access discussions	COO	All TOCs	Apr 2024
7	R: There is a risk of service cancellations through Industrial Action	This is managed through the Wessex Industrial Action ERR. We will meet proactively to negotiate key issues with our Unions in order to reduce the need for Industrial Action.	RMD	All TOCs	Apr 2024
8	R: New timetable cannot be powered and damages performance resilience	This is managed through the Wessex PPM Target ERR. We will take account of power constraints and infrastructure maintenance requirements in the timetable acceptance process	DRSAM	All	Ongoing
9	R: There is a risk that programmes of work will overrun possessions	This is managed through the Wessex PPM Target ERR. We will undertake lessons learnt from CP5 programmes in order to reduce this risk and continue to improve understanding of operational contingency planning.	COO	TOCs and passengers	Apr 2024
10	R: Asset reliability deteriorates further than anticipated	This is managed through tactical risk logs and asset plans. We will implement signalling and track circuit improvement action plans, reduce track faults and TSRs and deliver Waterloo resilience Workstreams.	COO	RAM (Sig) RAM (T)	April 2024





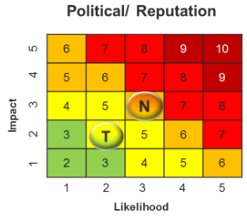
Summary of risk outcome (T = Target and N = Now, Heat map methodology is given in Appendix I)

CP5 performance recovery is a significant challenge that requires continued focus and close collaboration. Particular emphasis is being given to the causes of reactionary, sub-threshold and non-infrastructure delay. Opportunities to reduce DPI exist within the proposed operating model through providing dedicated delay management resources. However, current proposed infrastructure interventions (enhancements), and forthcoming projects (Digital Railway and Crossrail2) present challenges to overcome, to mitigate their inevitable performance impact.

4.3. Locally driven measures

Summary of objectives	To generate and maintain the trust of our customers, by delivering on the most important employee, safety and performance aspects that affect their own business outcomes and lives.

No.	Key constraints (C), risks (R) and opportunities (O)	What we plan to do	Owner	Customers impacted	Timescale
1	O: There is an opportunity to increase our value for money by working collaboratively with our lead TOC	We will develop a collaborative maturity with South Western Railway in the management of operations and delivery interfaces. This means aligning franchise commitments to Route Objectives and establishing the processes and systems to share information and resources	FD	South Western Railway	Ongoing
2	O: There is an opportunity to improve trusting relationships with our operators through alignment of objectives and metrics.	We will set shared goals for performance on the Route Scorecard and continually review our success in achieving these joint measures through our customer engagement plan (Chapter 2).	Exec	All	Ongoing
3	O: There is an opportunity to increase network capacity and deliver journey time improvements through new rolling stock	We will prioritise the necessary renewals and enhancements in order to support the introduction of new rolling stock.	DRSAM	All	Ongoing
4	O: There is an opportunity to improve performance and capacity through the implementation of the Digital Railway	We work with operators to develop and deliver technological solutions that enable the Digital Railway programme.	DRSAM	All	CP6/7
5	R: There is a risk of a rise in Railway work complaints due to longer periods of train service and a notable change in volumes of work in CP6 year 1.	This is managed in local action plans. We will develop a plan to improve our relationships with our lineside neighbours that includes a review of the effectiveness of our communication plans and renewed focus on workforce behaviours	COO	Local	Apr 2024
6	O: There is an opportunity to deliver value through early possession planning based on transparent possession costs	We will optimise our possession plans with our operators through early sharing of our robust maintenance and renewal plans and assess the costs/ impacts of different possession options	COO	Local	Apr 2024
7	O: There is an opportunity to improve performance for national operators affected by inter-route possessions	We will establish integrated regional possession plans with Western and Southeast Routes in order to provide business continuity for our freight and national passenger operators.	COO	FNPO	Apr 2020
8	O: There is an opportunity to Increase our mainline capacity in AM peak through enhancement schemes at key sites	We will develop and seek funding for the Woking flyover enhancement scheme to release more peak time train paths on the mainline	RMD	All	Apr 2024
9	R: There is a risk of rising delay incidents due to declining signalling reliability of aging equipment	This risk is managed through our local risk logs. Our plans will deliver re-signalling schemes at Feltham and Farncombe-Petersfield, developed for staged deployment in CP6	RAM (Sig)	All	Apr 2024
10	C: Increasing off peak services proposed in December 2018 will constrain the availability of possessions for maintenance	We will agree a mutually beneficial access strategy. We will reduce our demand on track access through efficient work planning and technological solutions to reduce our possession requirements e.g. PLPR and to increase our productivity e.g. Faster Safer Isolations.	DRSAM	All operators	Ongoing
11	O: There is an opportunity to improve Journey times for freight and national operators	We will establish RAM | FNPO engagement to determine potential journey improvements, through reviewing timetable and line speed changes, specifically CrossCountry services between Winchester and Basingstoke and Freight services between Reading and Basingstoke	DRSAM	FNPO	Ongoing



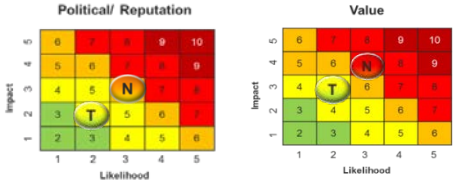
Summary of risk outcome: (T = Target and N = Now, Heat map methodology is given in Appendix I)

Further, broader customer engagement is required to deepen trust in our ability to deliver service improvements, whilst clarifying and communicating our challenges. The risks and opportunities depend on greater collaboration, starting with shared metrics and growing into shared information and resources such that our investments deliver tangible value to all our customers.

4.4. Sustainability and asset management capability

Summary of objectives	Our objective is to improve train performance and safety through reducing the number of Service Affecting Failures caused by Assets, within our funding constraints and recover our renewals volumes in CP5. We will create efficiency through risk-based optimisation between maintenance and renewals and align our workbank priorities to our operators' needs. CP6 Efficiencies will be reinvested into additional volumes in order to mitigate our non-compliance to policy and recover our asset renewal target.

No.	Key constraints (C), risks (R) and opportunities (O)	What we plan to do	Owner	Timescale
1	C: Wessex must sustain Signalling and Telecommunications (S&T) asset reliability	We will optimize our management of these assets through providing more freedom to balance renewal and maintenance interventions on a risk based approach, rather than adhering to fixed Operating Expenditure (Opex), including Telecoms.	DRSAM	April 2024
2	R : There is a risk that we miss our CP5 regulated outcomes by not delivering our planned renewal volumes	This is managed through our Failure to maintain and manage assets ERR. We will continue driving delivery of volume in our annual plans through our strong governance boards with delivery partners	DRSAM	April 2019
3	R: There is a risk of rising Asset failures due to our level of renewals being lower than the minimum policy modelling volumes, resulting in a reduced CRI and CSI	This risk is managed in the Wessex failure to maintain and manage assets. We will undertake a blend of maintenance and renewal to mitigate the impact of failures at the expense of efficient delivery during CP5 and CP6; however, this is unsustainable beyond CP6 as some deferrals run from CP4 to CP7. We will make increasing use of Remote Condition Monitoring and surveillance where asset performance is likely to differ from the model.	DRSAM	April 2029
4	O: There is an opportunity to improve the targeting of our asset interventions through further improvement of our asset data, resulting in higher risk reduction / £	We are working towards ISO 8000 Data Quality to improve our governance of asset data. We will gather and use new asset information from PLPR and Eddy Current in CP5 to better focus interventions and reduce workforce risk. With full implementation of infrastructure control and Remote Condition Monitoring on points and track circuits we will be able to focus resource on failure prevention. We will increase data flow and data availability through a shared performance, maintenance and asset system, to improve strategic decision making	DRSAM	Apr 2019 Apr 2024
5	R: There is a risk that there will not be sufficient track access for our renewal plans due to increases in timetabled train services O: There is an opportunity to improve our efficiency by improving the robustness of our workbank planning	This risk is managed through local action plans. RAM and IMDMs will adopt the ABP tool as a base for agreeing work volumes, budgets and resourcing levels. We will work with IP and WD to focus on increasing the quality of the development processes in order to establish fixed and stable scopes of work, initiate early development of schemes and drive a determined adherence to planning timelines.	DRSAM	Apr 2018 Apr 2024
6	R: There is a risk of catastrophic failure of geotechnical assets caused by extreme weather that would result in a train accident and high reactive repair costs	This risk is managed through the geotechnical asset management plans. We will mitigate catastrophic geotechnical failures from extreme weather through installing and proactively maintaining robust drainage systems at the highest risk sites. We will install and maintain Remote Condition Monitoring systems to trigger interventions based on the detection of small changes, in order to mitigate the safety and financial risks arising from a larger Service Affecting Failure.	RAM (G)	Apr 2024
7	O: There is an opportunity to reduce investment costs and service downtime through better co-ordination of activity	We will grow our Asset Management Capability to ISO 55001 standard. We will ensure our people have the expertise, resources and information necessary to be empowered and accountable in discharging their duties. We will keep developing a culture that encourages adaptive collaboration in all parts of the Route to contribute to achieving our Route Vision.	RMD	Apr 2021
8	R: There is a risk of major service disruptions and high project costs in CP7 and CP8 due to a bow wave of scheduled signalling renewals and enhancement works	This is a significant strategic risk that will be managed in a new Wessex ERR. We will ring-fence our CP6 resignalling schemes at Feltham and Farncombe to Petersfield in order to sustain the supply chain and reduce demands on limited track access opportunities and engineering resource during CrossRail2 and Digital Railway implementation	DRSAM	Apr 2024



Summary of risk outcome (T = Target and N = Now, Heat map methodology is given in Appendix I)

Given increased growth, tonnage and mitigating interventions for policy non-alignment, this risk based approach seeks to generate best value from our assets. We will drive for the best possible outcome for a renewal recovery plan in CP5. Central service provision (particularly for Passenger Train Accident Risk Reduction (PTARR) and Network Rail telecom service levels remain risks to us that we cannot fully control.

4.5. Financial performance

Summary of objectives	To deliver excellent value for money to the tax-payer through the efficient use of resources in a way that generates the best business outcome.

No.	Key constraints (C), risks (R) and opportunities (O)	What we plan to do	Owner	Customers impacted	Timescale
1	C: We have a constrained capital work bank and therefore a surplus of labour in the later part of CP5	We will deploy in-house labour on performance improvement schemes for CP5 and develop a long term strategy for CP6 resourcing. We will build a smooth CP6 delivery profile to allow effective use of in-house labour as appropriate.	COO DRSAM HoHR	None	Apr 2019
2	R: There is a risk of escalating schedule 8 costs due to a rising trend of reactionary delay	We will deliver our joint performance improvement plans and make sure CP6 PPM is aligned to funding. We will better co-ordinate our service recovery through introducing Incident Officers to our operations team. We will co-ordinate structured continuous improvements through our Better Every Day team.	COO	SWR	Apr 2024
3	R: There is a risk of reduced track access opportunity under the new franchise due to higher timetable commitments, leading to financial inefficiency	We will work to quickly and fully embed the alliance with SWR and ensure the continuity of our planned cyclical maintenance plans, which enables realisation of the efficiencies set out in the efficiency strategy.	COO	SWR	Apr 2024
4	R: There is a risk of incurring additional cost through changes to business standards	This is managed through the ERR: failure to manage change. We will include a headwind provision for standard change based on our experience of CP5 and knowledge of CP6, and work with Safety, Technical and Engineering (STE) in order to minimise the financial impact of such changes	DRSAM	None	Apr 2024
5	O: There is an opportunity to improve PPM and reduce schedule 8 payments through joint working with the new franchise	We will develop joint working and governance structures to support the improvement of PPM and continue to review the impact of our work throughout the control period to maximise performance delivery.	RFD	SWR	Apr 2024
6	O: There is an opportunity to establish effective contracting strategies with our deliverers	We will create a stable long term work bank which allows Infrastructure Projects (IP) and the route to have certainty and package work in a way which maximises commercial benefit to the route.	RFD DRSAM	None	Apr 2024
7	O: We have an opportunity to optimise manpower resource using the ABP tool	We will use activity based costs to determine the correct requirement for the organisation and then develop a detailed resource plan which through natural attrition and re-deployment of resources achieves the optimum outcome	COO HoHR	None	Apr 2024

Summary of risk outcome: (T = Target and N = Now, Heat map methodology is given in Appendix I)

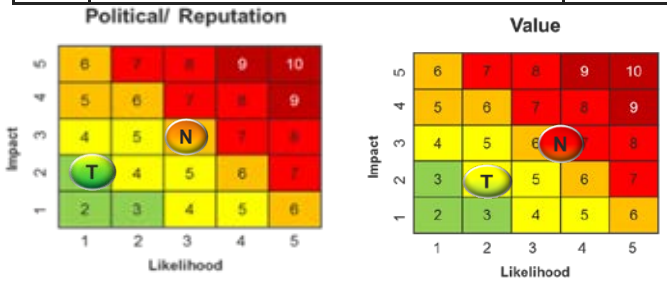
We will deliver our route efficiency strategy which will in turn ensure we deliver efficiently and mitigate our financial risks as far as possible.

We have learnt the lessons of CP5 and will ensure we have a robust plan where funding is aligned to our outputs and efficiencies are clearly defined with a governance strategy that monitors and ensures delivery.

4.6. People & Culture

Summary of objectives	To continue growing as a high performing organisation by attracting and managing talented, engaged and diverse people, and providing the vocational support to manage self, teams and others, in a real-time operational environment. The attraction and development of graduates and apprentices for both engineering and project delivery, is vital for sustaining future organisational growth. A right size competent organisation is fundamental to the planning and delivery of the increasing volumes of work proposed.

No.	Key constraints, risks and opportunities	What we plan to do	Owner	Customers impacted	Timescale
1	**C:** We depend on retaining qualified and experienced people to fulfil a sustainable succession plan.	We will further our development of talent and succession plans through people capability focus groups and by placing emphasis on line managers, through the performance review process, to develop career roadmaps with team members to help personal and team career management.	RMD (and Exec leaders)	none	ongoing
2	**O:** We have an opportunity to increase the performance of our Route through building a more **diverse** and **inclusive** route organisation	We will deliver a diversity and inclusion programme for the route that encourages and supports individual uniqueness at every level	HoHR	none	Dec 2020
3	**O:** We have an opportunity to create sustainable talent pipelines into long term **technical careers** in the railway through building up local partnerships with colleges and universities	We will deliver a Route-based engineering and project management pipeline with local educational institutions to attract qualified future talent for Apprentice, Graduate and other career development in Wessex Route.	HoHR DRSAM	none	Apr 2024
4	**O:** We have an opportunity to improve our workforce safety and productivity through maximising our **Frontline leadership** capability	We will support our front line leaders through structured, work place mentoring, coaching and development opportunities, such as Team leader development, Section Manager development, and Great People Manager training	COO HoMD	none	Ongoing
5	**R:** We have a risk of **Mental Health issues due to low awareness amongst managers of how to recognise or manage them**.	We will work to develop interventions on this specific topic that will upskill our leaders throughout the organisation allowing mental health to be understood, discussed and managed appropriately.	HoHR Wellbeing Manager	none	Apr 2024
6	O: We have an opportunity to improve our workforce safety by addressing the human factors behind behavioural safety.	We will contribute to improving the route safety culture by developing a reward structure that recognises and reinforces safe behaviours	HoRSHE HoHR	none	Ongoing
7	R : There is a risk of strike action and disruption due to poor Industrial Relations	We will meet our obligations within the Trade Union Agreement, specifically to develop a competency framework, implement TU engagement and communication plans for regular and proactive communication and set up area council meetings for management and TU to liaise on key topics.	RMD	none	Ongoing



Summary of risk outcome: (T = Target and N = Now, Heat map methodology is given in Appendix I) The success of Wessex Route is in the commitment and passion of its people. Following a move to Basingstoke, it is vital that we develop new local talent streams to sustain our workforce growth. At the same time our plans aim to retain our home-grown talent by recognising and developing the true potential of each unique individual. We will improve our TU Relations by fostering a proactive and trusting relationship that will reduce the likelihood of industrial action.

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	86.9	94.2	53.0	29.4	11.8	**275.4**	56.0	54.6	52.4	58.5	50.5	**272.0**	97.8
Conventional Signalling	£m	Renewals	£44.8	£35.4	£39.7	£31.7	£20.8	**£172.4**	60.5	83.4	142.4	106.2	13.5	**406.0**	159.6
Structures	£m	Renewals	34.5	41.5	18.3	23.3	7.3	**124.8**	14.0	23.3	29.1	19.4	19.6	**105.4**	27.6
Earthworks	£m	Renewals	14.1	11.4	7.4	10.0	4.4	**47.2**	11.8	15.1	15.9	16.8	15.8	**75.4**	21.6
Drainage	£m	Renewals	1.9	3.9	8.0	3.1	2.8	**19.7**	1.5	2.1	2.7	3.2	3.0	**12.5**	3.9
Buildings	£m	Renewals	23.8	40.9	17.9	5.8	0.7	**89.2**	19.7	28.9	18.3	7.6	5.8	**80.3**	15
Electrification & Fixed Plant	£m	Renewals	16.4	26.4	18.6	23.0	15.4	**99.8**	21.3	27.7	29.7	31.7	23.7	**134.1**	55.9
Other	£m	Renewals													
Total Renewals	£m	Renewals	222.4	253.7	162.8	126.3	63.1	**828.4**	184.8	235.1	290.5	243.4	131.9	**1,085.7**	381.4
Digital Railway*	£m	DR Programme				1.8	1.8	3.6	5.8	9.3	24.0	29.5	38.2	**106.8**	70.7
Total Renewals + Digital Railway	£m	All	222.4	253.7	162.8	128.1	64.9	**832.0**	190.6	244.4	314.5	272.9	170.1	**1,192.5**	430.5

*Digital Railway is not funded within the core submission.

KEY VOLUMES

	Unit of Measure	Funded by	CP5						CP6						CP7
			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	23,164	72,840	87,890	7,438	132,600	323,931	114,500	114,500	114,500	114,500	114,500	**572,500**	105,000
S&C	No. of S&C units	Renewals	22	59	15	0	184	280	50	50	50	51	51	**252**	59
Conventional Signalling	SEU	Renewals	107	5	0	0	25	136	116	67	166	333	62	**743**	465
Digital Railway	SEU	DR Programme										86		**86**	
Embankment	5ch	Renewals	28	64	57	59	78	286	70	71	72	73	72	**358**	100
Soil Cutting	5ch	Renewals	39	89	142	151	159	580	199	219	223	233	237	**1,111**	230
Rock Cutting	5ch	Renewals	6	11	5	10	9	41	9	14	25	14	11	**73**	18
Underbridges	Number of assets	Renewals							9	7	8	6	5	**35**	5
Underbridges	m2 plan deck area	Renewals	7,511	9,722	4,294	1,185	588	23,300	1239	1272	1593	1652	2576	**8332**	975
Wire runs	No. of	Renewals	0	0	0	0	0	0	0	0	0	0	0	**0**	0
Conductor Rail renewal	Km	Renewals	8.55	13.6	15.72	11.8	10.13	59.8	10.7	10.7	10.7	10.7	10.7	**53.5**	20

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								42	42	42	41	41	206	42
Off track								4	4	4	4	4	21	4
S&T								16	16	15	15	16	78	16
E&P								9	8	8	8	8	43	10
DU HQ								10	9	8	7	7	41	11
DU/WD Maintenance	excl. B&C	70	66	71	73	71	351	81	79	78	76	76	389	83
Non DU Maintenance		16	25	17	19	17	95	18	18	17	15	15	82	16
Civils: Maintenance		0	0	0	9	9	17	8	8	8	8	8	39	8.1
Civils: Structures Maintenance		0	0	0	4	4	8	7	7	7	6	6	33	7
Civils: Earthworks Maintenance		0	0	0	0	0	1	0	0	0	0	0	0	
Total Maintenance Costs		**86**	**91**	**88**	**105**	**102**	**471**	**113**	**111**	**109**	**105**	**105**	**543**	**114.1**
Operations		35	36	37	40	40	189	43	43	43	43	43	215	41
Support		1	4	3	4	4	15	9	9	9	9	9	43	9.5
Operations & Support Costs		**35**	**40**	**40**	**44**	**44**	**203**	**52**	**52**	**52**	**52**	**52**	**258**	**50.5**
Total Controllable Costs		**121**	**131**	**128**	**149**	146	**675**	**165**	**162**	**161**	**156**	**156**	**800**	**164.6**
Non-Controllable Costs							**1**	**1**	**1**	**1**	**1**	**1**	**5**	**1**
Headcount														
Permanent		1722.5	1804	1835	1910	1999	1999	2017	2025	2031	2058	2074	2074	2074
Agency		47	41	29	13	13	13	13	13	11	5	0	0	0

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
Wessex Main Line Upgrade	Woking Area Capacity Enhancement	Grip 2	Costs to be confirmed at end of GRIP 3												
LSE Stations Programme*	Clapham Jn Overcrowding Relief	At end GRIP 2		3	4	7	8	**22**	scope and budget forecast under discussion						
Guildford Station Capacity	Additional Platform(s) & Overcrowding Relief	Pre-GRIP	Costs to be confirmed at end of GRIP 3												
South of England Electrification	Wokingham to Reigate	Pre-GRIP	Costs to be confirmed at end of GRIP 3												
Wessex Capacity Phase 2*	Station Congestion Relief (various) and capacity enabling power works	GRIP 3													
South London HV*	Grid power supply capacity increase for SE	GRIP 3	0.6	0.6	0.5	2.6	8.6	**12.9**	4.9	13	12	12	0.4	**42.3**	

*denotes schemes that were recognised in the Hendy review.

Note schemes listed have not yet passed Final Investment Decision (FID) and remain subject to further investment decisions based on viability and affordability.

Route Headroom for Business Performance Risk

Our Strategic Plan includes £65M of headroom, which has been created by holding back some SoFA funding from Network Rail's overall CP6 plan and is managed centrally. This headroom facilitates the management of business performance risk over the control period at route level. Unspent headroom budget can be considered as contingent investment, and will be invested in improving the railway.

Routes also have access to a portfolio headroom budget in CP6, particularly for inflation risk. Again, unspent budget will be invested in further investment to improve the railway. Portfolio headroom will be controlled through our corporate business planning process.

Isle of Wight

There is a risk that negotiation of a new lease for the Isle of Wight Island

Line will define a new investment profile. The 25 year IL lease expires 31 March 2019 with a re-negotiation required. As this is a 'key contract', the successor operator for the next franchise will also assume the legal entity of tenant. Given the nature of the lease there was minimal investment in our CP5 plan and so this assumption is carried forward into CP6.

The key risk is the renewal of Ryde pier which would currently be unaffordable but terminal to the operation of the line if it is not available. The lease 'property' includes eight railway stations, one Light Maintenance Depot (LMD), track, the land in vicinity of the track, all of the railway infrastructure on the IOW (excluding IOW steam railway assets) and Ryde Pier. It is assumed as a zero cost line in this plan as it is not part of the regulated asset base.

Enhancements

The enhancement schemes listed in the table above have been considered as having the potential to proceed to implementation in CP6, and have been considered alongside the renewals and maintenance portfolio to assess potential opportunities or conflictions. Wessex Route works closely with the System Operator to develop these enhancements alongside the Asset Management portfolio. This vital collaboration will ensure that business continuity can be assured throughout enhancement work during CP6 and beyond.

Enhancements are funded through a process that is outside of this plan and will progress through a pipeline process with joint-funding decisions being taken at key points. Decisions to progress a scheme to the next stage will be subject to an ongoing assessment of viability and affordability. Therefore, some uncertainty exists, particularly when in the early development stage, as to which schemes will actually be funded through to completion. With the exception of Wessex main line upgrade 10-car operation, all schemes listed below have not passed Final Investment Decision and are subject to further funding viability and affordability review.

5.1.1. Wessex main line upgrade

CP5: 10-car operation: power supply upgrade and platform lengthening

CP6: Woking grade separation; Woking platform 6

CP7: Extension of the up main relief and reconfiguration of lines between Queenstown Road and London Waterloo; CrossRail2; ECMS Level 2 (Digital Railway); Basingstoke grade separation

5.1.2. LSE Stations programme

CP5: Putney and Twickenham station upgrades

CP6: Clapham Junction Pedestrian Congestion Relief scheme is a priority for CP6 subject to funding

CP7: Clapham Junction Phase 3 Masterplan (3rd party funding)

5.1.3. Guildford Station Capacity

CP6/7: New platforms are proposed to increase the number of peak hour train paths on the main line and the off peak connectivity of the North Downs line and Guildford 'new line'. Platform works at Guildford over CP6 and CP7 will be required to handle the level of service that Digital Railway and Crossrail 2 will confer to passengers throughout Surrey and Hampshire. Undertaking the works in CP6 will minimise the disruption to services during the implementation of the CP7 schemes.

5.1.4. South of England Electrification

CP7: Electrification of the North Downs line between Wokingham and

Reigate would support journey time improvements of up to 10 minutes and the release of diesel rolling stock. Possible West of England Line Electrification, subject to funding.

5.1.5. Wessex Phase 2a

CP6: Station congestion relief at Clapham Junction and Guildford and capacity enabling power supply works.

5.1.6. South London HV

CP6: The South London HV power supply programme will provide long-term capability and resilience of HV power supply for the future service and rolling stock requirements associated with Wessex capacity, train service specification and CrossRail2.

5.1.7. Digital Railway

Wessex has worked with the Digital Railway team to develop a SOBC, repeated below. There is a strong business case for isolated traffic management that requires funding separately to this plan.

The re-signalling schemes put forward for CP6 will be provided with, as a minimum, Digital Railway ready passive provision, funded separately, because they do not provide immediate capacity benefits. Due to the advanced stage of development, we are seeking to provide an ETCS overlay for the Feltham scheme. In cab fitment of rolling stock will be undertaken on the new class 701s that are scheduled for deployment in line with the December 2020 timetable.

The first active DR schemes on Wessex will be Waterloo and Wimbledon in CP7, which will open up capacity on the main line and are contemporaneous with CrossRail2. Our Digital Railway strategy is discussed further in chapter 6.3.

5.1.8. Digital Railway ready specifications

Passive provision

For like-for-like renewal (e.g. no capacity enhancement), provision for DR Ready specifications 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:

- No change to train detection and therefore no need to design a separate ETCS compliant option
- Competitive procurement arrangements embedding the DR Ready Specification from inception of the scheme
- Support is given to the Routes by a core team (DR, STE 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 digital ready specification. This scope is termed active provision and is driven by additional train detection requirements. Currently there is no active provision for increased capacity in the signalling renewals portfolio.

DIGITAL RAILWAY (in 17/18 prices)

SWML		Development stage:	SOBC	BCR	3.15
		Expected delivery year	ETCS 2029-2033 TM 2022-2026	Appraisal period	60 years

Summary description

[include brief description of scheme and summary problem/opportunity statement]
Problem/Opportunity statement: Demand on the South West Main Line is forecast to increase by 40% to 2043, currently there is crowding from Basingstoke and Woking which is over 20 minutes from London. The fast lines from Surbiton operate the highest number of services on a single line resulting in a high proportion of reactionary delay. A number of signalling assets are due for life expiry in CP6 and CP7, current plans for Crossrail 2 assume that signalling assets between New Malden and Wimbledon are renewed in the mid 2020s, in advance of some of the current renewal dates, this presenting an opportunity to renew with digital technology.
Scheme: ETCS Level 2 no signals between London Waterloo and Woking, Integrated Traffic Management London Waterloo to Woking and isolated Traffic Management across the rest of the route, option for C-DAS. Conventional enhancements to support capacity benefits - Up Main Relief line extension to Vauxhall, Feltham Depot, Power Supply Upgrade, London Waterloo passenger capacity.

Implementation cost (£m)

	CP5 (last 3 years)	CP6	CP7 & beyond	Total
Digital Infrastructure	4.6	98.5	690.6	793.7
Business Change	0.7	8.2	14.2	23.1
Freight National Passenger Operator	0.0	0.0	0.0	0.0
OTMs in-cab fitment	0.0	5.2	144.8	150.0
Sub-Total (assumed core NR funded)	5.3	111.9	849.6	966.9
Passenger in-cab fitment	0.0	8.2	195.5	203.7
Civil Engineering Enhancements	0.0	0.3	377.5	377.8
TOTAL	**5.3**	**120.5**	**1,422.6**	1,548.4

Assumed funding source (£m)

	CP5	CP6	CP7 & beyond	Total
Core Route Budget (OMR)	0.0	2.3	529.8	532.2
National Productivity Investment Fund	0.0	0.0	-	0.0
Sub-Total (assumed core NR funded)	**0.0**	**2.3**	**529.8**	**532.2**
Franchise in-cab fitment	0.0	8.2	195.5	**203.7**
Enhancements (MoU)	0.0	0.3	377.5	**377.8**
TOTAL	**0.0**	**10.9**	**1,102.8**	**1,113.7**
Funding requirement above Route Core Target	-5.3	-109.6	- 319.8	-434.8

Scheme benefits[1]

Quantified output benefits

[Performance and capability; insert trajectories where appropriate, be clear about what benefit is assumed in CP6]
Capacity- an additional 4 tph SWML services for the 3 hour peak, total 30 tph (baseline assumes Woking Area Capacity Enhancements are delivered increasing peak service to 26tph)
Performance - Delay minute reduction of up to 5% for integrated Traffic Management and 3% for isolated Traffic Management

Financial benefits (£m CP6) Socio economic benefits in 2010 prices present value	Financial benefits (£m NPV over 60 years) Socio economic benefits in 2010 prices present value
TOC revenue benefits: £5.8m	TOC revenue benefits: £387m
Reductions in NR OMR: 0.0	Reductions in NR OMR: 0.0
Net benefits to consumers and private sector: £11.9	Net benefits to consumers and private sector: £1353m
TOTAL: 17.7	**TOTAL: £1740**

Other qualitative benefits

[E.g. safety, journey time]
Safety - ETCS offers enhanced train protection reducing the risk of SPADs. DR technologies enable the Safer Track Working strategy, reducing the risks track side workers
Journey time - potential for journey time opportunities where speed restrictions are in place due to signal sighting, changes to operational rules
Other opportunities - improved customer information, energy savings

Other dependencies

[State what other enhancement schemes not yet integrated into the plan (table above will articulate those schemes that have been integrated), will need to be delivered in order to unlock the benefits quoted here]
Working Area Capacity Enhancements - grade separation at Woking is required to deliver the 4 additional train paths quantified

5.1.9. Quantified scope drivers

Driver	What has changed (Exit to Exit)		How the change will affect cost	Estimated CP5-CP6 change (£m)
Changes to network infrastructure: Track km	CP5	CP6	No change	0
	1065	1065		
Changes to network infrastructure: Electrified Track km	CP5	CP6	An Opex provision has been introduced to maintain new electrified track between Southcote Jn (Reading) and Basingstoke from year 3 of CP6 onwards	£1.5m Opex
	642	664		
Changes to traffic: Total Train km	CP5	CP6	An Opex provision has been introduced for Track maintenance to mitigate increased tonnage and increased drainage maintenance intervention (a) As per CP6 planning assumptions document 16 Dec 16	£17.5m Opex
	1.90 Bn	1.97 Bn		
Changes to traffic: EMGTPA km	CP5	CP6		

5.1.10. Other non-quantified drivers

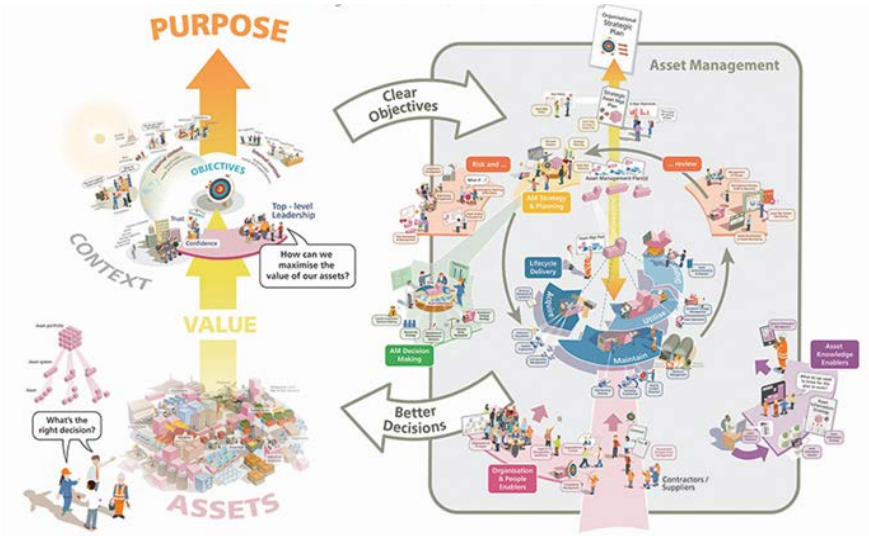
Driver	What is the change and how will it affect cost	Estimated CP5-CP6 change (£m)
Policy changes	Additional Opex is needed to fund mitigations of the decrease in renewals volumes and policy non-compliance submissions (Track, S&T, E&P, Drainage, Structures) Changes to the structures policy have introduced additional operational costs compared to CP5 for RW scour/risk assessment and development of asset management plans for CERD assets.	£49.8m Opex
Legislative compliance	An increase in funding is needed to pay for the Introduction of the B5 process remote lock out of traction. Also Wessex will need to fund asbestos mitigations following CP5 surveys. Further funding is required to enable full compliance to SIN119 for the safety of electrical equipment housing.	£9.5m
Other scope changes	**Safety**: Funding is needed for: • Continuous Improvement Initiatives, including behavioural safety (£10m). • The structures assessment backlog recovery programme in CP5 has shown that a high percentage of bridge	£42.8m

	assets are being managed with reduced factors of safety. This has driven a large increase in the volume of strengthening interventions required. (£65m)	
	Performance and resilience: This is part of policy change drivers above	
	Weather resilience: We have not included any significant resilience schemes for CP6 as part of the route submission. However, several resilience schemes have been put forward to a national register and the route are actively engaged with the national team in developing a whole life business case to progress resilience schemes through funding mechanisms out with the domestic renewals programme. Increasing temperature and variability in rainfall may expose the route to further risks. The risk of temporary speeds to mitigate rail buckle risk in high temperatures will be mitigated through maintenance stressing activities and proposed high output options that will eliminate jointed track. Desiccation and/or saturation of clay embankments will be managed through OTM intervention strategies	
	Investment in technology: We continue to develop intelligent infrastructure, introduce Remote Condition Monitoring, possession related technology and most importantly deliver innovations that 'Predict and Prevent'. In addition to the STE Intelligent Infrastructure plan, which we actively support, Wessex will also innovate and adopt technology through its Business As Usual.	Breakeven : II benefits should balance costs
	Other: There will be costs incurred by Wessex that are associated with changes to Route structure, training and relocation, loss of toilet income and SIMIS-W obsolescence.	
Unit rates and efficiencies	**All disciplines:** The contracting strategy for B&C and E&P will be an evolution of the existing framework arrangements, with amendments to drive greater efficiencies, together with a blend of tendering for individual schemes on the open market to provide comparison and benchmarking. Particularly important is the management of IP capacity to deliver during Y1 of CP6, following the reduced volumes during Y4 and Y5 of CP5 and the transition phase. Affecting unit rates at a portfolio level are the new franchise terms, supply chain capacity and Brexit. The Franchise change in 2017 may result in reduced access or higher Schedule 4 charges. The impact of Brexit on the UK pound value may affect the cost of material, plant and equipment. The National Infrastructure market and construction is under-capacity; the first estimate of the associated increase in cost is 3%. **Track PL and S&C:** unit rates are likely to increase due to higher machinery and possession costs. Commercial efficiencies are under investigation as part of the national track commercial strategy. **Structures, Geotechnical and Drainage:** A cash constrained CP5 has led to reduced intervention scope on geotechnical and structural assets. For structures – this has driven a significant change in the intervention type proposed for CP6, with a large percentage of the renewals volume being strengthening and renewal, compared to repair/ preventative/ maintenance/ refurbishment in CP5. Strengthening and renewal have a higher unit cost.	This is evidenced by the reduced volumes of activity between CP5 and CP6.

	For geotechnical work – this has led to soil cutting refurbishments being undertaken instead of renewals where it is possible to reduce the likelihood of failure sufficiently. In Drainage, Drain Tram rates are likely to rise through a combination of its nearing the end of its life and replacement is likely and a rising demand on other Routes, increasing Transportation waste. **Off Track:** There is a significant upturn in the proposed fencing and vegetation workbanks planned for CP6 and limited track-record in delivering this scale of work, therefore there is high uncertainty in supply chain capacity and unit rate. **Buildings:** the introduction of 2 additional managed stations (Guildford and Clapham Junction) and the transfer of Waterloo International Terminal to the Route will require an increase in Minor Works and Planned Maintenance. **Signalling:** Deferral of Feltham Re-signalling has ultimately caused a rise in cost per SEU from the original CP5 budget to the CP6 SEU rate due to the re phasing of the programme .	

5.2. Asset intervention strategy

In concert with a central over-arching strategy, we will continue to deliver our route Asset Management Improvement Plan (AMIP) to achieve accreditation to ISO55000; focussing particularly on the definition of asset management processes within the route so we can demonstrate their consistent application and drive continuous improvement.



Our delivery plan seeks to deliver safe asset performance within a constrained financial settlement. The plan mitigates physical asset risk by prioritising works across an integrated workbank and balancing maintenance and renewal interventions, using policy compliance requirements, route expertise and the needs of our customers to guide the prioritisation and define the required outcome. Our maintenance volumes comprise three key components (continued in Chapter 7.3):

Cyclical: Planned proactive tasks that recur at a specified frequency, and can be planned from Ellipse using Activity Based Planning

Reactive: tasks triggered in response to a fault report, based on a forecast using infrastructure reliability history and Ellipse

Mitigating: we recognise that our renewal rate does not sustain asset life at CP5 entry level, therefore extra inspections and maintenance are planned to mitigate this risk.

Furthermore, E&P renewals have been deferred from CP5 in order to fund signalling power electrical safety improvements (SIN119) in response to enforcement action on earthing at location cabinets. We continue to work with the STE community as external assurance of these decisions.

Our approach to cross asset prioritisation has been delivered in a staged process through peer review. Each discipline developed a work bank based on pro rata budget to CP5. An initial peer review of the work banks and associated risks identified the biggest risk in Signalling following deferrals in CP5. There has therefore been some rebalancing between the Track budget and the Signalling budget. This allowed for a substantial part of the Feltham re-signalling programme to be planned in CP6.

We have reviewed collectively how to apportion the 15% uplift to the CP5 BP16 funding levels to the renewals budget. Asset discipline heat maps have been used to facilitate a risk based approach. The biggest risk is in Signalling therefore Wessex has allocated the full £177m necessary to complete the Feltham re-signalling scheme in CP6. The remainder is allocated to Buildings to repair the Waterloo concourse roof, to address the risk to safety and reputation.

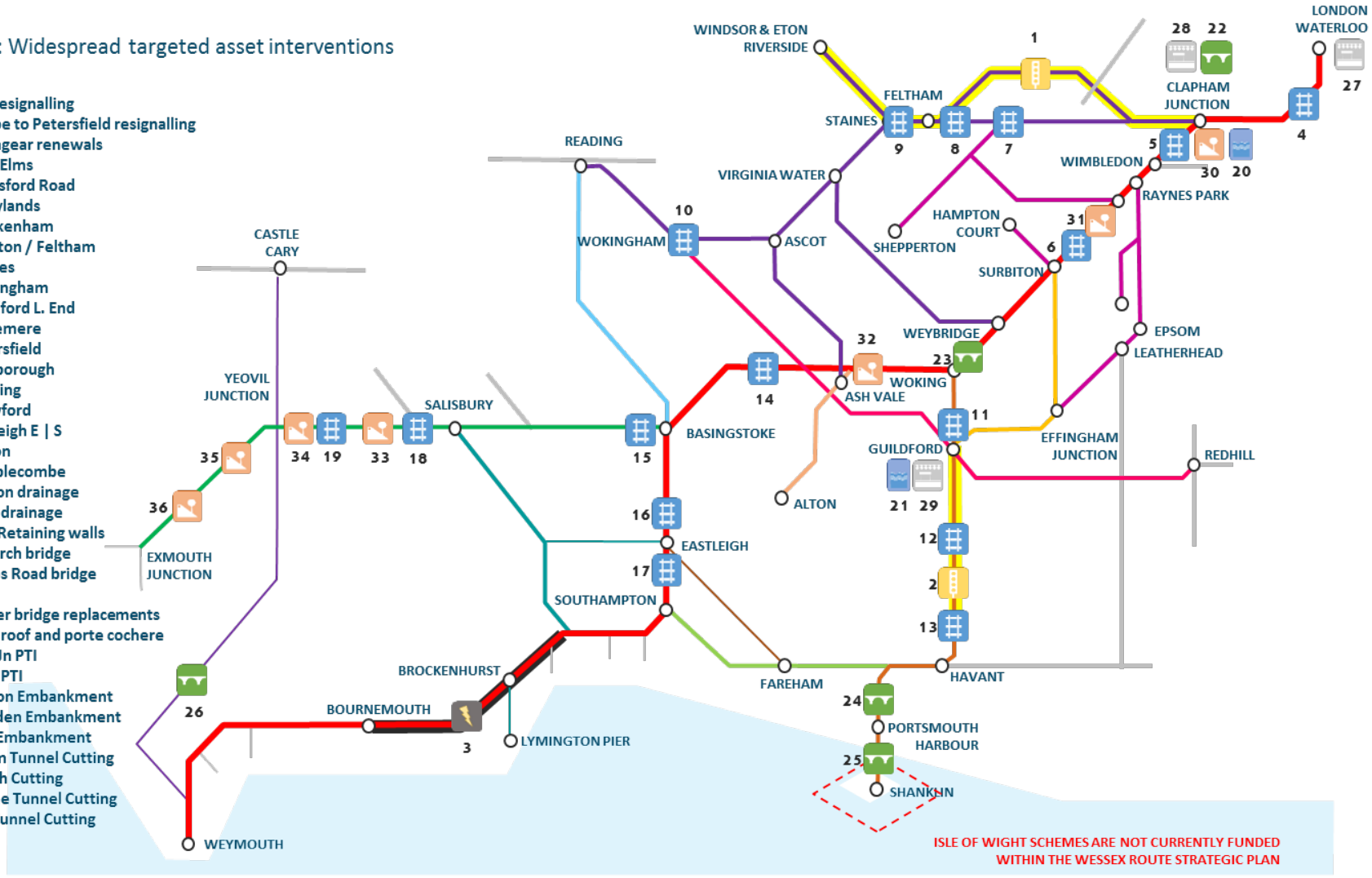
As our plans mature we will work with Sponsors, Access and Delivery stakeholders to model integrated work banks using Sharp Cloud. This will enable cross-asset prioritisation and create efficiencies through de-confliction and optimised planning. We intend to reinvest these efficiencies into further volume, to accelerate reaching policy compliance.

5.2.1. Summary route asset strategy

WESSEX ROUTE CP6 KEY RENEWALS MAP

Not shown: Widespread targeted asset interventions

1. Feltham resignalling
2. Farncombe to Petersfield resignalling
3. HV switchgear renewals
4. S&C Nine Elms
5. S&C Durnsford Road
6. S&C Berrylands
7. S&C Twickenham
8. S&C Whitton / Feltham
9. S&C Staines
10. S&C Wokingham
11. S&C Guildford L. End
12. S&C Haslemere
13. S&C Petersfield
14. S&C Farnborough
15. S&C Worting
16. S&C Shawford
17. S&C Eastleigh E | S
18. S&C Wilton
19. S&C Templecombe
20. Wimbledon drainage
21. Guildford drainage
22. Clapham Retaining walls
23. Victoria Arch bridge
24. St Georges Road bridge
25. Ryde Pier
26. Yetminster bridge replacements
27. Waterloo roof and porte cochere
28. Clapham Jn PTI
29. Guildford PTI
30. Wimbledon Embankment
31. New Malden Embankment
32. Pirbright Embankment
33. Gillingham Tunnel Cutting
34. Three Arch Cutting
35. Crewkerne Tunnel Cutting
36. Honiton Tunnel Cutting



Asset area	Intervention strategy (modelled long term asset reliability and sustainability outcomes are shown in Appendix F)
 Signalling	Current Position Approximately a third of the interlocking areas are currently beyond their 25 year design life and another 10% are nearing the end of their designed operating life. This has a significant impact on performance and may also increase the risk of wrong side failures. There is a measurable 3-fold increase in the number of signalling failures within these asset age groups compared to IXL areas that are less than 10 years old. Significant CAPEX funding is currently being utilised to renew life expired and degraded signalling cables in order to mitigate their impact on train performance. CP6 Strategy The CP6 plan caters for the complete re-signalling of Feltham and Wokingham, which was deferred in CP5 in response to the SCMT process. The additional funding plan includes Farncombe-Petersfield re-signalling (also deferred in CP5). The combination of these 2 schemes will not only help reduce the total number of signalling failures but also significantly reduce the impact of any failures within these areas. The strategy for the rest of the assets is to maintain the current level of asset performance through targeted external renewals. However, this will impact the sustainability of the signalling portfolio as it will result in significant investment being required in CP7 and beyond. However, it is assumed that this will align with the wholesale rollout of a fully functional Digital Railway. The Farncombe to Petersfield Re-Signalling scheme is planned to have the highest level of compatibility currently available with Digital Railway technology but will not be a DR installation. We do however, continue to review the business case for an ETCS overlay in the Feltham area, which we believe will be viable for delivery. Level crossings closures have been prioritised by safety risk levels and feasibility of closure; 2 active level crossings are scheduled to be closed. Furthermore, LX renewals are prioritised by considering the safety risk, condition and obsolescence of the assets, i.e. Automatic Half Barrier level crossings; 9 out of the 20+ life expired “Penguin” style AHB level crossings are planned for renewals/ conversion to MCB-CCTV (excluding Feltham and Farncombe to Petersfield LXs, which are already included in the re-signalling scheme volumes). Maintenance Renewal Balance Over the last 2 years, interlocking areas that are more than 30 years old have generated 4 times more volume of reactive OPEX and CAPEX work than interlocking areas that are less than 10 years old. This trend will continue in CP6 as the current workbank mainly consists of applying short term fixes in the form of targeted external renewals. Assets that are currently obsolete, e.g. “Penguin” style level crossing pedestals, as well as the ones reaching obsolescence in CP6, e.g. SIMIS system, will require additional maintenance until a full renewal or a re-signalling can be afforded. Consequently, this will lead to an increase in the amount of OPEX required to cover for the additional planned and reactive maintenance activities. Part of this will be offset by a reduction in maintenance volumes in the newly re-signalled areas cited above.

Track

Current Position

Our Track asset performance has improved since the start of CP5. This is as a direct result of a series of targeted S&C/PL renewals, several High Output campaigns and focused maintenance intervention. Improvements have been seen in various key indicators:

- Reliability has improved in the first 3 years (Track Reliability Index 31% better than CP4 exit and Service Affecting Failures reduced from 876 at CP4 exit to 603 at the end of 16/17)
- Serious Defects and Breaks stands at 2.35 better than CP5 exit target of 3.72
- Poor Track Geometry stands at 2.47% , better than CP5 exit target of 3.10%
- L2/100km has improved to record levels and stands at 30.6 better than CP4 exit of 45.13

The final determination of the CP5 track renewals programme has been largely reduced with limited interventions left in the last 2 years. This is a consequence of a failure to deliver against target rates and adjustments being made to offset overspends in Schedule 8. In addition, Opex challenges were set in order to meet route cash compliance targets. A number of schemes have been deferred to CP6 and therefore there is a greater deterioration in track sustainability measures. These deferred works may result in an increased pressure on Maintenance activity which will make maintaining current levels of track performance challenging, albeit safety performance will remain a priority. An additional £20M of track maintenance activity has been identified to mitigate the safety risk, resulting in a further increase to the renewal volume deficit.

CP6 Strategy

In terms of types of intervention, plain line (PL) and switches & crossings (S&C) volumes are lower than CP5 across all intervention types – driven mainly by the exclusion of High Output activity from CP5. A balance has been found whereby full renewal activity is targeted at life-expired assets and partial renewal/refurbishments improve poor performing assets. This will be balanced by maintenance delivering their core planned preventative activity volumes, reacting emerging issues and delivering the additional volumes to mitigate the shortfall in CP6 renewal volumes. An additional £20M has been identified for the additional mitigating maintenance activity. The introduction of rail milling as part of the RCF maintenance intervention allows a reduction in re-railing activity compared to the CP5 forecast.

The CP6 Track Route asset plan is a stepping stone towards achieving our long-term asset vision. It will take a few control periods to reach our ultimate target but proposed plans will contribute to it. With focused intervention (which may result in tactical short interventions inflating unit rates) across both renewal and maintenance activity we aim to achieve:

- Reduction of Service Affecting Failures by 10% across CP6 from CP5 Yr3;
- Poor Track Geometry, PTG, to remain in 2.25 to 2.5% range with zero unmitigated Super Reds;
- Repeat L2s reduced to 250 to 275 range (25-30% reduction from Y3 exit);
- Cease increase in H&S RCF with a visible reduction towards end of CP6;
- Year on Year reduction in CRT(W) <45deg on main lines;
- Reduction of crossing failure ESRs on BML1 corridor;

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Track</td>
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Safe deterioration in Sustainability;
Reduction of Track & Lineside Wrong-side failures >20 by 20%;
Reduce number of anomaly clearance sites by 20-25%

The delivery of the track CP6 strategy will be underpinned by the track asset management improvement plan, which covers all aspects of track management (RAM, maintenance, works delivery, IP(T)).

<u>Maintenance Renewal Balance</u>
Subject to new franchise commitments, there is a 4% increase in train kilometres in CP6 which will require an increase in inspection and maintenance. Within the funding envelope of the CP6 we have made a number of risk based trade-offs which mean that renewals levels are lower than those predicted by Central STE modelling. This will satisfy safety requirements at the expense of significant performance improvement, sustainability and large scale efficiencies.
With the Route requirements (asset balancing within the overall funding specification) resulting in a reduced renewal spend for Track in the core plan, increased Maintenance activity has been factored in to provide ring-fenced funds for targeted activity (for example focusing on S&C maintenance, TSR prevention, WSF reduction, RCF management) to mitigate the impact of the reduced renewal volume activity.
Due to the 70km shortfall in re-railing in TRS and PL Full volume from the National model, rail milling is deployed on Wessex to provide the route with an additional mechanism to manage RCF and should not be considered as a conduit to efficiency in re-railing.
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<td> 
E&P</td>
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<u>Current Position</u>
The performance of E&P Assets has been satisfactory in CP5 with the exception of DC cables connecting to the conductor rail and signalling power systems. The number of traction power SAFs related to DC cable failures continues to reduce from previous levels mainly due to the replacement programme for DC cable lugs and cable doubling which runs until CP7. The number of non-traction power SAFs is staying roughly steady despite the completion of earth fault monitoring RCM and associated targeted repairs and renewals of signalling power assets on condition basis.

<u>CP6 Strategy</u>
We will continue the programme of replacing poorly performing DC cable lugs, and carry out targeted condition based renewals across the traction power asset to mitigate the risk of safety and increased service affecting failures within CP6, and to avoid assets being taken out of service as end of life. For signal power assets we are focusing on reducing DPI of catastrophic incidents through proactive replacement of signalling power cables, improved system architecture and the implementation of improved RCM equipment.
The work bank is based on using asset policy interventions – we are planning interventions primarily where we expect equipment to reach end of life or fail within the next 5 years, and where equipment is already running in a degraded mode in CP5. Otherwise, funding is provided to repair particular assets on a reactive basis during CP6.
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 E&P	Maintenance-Renewal Balance The balance is similar to CP5 with additional Opex to increase maintenance of an aging asset base. There is additional Opex budget to employ technical staff in the maintenance organisation to carry out improved analysis of asset performance, carry out improved failure investigation, additional response staff to respond more quickly to faults, and also to fund maintenance of new equipment to be installed as part of the Electrical safety Delivery programme. The majority of Capex interventions are renewals as these are the best value for money for the asset. There is a small amount of funding for refurbishment of conductor rail to mitigate high wear or poor conductor rail fish-plated joint condition in localised areas.
 Structures	Current Position The reliability of structures assets has increased in CP5 through the recovery of examination compliance and programmes of targeted intervention on high risk defects through maintenance to improve the CRI position. However, the CP5 plan assumed that funding for years 3 -5 would be secured through the Civils Adjustment Mechanism. As this was not concluded the volume of work is reduced and this has led to deterioration in the overall condition profile, particularly in the metallic bridge inventory and therefore the CSI asset sustainability target for the control period will not be met. In addition to an overall deterioration in condition, the assessment backlog recovery has shown that a large percentage of our bridge inventory is being managed at reduced factors of safety. CP6 Strategy Within the constraints of the baseline CP6 expenditure target, renewals are targeted mainly at intervening on assets to restore capability, with a high volume of strengthening activity compared to CP5, but with a significant reduction in whole life cost activity such as painting and brickwork repairs. This will ensure that our assets remain safe for operational use without long term network restrictions but with a continued deterioration in the portfolio condition. The intervention strategy will ensure all that all minimum category A policy targets are met, whilst maximising the available investment to complete category B and C policy targets which align to the route vision Maintenance-Renewal Balance Asset condition deterioration will be mitigated through an increase in operational costs compared to CP5 and targeted maintenance. This will allow for the CRI CP5 exit position to be maintained, a large reduction in the volume of unconstrained maintenance backlog and an improved workforce and public safety risk profile.
 Buildings	Current Position The reliability of assets within the Buildings portfolio has improved through CP5 to date as a result of targeted planned preventative maintenance activities. However, this improvement has not been to the expected level, due in part to the deferral of projects as a consequence of budget reductions. This has also impacted the Buildings CSI measure with the overall station stewardship measure (SSM) scores worsening. The ongoing operational property structural assessment programme (OPSAP) has identified a number of station assets

 Buildings	that require strengthening in future years. <u>CP6 Strategy</u> Works within CP6 will be focused primarily on improving passenger and workforce safety, reducing the performance impact of property-related faults and improving welfare facilities for staff. This will be achieved through targeted works to reduce the risk of objects falling from height at our stations, reducing slip, trip & fall hazards at stations and the renewal of plant and fabric within our lineside buildings. The intervention strategy is to deliver works for legal compliance, then planned preventative maintenance. This provides the core of the work bank, alongside minor emerging works and targeted renewals. Renewals will be focused mostly on strengthening and repair projects. The work bank will be subject to a review to ensure it is coordinated as far as possible with the commitments made to DfT by SWR. The delivery strategy for CP6 is to ensure the best-value deliverer in terms of safety-risk and cost is allocated to each renewals project. It is also expected the scopes will have narrow focus to allow the maximum benefit for the limited funding. The B&C Works Delivery team will increase in headcount as the mix of work type sees an increase of smaller scale interventions.
 Geotechnical	<u>Current Position</u> Earthworks asset performance is measured by a reliability index at the national portfolio level and a sustainability index measured for the route. Both measures are extremely sensitive to the impact of prolonged or extreme wet or dry weather events. The Earthworks reliability index is measured as the rolling 5-year annual average of service-affecting asset failures across the national earthwork portfolio. In Wessex over CP5, the reliability index has declined and will continue to do so as we exit the 5-year period including the high failures experienced at the end of CP4, caused by the St Jude storm. Line closures from earthwork failures have risen from 23 in CP4 to 25 in the first 3 years of CP5. The sustainability index is measured as a weighted average condition score for all earthwork assets for each Route. The sustainability index for Wessex and other SE Routes shows a marked decrease in asset condition following the St Jude's Storm in Winter 2013/4, from which we are unable to recover in CP5. <u>CP6 Strategy</u> Our CP6 objective is to manage the safety risk of our asset and we will achieve this by undertaking renewals at failed assets where works were deferred from CP5 and at those assets expected to fail during this Control Period. However, at the current reduced asset condition index, the likelihood of failure is rising. We aim to maintain the same level of earthworks reliability (asset failures) in CP6 to CP5 through increasing our volumes of preventative drainage schemes, remote condition monitoring and early, 'soft engineering' solutions. The interventions in CP6 are based around mitigating safety risk through 3 main programmes of work – Remote Condition Monitoring (installation and maintenance of existing), embankment renewal of embankments which are already showing signs of failure to prevent catastrophic failure during extreme weather and Soil Cutting Crest Ditch Work. The interventions are based on a bottom up work bank where the sites with the highest likelihood of failure and highest subsequent consequence of failure have been prioritised. On large soil cuttings a refurbishment has been proposed where a renewal would be cost prohibitive. However, renewals on embankments are favoured

 Geotechnical	over refurbishments due to the need to remove the root cause of the instability, which is usually not removed during a refurbishment. Maintenance-Renewal Balance The current volume of maintenance intervention allows us to mitigate areas where a more effective renewal or refurbishment has been deferred as a result of the affordability challenge. We have therefore increased spend in the maintenance/OPEX area to reduce the safety risk on these assets, and have several deferred renewals from CP5 that will be carried through for renewal in CP7.
 Drainage	Current Position The drainage asset portfolio consists of a large stock of largely Victorian piped drainage and many miles of open channel and unlined ditch. In most cases many of the pipes remain in good order, but the systems do not perform well as short lengths of pipe run can collapse, joints can displace, and many systems are simply blocked with silt and roots. Unless a system flows freely throughout its length it does not perform a drainage function, leading to wet ground that can negatively impact track quality, and lead to drainage system collapse and allow the track to flood. CP6 Strategy During CP6 the focus is on spot repairs and mechanical clearance of existing systems to restore connectivity to bring these systems back into use. This will be backed up with an increase in maintenance to keep systems flowing once restored. Work will be concentrated in areas with known track quality problems, and at complex junctions to prevent track quality problems developing in these high risk areas. System renewal will be undertaken at locations where track renewal is planned, to create deployment efficiencies in track access and site management, and to maximise service life of new track formations. Off track drainage consists largely of unlined ditches, these have had very little attention in recent decades; the focus in CP6 will be to locate, record and restore those assets that could reduce risk in soil cuttings, or which form part of the track drainage system. In high risk soil cuttings the focus will be to assess system capacity to modern standards and to enhance the systems where required. Maintenance-Renewal Balance The drainage portfolio is not yet fully captured into a single asset register and we continue to capture first time data into Ellipse. Maintenance teams will be bolstered in CP6 to ensure that systems are inspected and that systems rehabilitated in CP5|6 remain free flowing. A programme of mechanical drainage maintenance will be instigated for the first time in recent history. Complete asset knowledge will enable a more thorough understanding of the importance of this asset class and is likely to lead to higher levels of maintenance, renewal and refurbishment in CP7 and beyond.

 Telecoms	<u>CP6 Strategy</u> Safety, security and innovation feature are part of NRT's plans and activities committed to CP6. Our investment plan sits alongside 6 themes of improvement that provide benefits to different stakeholder groups. **A transition to a single IP telecommunications network** will improve the availability, performance, scalability and security of national connectivity and assets, remove non-maintainable end-of life assets and spares, reduce cost and complexity and exploit new technology to extend the use of assets for passengers and lineside neighbours. Improvements to Network management, monitoring and orchestration capability will deliver better business knowledge for making business decisions. By **standardizing asset and services**, NRT will deliver open architecture to 'plug and play' securely, improve delivery lead times, simplify competency requirements and move to an end-to-end SLA-focussed delivery. NRT continues to **mature our business operations**, developing processes and competencies and delivering the Operations Support Services (OSS) platform to enable self-service opportunities. NRT will increase investment in order to **mitigate the decline of asset sustainability** level from CP5. We will work towards **extending the use of assets and infrastructure** to underpin the digital railway, meet government aspirations for better mobile connectivity on trains and inclusion of our lineside neighbours. <u>Deliverables</u> The NRT budget is concentrated to address concerns with aging telecoms equipment and power supplies to support critical assets, in particular: • New hardware, including energy efficient displays and improved cameras and audio equipment will be installed on all Station Information and Surveillance Systems on Wessex Route to improve the quality of information provided at stations and reactive minor works budget for cable and route renewals • Further investment in Network and GSM-r on Wessex will continue to replace legacy systems on a reliability-prioritised basis
 Asset data	Asset Data Management: This is a basic requirement to be able to trust our timely, accurate and well utilised data to make better business decisions. Asset Data Governance work will continue so as to deliver basic quality requirements. Central change and information services will need to be reviewed in order to meet regulatory requirements and basic foundations.

5.2.2. Research & Development

A central NR pipeline for new technology already exists and is available to Wessex Route as a solutions catalogue. Central Research, Development and Technology projects that form the pipeline will continue to be progressed to the end of CP5, to the extent that funding allows. The solutions catalogue is currently being reviewed for potential future applications, so as to achieve more efficient, better value outputs as post-CP5 planning progresses.

National Research & Development Programme	Indicative Nature of solutions (CP6)
Safety	• Detecting objects • Track worker safety • Safer level crossings
Punctuality (train performance)	• COMPASS • Telecoms capacity projects
Value for Money (Asset Management)	• DifCam
Value for Money (Renewals)	• EULynx
Capacity (enhancements)	• Avoiding Bridge reconstruction to enhance gauge • Battery powered trains and double decker trains
Stakeholders (satisfaction and reputation)	

Solutions that are being progressed with the expectation of being available for deployment in CP6 and beyond are summarised in the table of National Research and Development Programmes, along with the primary performance area to which they contribute.

Intelligent Infrastructure

Intelligent Infrastructure is under development between Route and Central NR function on a number of projects, shown in the table below that will begin to add value in CP6.

Intelligent Infrastructure Work Package Title	CP6 Benefit
Fault and Defect Management	LOW
Predicting Failures & Degradation	**HIGH**
System Model & Asset Criticality	**HIGH**
Long-Term Workbank and RAMP Tool	MED
Work Delivery Planning	**HIGH**
Materials and Inventory	MED
Asset Register, Work Breakdown Structure and Compliance Management	LOW
Small Assets and Traceability	LOW
Cost Management / Unit Rate Integration	MED
S&C Dynamic Inspection	MED
Design for Reliability	LOW

The greatest benefits are likely to be realised through the following work streams, and are core to us realising planned efficiencies in our maintenance strategy:

Predicting Failures and degradation

A new platform will be created that integrates data from multiple systems, including near real time monitoring and alignment to geographical location, and hosts a standard set of tools for Asset Management, Maintenance and Operational analysis and decision making.

System Model and Asset Criticality

We will create a 'Virtual Railway' model that identifies how individual assets contribute to the railway-as-a-system, including the expected operational performance and safety impact of a specific asset failing. An enhanced system model informs the expected performance and safety impact of a specific asset failing.

This will enable production of system criticality model which understands Network Rail's infrastructure as a system and can articulate the likelihood /consequence of an asset failing.

PLPR camera: better failure detection and understanding of system impact

Work Delivery Planning

This project will improve the planning and co-ordination of Capex and Opex work, thereby reducing conflict and late notice change, which will improve our efficiency, through:

1. Early work order generation for cyclic maintenance work.

2. Alignment of possessions and routine maintenance cycles

3. Integration of our asset management system and resource planning systems

4. Implementation of planning and optimisation tools, which will automatically generate a delivery plan, based on resource capacity and work delivery constraints

5. Development of tools that automatically generate the safety critical information required for undertaking the activity.

5.2.3. Weather resilience

The Wessex Route Weather Resilience and Climate Change Plan has been developed to guide the route on areas of investigation required to better understand the risk profile a changing climate will bring in the future, and highlights some projects required to mitigate well understood existing risks.

In CP5 work was undertaken to improve the understanding of Coastal & Tidal flood risk and significant works were undertaken to reduce flood risk at Fulwell in the Thames Valley, and River Axe on the Salisbury – Exeter Line. Further resilience works have been funded at sites of regular flooding for construction in CP5 Y5; these are located at Hedge End between Fareham & Eastleigh, at Sway in the New Forest on the Bournemouth main line and at Sherborne on the Salisbury to Exeter Line.

Wessex Route actively engages with the flood risk management community, alongside Western Route we support a flood risk working group jointly attended by the EA (Environment Agency). We are also actively involved in the development of a large EA sponsored flood defence scheme near Datchet in the Thames Valley, several EA sponsored schemes in the Surrey CC area, an EA sponsored scheme on the Isle of White, and we are jointly working with East Devon DC to support delivery of flood defence improvements at Feniton.

Core work in Geotech, Drainage, Bridge Scour, Lineside tree removal and ongoing vegetation management, and operational improvements, including improved seasonal preparedness can lead to significant resilience improvement. No significant resilience projects are funded in CP6. Work is currently ongoing in developing a central resilience funding stream and we will work actively with the central team to build a strong case for investing in the following identified schemes:

Port Creek Viaduct

This large viaduct crosses a tidal creak, it floods at spring tides and flooding will become more frequent as sea levels rise. Due to the low level of the track the railway line forms a low spot in flood defences to Portsea Island and in the long term a replacement bridge will be required to improve flood resilience to both the railway and the defended community. The route have actively engaged with the Environment Agency, Portsmouth City Council and their designers on the construction of the new flood defenced, a replacement bridge is unlikely to be progressed ahead of late CP7, but must be delivered before the mid 2040's.

Yetminster Bridges

Two end of life bridges are due to be replaced with new structures in CP6. Both bridges are at risk of inundation during periods of wet weather requiring the Weymouth to Yeovil line to be shut to manage safety. Bridges will be replaced like for like, the lowest cost option in CP6 if no resilience funding is available; if funding can be obtained a larger scheme to increase the capacity of the river bridges will be commissioned significantly reducing the frequency of line closures.

Repairs at Poole Harbour, April 2017

Poole Harbour

The stone pitched embankments that connect the Poole Harbour viaducts to each other and to high ground are subject to increasing rates of erosion due to increasingly stormy conditions and increasing sea levels.

This risk is managed by a programme of inspection and spot repairs. If resilience funding is forthcoming these embankments will be robustly improved with rock armour, removing the need for reactive repairs following storms and significantly reducing the possibility of line closing damage to the asset occurring.

5.3. Operational plan

CP5 saw the completion of the Basingstoke campus and the successful move of the WICC from Waterloo to the ROC at Basingstoke. We have also rationalised DU geographies from 3 to 2 to align with operations. There are currently no signalling systems in the ROC but CP6 will see Feltham and Farncombe Petersfield being re-signalled to the ROC. We will also rationalise the Electrical control rooms to the ROC on completion of the national SCADA project.

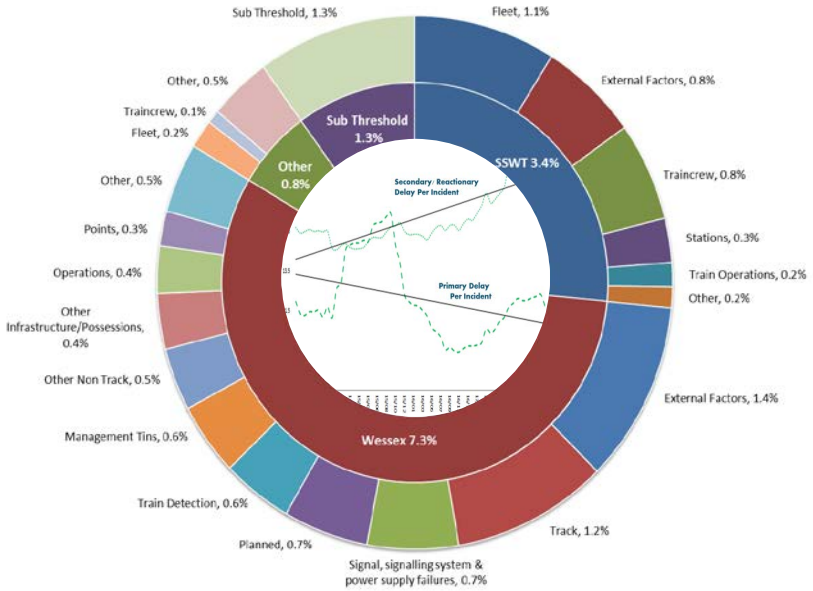
Basingstoke Campus will become more established as the heart of our route business, whilst maintaining a small presence in Waterloo to align with TOC location and commitment to a Joint Alliance. That means we need to focus on a talent and recruitment campaign in the Basingstoke area if we are to secure the vital new intake to sustain our workforce.

CP5 has demonstrated the value of an alliance between train operating company (TOC) and Network Rail (NR) in delivering outcomes on Wessex Route. We anticipate that Wessex will maintain a similar structure with the new franchisee in four areas of shared interest; Performance, Planning, Waterloo Station and Integrated Control. A continued joint executive and shared focus on safety will also be maintained with critical alignment of objectives and targets between both parties.

5.3.1. Train performance strategy (refer to Appendix A)

Our Train Performance Strategy for CP6 is to move further towards a predictive and resilient service. This will see a better use of data and roll out of Business Continuity to manage performance by risk rather than by outcomes. Wessex has currently setup an analytical methodology for assessing the performance benefits of maintenance and renewals activities. This is limited to assessment of proposed schemes and will be supported by the national Business Continuity approach, which should be established in Wessex in readiness for the start of CP6.

Our CP5 train performance has been challenging. We have seen a year on year underlying sustained decline in PPM of 0.7% per annum over the last decade, and have not met our PPM target in the same period. We have seen a reduction in infrastructure failures; however, because of the density on the Wessex network, our ability to recover has worsened,



leading to higher delay per incident. Our deeper alliance with SWT identified crew initiatives to improve our recovery, but there is more work to be done in CP6 as rail passengers continue to grow.

The following performance hotspots are a focus for Wessex:

- Waterloo resilience – track circuit conversion
- Resilient signal power supplies – Waterloo to Wimbledon
- Portsmouth line – Signalling system (Farncombe to Petersfield renewal), Traction power resilience (TP hut conversion programme)
- Weather resilience on West of England line
- Eliminate TSRs from level crossing sighting by end of CP6
- Implementation of advanced RCM equipment to be better able to predict failure of signalling power systems, including core to earth and core to core faults, and to include fault location functionality to reduce fault finding timescales in event of a power loss fault.

Furthermore, we will work hard with SWR to ensure that performance risks arising from new fleet and new timetabling are eliminated and or mitigated.

We are reviewing the existing train performance strategy reflecting analysis and changes put forward by the new SWR franchise. Our current projection of performance falls short of the franchise target because we have made conservative estimates of TOC performance improvement outputs whilst these plans are developed and outcomes fully evaluated.

There is a broad range for CP6 exit PPM. If Network Rail is to meet the SWR franchise PPM commitment, we depend on excellent collaboration with SWR to fully realise the opportunities of the proposed improvement initiatives. A full list of joint performance initiatives is available in Appendix A, and summarised below:

- Fleet reliability
- Stock and Crew system
- Stabling for stock, especially in Wessex Inner
- Dwell times and peak killer reduction plan, including new fleet
- Incident management system
- 2018 and 2020 timetable rewrites
- Delay Per Incident action plan
- Suicide prevention: we continue to support the central plan of working with the Samaritans and installation of barriers at hotspots, where the business case exists

5.3.2. Route operations strategy

Our Route Operations Strategy continues to evolve. In the short term of CP5 and CP6, it is dependent on our Route Better Every Day initiatives, which focus on better 'hotspot' management and implementing cyclical maintenance access plans. Additional resources have been introduced

into the Operations team in CP5 to enable better proactive and reactive management of incidents.

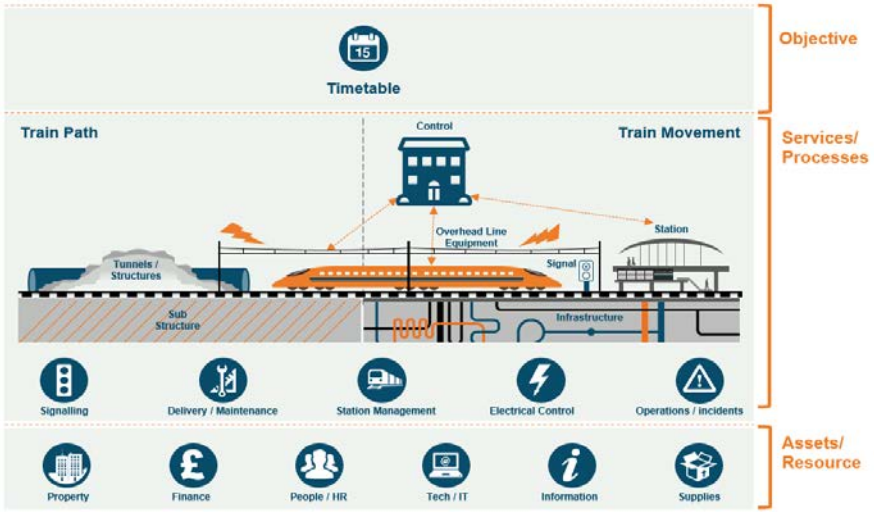
Wessex currently has the capability to routinely capture and map the worst performing areas of the route. Our Better Every Day team is growing in maturity to better deliver structured continuous improvement in targeting preventative infrastructure interventions and improving our operational recovery.

In the long term, our Operations Strategy is to provide the resources, process and technologies that will enable operation of the Digital Railway. Our people strategy will need to focus on the migration of staff to the ROC, and ensure that there is a competence and recruitment process in place.

- Retain joint control and continue to develop joint contingency plans within alliance with SWR
- Introduce an incident management system to facilitate continuous improvement in recovery of incidents.
- Isolated Traffic Management to assist decision making, assuming Digital Railway business case is funded.
- Seek to embed BTP representative in WICC 24/7.
- Re-signalling of Farncombe/Petersfield will allow closure of 3 signal boxes on the Portsmouth line.
- Signaller recruitment pipeline tracking to 0% roster gap.
- Delivery of SCADA project will enable rationalisation Eastleigh and Raynes Park ECRs to Basingstoke ROC. We do not expect it to realise headcount efficiency but rather deliver better planning of isolations and therefore efficiency in delivery; eliminate obsolescence risk; and also mitigate Industrial Relations risk.
- We will review our MOM coverage strategy to meet response time targets (inner: 15 mins, outer: 30 mins). Opportunities to deliver this may include mobile resources rather than fixed depots and use of drones, but there are potential IR challenges with this and these need to be developed carefully.
- Introduce a dedicated Outer EIU to supplement existing Inner EIU.
- Move to cyclical and standard possessions to improve quality of planning and reduce errors. It will also provide a platform for continuous improvement
- Root and Branch review of accommodation and communication systems provided to PICOPs to improve management of possessions process.

5.3.3. Approach to resilience

Performance resilience initiatives will be prioritised and delivered throughout all areas of the Route in alignment with the Network Rail Business Continuity Model methodology.



We will improve our Asset Management (delivery/ maintenance) resilience capability by making best use of performance data to drive maintenance and targeted renewal schemes to reduce the number of service affecting failures.

Best use of Remote Condition Monitoring and train/ drone borne inspection data will be used to locate failures earlier and more precisely, which will enable planned preventative interventions and accelerate fault rectification work.

Wessex will continue to pursue new technological solutions for data gathering and increase its analytical capability to move towards predict and prevent intervention strategies throughout CP6.

As we work through the methodology of BCM, we will update our Route Strategies to provide resilience in the people, processes and technologies that enable us to run the railway.

5.3.4. Trespass and Vandalism Strategy

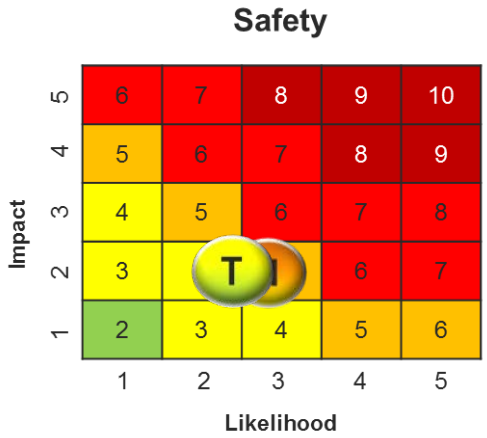
Wessex is committed to reducing Trespass and Vandalism incidents through our joint approach with SWR; SWR leads the Route Crime Reduction team which has active participation from the Wessex Route operations and business change teams, and includes.

- Expansion of the 'complimentary policing' involving SWR's Rail Community Officers, local BTP officers and Network Rail's Mobile Operations Managers and Emergency Intervention Units (EIUs).
- Continued community engagement promoting railway safety involving members of the Wessex Route management team that undertake a programme of visits to local schools each year.
- Close liaison with the BTP; notably the continuation of the 'BTP Embedded Inspector' in the Integrated Control Centre. There are plans for this presence to be expanded in CP6 to become 24/7.
- Improvement of intelligence to better task our T&V reduction activities.
- Investment in physical barriers e.g. platform end gates
- New technology to identify, confirm and assist response to incidents at unattended stations e.g. drones and smart CCTV
- Review of CP5 Route initiatives, e.g. Trespass Reduction Teams as well as effective initiatives from other Routes, TOCs and overseas.

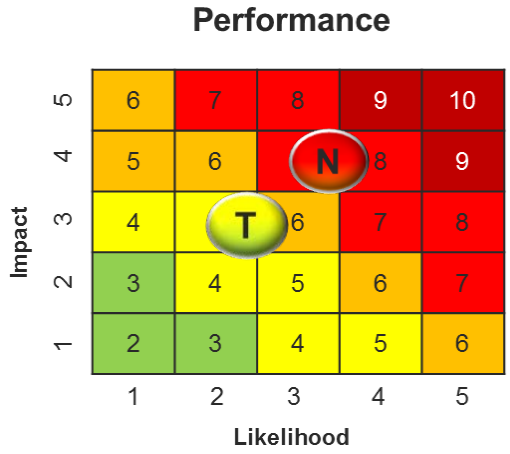
5.4. Output summary

5.4.1. Risk

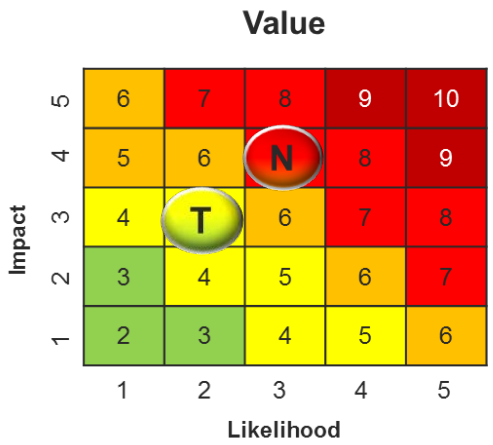
The following risk heat maps have been aligned with our strategic risk management system, ERR. Further details on the methodology for aligning our ERR and Strategic Plan and given in Appendix I. The risk outcomes from our CP6 Plans outlined in Section 4, are shown below:



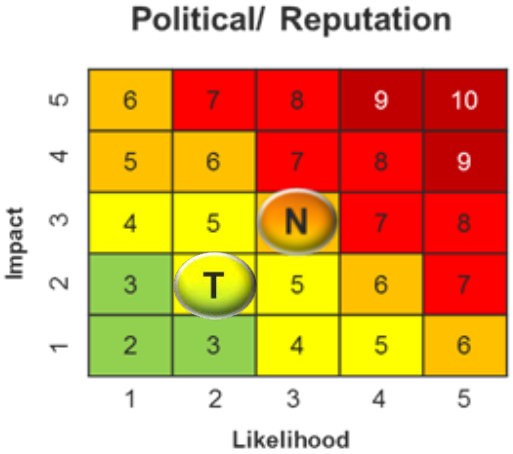
Summary of risk outcome
Our safety risk will continue to be managed within risk appetite, having prioritised the key behavioural safety initiatives that are affordable and have the greatest added benefit. CAPEX has similarly been prioritised so as to target the highest risk areas that would benefit from safe asset vision investment (safe cess and improved access) through to 2029.
We will invigorate PDSW so as to realise as much safety benefit and planning efficient as possible, Our compliance with the Electricity at Work Act is reliant upon dedicated funding, estimated at £55m, which in no longer being funded nationally. Wessex will now assess the consequences and mitigations of non-compliance against the safety implications of diverting funding away from other parts of our programme.



Summary of risk outcome
Our performance risk is on the boundary of the NWR risk appetite. CP5 remains a significant challenge that requires continued focus on key areas and continued close collaboration as an Alliance. Particular focus is being given to the causes of sub-threshold and non-infrastructure delay. Incident Officers have recently been appointed to provide a dedicated delay management resource that should improve our incident recovery and reduce DPI. However, current proposed infrastructure interventions (enhancements), and forthcoming projects (DR and CR2) present challenges to overcome, so as to best mitigate their inevitable performance impact.

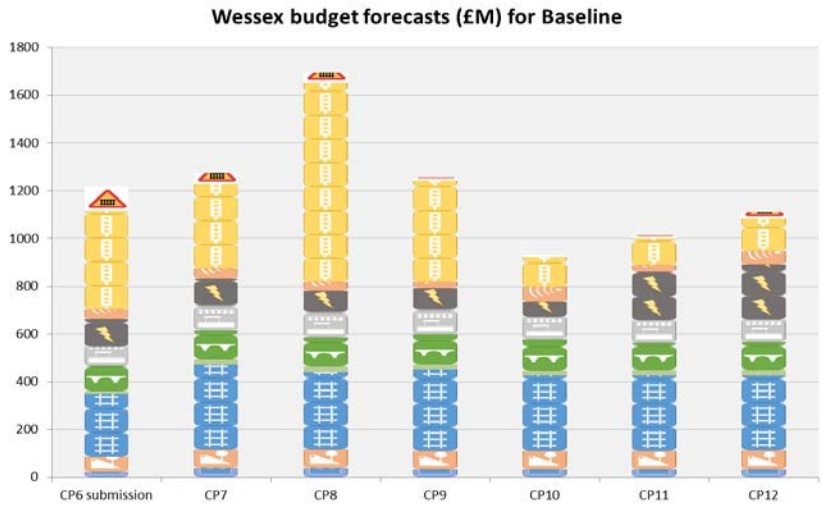


Summary of risk outcome
Asset value: Optimal value has been obtained from careful capital investment that is limited to high priority renewals, whilst stretching asset performance beyond modelled design life. Although this maximises asset value, asset sustainability drops in the longer term, without further capital investment in CP7.
Business value: We will also reconfigure ourselves, making best use of Route Transformation, so as to deliver the very best value of the current funding, whilst seeking 3rd party investment so as to augment CP6 funding and to reduce the need for further public subsidy.



Summary of risk outcome
Reputation is generated from trust, which is central to our Vision. Current risk is related to being able to deliver on PPM, minimising the impact of infrastructure change on our passengers, line-side neighbour disruption and delivering value for money services.

5.4.2. Long run forecast



- This graph describes the long term expenditure forecast to control period 12, assuming expenditure levels for CP6 are consistent with the levels outlined in this plan.
- Beyond the end of CP6, the assumed level of investment is that to retain the character (condition and performance) of the asset at CP6 levels.
- Individual asset condition and output long term trajectories for this long term level of spend can be found in Appendix F.
- In summary, the greatest risk for Wessex is the bow wave of life expired signalling equipment in CP8. It is vital that in CP6 Wessex delivers Feltham and Farncombe to Petersfield re-signalling schemes and Waterloo and Wimbledon resignalling in CP7 in order to avoid severe operational restrictions in CP8. The benefit of this bow wave is that it will expedite roll out of Digital Railway by the end of CP8.

Expenditure and implications	Mitigations
• The overall long term constrained budget for Wessex is 80% to 90% of the BASELINE budget each control period. • In CP6: Track, E&P, Off Track reduced to 60% of the BASELINE budget • Why? We have taken a difficult system-led decision to safeguard the renewals which have the	Average Remaining Life • Track will see a gradual but sustained rise in asset age, however managed through increased maintenance to reduce the number of Service Affecting Failures. • Earthworks condition continues to fall and the risk of service affecting failure will rise. Management of this risk will be through increasing Remote Condition Monitoring and preventative works such as drainage improvements. • The number of Signalling, Telecoms and E&P assets that are life expired continues to rise. At the given baseline, there would be a bow wave of Signalling renewals required in CP8 that would be undeliverable through resource requirement and excessive disruption to train services. • Operational Property PARL declines from 55% to 45% by CP9. Of greater concern is the increase in PARL <20% from 35% to 50% by CP9. • Structures poor condition PLBE will remain relatively static at current levels for overbridges, but with a slowly worsening profile for underbridges from CP7 to CP12.

greatest un-mitigatable impact on Train Safety and Performance, which sit within the Civils and Signalling portfolios. • CP7 ONWARDS: Constraints are borne evenly across all Asset groups, at around 80% - 90% of the BASELINE budget	• SICA remaining life for Signalling assets drops to 11.5 years at the end of CP6 in the constrained scenario due to 72% of assets with less than 10 years of SICA ARL left. This leads to significant investment being required in CP7 and beyond, which will gradually increase the SICA ARL to 13.7 years by the end of CP9 before increasing to 19 years by the end of CP10. However, this would be coherent with a wholesale DR implementation. Long term consequences and Mitigations • The 'under train' assets will be managed more proactively through better use of data and technology to provide early warnings for safety, increasing through CP6, and to enable early, efficient interventions from CP7. • Faster Safer Isolations in CP6 and the arrival of Digital Railway from CP7 will enable more productive possession working; therefore will enable better asset performance at the same rate of investment. • In the short term, track maintenance costs will be higher to balance the shortfall in track renewals. • In the long term, unless there is a step change in Track Capital funding, sustainability will become a performance problem in mid to late-CP7 where the volume of work required to maintain or improve track performance will outstrip capability • Operational Property are likely to see a growing trend of wrong-side failure and incidents as the proportion of assets with PARL<20% increases. This will require greater funding to react to these items, reducing the available funding for renewals to help improve the portfolio. This will probably lead to reputational issues as these are the primary customer-facing assets. • Structures faults will be relatively static, but this metric only covers a small proportion of the portfolio. Risks around walls and culverts are continuing to grow and are likely to require funding to prevent safety issues, reducing available funding on bridges, reducing the condition metric more than shown on this graph. • Re-Signalling of Feltham and Farncombe-Petersfield will improve reliability and performance of the suburban and the Portsmouth direct route. However, reliability of Signalling assets along the SWML, down to Dorchester, will deteriorate in CP6 resulting in an increase in number of sites with worsening wire degradation and red earths that could have serious safety and performance implications. Also, lessons learnt from the deferral of Feltham and Farncombe-Petersfield show that assets nearing the end of their life could degrade rapidly with unknown consequences. These will be managed through a combination of targeted spot renewals as well as reactive work, which will put a significant strain on both OPEX and CAPEX budgets for CP6 and beyond. • E&P renewals will move to a fix on failure approach, significantly increasing the risk of power loss caused by multiple failures. This will require more Opex to allow for more faulting and technical staff to mitigate the increasing levels of asset failure.

6. Customer focus & capacity strategy

During the next Control Period, Wessex will build upon the devolution of responsibilities to the Route that was successfully delivered in CP5. As a consequence of the introduction of our Supervisory Board, the greater the capacity we now have to work with our lead TOC, SWR, and others to deliver locally requested and delivered outcomes for our customers.

6.1. Capacity & timetabling

Wessex Route and SWR will have two opportunities in CP6 to deliver a new timetable, in December 2018 and December 2020, to capture the benefits of the Waterloo Capacity enhancements from CP5 and also to address dwell times that have been consistently unachievable, for example on the New Guildford Line.

Our performance and operations teams will also be looking to develop better timetable resilience, by working with our customers and central planners to understand what opportunities there are to:

- Plan with greater accuracy
- Understanding the opportunities to manage dwell time at pinch points
- Understand how connected driver advisory system (CDAS) as a forerunner to ETCS and Automotive Train Operation, could improve perturbation recovery.

We will continue our recent work of improving resilience plans, in conjunction with SWR, to improve our ability to deliver our timetable commitments and to recover the train service as quickly as possible following disruption. Wessex Route will continue to introduce the new Network Rail Business Continuity methodology, which will help us identify the assets, systems and processes that are critical to delivering the timetable, in order to target performance resilience plans.

6.2. Future capacity & growth

Wessex Route engages with the Network System Operator to align its Strategic Plan with the capacity growth and connectivity outputs shown in the Route Study, August 2015. On the peak main lines, passenger growth is expected to grow by 40% by 2043. In particular, between Surbiton and London Waterloo is the most densely operated stretch of mainline in the UK. There is little scope to add further services without significant improvements to the signalling and other infrastructure.

The System Operator's priorities for CP6 will be to focus on Wessex Capacity Phase 2 and grade separation at Woking. Wessex will build on the CP5 Wessex capacity scheme through a series of major interventions: congestion relief at Clapham Junction Station will enable safe and high quality passenger interchange and will be developed in partnership with CrossRail2 in order to achieve a future-proof design and implementation plan.

At Woking we will continue to develop the grade separation of the Main and Portsmouth lines, as well as conversion of platform 6 into a through platform. These enhancement schemes will enable increased numbers of services to run and stop. Our aspiration is that these schemes also enable development of the estate.

The South London HV power supply programme will also be delivered in CP6. This scheme will provide long-term capability and

resilience of HV power supply and takes account of future service and rolling stock requirements associated with Wessex capacity, train service specification and CrossRail2.

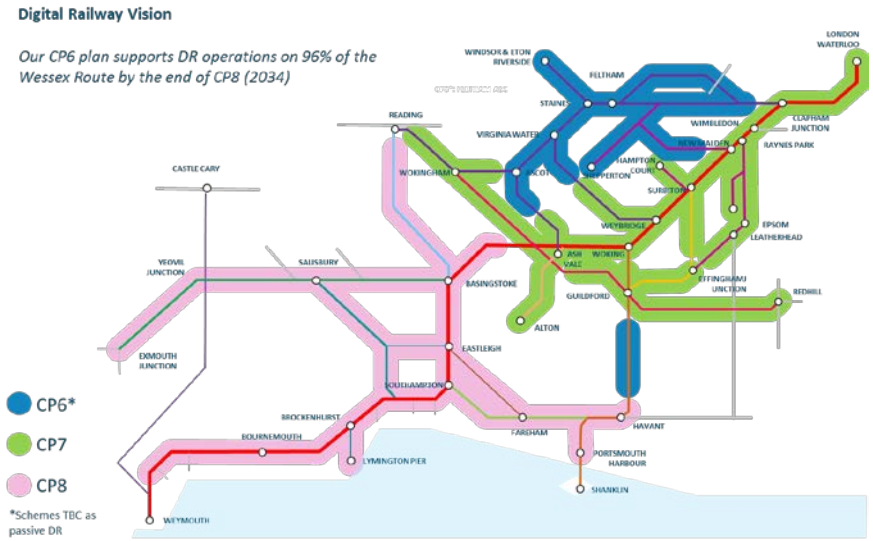
A series of smaller scale stations interventions are also required at the following stations: Surbiton requires improvements to stairs and footbridge; Wimbledon requires an additional or improved platform interchange footbridge; Waterloo Exit Two and its interface with the public realm and Jubilee line ticket hall is a cause of concourse crowding and queueing; Guildford Station suffers with problems of congestion on station, poor public interface and constrained platform capacity. There is a possibility of third party funding so as to develop joint opportunities for the best use of NR property.

In liaison with the FNPO team, Wessex will support a growth in freight volumes from Southampton docks, transporting cars and aggregate to the north, and East-West aggregate transportation. This will require an increase in train paths available on the mainline and robustness of the Reading Basingstoke line, for which there is not a suitable diversionary route. The FNPO strategy for CP6 is shown in Appendix H.

6.3. Digital Railway

In CP6, in partnership with our franchise operator, Wessex Route will support new traffic management technology where appropriate, in order to reduce reactionary delay and improve our service. Furthermore, Wessex is committed to delivering a Digital Railway at the earliest feasible opportunity, in order to bring about the greater network capacity that our customers are relying on (chapter 2).

The Wessex Vision for Digital Railway is to be digitally operating over 90% of our network by 2034. In CP6, passive provision will be included in the Feltham and Farncombe to Petersfield re-signalling schemes, however, are unfunded in this core submission. By 2029, the end of CP7, DR will operate on around 50% of the Wessex network, including all inner main and suburban lines, up to Woking. By 2034, the end of CP8, we aim to have completed all major re-signalling schemes and upgraded these to digital technology.



Our implementation strategy is to roll out DR technology in line with signalling asset policy renewals, which sees a bow wave of signalling activity due in CP7 and CP8, ref 5.4.2 for the long term forecast. The current cost estimates are indicative and prepared on an industry level. Further cost and benefit information will follow the implementation of early DR schemes, which reflect traditional procurement and delivery methods and include a 'first deployment' cost premium that should reduce as experience grows.

Development of strategic outline business cases for Woking and Digital

Railway is a key activity for late CP5/early CP6, including the implementation of one Traffic Management system. Detailed implementation planning, including everything from supply-chain strategy to industrial relations strategy must be developed in CP6.

Wessex Route has, in conjunction with DR, identified an opportunity to deliver and ATCS overlay at the same time as a conventional re-signalling scheme at Feltham. The commitment is that this will be delivered to the same commissioning plan and DR expect it to be deliverable within the same funding envelop However, DR are underwriting the risk for this enhancement so that it does not impact the route OMR plan.

6.4. Communications

In CP5 Wessex established a Route Communications team. This team has implemented an effective communications strategy which, since its creation, has enabled the Route to communicate in a more proactive and successful way; we will develop this strategy further during CP6.

The outcome of the communication strategy will be to drive down our reputational risks through more effective working relationships with local and national media and through improving the quality of our communications with neighbours, MPs and community groups.

6.5. Property

Wessex Route is working collaboratively with Network Rail Property on the transactions required to support the delivery of operations, maintenance renewals and enhancements proposed on the Route. In particular, this is focussed on the enhancements proposed, see chapter 5.1. Emphasis will be placed on engaging early with Property to ensure that we maximise the efficiencies of our delivery methodologies.

Workplace Management

The property strategy supports the movement towards an appropriate geographical footprint for our business whilst consolidating and improving our accommodation at key locations – most notably our Rail Operating Centre at Basingstoke and at our Delivery Units. It supports the route objective to reduce delay-per-incident, which may require staff to be located in currently unoccupied buildings, and it will support our People and Safety Strategies in providing safe and inclusive environments for our people to work.

Wessex has recently reviewed all our sites occupied by maintenance and operational teams to best align these with our welfare, operational and accommodation plans for CP6 and we have included an additional £5M investment to support our accommodation strategy.

Land Strategy

We will assess our land and buildings to identify their optimum value, either for new operational facilities for the railway or for the release of land or property for commercial development. If any sites are no longer required for operational reasons, we will work with Network Rail Property and third parties to release this land, thereby reducing Opex costs and generating development opportunities to bring benefit to the local communities that we serve and create income for our business. We are actively seeking development opportunities at depot locations in Woking, Feltham and Eastleigh to identify and maximise any further value

Stations

Wessex will take on the management at two key stations, Guildford and Clapham Junction, to increase the level of engagement between community developments and our enhancement plans.

7. Cost competiveness & delivery strategy

Wessex Route welcomes the opportunity to embrace the use of competition within its separate regulatory settlement in CP6 to identify and exploit the opportunities that exist for local innovation, both within the Route and our supply chain, and drawing upon best practice within other parts of the rail industry.

7.1. Summary route deliverability statement

At a portfolio level, we are confident that the Wessex strategic plan is deliverable in CP6 on the basis that:

- Overall volumes are broadly comparable or less than those that were planned in CP5.
- Individual asset workbanks have been reviewed for deliverability with delivery partners
- We have developed the IPO which will allow us to coordinate plans at a system rather than asset level

Feltham re signalling is developed to GRIP 4 and a phased delivery strategy is planned so access and resource requirements are clearly understood.

We have a bottom up work bank for S&C renewals which have all been dated and aligned to identify available access which is also compatible with availability of critical resource across the South East & West (S&C South Alliance area).

Civils and E&P workbanks are comparable to CP5 and so access is not a constraint and there is confidence that there is capacity in the supply market.

There are some risks, namely:

- We have assumed that long standing access norms that have been available through Stagecoach allowing delivery of c20km track renewals per annum at weekends will continue. There is no reason to believe that the new franchise will not support this position but our ongoing detailed discussions will need to clarify
- Although Electrologix is the most DR compatible interlocking available and in use worldwide it has not been used for signalling schemes in the UK and has yet to be product accepted(although there is a plan and a trial installation to mitigate this risk)
- Committed obligations in the franchise to run greater numbers of trains on Sunday afternoons for 2020 may increase Schedule 4 costs
- The supply chain's capacity to increase resources for Year 1 works following down turn in Years 4 and 5 of CP5
- We have successfully delivered drainage works on Wessex using the Drain tram but understand that other routes aspire to use this delivery mechanism in CP6 which may introduce constraints in the absence of new plant

There are also some opportunities, namely:

- We have integrated all our asset renewal workbanks in CP6. This will allow detailed de-confliction and/or optimisation by individual projects understanding what works are planned when in geographical areas for the whole control period. This will facilitate decisions to exploit existing access to maximise efficiency, or retime works early if they are incompatible.

- If the Woking grade separation enhancement is delivered in CP6 there is a clear opportunity for efficient delivery with the resignalling of the Farncombe Petersfield area.

7.2. Access

Track access is a vital constraint on our ability to undertake work in Wessex. A key improvement to our CP5 plan is that we have established a cyclic access regime which is compatible with neighbouring routes to allow us to preserve key maintenance access. We have constructed our access plan to take account of the following priorities:

- Planned major enhancements
- Access to support the phased delivery of Feltham Resignalling
- Cyclical maintenance access
- Dated S&C renewals
- Other renewals

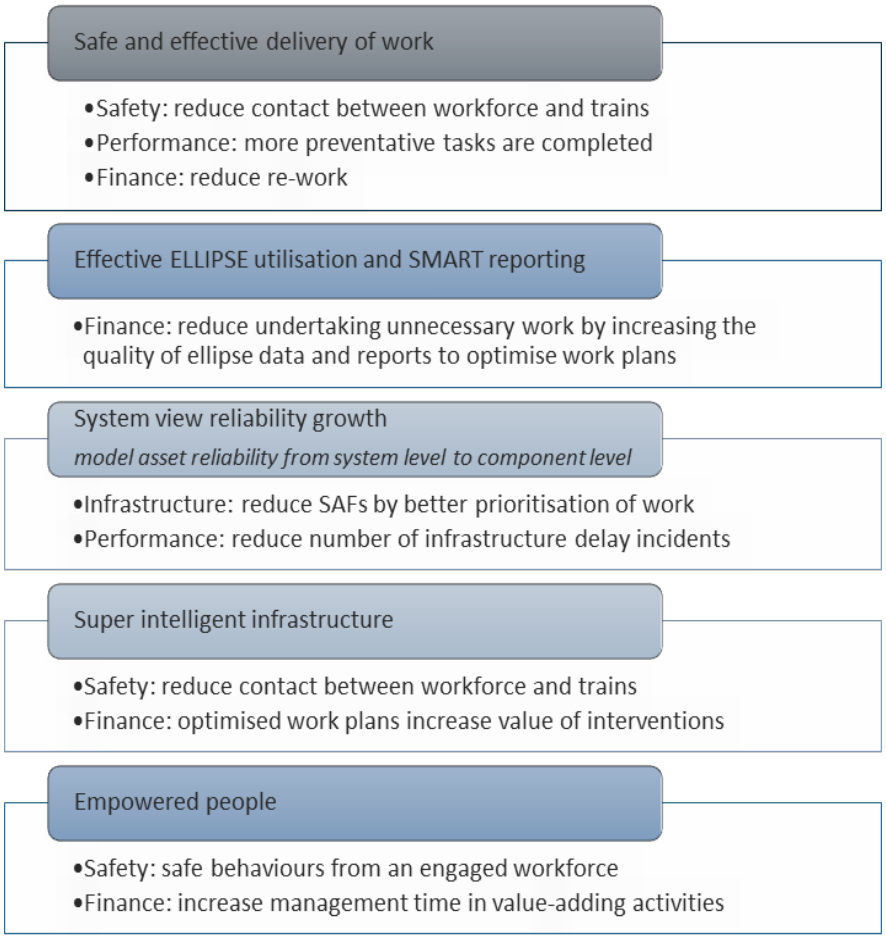
We will use an integrated workbank tool to support delivery partners in optimising planning decisions over the control period through understanding other planned work and therefore optimise access and schedule 4 decisions.

7.3. Maintenance delivery

Wessex Route has a maintenance strategy that comprises five work streams to enable our CP6 maintenance delivery to move to 'predict and prevent' rather than reactive. This will drive more efficient investment of resource, better quality outputs and reduce schedule 8 costs.

We will continue to work towards our objective of **removing workers from the track** (see Safety Strategy, chapter 8) by:

- Continued roll out of PLPR and Eddy Current to automate inspections and remove staff from the track



- Completion of the faster safer isolations programme by the end of CP6 will eliminate strapping staff and also offer 20% increase in time on tools.
- Using OTM in traffic with signal protection machine switch out will

eliminate the need to deploy blockmen and strapmen when these are used
- Intelligent infrastructure and business critical rules will also support reduction in unnecessary trackside activity.

We will improve the **quality of planning** behind maintenance activities and reduce the quantity of rework or failed delivery by:

- Establishment of a dedicated head of work planning to drive continuous improvement
- Protection of our cyclic access strategy to allow controlled and planned management of defects rather than short notice change
- Faster safer isolations offering up to 20% more working time.
- Standard isolations to improve planning quality, continuous improvement, improved set up time and reduce risk of operational incidents.

We will improve the **quality of our data** and our ability to make great decisions. We currently have 100% fitment of intelligent infrastructure to

points and track circuits where this is eligible. And this is supported by 24/7 infrastructure fault controllers to manage response. In year 3 of CP5, this delivered 15997 delay minutes which equates to £1519, 677 in avoided schedule 8. In CP6 we will:

- extend the data channels of asset condition that are monitored
- use remote condition monitoring of intelligent infrastructure in conjunction with reliability centred maintenance and business critical rules, adopted locally within Wessex as the 'Amber Deviation process', to optimise intervention intervals
- As mentioned above, operate the agreed cyclic access strategy for CP6 which will for the first time allow for the proactive management of some assets and defects to prescribed timelines
- use TIGER to provide a marked increase in intelligent decision making support to TMEs and enable the proactive management of track geometry in a planned manner rather than as a reactive response to actionable defect
- data from Eddy Current monitoring will enable effective targeting of rail milling to mitigate RCF; we calculate that this will deliver a 10 fold efficiency over the equivalent, traditional Re-railing
- continue our Earth Leakage Detector triage process to mitigate signal power supply failures and introduction of new technology (Viper) to monitor the condition of signal power supplies and core to core failures
- Continued improvement in asset data quality and management to facilitate activities set out above.

Further details of the National Infrastructure Intelligence portfolio are provided in Chapter 5.2.2.

7.4. Project delivery

Scheme Type	Deliverer
Major Resignalling schemes	IP Signalling
Minor Signalling works	Wessex Works Delivery
E&P Renewals	IP Wessex
Conrail renewal & minor E&P works	Wessex Works Delivery
Buildings and civils renewals	IP Wessex
Reactive and minor civils works	Civils minor works team
Earthworks renewal / refurbishment	IP Wessex
Earthworks drainage renewal / refurb	Wessex Works Delivery : as this is a new work stream, WD will need new resource
Drainage	Wessex Works Delivery
S&C and plain line renewals	IP Track – S&C southern alliance
S&C and plain line refurbishment	Wessex Works Delivery
High output systems (if funded)	IP High Output
Level Crossing Renewals	IP Wessex
Major enhancements	IP Wessex

We will continue to look to our existing delivery partners to deliver projects on our behalf. All delivery groups have engaged with the CP6 planning process, through the Wessex CP6 working group, to assure that our planned costs and volumes are achievable. This also provides our deliverers with foresight of our workbank upon which to drive efficient commercial strategies and project management structures to maximise cost effectiveness.

We will continue to work with IP Southern towards our aspiration that the regional IP team provide a single point of contact for all IP works on the route to provide better coordination and visibility of integration risks.

We will also continue to work toward an integrated workbank for all planned activity on the route, including maintenance that is managed by a change control process such that it provides a decision support tool to help de-conflict and/or optimise the planning of works.

7.5. Supply chain

Different contracting strategies are required from different functions within IP:

- The contracting strategy for B&C and E&P will be an evolution of the existing framework arrangements. Choices are based around whether to continue an enhanced multifunctional framework or tender individual projects. Whatever the outcome we will need to have a contract in place to provide a cost efficient reactive response to earthwork failures. There is a risk of losing delivery time if timelines don't overlap.
- The planned IP Track Plain Line and S&C contracting strategy has been shared with Wessex Route and is currently progressing through Board approvals. High Output project work will be delivered as a Network Rail Internal Alliance.
- IP Signalling commercial strategy is looking at re-shaping the whole signalling contracting strategy and aligns suppliers to routes to provide a better service.
- There are risks that reductions in volume for the last two years of CP5 will impact the capacity of the supply chain to upscale resources for year one of CP5.
- Route Services have confirmed that there is sufficient capacity in OTM and critical resources to support our delivery plan

7.6. Costing approach

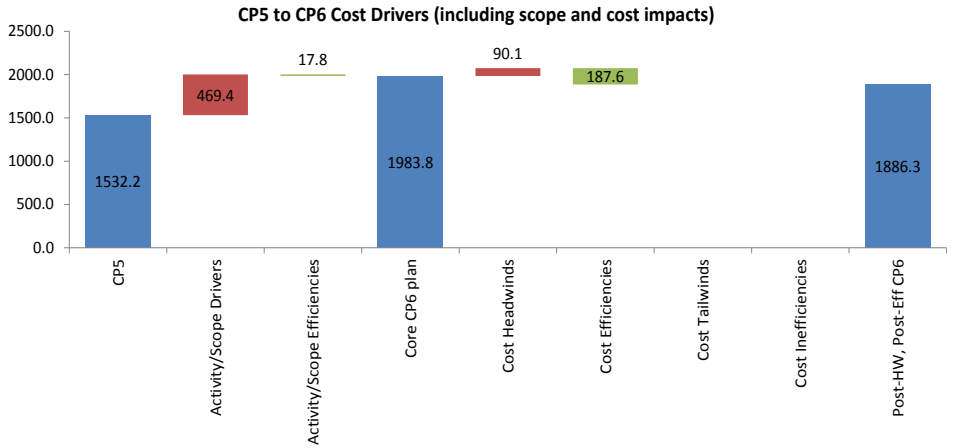
Wessex Route CP6 Working Group is working towards cross Route collaborations for two main areas:

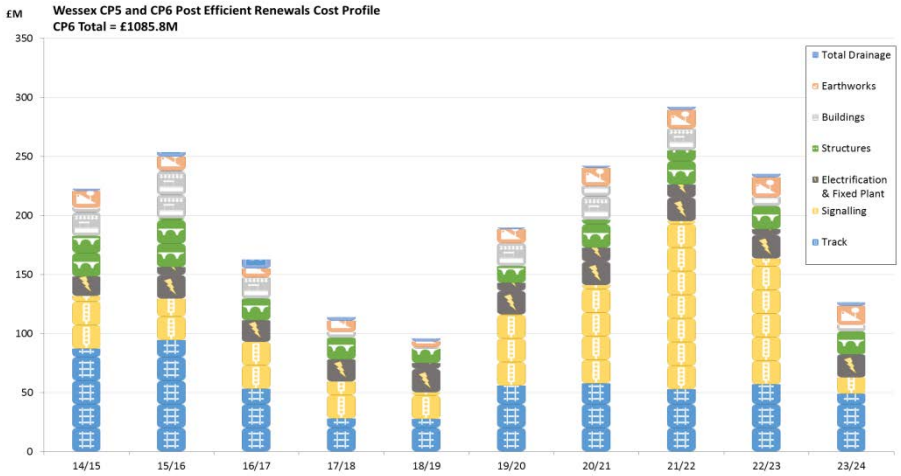
- A corporate Efficiency Group to provide benchmarking resource and knowledge sharing in the identification and estimation of headwinds and efficiencies. There is a need for a pooling of expertise and resource to investing better estimating services, in order to help Wessex Route offer more detailed efficiency plans.
- Infrastructure Projects Contracting Strategy: Wessex Route and IP are working together to identify contracting and delivery strategies that deliver best value for money; specifically through our delivery models and identifying opportunities to realise economies of scale. Further recommendations made available by the publication of the Hansford Study will be evaluated and addressed in line with our intention.

Asset	Supplier of cost	Basis of cost	% of asset covered
Track	IP Track Works delivery	2015/16 actual rates inflated.	100%
Signalling	ICM (IP Signalling source) IP Signalling	CP5 run rates IP GRIP 3 estimates	50% 50%
E&P	IP Centre IP Wessex Wessex Works Delivery	Burgundy rate book Estimates derived from historical data for similar schemes	10% 90%
Structures	IP CP5 Framework contractor IP CP5 Framework contractor IP Centre RAM B&C Works Delivery	GRIP 3 estimates First principle estimate based on CAM methodology Route specific average unit rates Historical costs / trend	20% 4% 31% 45%
Geotech	IP Wessex Works Delivery	Actual IP CP5 run rates Actual WD CP5 run rates	93% 7%
Buildings	IP CP5 Framework contractor IP centre RAM B&C Works Delivery	Derived CP5 run rates Similar schemes rates Historic costs/spend	20% 50% 30%
Track Drainage	Works delivery – 100%	Derived CP5 run rates Derived national unit rates – Renewal	90% 10%
Off-Track/ Geo/ Drainage	Works delivery – 100%	Derived CP5 run rates	100%

7.7. Cost drivers, headwinds and efficiency

Summary of cost changes between CP5 and CP6





7.7.1. Summary of factors driving total cost: CP5-CP6

The core plan has been based around the CP5 business plan as stated as Business Plan (BP) 15/16 and an assumed uplift of 15%. There are a number of reasons why the assumption that levels of activity are broadly similar from CP5 to CP6 is invalid for Wessex:

Our budget was reduced by £125M from CP5 FD at BP 15/16 as a result of targets set by SCMT to deliver corporate objectives and the Civils Adjustment Mechanism. The Route chose to meet these targets by deferring signalling re-controls, NOS benefits, E&P renewals and Feltham re-signalling.

The commercially agreed **Track Unit Rates** were higher than anticipated at CP5 FD, leading to a deficit in the track portfolio in Y3|4|5.

The **St Jude's Storms** in the winter of 2013/14 caused a high number of geotechnical asset failures, creating a funding deficit in the latter part of the control period that has been offset with deferring renewals.

60% of our network has an increase in criticality, which has raised the volume and cost of minimum policy compliance. In E&P assets, there is a long term and national issue to become legally compliant with the **Electricity at Work Act**. This is currently funded out of the STE plan.

Uneven asset and age profiles have therefore been sustained through the control period and we have mitigated safety and performance risks successfully. However, we need to redress these in CP6 as they are not sustainable in the long term.

Summary of route efficiency

	Year			Year					
Totex (O,M,R)	**16/17**	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**23/24**	**CP6 total**
Pre-efficient plan[1] (£m)	**299.8**	**265.1**	**201.9**						**2001.6**
Activity/scope efficiencies (%)									-0.8%
Core plan (£m)				348.6	402.1	477.4	430.2	325.5	**1983.8**
Head winds (%)				5.58%	4.65%	4.00%	4.43%	2.99%	4.35%
Efficiency (%)				5.34%	5.77%	9.26%	11.25%	14.13%	9.07%
Tailwinds (%)									
Inefficiency (%)									
Post-HW, post-Eff spend (£m)	288.8	274.1	207.9	350.1	397.3	451.2	399.6	288.1	**1886.3**

In our Route Efficiency Strategy for generating Opex efficiency, Wessex has worked hard at building a robust baseline, upon which we can continually improve. In order to do this we intend to use the Activity Based Planning tool to refine our programme of maintenance, and depend on our Asset Data Quality programme to ensure that our planning decisions are based on sound data. Our leaders in Delivery Units and Asset Management must drive a joined up approach throughout the improvement plans, to realise efficiencies in optimised maintenance-renewal balance. Work streams necessary for enabling the efficiency plans are:

- Workforce efficiency: assets as a system/standardised tasks
- Lean projects: better every day
- Better prioritised and managed access through integrated workbanks
- Faster safer isolations
- Technology: PLPR, BCR, standard isolations
- We will need a robust IR strategy to support delivery

Wessex is committed to Better Every Day Continuous Improvement, having trained Asset Management and Delivery teams throughout CP5. Over the coming year, our plan is to grow the capability of the core team, which will enable the delivery of significant change and realisation of notable benefits.

Route headwinds and efficiency by theme

Theme	Area	Description : Full details are available in the Route Efficiency Strategy	Net % change
Access (3)	Efficiency (3a)	The Wessex route plans to introduce an access strategy that allows efficient working as well as letting work in suitable packages which allows our contractors to make effective use of their resources which in turn leads to a lower unit rate	0.9%
	Tailwind (3b)		
	Inefficiency (3c)		
	Headwind (3d)	Franchise impact of increased traffic, Increased cost of third party land access, shorter blockades, reduced access	
Workbank planning (4)	Efficiency (4a)	The Wessex route plans to set a stable workbank across CP6 which allows us to work with our industry partners in order to have an access strategy that allows efficient working as well as letting work in suitable packages which allows our contractors to make effective use of their resources which in turn leads to a lower unit rate. Work packaging, Early scope development.	-1.4%
	Tailwind (4b)		
	Inefficiency (4c)		
	Headwind (4d)		
Technology (5)	Efficiency (5a)	PLPR, High Speed Clamps, Prolonged Level 1 stress restoration, Remote Condition Monitoring.	-0.4%
	Tailwind (5b)		
	Inefficiency (5c)		
	Headwind (5d)		
Delivery (6)	Efficiency (6a)	Right first time delivery, continuous improvement initiatives	-1.0%
	Tailwind (6b)		
	Inefficiency (6c)	Increased plant contingency and re-planning of cancelled works resulting in an inefficiency	
	Headwind (6d)		
Design (7)	Efficiency (7a)	Development of Civils Design Group to deliver more efficient unit rates; standard designs	-0.2%
	Tailwind (7b)		
	Inefficiency (7c)		
	Headwind (7d)		
Commercial (8)	Efficiency (8a)	Our commercial strategy will aim to get the best value proposition for the good and services that we buy. We will work with IP and Route Services where appropriate in determining the best commercial strategy balancing off local route led contracting vs national buying power. Identified renewals to be delivered through Works Delivery through competitive tendering	-0.7%
	Tailwind (8b)	Reduced contract rates driven by competition	
	Inefficiency (8c)		
	Headwind (8d)	Re-mobilisation costs following end-CP5 ramp-down; Increased contract rates driven by market pressures	
Other (9)	Efficiency (9a)	Better every day is about small incremental improvements which then add up to a large number by the end of the control period	3.6%
	Tailwind (9b)		
	Inefficiency (9c)	Increased volume of works and improved planning realising an inefficiency through increased management costs	
	Headwind (9d)		

7.8. 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 the funding that we understand to be available in CP6. 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, it is likely that some risk and uncertainty is already included in our core CP6 plan, as we have not sought to remove the impact of these unplanned events from our unit rate estimates.

Based on historic trend, it is likely that 45% - 55% of the planned CP6 Outputs will be delivered at the forecast cost. This uncertainty varies between expenditure categories. There is low uncertainty in the support and operations provision of our budget because the needs are well established and costs are largely related to employment of salaried staff, which is straightforward to forecast. The greater level of uncertainty is related to our renewals and maintenance costs, where both have a variance of around 20% for the uncertainty high boundary.

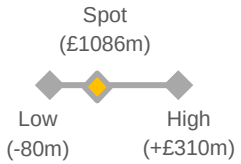
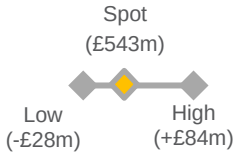
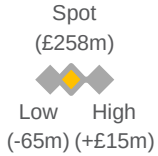
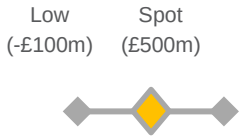
The majority of our renewal costs have been set by application of unit rates derived from previous similar projects and will be subject to change as scopes of work become more clearly defined and more accurate estimates are provided. Headwinds relating to materials, labour, access and transportation are likely to drive an overall increase in price, which we do not believe will be completely offset by the proposed efficiencies. In addition, there are a high number of CP5 deferred renewals proposed for early CP6. The scope of works will be greater at these locations than at CP5 due to the extended period of deterioration.

Maintenance costs are derived through volume, which is strongly dependent on renewal volume, and will need to increase if renewal output decreases.

The main drivers of uncertainty in our plan are quantified in the table below.

7.8.1. Uncertainty ranges for CP6

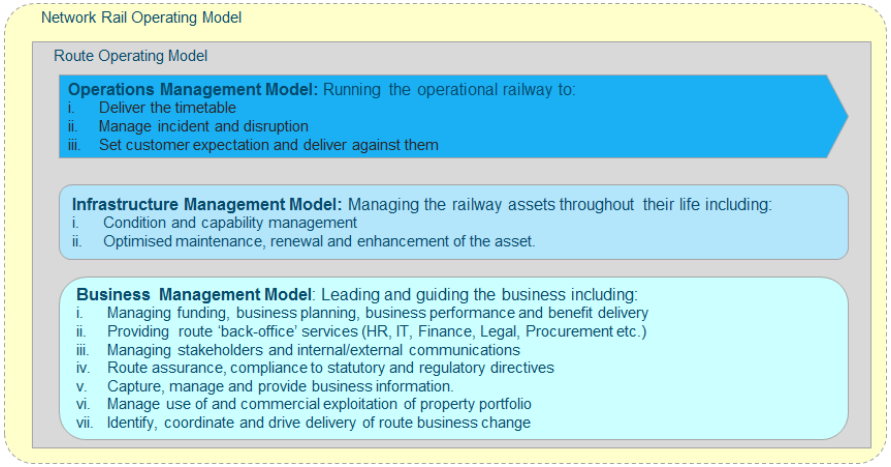
The information in the table below presents our estimate of the overall range of uncertainty across our expenditure and income for CP6. We have also identified the main drivers of the uncertainty ranges. The information in this table is based on the detailed inputs provided in our Opex, renewals and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

Area (S, O, M, R, Income)	Potential range (low – spot – high)	Summary of key drivers of the uncertainty range	
		Driver of range	**% of range**
Renewals		The largest influencing factor is access costs (third party) and track access.	10%
		The majority of the CP6 workbank pricing is based on derived unit rates from historic schemes and is subject to change as projects become fully scoped and estimated bottom up.	4%
		There will be additional costs through enhanced safety requirements (no red zone working) and potential impact of standards	3%
		Adverse weather and funding reductions mean less efficient reactive asset management works replacing planned proactive asset management.	3%
Maintenance		Uncertainty due to change in track criticality for significant mileage	2%
		Uncertain workload from PLPR and Eddy Current testing	1%
		Unknown efficiencies from multi – skilling, LEAN and other maintenance strategies	10%
		Uncertain train mileage due to change in franchise	2%
		Under-investment leading to more reactive work	5%
Support and operations		Some uncertainty in costs / savings as result of devolution and development of route support.	2%
		Uncertain cost of business development activity to secure 3rd party funding	1%
		Uncertain cost of resourcing for route based regulation	1%
Total expenditure			
Income		Based on CP5 exit forecast – not factoring possible changes in CP6. The QX managed stations agreement is the main contributor of changed income with the potential of £1M pa potential revenue growth	1%
		Traffic level increases are being assessed to inform the amendments to the 2018 and 2020 timetables. Additional services may provide around £2M pa increased revenue	2%
		There is a risk/ opportunity of performance not meeting/ exceeding benchmarks. In CP5 the Schedule 8 payments exceeded budget by £20M pa.	20%

8. Culture strategy

It is widely accepted that diverse teams achieve better outcomes and more innovative approaches both in business and to problem solving. By achieving greater equality within our workforce, Wessex seeks to support increased fairness, mutual respect and improved business performance. We will use our increased diversity and equality to create opportunities for different people to join and thrive within the Route.

The culture strategy of the Wessex Route in CP6 directly supports the transition towards our future operating model. This operational model is based around the optimisation of the following organisational capabilities:



- Infrastructure Management – ensuring the infrastructure provides the highest possible level of asset reliability and therefore availability through preventative interventions;
- Operations management – ensuring the best possible train service can be delivered (including the implementation of effective incident management and service recovery);
- Business Management – ensuring that the preceding two core capabilities are enabled and sustained so that they have the resources and structure required to fulfil their vital roles in a safe and efficient way.
- Capability of our people: ensuring our people have the skills, development and leadership to maximise their potential. This will be achieved through our talent forums, succession planning, performance management and our structured development programmes such as Great People Managers which have all been initiated in CP5 and will strengthen as we move into CP6.

A key enabler for successfully moving towards this new way of operating will be the capability of our people. This will be managed and developed through the following initiatives that have all been launched in CP5 and will strengthen as we move into CP6: our talent forums; succession planning; our talent attraction strategy; performance management and; the Great People Managers development programmes which.

8.1. Safety

Our CP6 Route Safety, Health and Wellbeing Strategy has been developed to support the Route's aims and objectives and will be reviewed on an annual basis by the Head of Route Safety, Health and Environment. The four areas we will focus on in CP6 are:

- Fatigue : we have intent to deliver a funded fatigue management plan to reduce the amount of overtime worked on the railway,
- Safe trackside working, the technological solutions we introduce will reduce the need to work trackside and will improve the safety of working alongside the DC conductor rail.

- Manual Handling, continuous improvement will focus on improving our behaviour and the our use of the close call system
- Level Crossings, the majority of the Route's remaining half barrier level crossings will be replaced with newer, safer crossings in CP6.

This strategy is not just about achieving compliance, but will assist in realising:

- • Efficient, proactive and pragmatic ways of delivering health and safety
- • A safe and healthy environment for workforce
- • A robust health and safety culture across the Route, supported by training, resource and budget to implement improvements
- • Effective means of protecting stakeholders, including our workforce, passengers and lineside neighbours from harm.

Autumn 2017 Safety Workshop: First Aid Session

To deliver our vision, our Safety Culture will drive a desire to work safer in our workforce, to this end we will

- Implement Faster Safer Isolations
- Increase Safety Leadership through continuing our programme of Our Safety Workshops
- Continue to improve engagement between teams, management and communities to raise HSE culture
- Develop tools and training to foster a proactive safety culture
- Implement the Stop Think communication programme

8.2. Change

We are committed to the implementation of Wessex 2024 operating model. This will require a capable and sustained business change effort across the whole of the workforce which has already experienced extensive change throughout CP5. Their support and understanding of the need for change and the benefits that should ensue will be vital.

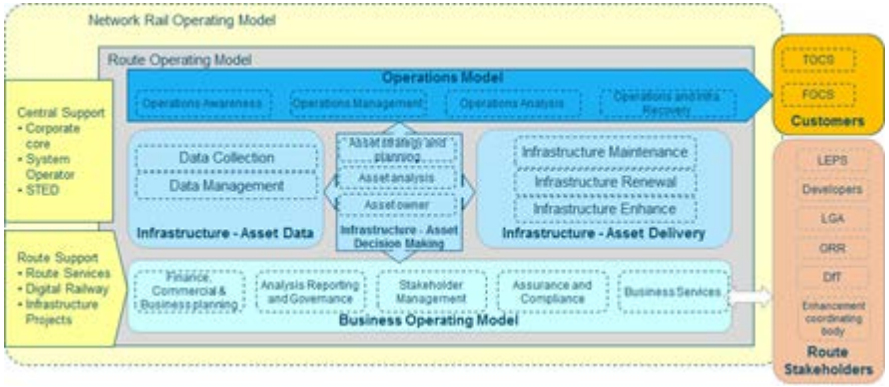
The future operating model will significantly change the way we plan and deliver our work on the infrastructure, and enhance our operational and business support services. It will lay the foundations for adapting to the increase in capacity and performance, which the Digital Railway programme is expected to provide, and be based upon our increasingly engrained and evident culture of continuous improvement that will build upon CP5's Better Every Day programme.

Our Wessex 2024 operating model will reinforce improvements in:

- Financial management and a widespread obligation to manage costs and deliver efficiencies both within the Route and also throughout our supply chain; this will involve the introduction of appropriate technology solutions and effective contracting strategies.
- Improvements in train and business performance by addressing our customers' priorities – namely to improve the safety and reliability

of the train service by reducing the number of disruptive incidents and the delay that each of these causes.

- Asset Management and investment decisions that are driven by reliable and valuable asset information on the basis of sound Whole Life Costs (as described in Section 4.4 above).
- Customer Focus at all levels of the organisation
- Capability of our people: through our talent forums, succession planning, attraction strategy, performance management, and the Great People Managers development programmes which have all been initiated in CP5 and will strengthen as we move into CP6.



A high level schematic of the Wessex 2024 Operating Model

8.3. Organisational capability

As stated above, the progress that Wessex Route intends to make during CP6 will be based upon each of the three core organisational capabilities – infrastructure management, operations management and business management – operating effectively and collectively together.

In order to achieve this goal, in addition to continuing to drive the delivery of the existing organisation's short and medium term business outputs, the Route team needs to make the structured and coordinated changes required to transition towards our Wessex 2024 Operating Model. This will take considerable long term organisational change effort within each capability.

The foundations for these changes are already in place, with functional change leads being introduced and their change management skills enhanced. However, this capability must be widened so that all parts of the organisation understand the case for change and actively participate in achieving it. Existing techniques, such as Activity Based Planning and competence matrices will be used to confirm the optimal size and skill set of the Route team over the course of CP6.

Initiatives that have been launched in CP5 that will promote a more talented and diverse workforce, such as the expansion of the apprenticeship schemes, the promotion of STEM (Science, Technology, Engineering and Maths) subjects, active support for organisations such as Women in Rail, will be pursued passionately by Wessex Route.

8.4. Social & environmental performance

The greater autonomy that devolution provides for the Route enables us to work more closely with our stakeholders and local communities on our proposed schemes. We have worked collaboratively with local authorities, the Environment Agency & lineside neighbours on jointly resolving complex flooding and drainage issues, and will continue broaden the extent of our engagement where it adds value.

We implement environmental initiatives locally by proactively seeking opportunities to use energy more efficiently and to include long term and sustainable options from the design stage of our assets. We will support and encourage our contractors in meeting legal and societal

requirements to protect the environment and will do so through leading by example.

In CP6 we will formalise the activities in our Environmental Strategy and identify development opportunities through assessment and accreditation to ISO 14000 Environmental Management.

8.5. Diversity & inclusion

We are committed to being an open, diverse and inclusive organisation where everyone feels supported to be themselves and the variety and differences between people are valued. When everyone is better engaged and able to fully contribute to our business, we will improve safety, performance and the value that we individually and collectively provide.

Everyone Week 2017: Diversity and Inclusion leadership workshop

Our approach to meeting this goal is for:

- All managers to be supported through appropriate training and development to be inclusive leaders.
- The Everyone Learning programme to be rolled out across the Route and, in particular, to be accepted and embraced at all levels of our organisation.
- Our staff networks and diversity champions to be promoted and supported.
- Work with our local communities and networks to increase our employer brand as an inclusive and diverse organisation.
- Our people to be listened to, supported and cared for.
- Any behaviour which does not promote our commitment to this vision to not be tolerated.

8.6. Quality

Wessex Route is committed to deliver a high quality service to its customers, in line with their expectations and priorities as far as practicable. In order to do this, we intend to become ISO 55000 compliant and will work towards this accreditation by implementing the foundations and principles of Quality Management System ISO 9001.

The introduction of quality into our work extends well beyond accreditation and includes: a range of initiatives that relate to the delivery of our work more efficiently and to a higher quality at the first attempt.

This includes the refinement of standardised tasks; the optimisation of the planning processes and productivity from each possession; the planning and delivery of safe work and; the ethos of universally getting work ‘right first time’ through the reduction of repeat faults etc.

Through the effective implementation of this culture strategy Wessex Route fully intends to be ‘fit for the future’ and able to thrive within Network Rail’s devolved environment

Initiatives:	Anticipated Impact:											
	Reduced SN/VSN Change	Increased Planned v Actual	Reduced Schedule 8 costs	Reduced costs of delivery	Reduced Schedule 4 costs	Reduction in cancelled work	Reduced Backlog	More time on tools	Releases resources	Reduced planning time	Reduced travelling time	Workforce Safety
Delivering the right work:												
• Reliability Based Maintenance				■	■		■	■	■			
• Amber Deviation process				■	■		■		■			
• Improved targeting of work (PLPR, Eddy Current etc).	■		■	■					■			■
Delivering the work "right first time":												
• Embedding of Section Work Planning improvements	■	■	■	■	■	■	■	■		■	■	■
• Integrated Programme Office	■	■		■	■	■	■	■		■		■
• 019 v9 Standard change						■						■
• Separation of Maintenance and Faulting teams	■	■			■	■	■			■		■
• Dedicated CapEx delivery organisation							■					
• Cyclical Access	■	■			■		■			■		
Improved productivity:												
• Faster, Safer Isolations		■		■			■	■	■			■
• Improved Access to the Infrastructure		■		■				■	■		■	■
• Improved Welfare								■				■
• Safe & Effective Working	■	■		■	■	■	■	■				■
• Possession Optimisation				■	■			■		■		■

8.7. Information Technology

CP6 will see marked increases in the use of IT systems and the need for a larger proportion of the Route to use these systems as a core part of their role. There is already evidence of a growing gap between those individuals for whom IT-competence is fundamental to their role and those who do not routinely use IT skills or systems.

This latter group must be developed to an appropriate level to make sure that all members of our staff is able to play a full part in this technological progress and that their careers are not restricted by a lack of skills. We will address this by carrying out an assessment and audit of skills across each role within the Route and support the necessary training and development that will ensure that appropriate IT competencies are in place.

Mobile working will become more commonplace. This will allow buildings to offer an agile way of working. Decision makers will have increased information at their fingertips and will be able to act in real time. Mobile working will however incur additional costs to repair and replace equipment. We will need to provide guidance and training to staff on using technology safely, considering the environment and ergonomics when agile to reduce risk of injury

As we move towards a proactive maintenance approach the responsibilities between corporate IT and operational railway will continue to merge. Real time information from the track side will continue to develop, allowing proactive decision making in advance of asset failure.

New trains will come with sensors that provide more information about assets and performance. Wessex will work with Route Services IT to understand how to extract data, then process and analyse it. With connected equipment comes the increase in cyber security risk. Proactive measures will be undertaken to minimise the risk of disruption.

Real time operational data is pivotal to performance improvement in Wessex. Live proactive information being used during disruptions, the use of decision support tools to predict and recover train paths more quickly, automated delay attribution and precise train location and status will aid the recovery of train services and reduce the amount of delay.

9. Strategy for commercial focus – 3rd party contributions

Wessex Route is keenly developing its strategy to attract new sources of much needed funding and financing into our part of the rail network. In particular we look forward to supporting quicker decision making and increased participation in locally funded and delivered projects that will help developers, councils and businesses to contribute to the growth and improvement of the railway within Wessex.

Schemes considered in this section will require third party investment to proceed. No government funding is assumed to be available.

9.1. Current and planned third party funding

Wessex has committed to developing its strategy setting out how Wessex will seek to secure third party (non-central government) funding for enhancement and renewal projects, including:

- An estimate of the level of funding that may be brought in through the implementation of this approach
- The sources of potential funding
- The approach that will be taken
- The key internal (to Network Rail) relationships
- The key internal (to Network Rail) processes, together with an analysis of suitable changes to make funding more attractive to third parties
- An analysis of competitors for the funding
- The changes within Wessex Route required

9.2. Capability and business development

It is recognised that this process may evolve over time and as expertise grows, it will be regularly reviewed to assure that it continues to meet business needs. Governance of the process will be provided through the Wessex strategy and planning group.

The strategy is underpinned by the proposition that parties benefitting from a project should contribute proportionately towards that project. This represents a significant change from the current position, where beneficiaries of railway enhancements would often see them delivered by Network Rail and funded by the Department for Transport (DfT).

In order to bring about this change, it will be necessary to change the current culture. The following organisations are potential third party funders (list is not exhaustive):

- Local Sustainable Transport Funds (LSTF)
- Developer contributions (Section 106, CIL)
- Association of community rail partnerships
- Transport board awards
- Local government/regional government
- Retailers
- Tenants
- Passenger transport executives
- Joint ventures
- Rail Heritage Trust
- Central government (non-rail)
- Devolved government
- TOCs (excluding franchised commitments)
- Local Enterprise Partnerships
- Transport for London

- Suppliers
- Other transport operators/organisations
- Station 'sponsors' (e.g. Cadbury's at Bourneville)
- European Union
- Sustrans
- Property developers
- Venture capitalists
- Commercial advertising

Network Rail already attends numerous varied stakeholder meetings with most of the above funders, and it is recognised that it may not always be appropriate for the attendance to be solely from the relevant route.

In order to develop investment propositions that stand the best chance of securing third party investment, it is necessary to understand third party requirements at an early stage. The early development of large enhancements schemes is invariably led by Network Strategy and Capacity Planning (NS&CP), so close working relationships will need to be established and maintained to promote strategic alignment.

A collaborative relationship with NS&CP will also be vital in developing other investment propositions, as Network Rail's role as system operator will need to be balanced with the requirement to secure third party funding. Section 2 of this document shows the different stakeholder meetings which are currently attended by Wessex, and sets out appropriate attendees.

- In addition to NS&CP and Route activities, other areas of Network Rail will be important. Community Infrastructure Levy and section 106 funding may be made available by Local Planning Authorities, LPAs, so it will be important to ensure this resource is pursued. Close working with Network Rail town planning colleagues will be important in this regard.
- There are over 50 LPAs in Wessex, each of which may have different Community Infrastructure Levies (CILs) and s106 policies.
- Consultation with LPAs will enable a full understanding of planned and proposed developments, which will bring additional leads for third party funding. Where local plans are under development, Network Rail should seek to lobby relevant organisations to promote inclusion of railway improvements in those plans, which will in turn facilitate s106 and CIL funding.
- Commercial property manages numerous outside party development schemes, and it will be necessary to change the way these developments are set up. This includes considering the need to secure third party funding for planned network rail projects, as well as other minor improvements, for example at stations.
- A NR led regular networking event should be established so a forum is available to build relationships with potential third party funders.

Once a potential third party funder has been identified, it will be necessary to develop a proposal. The preference will be for the interested third party to fund the development. However, it is recognised that this may not be possible, depending on the third party's level of interest. It may, therefore, be necessary to develop proposals at NR cost to attempt to gain interest from the third party. The level of investment that NR is willing to make without commitment to fund by a third party will depend on:

- The priority level of the scheme (as set out above)
- The potential level of investment that may be secured
- An initial assessment (in conjunction with System Operator) of

the likelihood of a viable proposal being found

- An assessment of the third party's ability / likelihood to fund the project.

Any expenditure shall follow the existing governance around investment authority. It may be necessary to create a funding source or expand pre-authority to allow such investment to take place.

9.2.1. Key internal relationships

There are numerous areas of the business which currently own relationships with potential third party funders:

- Route (immediate concerns, asset owner)
- FNPO (freight and national passenger operators)
- NS&CP (early stage development, long term planning)
- Commercial property (Shared value, lower focus on 'railway' investment)
- Town planning (LPAs – s106 and CIL)

There are also numerous support functions that will be important in implementing this strategy:

Corporate commercial	Governance and commercial assurance Standard suite of agreements Support in drafting/negotiation agreements with funders Authority process for entering agreements
Planning and regulation	Regulatory framework implications (e.g. track access, stations charges, schedule 4 and 8 and regulatory financial incentives)
Network Strategy & Capacity Planning	Advice on current and future development plans Prevention of conflicts with existing and planned obligations
Finance	Investment authority
Town planning	Advice on funding available linked to planning process Introductions to key players in planning and other relevant sections of local authorities
Investment projects	Deliverer of higher complexity, higher risk schemes Provision of estimating resource
Works delivery	Potential deliverer of lower value schemes
Asset protection	Oversight of delivery carried out by third/outside parties

9.2.2. Key internal processes

The following sections explain the key processes that can affect the delivery of third party funded projects, and explores potential changes to make Network Rail more responsive to potential third party funders.

Under current arrangements, a simple request from a third party for who work is already authorised and in delivery that requests additional low value, low risk work, can take up to four months to progress. This is through estimating, investment authority and authority to enter in contract processes before finally being instructed for delivery. This often causes frustration and carries the risk of damaging relationships with potential key funders.

9.2.3. Estimating process

For projects being delivered by IP Wessex, it is necessary for an estimate report to be produced and signed off by the IP Southern estimating team. Under current resource levels, it can take up to 60 days for a slot to become available for this review. It can then take a further 30 days to

develop a full estimate report. While the importance of accurate estimates is clear, not least due to potential third party funders' expectations that prices quoted will be accurate, it is clear that these timescales represent a significant hurdle for third party funders.

IP are conducting a review into their estimating process and it is important that this takes into account the evolving needs of the route. It is also important to recognise that producing estimates carries a cost. At present the only mechanism to fund IP to produce estimates prior to securing investment authority is a pre-authority, and these carry the risk of costs not being allocated to projects. Possible workarounds would be to use pre-authorities where the risk is deemed appropriate, or the route could self-fund this estimating resource. Further investigation into the options will be appropriate once the IP review of the estimating process has been concluded.

9.2.4. Investment process

Recent changes agreed at the Wessex Investment Panel, where third party funded projects now need only to quote the current authority value as the anticipated final cost as further funding is not committed, avoids the need to go to several panels to gain investment authority with minimal increase in risk. The use of delegated authorities and, in some cases, authority in correspondence, also reduces the time needed to gain investment authority, thereby speeding approval of third party investments.

9.2.5. Authority to enter contract

This process is governed by corporate commercial and has been discussed above under the heading 'Agreement in Principle and Negotiation of Terms' competitors to funding.

The key competitor for third party funding in the railway is the Train Operating Company. It is necessary to maintain the close relationship already established through the Wessex Alliance to ensure that funding is directed to the most appropriate scheme, and that neither party acts to the others detriment. In most cases it should be possible to reach a mutually acceptable decision. Where it is not, Network Rail's role as system operator is likely to give more weight to Network Rail's priority.

9.2.6. Targets for securing investments

Current points to consider are:

- Leads passed on to sponsors
- Value brought into business, possibly weighted by priority
- Benchmarking against other routes/government agencies (e.g. Environment Agency)

9.2.7. Enablers for strategy

Current points to consider are:

- Match funding sources (e.g. National Stations Improvement Programme / Access for All) to promote investment
- Resource requirements – estimating resource, funding of risk/propositioning, budget for networking event set up etc.

9.3. Focus for third party involvement

Whilst seeking funding, the focus, in order of priority, should be to attract additional funding for:

- Enhancements projects re-planned into CP6 through the Hendy Review

- Strategically important enhancements in CP6 which are not covered by the Hendy Review
- Projects that generate operating savings as well as benefits for a third party
- Other third party funded projects

It should also be noted that local authority funding is not categorised as government funding for the purposes of this process, and as such is highly likely to be an important type of third party funding which should certainly not be overlooked. Projects generating operating savings as well as benefits for a third party and other third party funded schemes are not yet identified. It will be necessary to understand potential funders aims and work with them to develop schemes that achieve mutually beneficial outcomes to secure investment (see develop investment proposition below).

9.3.1. Hendy Review

In Wessex, the projects that were re-planned into CP6 are:

- Wessex Capacity Phase 2, including congestion relief at Surbiton, Wimbledon and Clapham Junction stations
- South London HV – grid supply upgrade
- Access for All schemes at two stations

9.3.2. Strategically important enhancements in CP6 not covered by the Hendy Review

These projects were identified as part of the long term planning process, and are documented in the Wessex Route Study. A full list of strategic schemes, listed below, has been considered for demand, urgency and network readiness. The projects identified as important for CP6 are not necessarily committed schemes or recommendations, but are “choices for funders”. Network Rail will take forward schemes where funding opportunities permit.

Strategic Schemes offered to Stakeholders for prioritisation during Route Study engagement by System Operator

Windsor Line Peak Demand	Main Line Peak Demand	Station Pedestrian Capacity	Main Suburban Off-Peak Services
Constrained by Level Crossings and Power Operation of 20 trains per hour capability Extension of Up Main Relief Line Reconfiguration of lines between Queenstown Road and London Waterloo CP7	Woking grade separation CP6 Woking platform 6 CP6 Basingstoke grade separation CP7 Extension of Up Main Relief Line CP7 Reconfiguration of lines between Queenstown Road and London Waterloo CP7	Clapham Junction congestion relief scheme Wessex Capacity phase 2 CP6	Not actively pursued 2tph new services to Main Suburban destinations Shuttle services between Shepperton and Kingston Shuttle services between Hampton Court and Surbiton
Freight Capacity	**Airport Connectivity (Heathrow)**	**HS2 Connectivity**	**Windsor Line Off-Peak Services**
Basingstoke Grade Separation CP7 AC Electrification (Basingstoke to Redbridge, Basingstoke to Salisbury, Redbridge to Salisbury and Romsey to Eastleigh) Not actively pursued	Related to Western Route access to Heathrow Direct services between Basingstoke/Southampton Central and Heathrow - possibly on to London Paddington	Platform 0 at Clapham Junction (benefits realised once HS2 is operational and dependant on openng of Old Oak Common Station on the West London line)	Constrained by Level Crossings and Power Operation of full 20tph capability of Windsor Lines Additional 2tph in the off-peak
South West Main Line	**West of England Line Off-Peak Services**	**North Downs Line Off-Peak Services**	**Cross Boundary Off Peak Services**
Basingstoke grade separation CP7	1tph between Exeter and Axmnster (Devon Metro service) CP7+ Diversionary route between Castle Cary and Exeter via Yeovil Junction CP7+ AC Electrification (Basingstoke to Salisbury and Test Valley) CP7+ Potential platform reinstatement at Salisbury	Potential enhancements associated with re-signalling to address signalling headways	Related to Western Route access to Heathrow Additional 0.5tph CrossCountry service south of Reading Direct services between Basingstoke/ Southampton Central and Heathrow (possibly on to London Paddington)
	Relisilience	**Accessibility**	
	Diversionary route between Castle Cary and Exeter via Yeovil Junction Route Weather Resilience and Climate Change Adaptation Plans	Access for All (or successor fund) schemes to be determined	

10. CP6 regulatory framework

This chapter sets out the funding implications of our plan for Control Period 6 (CP6), which runs from 1 April 2019 to 31 March 2024.

10.1. Expenditure forecast

Our CP6 Route Expenditure forecast, shown in Table 10.1, 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

£m in 2017/18 prices	18/19	19/20	20/21	21/22	22/23	23/24	CP6
Route expenditure							
Support	4	10	10	10	10	10	**48**
Operations	40	43	43	43	43	43	**215**
Maintenance	102	113	111	109	105	105	**543**
Renewals*	107	185	235	291	243	132	**1,086**
Enhancements	182	40	34	0	0	0	**74**
Schedule 4 & 8	39	23	25	26	28	22	**125**
Allocated / attributed expenditure							
Traction electricity	45	59	61	61	61	62	**304**
Industry costs and rates	17	18	18	18	25	24	**104**
System Operator	0	4	5	5	5	4	**24**
Support and operations	34	39	41	39	40	38	**197**
Schedule 4 & 8	8	6	6	6	6	6	**30**
Renewals	86	69	79	76	75	54	**353**
Group Portfolio Fund	0	29	35	53	53	65	**234**
Non-SoFA expenditure							
BT Police costs	8	10	10	10	10	10	**51**
Financing costs	119	104	87	74	62	54	**380**
Corporation tax	0	24	44	49	39	33	**189**
Total expenditure	**792**	**776**	**843**	**869**	**804**	**662**	**3,955**

** Excludes £107m of Digital Railway spend, which is in our plan but not funded by the SoFA.*

*** CP6 Schedule 8 forecast not yet available and therefore not included*

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

£m in 2017/18 prices	18/19	19/20	20/21	21/22	22/23	23/24	CP6
Variable and station charges	(81)	(41)	(41)	(41)	(41)	(41)	**(205)**
EC4T	(45)	(57)	(59)	(60)	(60)	(61)	**(297)**
Schedule 4 ACS	(14)	(28)	(30)	(32)	(34)	(27)	**(151)**
FTAC / Network Grant (SOMR)	(220)	(366)	(425)	(488)	(446)	(329)	**(2,052)**
Grant for tax, financing and BTP	(128)	(139)	(141)	(132)	(111)	(97)	**(620)**
Income from FNPO	0	(34)	(41)	(46)	(41)	(35)	**(197)**
Other single till income	(85)	(71)	(72)	(71)	(71)	(73)	**(358)**
Subtotal (gross revenue requirement)	**(571)**	**(736)**	**(809)**	**(869)**	**(804)**	**(662)**	**(3,881)**
Capital grant for enhancements	(23)	(40)	(34)	0	0	0	**(74)**
Total income	**(594)**	**(776)**	**(843)**	**(869)**	**(804)**	**(662)**	**(3,955)**

***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: CP6 route revenue requirement

£m in 2017/18 prices	19/20	20/21	21/22	22/23	23/24	CP6
Route support, operations and maintenance	166	163	162	157	157	**805**
Allocated support and operations	39	41	39	40	38	**197**
Traction electricity, industry costs and rates (including BTP)	87	89	89	96	97	**458**
Schedule 4 & 8	29	31	33	34	28	**155**
System Operator	4	5	5	5	4	**24**
Group Portfolio Fund	29	35	53	53	65	**234**
Allowed return	104	87	74	62	54	**380**
Amortisation	254	314	366	318	186	**1,439**
Tax	24	44	49	39	33	**189**
Gross revenue requirement	**736**	**809**	**869**	**804**	**662**	**3,881**
Other single till income	(71)	(72)	(71)	(71)	(73)	**(358)**
Income from FNPO route	(34)	(41)	(46)	(41)	(35)	**(197)**
Net revenue requirement	**630**	**696**	**752**	**692**	**555**	**3,325**

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

£m in 2017/18 prices	18/19	19/20	20/21	21/22	22/23	23/24	CP6
Closing net debt	(3,712)	(2,933)	(2,478)	(2,036)	(1,852)	(1,661)	**(1,661)**
Closing RAB	5,085	4,985	4,985	4,985	4,985	4,985	**4,985**
Average net debt / RAB	73%	59%	50%	41%	37%	33%	**33%**
Group Portfolio Fund		29	35	53	53	65	**234**
Route		13	13	13	13	13	**65**
Portfolio		16	22	40	40	52	**169**
Maturing debt		721	422	409	171	180	**1,903**
Working capital		6	(26)	(12)	(3)	11	**(24)**
Cash requirement (incl. working capital and external debt repayment)		801	898	875	808	747	**4,130**

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:

Becky Lumlock

Route Managing Director **Date:** 17/1/18

Stuart Kistruck

Director, Route Safety & Asset Management **Date:** 17/1/18

Sam McCarthy

Route Finance Director **Date:** 17/1/18

Janice Crawford

IP Regional Delivery Director **Date:** 19 Jan 18

Appendix A Joint 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
SWR PPM	Wessex	87.0%	80.0%	87.5%	92.5%	Amber	April 2019
SWR CaSL	Wessex	2.4%	3.8%	2.3%	1.3%	Amber	April 2019

No	Key constraints, risks and opportunities	What we plan to do	Owner	Timescale
1	O: Continued Route focus through the shared Performance Improvement Plans	A consistent drive to focus route performance improvement activity on the functions and causes of delay that reflect the most significant PPM attrition Ensure required improvement activity is tracked from conception to completion	Head of Performance	April 2019
2	O: DPI Reduction Plan	Programme of initiatives in place to reduce the delay impact per incident	Business Change	April 2019
3	O: Reduction of incidents attributed to Train crew (Guards, Drivers & Resources)	Raise awareness of the impact of train crew incident on performance Training refreshed and delivered on key processes	Operations Director	April 2019
4	R: Ongoing rise of delay attributed to incidents of an external nature (in particular fatality & trespass)	Deliver physical mitigations that have been identified at key 'Hot spot' locations across the route. Deliver enhanced trespass mitigation activity to focus on education, engagement and staff training Deliver and embed a revised Ill Passenger process, including passenger awareness	Head of Performance	April 2019
5	O: Reduction of incidents attributed to SWR Fleet	Programme of initiatives and fleet modifications that continue to target an increase in reliability.	Fleet Director	April 2019
6	O: Increase in asset reliability associated with the Reliability Growth Plans	A programme of Maintenance activity to target reliability improvement to Track Circuit Failures, Track Faults and Signal related delay	Head of Maintenance	April 2019
7	R: Increased number of speed restrictions >7 days	Drive number of speed restrictions down to a target of 34 by end of 16/17 by initiatives that include preventative works and strategic spares programme.	RMD	April 2019
8	O: Continue activity to deliver ongoing reduction in NR Operations attributed delay	Roll out of the Wrong Route Reduction plan across the Wessex Route Continued education and focus to ensure improved data quality	Head of Operations	April 2019
9	O: Deliver Seasonal Mitigation	Ensure compliance to the National Stage Gate Review process and ensure each season is	Head of	April 2019

	activity	subject to a sufficient review, with improvement activity tracked to completion	Performance	
10	O: Improved Data Quality	Introduce an annual competency assessment to all Level 1 (TDA) and Level 2 (DAS) roles to deliver a consistent increase in data quality	Head of Performance	April 2019
11	O: Deliver a reduction in Unexplained (Sub Threshold) Delay	Deliver an Unexplained Delay Improvement Plan Through the NEXALA system identify the stations where the most frequent excess dwell is caused and introduced mitigation activity Through the NEXALA system identify the sections where SRTs are regularly exceeded and work towards amending the base plan where appropriate	Head of Performance	April 2019
12	O: Waterloo Resilience Approach Project (WRAP)	Improve track circuit reliability between Clapham Jn and Waterloo by 20% v 15/16	RMD	April 2019
13	O: Enhanced performance culture across the route	Continue to raise performance awareness across all grades through – regular Performance newsletter, Performance 'Pitch Ups', development of a Performance Handbook for all managerial grades, continuation of the RTR Hub process, enhanced RTR staff briefing and regular Performance Conferences	Head of Performance	April 2019

South Western Railway

Sign Off: _____

Network Rail

Sign Off: _____

Appendix B Key assumptions

Ref no.	Topic (e.g. access, deliverability, climate etc.)	Assumption	Areas of spend impacted (e.g. all Opex, track renewals, all spend etc.)
WSX-A-001	Under-writing Asset Risk	The Technical Authority will support Wessex Route asset plans, with clear risk mitigation guidance to asset owners, so as to engender a joint understanding of non-policy compliance.	CAPEX
WSX-A-002	Costs	PL and S&C track contracting strategy for CP6 is confirmed such that new commercial arrangements are in place for July 2019'	CAPEX
WSX-A-004	Costs	Unit rates are based on delivered work in CP5 and do not factor in inefficiencies due to lower volumes of activity planned in CP6.	CAPEX and OPEX
WSX-A-005	Costs	Electricity At Work Act compliance will be funded centrally (c. £53m).	E&P CAPEX and OPEX
WSX-A-007	Costs	Development funding will be made available for enhancements development work including CP7 development planning for Wimbledon DR and CrossRail2.	CAPEX
WSX-A-008	Market	There will be sufficient capacity and competitiveness within the supply market to deliver affordable plans.	CAPEX and OPEX
WSX-A-009	Central costs	Central service costs remain at the same level as CP5, or with efficiency applied as forecast in central service devolution.	OPEX
WSX-A-010	Central costs	Compulsory redundancy will not be possible in CP6 and therefore efficiencies will be invested in greater outputs, not Opex savings.	OPEX
WSX-A-011	Op property cost	Project Condor costs are borne by the Route (e.g., but not exclusively Tenanted Arches).	CAPEX
WSX-A-012	Op property cost	Additional Managed Stations, planned or proposed, are included in this submission.	CAPEX and OPEX

Ref no.	Topic (e.g. access, deliverability, climate etc.)	Assumption	Areas of spend impacted (e.g. all Opex, track renewals, all spend etc.)
WSX-A-013	Devolution of services	All devolved central services and roles will have adequate budget provision.	OPEX
WSX-A-014	Objectives and measures	PPM remains a performance measure, which has a direct line of sight in our plan.	CAPEX and OPEX
WSX-A-015	Refranchise	Customer requirements after refranchise will be the same as at the time of submission.	CAPEX and OPEX
WSX-A-016	Refranchise	Refranchise terms and conditions will match agreed CP6 objective outcomes and performance levels.	CAPEX and OPEX
WSX-A-017	Island Line Lease	Separate funding settlement to align with outcome of SWR committed obligation to propose a new arrangement for the Isle of Wight line	CAPEX
WSX-A-018	Property revenue	Revenue generated from retail and property in Wessex territory will enter our P&L.	CAPEX
WSX-A-019	RAB scope	The Waterloo International Terminal is included in the Route Asset Base and requires maintenance.	CAPEX and OPEX
WSX-A-020	Enhancements	Committed and Route study enhancements are funded separately and delivered to specified outcomes.	CAPEX
WSX-A-021	Organisation structure	Route and IP organisations will be the same in CP6 as at the time of submission.	OPEX
WSX-A-022	Force Majeure and Climate	Extreme weather and other force majeure events do not exceed modelled norms upon which the Wessex Route Weather Resilience and Climate Change Strategy is based.	CAPEX and OPEX

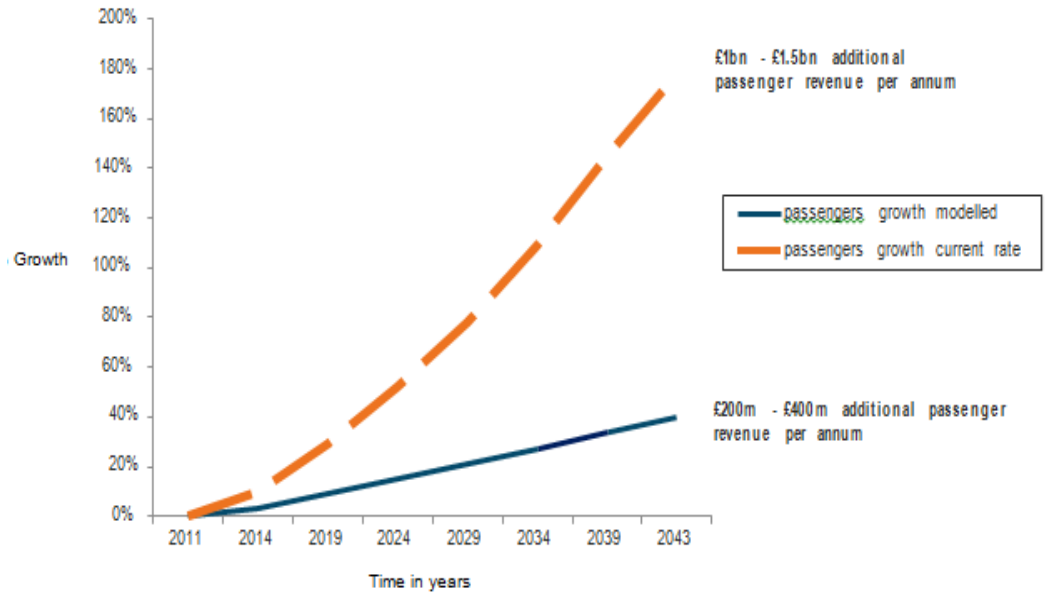
Ref no.	Topic (e.g. access, deliverability, climate etc.)	Assumption	Areas of spend impacted (e.g. all Opex, track renewals, all spend etc.)
WSX-A-023	CP5 delivery Baseline	Works planned and included in CP5 are undertaken and completed in CP5 as per 16/17 RF8 submission.	CAPEX and OPEX
WSX-A-024	ORBIS benefits	ORBIS will deliver tools, support, data hierarchy and benefits as per CP5 plan.	OPEX
WSX-A-025	Access	Access requirements arrangements remain the same as at the time of submission	CAPEX and OPEX
WSX-A-026	Access	Current red zone working policy, and consequent OPEX impact, applies.	OPEX
WSX-A-027	Deliverability	Future safety initiatives from delivery agents are fully consulted so as to assess volume impact.	CAPEX and OPEX
WSX-A-029	Costs	NRT will deliver levels of service sufficient enough for Wessex Route to deliver this plan.	CAPEX and OPEX
WSX-A-030	Security	Budget to achieve compliance with National Security Risk Plan in CP6 are centrally held. Following the impact assessment funds will be disseminated the Route	CAPEX and OPEX
WSX-A-032	Fatigue	A central provision is not assumed for enabling 12 hour working time; therefore a provision has been included in the Route Opex budget.	OPEX
WSX-A-033	CrossRail2 deliverability and reputation	CrossRail2 has assumed availability of Wimbledon sites from 2027; this is not funded within this Strategic Business Plan.	CAPEX
WSX-A-034	Cost	It is assumed that the required outputs of Feltham re-signalling will be achieved for the GRIP4 estimated cost of £160M.	CAPEX
WSX-A-035	Innova project start date	It is assumed that physical works for Clapham congestion relief Innova scheme will not be starting until the end of CP6	CAPEX

Appendix C Route context

We have one of the busiest and most congested routes on the network, and indeed in Europe, and we continue to experience exceptional levels of passenger and freight growth. Commuter traffic from the Main Lines, Windsor Lines and inner suburban network sees over 50,000 passengers arrive into London Waterloo in a single typical high-peak hour alone. The Main Fast Line into London delivers 24 trains per hour at the high peak hour.

Our growth forecasts are mainly based upon the housing requirements of central London, and areas of Salisbury, Dorset and Hampshire. Most significantly, the office of the Mayor of London predicts a demand for 49,000 new homes every year, for the next 20 years. We are careful to note, additionally, that freight demand is also significant, and can be under-estimated when considered on less passenger intensive routes. The Southampton port area generates an increasing level of heavy manufacturing traffic, that although is spread evenly between under-utilised passenger periods, makes particular demands of our assets on many of our lines (such as, but not solely, the BKE).

Overall, our current infrastructure cannot accommodate further increases in passenger and freight traffic, without adversely affecting our performance and increasing risk. It is also clear however, that no single infrastructure intervention is capable of addressing the capacity gap that will widen beyond CP6. Incremental, affordable and value for money interventions are therefore needed over successive control periods, in order to achieve a full solution. This is the very essence of our plan, and understanding our Route, and our customers' needs, are an important consideration.



The London and South East Market Study anticipates growth of 40% by 2043 and 60% is required in the higher peak hour to meet the 2043 capacity conditional output for main line long distance services. This equates to 13 (10-11 main line and 2-3 suburban) additional paths in the high peak hour.

Wessex Route characteristics, geography and customers

The South Western Railway extends from London Waterloo to Weymouth and from Basingstoke to Exeter. The Wessex Route currently provides for a

wide range of passenger flows, including both long-distance and south-west London commuter routes. The Route connects London both to the south coast, and to much of the commuter belt, and is thus extremely important to the capital, the wider region and to national strategic interests. In addition to passengers, the route also carries strategically important freight. Both kinds of traffic are increasing, putting greater demands on an already very busy Route, and requiring extensive forward planning, enhancements and maintenance. This includes dealing with specific geological asset risks, which we cover in detail elsewhere. For example, earthworks on the BKE line are especially vulnerable to wet weather.

The Network Rail National Supply Chain also has assets on Wessex Route, which have a national impact. Firstly, a Local Distribution Centre (LDC) located on the Route at Eastleigh. The LDC is operated by DB Cargo with bulk ballast, inter-LDC tripper and possession services hauled by DB Cargo, FLHH, GB Railfreight and Colas. Secondly, the Long Welded Rail Depot at Eastleigh produces nationally for track renewals. The future for these facilities, and a more comprehensive NSC plan that aligns with a Wessex Route property strategy, is an important consideration for our Route operating model.

The Route comprises of the following lines:

- The **South West Main Line** connecting Waterloo to Southampton and Weymouth. The **Portsmouth Direct Line** from Woking to Portsmouth Harbour
- The **North Downs line** linking Reading and Guildford to Redhill and Gatwick Airport. The **South Hampshire Line** connecting Worthing and Exmouth junctions
- The **West of England lines** connecting Salisbury, Eastleigh and Fareham The **Heart of Wessex Line** connecting Castle Cary and Dorchester West The **Reading to Basingstoke Line**.(the BKE)

Additionally, commuter routes are divided into:

- The **Main Suburban Lines** branching to Shepperton, Hampton Court, Chessington South, Epsom and Guildford via Effingham Junction
- The **Windsor Lines** for services to Reading, Windsor, Weybridge and Aldershot via Hounslow or Richmond.

The Wessex Route and South Western Railway Alliance

The number of passengers travelling on the network has more than doubled in the past 20 years. We now carry over half a million passengers every day and accommodate more than 222 million passenger journeys every year. London Waterloo is the busiest station in the UK, with over 100 million people passing through the station in 2015.

Our current passenger customers and their core business

South Western Railway

Our current lead operator is South Western Railway, which is the prime revenue generator for the Alliance and is central to our vision. SWR operate

services from London Waterloo with mainline services to Woking, Basingstoke, Southampton Central, Portsmouth Harbour, Bournemouth, Weymouth, Exeter, Salisbury, Reading and Alton. Their suburban routes include Guildford, Dorking, Windsor, Weybridge and Shepperton. They run approximately 1,600 trains a day on the network, serving more than 200 stations.[1]

The Island Line

This is a train service which runs on the Isle of Wight, serving the towns of Ryde, Brading, Sandown, Lake and Shanklin. It covers 8.5 route miles, with the rolling stock being ex-London Underground (Northern Line) rolling stock. SSWT have the franchise to operate until March 2017, although the lease expires in 2019. Network Rail is the owner of rail infrastructure and assets on the Isle of Wight, and we have leased the entire railway (land/infrastructure assets) to the Island Line. Maintenance and renewal responsibilities are shared between both parties.

Cross Country

Cross Country is part of the Arriva group, which is owned by Deutsche Bahn. The Cross Country network has Birmingham at its heart and operates long-distance, high-speed services linking Scotland, the north east and Yorkshire with the east and west midlands, the south west and the south coast. Cross Country have a large proportion of discretionary business and leisure travellers, with Fridays and Sundays their busiest days. They run circa 298 trains on an average weekday travelling through 119 stations. Their current franchise was awarded in November 2007 and was extended on existing terms and conditions until 15 October 2016. They are currently negotiating a direct award with the DfT through until November 2019.

Great Western Railway (GWR)

GWR is owned by FirstGroup plc and operates high-speed services between London Paddington, the Cotswolds, South Wales and the West Country, as well as commuter services in London and the Thames Valley, regional services between south-east Wales and south- west England and local services in the south-west of England. They carry approximately 1.5 million passengers every week on 9,000 services, and call at 276 stations. GWR is the only UK rail company to operate high-speed, inter-city commuter, regional and sleeper services. We have four interfaces with GWR: at Basingstoke with the service between Reading and Basingstoke, our North Downs line with services running between Reading and Gatwick, at Salisbury with the Portsmouth Harbour to Cardiff services and finally at Weymouth with the Bristol-Westbury-Weymouth services.

Govia Thameslink Railway (GTR)

GTR is the largest train operating company in the UK. They operate the Thameslink, Southern and Great Northern rail franchises, and the Gatwick Express airport service. GTR is a subsidiary of Govia which is a joint venture between the Go-Ahead group and Keolis. GTR carries 273 million passenger journeys per year, operating over 3,200 services every week day and serving 320 stations. Southern routes run from London Victoria and London Bridge through to

[1] SSWT is among several customers currently subject to a re-franchising process.

Brighton, Portsmouth and Southampton.

London Overground (LOROL)

The London Overground is a suburban network of rail services managed by Transport for London (TfL) in the capital. It was launched in 2007 to provide better connections between areas outside central London. LOROL operates these services under a concession agreement with TfL. LOROL operates 1,473 services on 96 trains and carries more than 520,000 passengers every day.

London Underground (LUL)

Wessex Route has a unique relationship with London Underground (LUL) because the Wimbledon-East Putney section of the District Line is owned by LUL but Network Rail has rights to operate services along the Route. We also have special agreements in relation to the signalling operation of the route from Wimbledon signalling panel and some maintenance activities. We have station interfaces with LUL at Wimbledon and Richmond.

Other station interfaces at Wimbledon are with GTR and the Croydon Tramlink (part of Transport for London's rail operation). The rail infrastructure for these services, however, relate to Sussex Route.

Our freight customers and their core business

Wessex Route serves its principal freight customers, with the Port of Southampton considered critical to the success of rail freight in the UK.

DB Cargo

Currently the largest Freight Operating Company (FOC) in the UK and is active in all markets including automotive, intermodal, steel and construction materials. Over the past few years the both the number and length of automotive services have grown considerably on Wessex with the rise in overseas demand for UK produced cars. This has a significant impact for both the BML between Basingstoke and Southampton and the BKE line, which both have especially difficult access and increased embankment loadings as a result of this traffic.

Freightliner Group

Freightliner Group has businesses in the United Kingdom, continental Europe, Australia and the Middle East. In the UK, the group operates two businesses in the form of Freightliner Intermodal and Freightliner Heavy Haul. Freightliner Intermodal currently operates the majority of intermodal services, the core freight traffic conveyed on Wessex.

GB Railfreight

GB Railfreight operates in many markets across the UK, including construction materials and intermodal. On Wessex, the principal traffic is the conveyance

of gypsum from Southampton.

Re-franchising process

The new franchise has been awarded to South Western Railway and commenced on the 20th August 2017. There will be a challenging period of transition in the short term as we forge new relationships and people, systems and processes are transferred across to the new organisation. The new franchise has made commitments to improve reliability and grow quicker, more frequent services, which will be embedded in the December 2018 and December 2020 re-timetabling process. Network Rail and South Western Railway are currently in a process of aligning corporate objectives at the highest level to establish the principles of the new alliance. It will be vital to build strong and trusting relationships rapidly in order to facilitate a collaborative approach to creating an optimal balance of maintenance access and customer needs if a new and ambitious timetable is to be achievable.

Integrated Workbank Planning

In 2014 a project was started in Wessex to address how works could be better integrated and delivered. This was in response to known under-delivery in CP4, an increase in planned works in CP5, and the subsequent concern over non-delivery of committed volumes and output in CP5. The same conclusions have been identified by the Shaw, Hendy and Bowe Reports.

Integrated Workbank Planning is starting to provide the services and tools through which all infrastructure works (maintenance, renewals and enhancements) are coordinated, integrated and delivered to enable them to be planned more efficiently and effectively. A new approach was needed for the process of gathering and sharing information in order to better facilitate delivery of works and achieve committed volumes and output. The first step was to consolidate the work banks and to provide a single source of information for the planned infrastructure works. The benefits of having this integrated approach are being experienced across the Route and will have a positive impact on our ability to deliver overall targets. Smarter planning of works by sponsorship and delivery teams will take into consideration multiple factors such as other existing works, access, and prioritisation. This will mean it is possible to deliver more of our CP5 commitments and have a much more informed start to our CP6 objectives.

Appendix D Scenario planning

Part (1): Tactical scenario planning for CP5

Scenario 1: 20% increase in total remaining expenditure

Asset	Year 4-5 outstanding spend	Potential investment increase	Benefits of increased expenditure			Comment on benefits
			Performance	Sustainability	Reputation	
Structures underbridge	£30.5m	£1m	G			Undertake L2 structural assessments to mitigate requirement for network restrictions
Structures – retaining walls	£30.5m	£0.5m		G		Remote condition monitoring installed on high risk retaining walls would mitigate performance risk and provide degradation data for setting intervention timescales accurately.
E&P	£38.3m	£0.6m	G			NSCD maintenance
E&P	£38.3m	£1.2m	G			Additional E&P maintenance staff
E&P	£38.3m	£1.5m			G	Signal power (SIN119) staff
Signalling	£54m	£2m		G		Early development and design of Farncombe-Petersfield
Signalling	£54m	£1m	G			Targeted performance initiatives
Track	£49m	£10m	G	G	G	Additional S&C Refurbishment on poor performing assets, additional re-railing targeting RCF and Pre-76 rail. Additional Opex items such as weld repairs of S&C improving performance and repeat L2 locations
Buildings	£6.6m	£0.3m	G			Depot plant repairs will improve reliability, increasing train performance
Buildings	£6.6m	£0.7m			G	Platform surfacing repairs – reduce risk of tripping on platforms
Drainage	n/a	£0.6m	G		G	Data capture for the 300 highest risk miles of route would reduce the risk of a return to the regulatory escalator, and identify significant volumes of drainage maintenance work.
Drainage	n/a	£0.4m	G			A three person team per DU for one year dedicated to drainage maintenance would reduce safety risk and improve performance.
Total		**£18.8m**				Key to risk colours: A: no additional benefit | G: some additional benefit | G+: considerable additional benefit

Scenario 2: 20% decrease in total remaining expenditure

Wessex Route is currently operating with an irreducible budget of £100m for each year in CP5. Without this money it cannot be guaranteed that safety and performance will be maintained at current levels.

There is no headroom for further savings in the total expenditure. The core plan delivers a minimum of safety and legal compliance targeted works, without which the occurrence of Wrong Side Failures would noticeably rise.

Asset	Yrs. 4-5 outstanding spend	Maximum potential saving	Risk of curtailing expenditure			Comment on impacts/issues
			Performance	Sustainability	Reputation	
Structures	£7.50m	£ -m				The remaining workbank is for over-stressed assets or subject to short term network change
Buildings	£0.70m	£ -m				The remaining expenditure is for legal compliance and safety mitigations for reactive faults.
Geotechnical	£4.50m	£ -m				The remaining budget is required for actively failing assets.
Signalling	£21.30m	£ -m				The remaining budget is for safety and performance critical protection of life expired assets.
Track	£15.00m	£ -m				£16m of track renewals have already been cancelled at RF8. The remaining budget is required for IP fixed costs, delivery of safety critical activity and deferral mitigations. If there was no budge, we would not be able to deliver CAPEX recoveries with consequential impact on OPEX.
E&P	£16.00m	£ -m				Following the reduction of £2.5m at RF11a, there is no scope for any further reduction.
Total						

Key to risk colours: G: no additional risk | A: some additional risk | R: considerable additional risk

Part 2: CP6 strategic investment options

This section describes the benefits of additional investment in the route, over an appraisal period of 30 years.

Safety	**CP6 total: (£m)**	**£55M**	**CP6 Capex: (£m)**	**£55M**	**CP6 Opex: (£m)**	**NA**	**Total BCR**		**Appraisal period**	30 years
Description	**Qualitative benefits**						**Quantitative benefits**			
Medium risk scour site intervention	Reduced risk of bridge failure due to scour action						N/A			
Avon/Stour viaduct up line track conversion to a VIPA system	Reduced safety and performance risk from improved track quality and maintainability						Reduction in schedule 8 costs			
Additional re-railing volumes	Large quantity of ageing rail with cluster defects emerging coupled with increasing use of axle counters – programme to increase volume of removal of rail at risk of serious defects and breaks						Modelled outputs by end of CP6 Maintenance hours reduction by 291 hours Service effecting failures reduced by 2. 500 delay minutes saved 0.6% improvement in safety FWI			
Additional fencing volumes	Increasing the intervention of fencing upgrades to reduce the number of animal incursions and wrong-side failure incidents						Reduction of Lineside Wrong side failures by 5-8 per year Reduction in fence maintenance costs of £1m net			
Passive Level Crossing decking renewals as per STE Policy requirements	Better understanding of passive crossing condition and safety improvement						40% decking renewal of route total in line with STE policy			
Increase in RCM monitoring (SSI / LX's / ELDs / Auto Sigs / enhanced PCM)	Reduction in maintenance Opex costs for undertaking fault finding						Better fault diagnostics and WSF allegation evidence			
Replacement of 3 station canopies	Reduced safety risk and improvement of station environment/condition.									
Platform stepping-distance and cross-fall improvements							Reduction of passenger-train interface risk at 4 island platforms. Performance improvement from reduced dwell times.			
Root Ball Programme – Removal of root balls from 36 rock cuttings and soil cuttings across the route	This piece of work is connected to the RAIB Report 05/2008: Derailment in Hooley Cutting, near Merstham, Surrey which states that "Root balls or stumps posing high risk should be removed or otherwise stabilised …"						The benefit is a reduction in safety risk on earthwork assets. All root balls on steep, soft cutting slopes become unstable 5-10 years after felling			

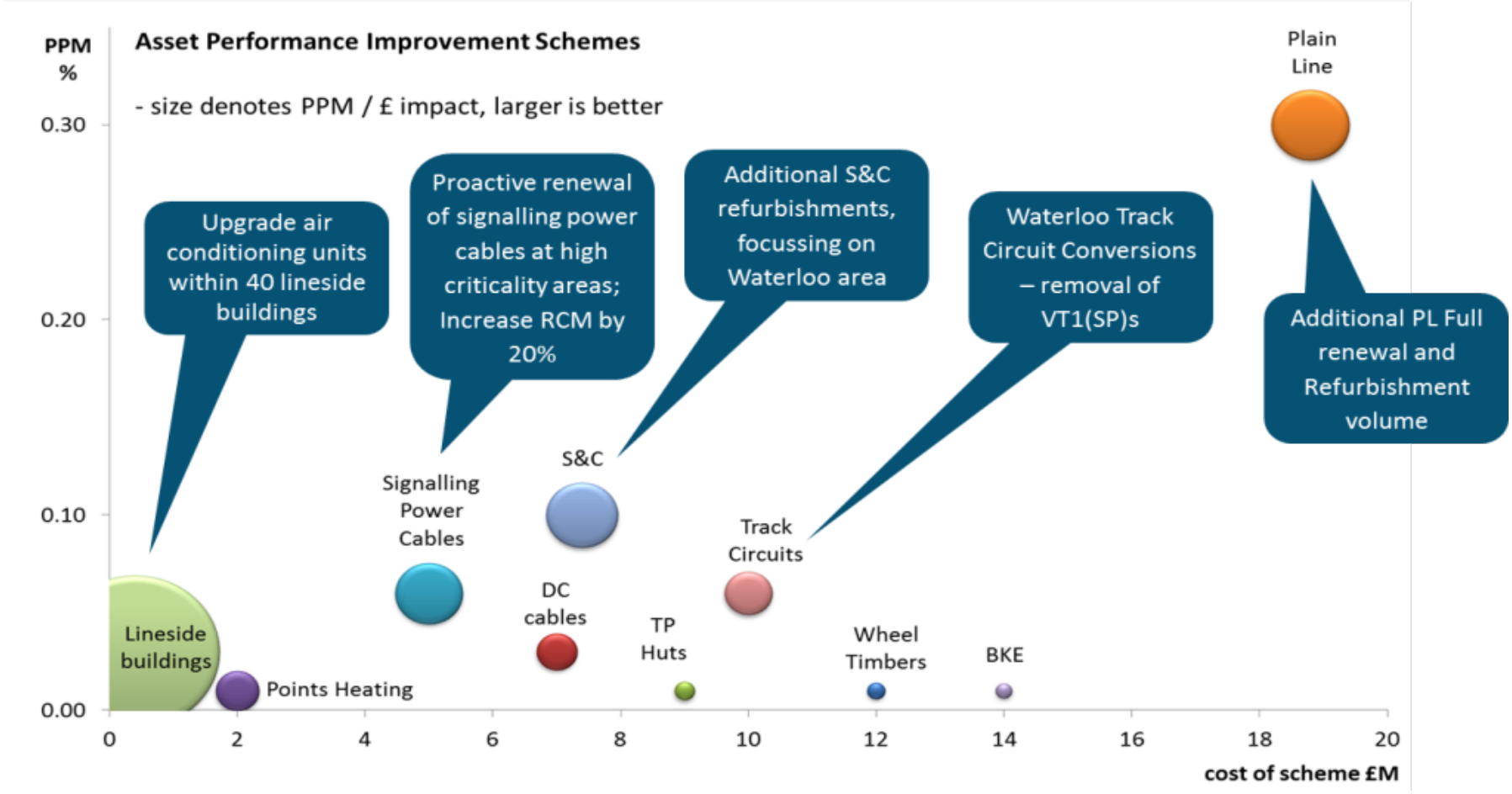
Performance	CP6 total: (£m)	£85M	CP6 Capex: (£m)	£85M	CP6 Opex: (£m)	(£8.5M)	Total BCR		Appraisal period	30 years
Description	**Qualitative benefits**						**Quantitative benefits**			
Removal of remaining longitudinal wheel timber bridges	Reduced performance risk						Reduction in schedule 8 costs			
Renewals of DC cables	Increase in funding to widen the scope of replacement of a certain design of poorly performing conductor rail cable lugs and associated cable doubling						Reduction of traction supply failures Improvement in ppm			
TP Hut conversion Guildford to Havant	Reinstate 3 of 10 highest priority TP Hut conversions. During adjacent rectifier transformer failures, all trains have to run in the vicinity with reduced power mode. This causes each train to lose time and impacts PPM and is a traction power service affecting failure. This aligns with Portsmouth line performance improvement plans						Reduction of traction supply failures Improvement in ppm			
Points heating renewal	Replacement of points heating installations in poor condition with improved strip heating installation						Reduced risk of points failure due to build-up of snow and ice Improvement in ppm			
Signalling Power System	Proactive renewal of signalling power cable in high criticality areas. Installation of improved condition monitoring of signalling power systems connected to II, installing improved RCM on signal supply points (PSP) and improved monitoring of UPS condition						Reduction of non-traction power supply failures Proactive intervention to asset prior to failure Improvement in PPM			
Additional PL Full renewal and Refurbishment volume	Reduction in Rough rides and TSR risk Reducing pressure on maintenance activity particularly around Track Geometry management						Reduction in Rough ride and TSR risk – removal of 15-20 locations across the route on higher criticality routes Modelled outputs reduction of 0.3% delay mins by end of CP6 (0.5% and 1% reduction by end of CP7 respectively) Removal of deferral mitigation Opex of £4.2m Additional benefit Improvement of Safety FWI by 0.8% by end of CP6 (1.6% by end of CP7)			

Additional S&C refurbishments, focussing on Waterloo area	Improving performance of the S&C asset at Waterloo – renewals are not practicable in this area so continuing large Refurbishment strategy to improve asset quality and reduce 053/054 and points failures	Modelled outputs by end of CP6 CRI improves by 0.7% with reduction of 2/3 instances per year where points are banned to moves – causing 1000's delay minutes Additional benefits are reduction of 537maintenance hours with safety Track FWI improvement of 1% Removal of deferral mitigation Opex of £4.26m
Waterloo Track Circuit Conversions – removal of VT1(SP)s	Reduction in maintenance Opex costs for undertaking fault finding	Upgrade of track circuits to improved version with better reliability and RCM functionality
Upgrading air conditioning units within 40 lineside buildings.	Reduced signalling and E&P asset failures from overheating.	Reduced energy consumption.
BKE Embankment Renewal – renewal of 28 priority embankments on the Reading to Basingstoke Line.	According to the Freight Market Study (Oct. 2013) freight on the BKE line is forecast to increase from between 0.50 and 1.50 paths per off peak hour in 2012 to 2.0 paths per off peak hour in 2043 as Southampton Port continues to grow. The line needs to be made more resilient for this amount of traffic as there is no suitable freight diversion around this route.	Reduction in SAF Increased train performance

In order to prioritise our performance schemes we have worked with our performance data to calculate a PPM benefit for the additional schemes. The size of the bubble is a measure of benefit / ££ and this shows clearly the efficiency of working on lineside buildings to reduce the likelihood of power failures caused by leaking or overheating buildings.

*A total of £85M asset intervention options that would improve train performance by approximately 1%**

**based on an assumed 1600 trains per day and 8 trains per hour at point of failure*



Compliance	CP6 total: (£m)	NA	CP6 Capex: (£m)	NA	CP6 Opex: (£m)	NA	Total BCR		Appraisal period	30 years
Description	**Qualitative benefits**						**Quantitative benefits**			
Level crossing closures (now included in core plan)										

Asset Life	CP6 total: (£m)	£127M	CP6 Capex: (£m)	£141M	CP6 Opex: (£m)	(£14M)	Total BCR		Appraisal period	30 years
Description	**Qualitative benefits**						**Quantitative benefits**			
Renewal of signalling power cable	Increase in signalling power cable renewals to STE modelled levels. Benefit in safety, performance and resilience as new cables will be glass fibre reinforced cables that are more resilient to rodent and mechanical damage, and will result in reduction in the number of service affecting failures						Reduction of non-traction power supply failures Improvement in PPM Improvement in sustainability			
Renewal of HV switchgear	Reinstatement of renewal of HV switchgear due to condition, obsolescence and exceeding asset technical life policy						Reduction of traction supply failures Reduction in risk of catastrophic failure of HV oil circuit breaker Improvement in ppm			
Renewal/ refurbishment of fluid filled HV cables	Renewal or refurbishment of fluid filled HV cables prioritised by condition (leakage) and environmentally sensitivity						Reduced risk of failure of cable hydraulic system and loss of traction power over feed area reduced risk of remediation costs			
Introduction of 1 x TRS and 4 BCS High-output campaigns	Improve NR's utilisation of the HO equipment with wider benefits to the business. Increasing the volume to Plain Line activity vastly reducing the PL volume gap from policy and will reduce the age profile of the asset on our Mainline and reduce the medium-long term sustainability risk						Modelled outputs by end of CP6 Reduction in maintenance hours of 1546 and reduction of deferral Opex activity of £9m CRI improvement by 0.5% Reduction of TSR risk by removing long lengths of poor ballasted track – 5-10 speed potential locations			

		Safety FWI improved by 2% In conjunction with all other additional PL interventions – improvement to the effective PL intervention over CP6 from 1.31% to 1.89% (Policy baseline compliance = 2.5%)
Implement efficient strategy of wheel-timber renewals	The increased volume allows the implementation of a renewal strategy maximising efficient use of resource and access, moving the wheel-timber renewal plan away from tactical intervention of life-expired timbers	Improvement in design geometry and therefore rough ride/TSR risk reduction Reduction in unit rates of delivery by 5-7%
Havant & Bournemouth SIMIS-W life extension	Reduces the risk of total equipment failure Upgrade of life expired PC based signalling equipment	
Wimbledon Area Resignalling Development	Circa £400m CP7 project that needs to be started in order to meet Crossrail 2 and DR aspirations	Early development of main CP7 scheme to enable CP7 year 1 start for delivery
Additional 20 S&C Full renewals	Coupled with the additional S&C refurbishments this increases results in S&C intervention in Wessex, meeting Policy volume levels and improving sustainability	Modelled outputs by end of CP6 Reduction of TSR risk by removing more wooden layouts on high criticality track Reduction in maintenance hours of 522 and reduction of deferral Opex activity of £4.5m 0.8% improvement in safety FWI In conjunction with all other additional S&C interventions – improvement to the effective S&C intervention over CP6 from 2.3% to 3.08% (Policy baseline compliance = 2.94%)
Replacement of grinder and welder at Eastleigh Long Welded Rail Depot.	Provides security of Track and E&P delivery programmes during CP6.	

Investment Technology	CP6 total: (£m)	£5M	CP6 Capex: (£m)	£5M	CP6 Opex: (£m)	NA	Total BCR		Appraisal period	30 years
Description	**Qualitative benefits**						**Quantitative benefits**			
Axle Counter Overlay Solution for High Leaf Fall Sites across the Route	Reduction in maintenance Opex costs for undertaking SFI testing						Reduction in wrong side failures			

Weather	CP6 total: (£m)	£1.5M	CP6 Capex: (£m)	£1.5M	CP6 Opex: (£m)	NA	Total BCR		Appraisal period	30 years
Description	**Qualitative benefits**						**Quantitative benefits**			
Implementation of Poole Harbour and Portcreek Viaduct flood defence schemes	Reduced performance risk from extreme weather events						Reduction in schedule 8 costs			
Installation of further conductor rail heating	Installation of small increase in conductor rail heating installations for area subject to regular icing						Reduction in delay minutes due to conductor rail icing at locations fitted			

Appendix E CP6 regulatory framework – 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	(17)	(18)	(18)	(18)	(19)	(19)	**(92)**
Electrification Asset Usage Charge	(1)	(2)	(2)	(2)	(2)	(2)	**(8)**
Schedule 4 Access Charge Supplement	(14)	(28)	(30)	(32)	(34)	(27)	**(151)**
FTAC / Grant (SOMR)	(347)	(366)	(425)	(488)	(446)	(329)	**(2,052)**
Station Long Term Charge	(32)	(21)	(21)	(21)	(21)	(21)	**(105)**
FNPO income	0	(34)	(41)	(46)	(41)	(35)	**(197)**
Charging income allocated to routes							
Electric Current for Traction	(45)	(57)	(59)	(60)	(60)	(61)	**(297)**
Total charging income	**(456)**	**(526)**	**(597)**	**(666)**	**(622)**	**(492)**	**(2,903)**

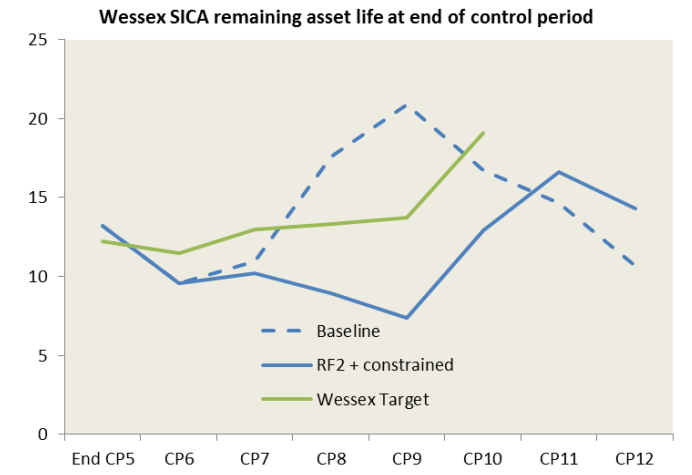
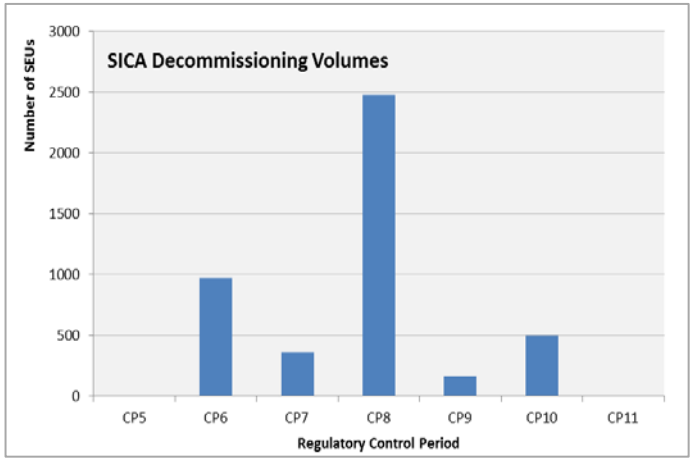
Table E.2 provides a breakdown of forecast other single till income for CP6, which is included in Table 10.2 and 10.3, above. Other single till income represents Network Rail income that is received from sources other than access charges and network grants.

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

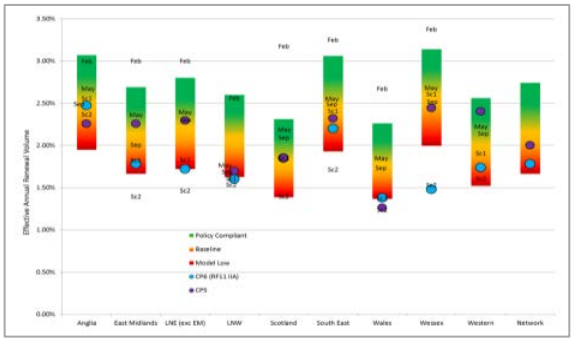
£m in 2017/18 prices	18/19	19/20	20/21	21/22	22/23	23/24	CP6
Route income							
Managed station QX	(4)	(4)	(4)	(4)	(4)	(4)	**(22)**
Franchised station lease income	(9)	(9)	(9)	(9)	(9)	(9)	**(46)**
Open access fixed contractual contribution	(0)	0	0	0	0	0	**0**
Depots	(7)	(10)	(10)	(10)	(10)	(10)	**(48)**
Finance charges (e.g. Crossrail)	0	0	0	0	0	0	**0**
Facility charges	(1)	(13)	(13)	(13)	(13)	(12)	**(63)**
Other route income	(8)	(0)	(0)	(0)	(0)	(0)	**(2)**
Income allocated to routes							
Property rental	(26)	(31)	(32)	(32)	(33)	(34)	**(162)**
Property sales	(28)	(3)	(4)	(3)	(3)	(3)	**(16)**
Total other single till income	**(85)**	**(71)**	**(72)**	**(71)**	**(71)**	**(73)**	**(358)**

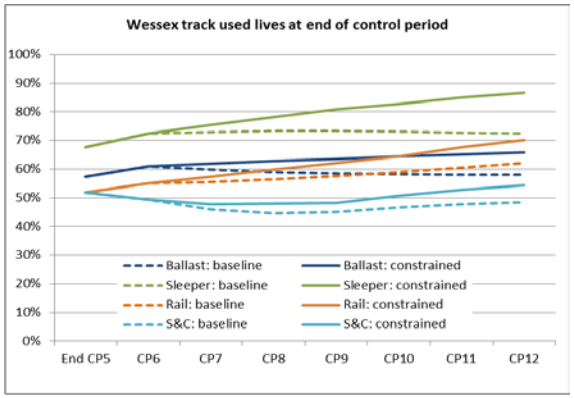
***Please note**: We no longer include stations long term charge income, open access income (with the exception of the open access fixed contractual contribution) or freight income in other single till income.*

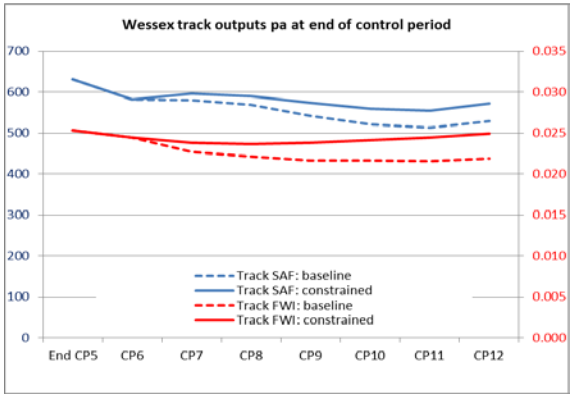
Appendix F Long term forecast

Asset	Condition trajectory	Comment
 Signalling	 	SICA remaining life for Signalling assets drops to 11.5 years at the end of CP6 in the constrained scenario due to 72% of assets with less than 10 years of SICA ARL left. This leads to significant investment being required in CP7 and beyond, as is shown by the green line, which will gradually increase the SICA ARL to 13.7 years by the end of CP9 before increasing to 19 years by the end of CP10. Re-Signalling of Feltham and Farncombe-Petersfield will improve reliability and performance of the suburban and the Portsmouth direct route. However, reliability of Signalling assets along the SWML, down to Dorchester, will deteriorate in CP6 resulting in an increase in number of sites with worsening wire degradation and red earths that could have serious safety and performance implications. Also, lessons learnt from the deferral of Feltham and Farncombe-Petersfield show that assets nearing the end of their life could degrade rapidly with unknown consequences. These will be managed through a combination of targeted spot renewals as well as reactive work, which will put a significant strain on both OPEX and CAPEX budgets for CP6 and beyond.

Track





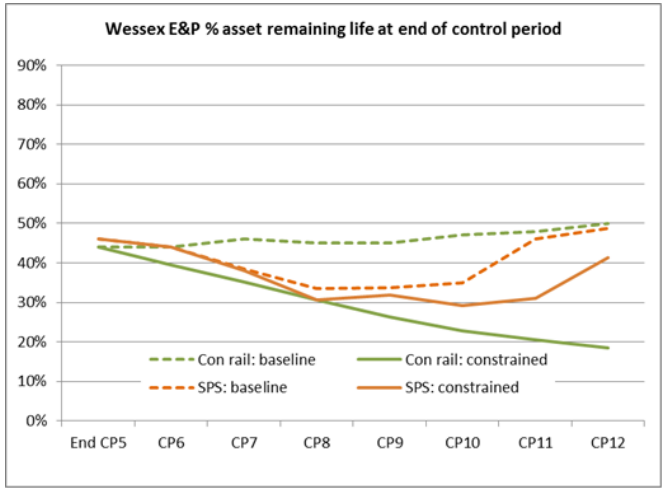
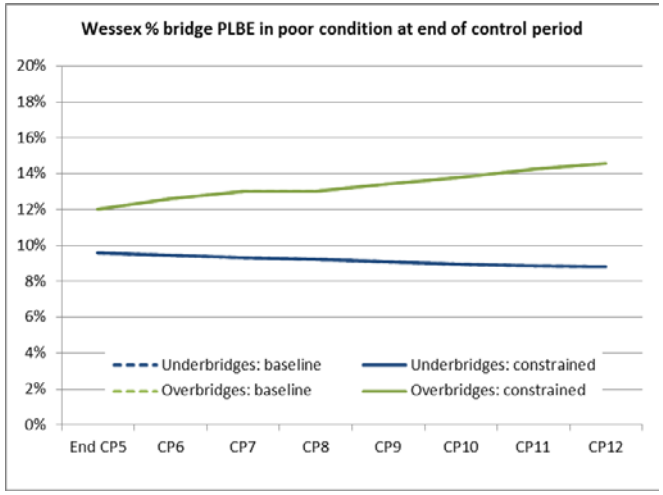


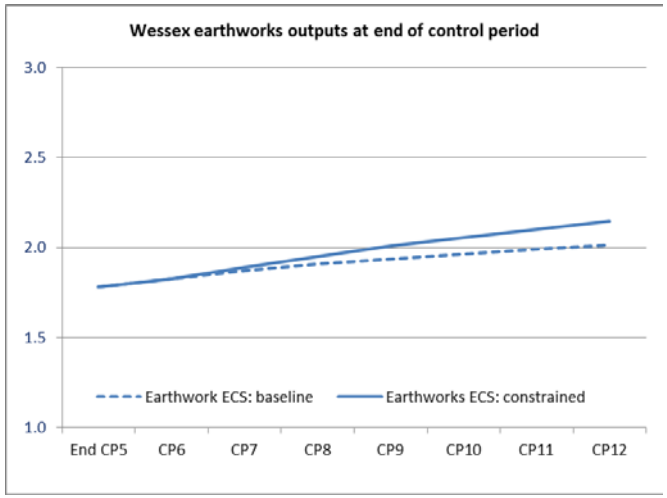
Track will see a gradual but sustained rise in asset age which poses a long term financial risk to the Route and NR. If CP6 levels of investment levels continue then the gap between current forecast and baseline will increase and inevitably result in significant interventions such as large scale re-railing or High Output activity to keep the asset at an acceptable performance level.

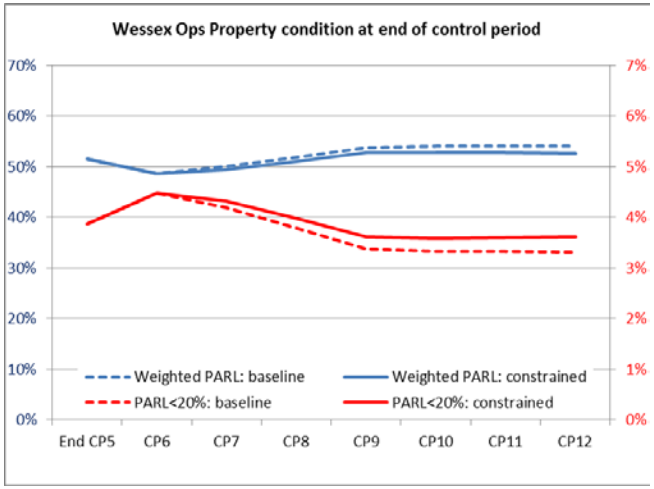
Safety of the track asset will be managed pro-actively and the renewal and refurbishment programmes will be aimed at life-expired assets which will also bring a level of performance improvement.

The main risk long-term will be the ageing population of sleepers and ballast on our key corridors of Waterloo to Southampton, Waterloo to Reading and the Woking to Portsmouth with increased tonnage expected over the coming years. The impact will be an increase in Maintenance activity to manage performance of the asset over CP6 – which has resulted in an increased Opex budget for Track as mitigation.

The Route's aspiration is to re-introduce High Output in CP7 to rebalance the age profile but this will require additional Capital funds from CP6 to achieve – to provide value for money circa £100m is required to turn on High Output renewal activity without compromising life-expired tactical renewals.

E&P		Conductor rail remaining asset life will reduce steadily and significantly in the longer term under a constrained scenario, gradually increasing chance of failures. This level of renewal is unsustainable and leads to an increasing bow wave of renewal required in future control periods. Signal power cable remaining life is not a straightforward measure of asset performance as there are a range of attributes that are more significant contributors including insulation material/armouring, cable route condition and rodent activity in the area. However this chart does indicate that significant investment will be required in CP7 & CP8 to maintain asset remaining life. Recent and future route-wide installation of signal power RCM equipment will allow us to gain a more robust understanding of asset life and forecasting over the next 5-10 years.
Structures		With constrained levels of funding, the percentage of poor condition PLBE for overbridges will increase through the next few control periods, which increases the risk of local failures. The measure for underbridges shows a marginal improvement, reflective of the greater proportion of funding these assets receive. As a further measure of sustainability, our non-masonry bridges have a design-life of 125 years. Using our current replacement rate, some of these assets would be 300 years old before they were replaced. This metric only covers a small proportion of the portfolio. Risks around walls and culverts are continuing to grow and are likely to require funding to prevent safety issues, reducing available funding on bridges, reducing the condition metric more than shown on this graph.

Earthworks		The earthworks condition score, ECS, is a composite measure that reflects the number and severity of defects observed on the assets, and can be seen to rise over the course of many Control Periods. The defects typically manifest during the winter, especially during extreme weather and update the ECS through routine examinations. The geography of Wessex means that earthwork failures have the greatest impact outside the suburban areas, and present the greatest risk to our West of England line. A simple way of viewing Earthwork sustainability is to consider that at a rate of approximately 20 renewals per year, on a portfolio of approximately 12,000 assets, the average assumed service life is 600 years. This is considerably higher than the current standard design life or 120 years. Since a renewals portfolio of approximately 4 times the current value is not a feasible proposition, the focus of forthcoming Earthwork Strategy in Wessex is to extend service life through a 'predict and prevent' approach, combining remote condition monitoring, vegetation and water management.
Drainage		Drainage funding has been maintained at consistent levels under both Baseline and Constrained funding models for CP6. This is in recognition of the fact that this asset class has a significant impact on safety, performance and sustainability of track, earthwork and other asset types. Although the CP6 drainage funding proposal is sub-sustainable, safety and performance will be improved during the control period by carefully targeting interventions in areas where there is known risk. Under the constrained funding assumption the level of intervention will remain below sustainable levels through CP7 and beyond, this will only allow safety to be maintained through CP7, and safety risk will then increase through CP8 to CP12. Performance similarly can be maintained through CP7, but will worsen through CP8 to CP12. These impacts will result from both a moderate fall off in portfolio asset condition and the impact of climate change. Under the baseline funding assumption drainage is sustainably funded through CP7 & CP8. This will enable asset condition to be slightly improved during this period. During the period CP9 to CP12 funding falls to a sub-sustainable level again. The demand on the drainage system will increase throughout the period CP6 to CP12 due to climate change. Under this funding assumption safety and performance can be improved through CP6, CP7 and CP8, but will plateau and then worsen through CP9 to CP12.

Operational Property		Operational Property PARL declines from 52% in CP5 to 48% in CP6. The long-term forecast sees this recover and hold around 50% to CP12. Of greater concern is the increase in PARL <20% from 41% to 49% in CP6, then slowly improve to 43% in CP12. However, both these metrics show the condition of the Operational Property portfolio will be worse than existing levels for the next 35 years, based on current financial forecasts. This is likely to increase reputational issues as these are the primary customer-facing assets. These metrics also do not reflect investment required to intervene on other assets types.

Appendix G Glossary of terms

AfA – Access for All
AHB – Automatic Half Barrier
AMEM – Asset Management Excellence Model
AMIP – Asset Management Improvement Plan
ARL – Asset Remaining Life
ASPRO – Asset Protection
B&C – Buildings and Civils
BCS - Ballast Cleaning System
BKE – Basingstoke to Reading
BML – Bournemouth Main Line
BTP – British Transport Police
Capex – Capital Expenditure
CaSL – Cancellations and Significantly Lateness
CDAS – Connected Driver Advisory Systems
CERD – Coastal, Estuarine and River Defence
CIL – Community Infrastructure Levy
COO – Chief Operating Officer
CP5 – Control Period 5
CP6 – Control Period 6
CP7 – Control Period 7
CP8 – Control Period 8
CRI - Composite Reliability Index
CRT – Critical Rail Temperature
CS – Caledonian Sleeper
DC - Direct Current
DfT – Department for Transport
DPI – Delays per Incident
DR – Digital Railway
DRSAM – Director of Route Safety and Asset Management
DU – Delivery Unit
E&P – Electricity and Plant
EAWA - Electricity at Work Act
ECR – Electronic Control Room
EIU – Emergency Intervention Units
ELR – Engineer's Line Reference
EMGTPA – Equivalent Million Gross Tonnes per Annum
ESR - Emergency Speed Restriction
ETCS – European Track Control System
FDM – Freight Delivery Metric
FDM - Field Data Manager
FEU – Freight End User
FNPO – Freight and National Passenger Operators
FOC – Freight Operating Company
FOL - Freight Only Line
FPM – Financial Performance Measure
FWI - Fatalities and Weighted Injuries
GTR – Govia Thameslink Railway
GRIP - Governance for Railway Investment Projects
GW – Great Western
GWR – Great Western Railway
H&S – Health and Safety
HAV – Hand Arm Vibration
HLOS - High Level Output Specification
HO - High Output
HV – High Voltage
ICC – Integrated Control Centre
ICM – Infrastructure Cost Model
IIA – Initial Industry Advice
IL – Island Line
IOW – Isle of Wight
IP – Infrastructure Projects
IPO – Integrated Programme Office
IR – Internal Relationships
IXL - Interlocking
KPI – Key Performance Indicator
LDC – Local Distribution Centre
LMD – Light Maintenance Depot
LOM – Local Operations Manager
LOROL – London Overground
LPA – Local Planning Authority
LSE – London South East
LSTF – Local Sustainable Transport Funds
LTI – Lost Time Injury
LTIFR – Lost Time Injury Frequency Rate
LUL – London Underground
LWLC – Lowest Whole Life Cost
LX – Level Crossing
MAA – Moving Annual Average
MCB-CCTV - Manually Controlled Barrier - Closed Circuit Television
MCB-OD - Manually Controlled Barrier - Obstacle Detectors
MEW –Minor Emerging Works
MMA - Manual Metallic Arc
MMT – Mobile Maintenance Train
MOD – Ministry of Defence
MOM – Mobile Operations Manager
MTR – Mass Transit Railway
NCS - Network Construction Services
NOS - National Operating Strategy
NS&CP – Network Strategy and Capability Planning
NSC - National Supply Chain
NSCD – Negative Short Circuit Device
NSIP – National Stations Improvement Programme
OMR - Operating, Maintenance and Renewals
Opex – Operating Expenditure
OPSAP – Operational Property Structural Assessment Programme
ORBIS - Offering Rail Better Information Services
ORR – Office of Road and Rail
OSTI – Other Single Till Income
OTM – On-Train Metering
PARL – Percentage Asset Remaining Life
P&L – Profit and Loss Account
PDSW – Planning and Delivering Safe Work
PGSI – Planned General Site Inspection
PICOP – Person in Charge of Possession
PL – Plain Line
PLPR - Plain line pattern recognition
PPM – Public Performance Measure
PTARR – Passenger Train Accident Risk Reduction
PTG – Poor Track Geometry
PTI – Passenger/Train Interface
RAB – Regulatory Asset Base
RAM – Route Asset Manager
RCF - Rolling Contact Fatigue
RCM - Remote Condition Monitoring
RFD – Route Finance Director
RMD – Route Managing Director
RS – Route Services
RTA - Road Traffic Accident
RUP – Railway Upgrade Plan
RVI – Road Vehicle Incursion
S&C – Switches and Crossings
S&T – Signalling and Telecommunications
SAF - Security Assurance Framework
SCADA – Supervisory Control and Data Acquisition
Schedule 4 – TOC compensation for planned service disruption caused by Network Rail
Schedule 8 – TOC compensation for unplanned service disruption caused by Network Rail
SCMT – Strategic Crisis Management Team
SCO – Supply Chain Operations
SCPF - Station Commercial Project Facility
SEU – Signalling Equivalent Unit
SFN - Strategic Freight Network
SIMIS-W – An interlocking manufactured by Siemens
SICA – Signalling Infrastructure Condition Assessment
SIN119 – Special Instruction Notice 119
SISS - Station Information and Security System
SOBC – Strategic Outline Business Case
SoFA – Statement of Funds Available
SRAMP – Structural Route Asset Maintenance Programme
SSI - Solid State Interlocking
SSM – Station Stewardship Measure
STE – Safety, Technical and Engineering
SWR – South Western Railway
T/PSR – Temporary/ permanent speed restriction
TIGER – Transit via Innovative Gateway concepts solving European-Intermodal Rail needs
TME – Track Maintenance Engineer
TOC – Train Operating Company
TRS - Track Renewal System
TSR – Temporary Speed Restrictions
TU – Transport Undertaking
VTISM – Vehicle Track Interaction Strategic Model
WLC – Whole Life Costing
WR&CC – Wessex Route and Climate Change
WSF – Wrong-Side Failures
XC – Cross Country

Appendix H Wessex Route Freight and National Passenger Operators

This summary sets out how the Wessex and FNPO routes will work together to deliver the Route Strategic Plan for Wessex. 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:

Cross Country is a regular user of Wessex route and their key issues include right time arrivals from Basingstoke, animal incursions and TSR management including timely removal. Charter trains also operate across Wessex 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 Mendips and Leicestershire to S and SE R: Infrastructure not able to cope with traffic demand	• Explore opportunities for longer and heavier trains maximising loco capability • Facilitate new wagons that maximise payload/length ratio • Support Terminal and Yard developments whenever identified, in particular those which could service the London market • Support introduction of 'pop-up' terminals, bringing out of use infrastructure back into use and increased use of lineside loading
2	**Domestic & Deep Sea Intermodal Growth** O: Volume growth from Southampton R: Train paths and SRT discrepancies with longer, heavier trains	• Work with customers to maximise opportunities to increase length of trains • Increase Average Journey Speed origin to destination • Recognised Diversionary routes with adequate capability • Support any inland terminal developments – e.g. DIRFT 3, Four Ashes, Port Salford, Parkside
3	**Gauge establishment** C: Establishment of recognised diversionary routes for gauge critical traffic	• Documented diversionary routes for core intermodal flows • Explore third party funding opportunities • Review of RT3973 provision to more closely align with traffic flows – reduced duplication
4	**Commodity Traffic Growth** O: Automotive growth from BMW Oxford via Southampton R: Brexit impact could affect the Automotive market	• Explore opportunities for longer and heavier trains maximising loco capability • Support Terminal / Yard developments to facilitate growth • Support introduction of 'pop-up' terminals, bringing out of use infrastructure back into use and increased use of lineside loading

		• Work with FOCs and Freight End Users to deliver new network connections and necessary capacity and capability, or bring out of use infrastructure back into use
5	**Logistics and Mail Opportunity** O: Potential mail growth on main corridors and premium logistics developments	• Explore opportunities for business growth with existing and potential new customers
6	**Construction projects / HS2** O: Opportunity for spoil and waste out and aggregate and other commodities in to support construction	• Work with FOCs and End-customers to offer solutions to demands of major projects • Work with customers to manage the impact of major projects on their business (HS2) • Terminal / Yard developments ('pop-up' terminals / lineside loading potential)
7	**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	• 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
8	**Infrastructure enhancements / electrification** R: Proposed electrification of Reading to Basingstoke will lead to more closures – lack of a robust diversionary route at W10 gauge	• Examine feasibility of creating a robust diversionary route for W10 traffic.
9	**End User-customer service** O: Closer working with FEU's enables greater understanding of customer priorities for future (e.g. Tarmac)	• Work with end-customers to develop business growth and support modal shift to rail • Work with end-customers to strengthen service delivery and support
10	**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	• 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
11	**Yards and sidings infrastructure** R: Yard and Siding Infrastructure asset condition is critical to avoid derailment events and customer LTI's	• 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
12	**Timetable Review** O/R: Timetable Improvements to closely reflect capability of trains and capacity of network required on busier network	• Continuation of CP5 work to review path usage and remove unused paths and agree strategic capacity • Work with FOC's to more closely align Train Slots in the Timetable with Access Rights in the TAC, and remove unused rights where there is no corresponding Train Slot • Work with the Route, System Operator and FOC's/TOCs where in upcoming major timetable re-casts the available capacity may be less than contracted rights, e.g. (Route TBC)

		• Work with System Operator and customers 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)
13	**Digital Railway** O: Successful introduction of Digital Railway offers potential for growth on busiest corridors	• Act as internal client on behalf of Freight to build sympathetic capability for freight traffic needs

CP6 plans

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.	• Published rolling programme of joint health and safety visits with customers (FOCs/TOCs) to agreed sites including Southampton / Redbridge and Hinksey • 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.	• Published rolling programme of joint health and safety visits with customers to agreed sites • End User 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	• 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 quarterly.
Performance	Right time departure performance at	Use Strategic Freight Corridors to focus delivery	• Local Working Groups (e.g. Port of Southampton, Automotive) • Use of Control Rooms and Visualisation at major sites	SRFM/ FNPO Performance Manager	Existing Working Groups to continue into CP6. Quarterly

	key hubs and terminals	Measuring Right Time Departures from terminals at the start of the journey	(e.g. Southampton) • Re-brief Freight Strategy – 'Freight Delivery Matters' and linkage between RTD and FDM delivery		FNPO review of engagement
	Measuring FDM and FDM-R	Focus on defined key routes: - Asset Performance - Asset Resilience - Effective contingency plans	• Target FDM-R Route target for end CP6 of 94.1% • Input to Routes for consistent use of 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	• 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 issued annually in CP6 & reviewed quarterly
Capacity & Capability	Identifying future capacity and capability needs.	Bring together all freight capacity plans: • Route Studies • SFN • Customer specific	• 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/ FNPO Head of Strategic Capability/ FNPO Head of Network Management	Future capability programme definition by April 2018 and delivery per strategic route
	Review existing capability constraints	Undertake Capability Review	• Improved gauge and operational flexibility on key freight corridors • Robust gauge cleared diversionary routes • Transparent network capability per route for customers	SRFM/ FNPO Head of Strategic Capability/	Existing capability constraints review definition by April 2018 and delivery per

			• Continue to push for SFN 775m implementation	Head of Network Management	strategic route
	Connections to new terminals and SRFIs	Facilitate connections to the network and associated capacity	• 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 e.g. (Route TBC) • Identify potential sites (new connections, bringing out of use infrastructure back into use and increased use of lineside loading) to facilitate growth, e.g. (Route TBC) for aggregates • Advice to System Operator of future sites/flows to understand timetable/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	• 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
	Consideration of incremental freight improvements in all schemes	Structured review process with Route planners and Sponsors	• 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	SRFM/ System Operator	Defined engagement process and inputs to be in place with Route Strategy by April 2018
Network Availability	Engineering plans that meet	Regular and co-ordinated freight	• Engineering plans that are; • Transparent and understood	SRFM/ FNPO Capability	Annual review of process/requirements

	both FNPO customer and Route needs.	input into • Engineering Access Statements • Access Planning Requests	• co-ordinated • consistent across Routes • planned well in advance and • take into consideration contingency arrangements for long distance services	and Planning Manager	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	• 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.	SRFM/ Route COO/ RAM	Biannual review of yard and sidings maintenance priorities / traffic flows commencing 2018
	Review of Locomotive and Heavy Axle Weight (HAW) track and structure restrictions	Establish potential/cost for removal of restrictions	• 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.	• Review based on existing & predicted future use • Input into track/structures/maintenance plans • Outputs to be agreed with customers/ORR	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	• 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	Ongoing periodic review of performance impact of TSRs to be agreed per Route

Appendix I Strategic Plan and Enterprise Risk Alignment Methodology

Wessex has derived a model to assure ourselves that the management of risks through the Enterprise Risk Register in Wessex is well captured in the Route Strategic Plan. The model uses input from the ERR to generate heat maps, which can be compared to the heat maps produced for the workbank. Where differences arise, controlled changes to the ERR and business plan can be made and assured. This model can be continually re-run for new inputs, new workbanks and updated model parameters to keep the live Route Strategic Plan and Enterprise Risk Register aligned.

Inputs	Process	Outputs
• The current impact and likelihood scores have been taken from each of the 12 Strategic Risks in the ERR • End of CP6 risk scores have been evaluated for each Strategic risk based on the expected outcomes of the Plans on a Page in the RSP. • Each Plan on a Page has been given a weighting factor for each Strategic Risk	• For each Plan on a Page, a value for 'N' is calculated as the weighted root mean square average of the relevant, current ERR scores. • For each Plan on a Page, a value for 'T' is calculated as the weighted root mean square average of the relevant, forecast end of CP6 ERR scores.	• The model produces heat maps showing calculated 'N' and 'T' values based on ERR.

OVERALL	SAFETY		PERF
ERR CP6 START	impact	likelihood	impact
Level Crossings	2	2	3
Asset Management - Failure to maintain and manage assets	4	2	3
Business Continuity Management	2	2	3
Data Quality Management	2	2	3
Failure to deliver cash compliance	1	2	2
Failure to deliver CP6 outputs	4	2	2
Failure to manage business change	2	3	2
Industrial action	2	1	3
PPM target	1	1	3
Route crime	3	5	2
Train accident - derailment	5	1	3
Workforce safety	3	4	2
ROOT MEAN SQUARE AVERAGE (N)	3	3	3

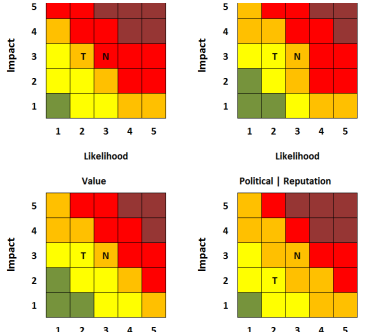
ERR current impact and likelihood

OVERALL	SAFETY		PERF
ERR CP6 END	impact	likelihood	impact
Level Crossings	2	1	3
Asset Management - Failure to maintain and manage assets	4	2	3
Business Continuity Management	2	1	3
Data Quality Management	3	1	3
Failure to deliver cash compliance	1	2	2
Failure to deliver CP6 outputs	4	2	2
Failure to manage business change	2	2	2
Industrial action	2	1	3
PPM target	1	1	3
Route crime	2	3	2
Train accident - derailment	5	1	3
Workforce safety	3	1	2
ROOT MEAN SQUARE AVERAGE (T)	3	2	3

CP6 target impact and likelihood

WEIGHTINGS | RELEVANCE	SAFETY	TRAIN	LOCAL
Level Crossings	1	0	0
Asset Management - Failure to maintain and manage assets	1	1	1
Business Continuity Management	0	1	1
Data Quality Management	0	1	1
Failure to deliver cash compliance	0	0	0
Failure to deliver CP6 outputs	0	1	1
Failure to manage business change	0	0	0
Industrial action	0	1	1
PPM target	0	1	1
Route crime	1	1	1
Train accident - derailment	1	0	0
Workforce safety	1	0	0

Mapping of ERRs to RSP Plan on a Page



Heat Maps weighted root mean square average

Appendix J Scorecard Definitions

Safety	Definition
Lost Time Injury Frequency Rate (LTIFR)	The number of injuries leading to absence from work among staff and contractors per 100,000 hours worked.
Passenger train accident risk reduction measures	Measures our achievement of the key milestones and metrics to reduce train accident risk.
Top 10 Milestones to reduce level crossing risk	Measures our achievement of the Top-10 milestones to reduce level crossing risk.
RM3	Measures our achievement of milestones for health and safety risk management. This measure will be defined in more detail over the next year as targets will be set year on year.
Train Performance	Definition
Network performance - passenger	Network Rail caused delay minutes to all train operators from incidents occurring in the route, normalised by train kilometres travelled on the route.
Freight Delivery Metric (FDM-R)	FDM is our indicator of how many freight services have arrived at their destination on time.
Average passenger lateness	Average minutes lateness
NR Wessex Delay Minutes (effecting SWR on Wessex route)	Network Rail caused delay minutes affecting SWR trains on the Wessex route.
On time at all recorded stations	Percentage of trains recorded as being on time at allrecorded stations.
Level of cancellations	Percentage of trains cancelled as a proportion of planned trains.
PPM	Public Performance Measure across the route
GWR Measure (PPM North Downs line - Wessex route only)	Public Performance Measure for the North Downs section
X Country Measure (right time arrivals at last point on Wessex to Reading from Wessex)	Percentage of trains arriving right time at last point before Reading
SWR Right time (final destination only)	Percentage of trains arriving right time at final destination.
GTR Measure (NR delay minutes Wessex)	Network Rail caused delay minutes affecting GTR trains
Customer	Definition
Performance Management	Measuring the percentage of objectives set, interim and end of year reviews completed
Reduction in railway work complaints	Reduction in the number of complaints associated with railway works on the route
Your Voice action plans complete	Percentage of Your Voice plans completed
Sustainability / Asset Management	Definition
Reduction In Service Affecting Failures (SAF)	Measures the impact of asset failures on train performance
CRI	This is a measure of the short-term condition and performance of our assets including track, signalling, points, electrification, telecoms, buildings, structures and earthworks.
7 Key Volumes	Measures delivery against budget of the seven key renewals volumes
Top Investment Milestones	These milestones measure our achievement of interim milestones of our top-10 renewals and enhancement projects.
Network Sustainability - measure to be defined	Residual life of asset type - TBC
Financial Performance	Definition
Financial Performance Measure (FPM) - Gross Excl. Enhancements (£m)	Measures how we are performing against our Income, Opex and Renewals budget.
Financial Performance Measure (FPM) - Gross Enhancements only (£m)	Enhancement expenditure measures how we are performing against our Enhancement expenditure budget.
Cash Compliance – Income & Expenditure	This is a measure of how well we have remained within our funding envelope in total.

Appendix K Regulatory floor methodologies

Consistent Route Measure – Performance

The CRM-P floor has been set using a methodology that is consistent across all routes, to derive a performance measure that would indicate the onset of systemic failure within the Route. In the event of a floor breach, the ORR will investigate 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 CRM-P is based on setting a buffer, which becomes a fixed absolute level of allowed deviation away from the proposed trajectory for each year in CP6.

The buffer is 30% of the Route CRM-P (MAA) value at Period 10 2017/18.

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 the expected CRM-P in 2021/22 is 3.80 minutes, the floor would be set at 5.00 minutes (i.e. 1.2 minutes worse than the trajectory).

The algorithm keeps the level of failure proportional to all routes and follows the current methodology used by the DfT to set breach levels for TOCs on Self Delay target within the franchise agreements. Also, it recognises that confidence in the delivery of performance improvement is lower 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 with our proposal for the floor on the FDM-R measure for freight performance.

Freight Delivery Metric (FDM-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.

Network Sustainability

The regulatory floor for sustainability is set at a level that has been assessed, and is limited to a 10% loss in proposed plan activity across the control period. Wessex Route will therefore need to manage our rolling workbanks to ensure we maintain a volume delivery that is above the 90% threshold throughout the control period. This measure of sustainability reflects a balance which, whilst allowing a certain amount of re-phasing, requires a retained margin within the overall control period headroom, in order to mitigate the risk of a regulatory breach.

In addition to the regulatory floor, the Network Rail Internal Assurance and Review team 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.