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Review of Network Rail's renewals and efficiency planning for years 1 and 2 of CP6

Independent Reporter Lot 4

Phase 1 Final Report – 11 July 2019

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Executive summary

In October 2018, ORR published its Final Determination; the result of its 2018 Periodic Review (PR18) for Control Period 6 (CP6), which runs from April 2019 to March 2024. It set out what Network Rail should deliver in operating, maintaining and renewing its network in CP6. It also set out the funding to support this work, which incorporated Network Rail's plans to deliver £3.1bn of gross efficiency improvements.

An Independent Reporter review by Nichols was jointly commissioned by the ORR and Network Rail in April 2019, to provide an in depth independent assessment of Network Rail's preparations to deliver its renewals and efficiency plans in the early part of CP6. The review would be in two phases, with Phase 1 assessing two routes, Scotland and Wessex and then subsequently Phase 2 assessing the remainder of the routes.

This report presents the key findings from Phase 1 of the review conducted in May and June 2019 and is structured into two parts A and B covering renewals and efficiencies separately.

Part A – renewals

Renewals delivery plans

We reviewed the Scotland and Wessex routes' renewals delivery approaches and plans. Both routes have set out detailed baseline plans that directly correspond to the approved renewals volumes and budgets set for them in the CP6 Delivery Plan (January 2019).

We met with the route management teams to review their plans, processes and management arrangements for a sample of their largest asset work plans by value. Phase 1 of this review is at a snapshot in time (May/June 2019) and we noted a number of aspects that provide confidence in the two routes' preparedness to deliver renewals plans for years 1 and 2 of CP6. These include:

- Strong advocacy of and attached importance to the renewals programme.
- Good ownership by Route Access Managers (RAMs), and established working relationship with their delivery teams.
- Detailed work breakdown plans for each workbank in our sample.
- Established delivery plans, procedures and reporting processes.
- Change control processes in place, as well as tracking of work remitted.
- Awareness of delivery risks, with actions being taken to mitigate these.
- Established governance processes to oversee authorisation for development and delivery.

Financial authorisation as a leading indicator

We reviewed Network Rail's Leading Indicators report, whose purpose is to provide assurance on each route's preparedness to deliver their renewals plans. This report had recently flagged significant variances in the level of renewals work authorised for both Scotland and Wessex routes compared to their baseline forecasts. Our review confirmed that the reported variances were not an accurate indicator of significant issues with preparedness to deliver year 1 renewals.

The leading indicators reporting process is not yet fully established and there have been forecast accuracy and data quality issues in setting reliable baseline forecasts, referred as 'glide paths', which have now been resolved. There is limited route-level understanding of and buy-in to the leading indicator process, which Network Rail centre is aware of and taking into account when further developing the process.

A financial authorisation metric is used as a key indicator in the report. This indicator has limitations that need to be understood in interpreting it. For example:

- Aggregated data across all asset groups masks significant variations in authorisation levels for individual asset groups, for example, signalling, track, structures, electrification.
- Some work programmes may be fully authorised ahead of development of details for component projects, therefore, levels of authorisation may not adequately reflect levels of progress.

- Whereas low levels of authorisation in some asset groups may be indicative of risks to delivery, there is evidence that this risk is reduced where delivery projects are of lower cost and complexity (notably repeatable work items) with shorter development and mobilisation timescales.

- Different approaches to over-programming[1] of works and authorisation strategies may affect leading indicator comparisons between routes.

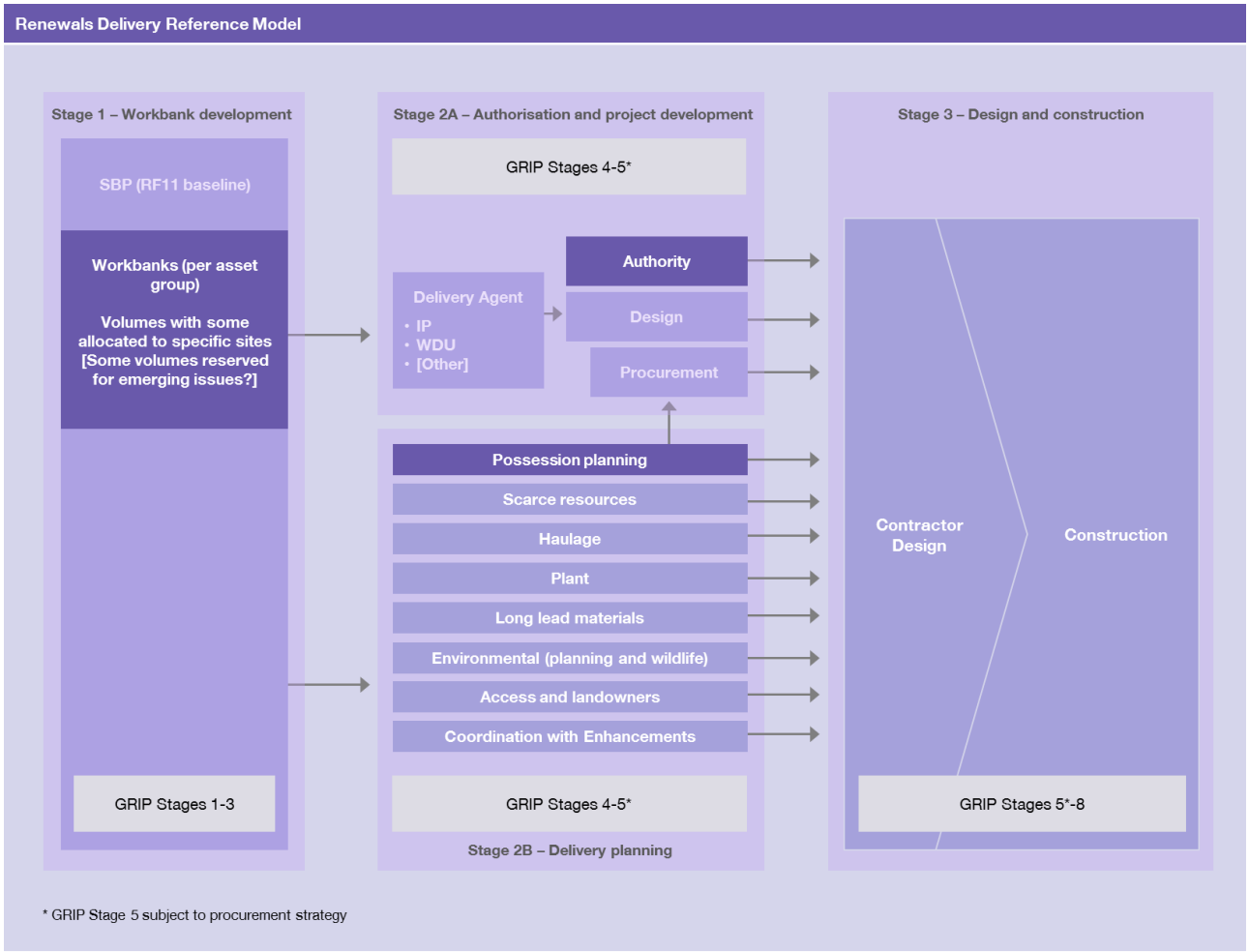
In Scotland there was evidence of a generally good level of progress in authorising work for year 1 of CP6 with timely plans to complete this. Authority for year 2 work was in hand, with progress ahead of the equivalent point in year 5 of CP5. A notable exception to this was work on the signalling portfolio where, due to a combination of factors, only 33% of year 1 work was authorised at the end of period 1. The route has recognised that this situation poses a risk to achieving its expenditure and work volume plans for year 1 and is working to mitigate this by the next update to its business plans later in summer 2019.

Within the Wessex route, there was evidence of apparent shortfall in the authorisations for some asset work plans at the time of the review, notwithstanding the issue in interpreting variance in the leading indicator data, although its largest asset expenditure work plans were those with the highest level of authority. The route provided evidence of further planned authorisations that have already started to address this shortfall. They also highlighted examples of early development work that it was undertaking to improve cost and delivery certainty before seeking authority to deliver later GRIP stages. For several of its asset work plans this will enable further tranches of authority at upcoming investment panels to increase authority levels compared to levels reported during our 'snap-shot' review in May/June 2019.

[1] over-programming is a planning technique where more work is planned than the expenditure budget to provide resilience to changes where projects are delayed or do not proceed

Measuring workbank maturity

We sought to assess workbank maturity by using a reference delivery model comprising four elements: (1) workbank development; (2a) authorisation and project development; (2b) delivery planning and; (3) design and construction.



As part of this review the available leading indicators (disruptive access, project authorisation and workbank stability) were mapped against our reference model and this is shown in dark shading. We also reviewed the scope of coverage of other progress data available in the two routes against the model. The Table below provides a summary of the coverage of leading indicators and other progress data against the model.

Delivery Model stage	Leading Indicators	What other data is available?
1 – Workbanks development	Workbank stability	• List of work packages in RAM business plans • Change control records
2A – Authorisation and Development	Financial Authorisation level	• GRIP stages in Oracle • Remit trackers (by RAM) • Procurement status in delivery agent records
2B – Delivery Planning	Disruptive possessions booked	• Qualitative information in route, IP and SCO records
3 – Contractor design and construction		• Reporting of outturn Anticipated Final Costs (AFCs) and volumes • Financial performance measure (FPM) in route management information

It is not possible to verify all aspects of workbank maturity using the current leading indicators and other supporting progress information available within the routes at period 1 of year 1. To fully verify workbank maturity, it would be necessary to have a more comprehensive set of indicators and metrics that represent all elements of the reference delivery model.

Renewals conclusions – leading indicators

Leading Indicators are a useful framework for assessing route's preparedness to deliver their renewals plans. They can be used to flag potential issues to investigate although, as high-level or relatively coarse metrics, we found that they do not always represent a complete picture when assessed in detail at route level.

Network Rail is continuing to develop its leading indicator reporting, and has resolved the problems with the 'glide path' reported earlier. We consider that the value of these reports in providing confidence in its renewals preparedness would be further enhanced through:

- A rolling forecast (looking one year ahead), for example looking now to establish robust indicators for year 2 of CP6. Network Rail has confirmed that it plans to do this from year 1 reporting period 4.
- Greater granularity at individual asset group level.

- An additional indicator for development progress, by GRIP stage where appropriate, as distinct from financial authority and consideration of additional leading indicators as set out in our recommendations in this report.

- Strengthening route 'self-assurance' on workbank plans, perhaps via a structured checklist (consistent to all routes), and potentially as part of a comprehensive quarterly reporting product.

Renewals conclusions – risks to delivery

Within Scotland, we noted a significant issue in relation to planning of CP6 signalling schemes. This issue is well known by the route, which is currently considering re-profiling its signalling work plans to deliver part of its commitments later in CP6, and maintaining its overall expenditure plans by accelerating and re-profiling some over-programmed work within other asset groups. We understand that the route will present these proposals formally as part of the RF4 business planning process during summer 2019. This specific issue is a good example of how a self-assurance statement from the route could provide an opportunity for such issues to be flagged alongside leading indicator data.

There was no evidence of either significant or unmitigated risks within the Wessex route that the route was not aware of and managing. For example, within its two largest work plans (i) the Feltham re-signalling programme, which is being delivered in planned phases throughout CP6, and (ii) the track renewals programme which is targeting mitigation of rail performance and supply chain issues experienced in CP5.

hase 1 of this review was undertaken during reporting period 1 and 2 (i.e. early in year 1 of CP6). At that point in time our focus was on reviewing progress of workbank development and authorisation (stage 2A of the reference delivery model), where financial authorisation provides a leading indicator. As time moves on through year 1 the focus should increasingly move to progress of contractor design and construction (stage 3 of the reference delivery model). Currently, there is no leading indicator to provide re-assurance or confidence in this stage of delivery. Highways England uses a forecast 'Start on Site' as a lead indicator during this phase of work and we refer to this later in our recommendations. Given that phase 2 of this review is expected to be undertaken later in year 1, seeking evidence of progress of contractor design and delivery could be a specific area of our focus, recognising also that there is progressively less opportunity to recover shortfalls in this phase.

In the course of the review we also noted the following generic risks to delivery that are potentially applicable to any route:

- The separation of enhancement planning and funding within CP6 has a potential latent impact on the stability of renewals work plans should enhancements be subsequently authorised, although we did not identify specific instance of this risk in our review of the two routes. This should be included as a specific line of enquiry in phase 2 of this review.
- When the profile of renewals expenditure in years 1 and 2 in CP6 represents an increase compared to the last two years of CP5. While not part of the scope of this review, we did not see evidence of this causing issues for either of the two routes.
- 'Route-based settlements' make Network Rail as a whole more resilient to strategic issues, however, may amplify risks experienced within a route if major changes are required to re-plan asset work plans to achieve expenditure levels.

Renewals recommendations

We have identified the following six recommendations that will provide further confidence and assurance of the delivery of route renewals' work plans.

Recommendation R1. The suggested improvements identified earlier in this report to leading indicators for renewals should be addressed as part of Network Rail's plans to improve the value and credibility of the Leading Indicators process planned for later on this year. This includes providing indicators that cover the 'current year + 1', and more granularity for different asset groups. We refer to the work already in hand by Network Rail to further develop its Leading Indicator process, so our recommended improvements are considered as part of that process.

Recommendation R2. Network Rail centre should identify good practice and provides templates and guidance to the routes to improve the consistency, accessibility and standardisation of the trackers and other tools used to manage progress of their renewals portfolios. This should recognise the differing characteristics of specific asset groups.

Recommendation R3. The feasibility of establishing an additional GRIP stage leading indicator is determined as a measure of progress for each workbank, potentially broken down into development (GRIP1-4) and delivery (GRIP5-8).

Recommendation R4. Additional lead indicators (centre or route based) are developed based on existing information and introduced as soon as possible for: (a) remit issue and acceptance by the delivery agents;

(b) procurement status and; (c) forecast start of works (on site) date; to improve the coverage of leading indicators for highlighting issues with renewals delivery progress.

Recommendation R5. The quantum of over-programming is considered as a leading indicator to measure the level of resilience of the current year's work plans to slippage and other factors affecting routes' capability to deliver its targets.

Recommendation R6. The baseline forecasts or glide-paths used by the lead Indicators are further developed, disaggregated to asset groups and calibrated against typical lead times for asset types, supported by appropriate quality control and governance arrangements necessary to define and set these with the routes.

Part B – efficiencies programmes

The scope of our review of efficiencies does not cover Network Rail's overall framework that has already been developed and agreed with ORR. Phase 1 of our review covered efficiencies plans developed by Scotland and Wessex routes within that framework. For both routes, we reviewed their overall efficiencies programmes, the quality of their description of business changes and monitoring arrangements, their calculations of efficiencies forecasts, their risk management plans and their documentation of efficiencies. We used 'benefits realisation programme management' to provide a reference point for our assessment against expectations of good practice. This is described in more detail in Annex E.

Efficiency programmes and delivery plans

We reviewed the two routes' approaches to structuring and delivering their efficiency programmes. Both routes have set out a high-level structure for their efficiency initiatives, consistent with the 'fishbone' framework developed as part of the strategic business planning process for CP6. We then reviewed a sample of the most significant (by value) efficiency initiatives plans within each route.Scotland route has deployed different approaches for its renewals based (capex) efficiencies and opex initiatives. The RAM teams are focused on achieving post-efficient costs (i.e. outturn costs for projects which are net of both efficiencies and headwinds). They work with the delivery teams to identify efficiency opportunities and develop forecasted savings to support this objective. For many initiatives, while the RAMs are responsible for efficiencies, this responsibility is delegated to delivery agents such as Infrastructure Projects (IP) and Network Operations (NO) by authorising post-efficient budgets. For opex initiatives, the description of business change was better articulated, with responsible managers identified for delivering each initiative. Governance and oversight arrangements were in place, although these are still being mobilised for many projects.

Wessex route has developed a clear structure for its efficiency initiatives programme, together with evidence of ownership/responsibility for the programme, business changes and individual plans, dedicated resources and robust governance arrangements in place. This is particularly so for its opex efficiencies that make up approximately one third of its total efficiency target for CP6, with examples of how these have been embedded within route, supply chain and stakeholder plans. We found good evidence of their work in structuring efficiency initiatives and on priority 'enabling' activity to embed these within the business. Risks to delivery of efficiencies are monitored in a number of progress and governance meetings. The Wessex route also holds a contingency provision for dealing with risks to its opex and capex efficiencies. It is therefore confident that it has clear ownership and control of risks, although recognise the opportunity for it to strengthen its emphasis on efficiencies risk management.

Notwithstanding the above, we saw evidence of some common issues across both routes.

We found significant variations in the quality and level of detail in the documentation of business changes that are required to realise efficiencies benefits. Our expectation is that all efficiency initiative plans should set out at an appropriate level of detail of business change activity to realise efficiency benefits, including resources, schedules/key milestones, risks and monitoring arrangements.

A number of good examples were provided for opex efficiency initiatives, with generally a lesser level of detail in capex efficiency plans. Capex initiatives are cascaded as post-efficient cost targets across many asset work plans, projects and contracts. This makes it difficult to verify the link between business change plans, implementation activity and the efficiency savings forecast for each year. It is also unclear how the routes can reliably evidence and monitor efficiency benefits realisation progress without these capex efficiency delivery plans. The 'fishbones' produced by the Network Rail centre during the strategic business planning process proved to be a good tool to providing structure and consistency in the routes plans. A similar approach could be considered whereby the centre defines good practice for the routes for their planning and managing of business change implementation.

In both routes, we found limited evidence of management of risks to efficiency plans, for example through appropriately scaled risk registers. This affects confidence in the delivery of business changes and implementation plans, and creates uncertainty in whether five year efficiency forecasts are appropriately risk adjusted. We recognise that efficiency plans have recently been established and our review occurred in period 2 of year 1, so this represents an opportunity for improvement by the routes as the focus moves into implementation.

Efficiency forecasts

We assessed both routes' costed efficiency plans, and confirmed that aggregated plans match the targets set for CP6 via the 2018 Periodic Review and subsequent approvals process (noting a limited number of small discrepancies only, as detailed plans for specific initiatives have evolved).

For both routes, our assessment of their documentation revealed varying quality and consistency in efficiency forecasts. A number of initiative forecasts are inherently uncertain, involving high level assumptions (not all of which are listed or explicitly risk-adjusted) and targets. While we acknowledge that this may be typical of benefits realisation programmes and that smaller scale and/or the nature of some initiatives means a more pragmatic top-down approach may be appropriate, forecasts for more significant initiatives (by value) should be supported by more granular calculations and assumptions.

We noted the following specific risks identified within Scotland's efficiency plans:

- Delivery of its signalling workbank in year 1 and 2, as previously mentioned, which has implications for a number of its forecasts (valued at £10.9m in year 1 and 2 across access, stable workbank, lean and improved contracting initiatives).
- The route's Property Strategy (£6.5m in years 1 and 2), is now at risk due to a property sale not concluding in CP5. Forecast savings for this initiative will need to be updated consistent with plans for this project when re-confirmed.

Within Wessex, detailed, bottom-up calculations were provided in most cases, notably for opex initiatives, typically using cost rates norms informed by CP5 experience and data. The route also set out low-medium-high ranges for its efficiency calculations to account for uncertainties, and a rationale for selecting which of these it adopts in each case. Generally, this represented a greater level of calculation detail than was the case for Scotland.

For both routes, the majority of capex efficiency forecasts are tied to renewals workbank delivery. While the level of input data varies, forecasts are generally based on applying top-down savings assumptions to derive a 'post-efficient cost'. We did not see sufficient evidence to support the robustness of these assumptions and forecasts.

There is inherent complexity and judgement involved in mapping the framework of capex efficiencies across workbanks and projects, and to forecast and track these at a granular level. This reinforces, therefore, the need for robust implementation planning for and monitoring of business changes that are required throughout CP6, to provide assurance that efficiency benefits are being realised as forecast, or to identify and correct underperformance; consistent with good practice as set out in Annex E.

As stated above, we did not see sufficient evidence of this planning to substantiate capex efficiencies during the review.

Network Rail has reported its view that its routine route-level governance arrangements can fulfil this need; for example, examining progress and factors affecting budgets, variances milestones and delivery outputs. We did not seek evidence of this during Phase 1, with part of this reflecting the early stage of year 1 at the time of the review, so this could be considered as an area of focus during Phase 2 of this review.

Efficiency documentation

In both routes, we found that management information and documentation on efficiencies is not yet fully sufficient and consistent. Notwithstanding the fact that the required level of documentation will vary depending on the size and complexity of the initiative and whether it is a significant business change or smaller continuous improvement scheme.

In Scotland, we found that the level of documentation reflected the different approaches taken for opex and renewals (capex) efficiencies. For opex, the approach was more 'project oriented' with descriptions of scope and expected benefits recognised as being important and being developed, albeit that this is work in progress. For renewals efficiencies, a template to describe the anticipated benefits and approach to implementation has been used for the various initiatives but we found that the approach to forecasting was variable and generally of limited detail with the focus on meeting the targets set by the periodic review process rather than on validating the targets and establishing a benefits realisation programme to ensure that these are delivered in a transparent and sustainable way. We did see some evidence of a more detailed approach in some Infrastructure Projects (IP) teams and this, whilst requiring further consideration, has the potential to address our concerns.

Wessex, by contrast, has assembled a document 'pack' for its efficiencies, comprising templated high-level summaries for each, underpinned in most cases by further supporting documents. Its team were confident in describing/explaining each, as evidence of their understanding and ownership of the process. These documents are flowed through into its efficiency forecasts. The route has acknowledged there is an opportunity to pull together its data into a consolidated data pack. We believe that this is needed and will help it enhance its ability to track, report, control and assure its efficiencies for CP6 now that it has established a robust baseline, and also communicate this as needed to Network Rail centre.

The efficiencies 'tracker' recently developed to quantify benefits realised each reporting period is not yet robust. This is tracking a previously estimated forecast profile of efficiencies, and not a profile of benefits realised. Periodic (i.e. 4-weekly) tracking may be too frequent to monitor this robustly together with adequate assurance on information reported.

Efficiencies – summaries for the two routes

Our conclusions from Phase 1 on efficiencies are based primarily on evidence available from the two routes, supplemented by reference to good practice in the definition and content of a benefits realisation programme using the Association for Project Management (APM) guidance as a source of this. Our use of this as a source of good practice is described in Annex E.

Scotland

Programme – Scotland has structured its programme in line with the central team's 'fish-bone' categories and the route demonstrated good knowledge of their initiatives scope and objectives. Improvements should be made to the consistency of documenting business change (and hence benefits realisation), particularly for capex initiatives. Initiative owners had been assigned to all initiatives and reasonable governance structures appear to being established. Initiative plans (project schedules/milestones, tasks and resources) were lacking and could be improved.

Forecasting – Scotland's forecast documentation was limited and generally consisted of a high-level narrative about the calculation rather than showing the detailed working displaying inputs, adjustment for risk and supporting record of assumptions. Without this detail it is difficult to assess the reasonableness of the forecast (including the yearly profile) or have confidence that actions are aligned with expected benefits.

Documentation – Scotland has introduced templates for documenting both opex and capex efficiencies, which in general are sufficient. However, there is an opportunity to improve the consistency of how templates are used. Likewise, some documents had not been updated to reflect the current status and plan for the initiative.

Wessex

Programme – Wessex has established a clear structure for its efficiency programme, with evidence of ownership and control of this, notably for its opex initiatives; together with dedicated resources to oversee its plans, which generally corresponds to good practice. Improvements in planning, management and monitoring of business changes should be made for capex efficiencies, the plans for which are less mature, as these plans move into delivery of efficiency benefits. There is an opportunity to assess potential additional initiatives to help mitigate the risks to benefits not being realised from the current suite of initiative.

Forecasting – Wessex has set out reasonable calculations for its efficiency initiatives, with evidence of appropriate analysis, underpinning data and consideration of cost risk. While there are some gaps and uncertainty evident in assumptions, this is of sufficient quality for its opex efficiency programme; but insufficient evidence to give adequate confidence in its capex programme efficiency savings. Without this detail it is difficult to assess the reasonableness of the forecast (including the yearly profile) or have confidence that actions are aligned with expected benefits.

Documentation – Wessex has consistently documented its efficiencies. There is an opportunity to establish the baseline 'pack' for future forecasting, control and reporting of efficiencies and business changes, that could also complement robust tracking, assurance and route-centre reporting arrangements.

Recommendations

We have identified the following recommendations in relation to efficiencies:

Recommendation E1. That a consistent approach to documenting implementation planning details is applied within the routes, which includes milestone dates for business changes in addition to the major tasks and resources allocated. This timeline should align with year-on-year efficiency forecast assumptions.

Recommendation E2. Implement a simple risk register to consistently record and rank risks and to track the delivery of mitigation actions. This will assist with: a) ensuring efficiency forecasts have been appropriately adjusted for risk and; b) delivery plans have been developed to mitigate known risks. Furthermore, that a risk workshop is held during the development of efficiency initiatives and that the register is periodically reviewed as part of project governance.

Recommendation E3. For each initiative forecast, a basic level of detail is documented, and presented in a consistent manner. This would show a build-up of key inputs and calculation to arrive at the final forecast and a record of assumptions, including any adjustment for risk.

Recommendation E4. To provide assurance of delivery against baseline, consolidate existing efficiency data reports into one data-pack owned and controlled by a Business Change Project Manager. This should include a summary dashboard and a change control register to provide an audit trail for efficiency adjustments. This may be linked to production of a quarterly reporting pack to provide assurance on development of initiatives and plans for business change implementation to monitor/realise benefits.

Introduction

Background

In October 2018, ORR published its final determination; the result of its 2018 Periodic Review (PR18) for Control Period 6 (CP6), which runs from April 2019 to March 2024. This set out what Network Rail should deliver in operating, maintaining and renewing its network in CP6. PR18 also set out the funding to support this work, which incorporated Network Rail's plans to deliver £3.1bn of gross efficiency improvements[2].

In March 2019, ORR confirmed the results of its subsequent high-level assessment. In headline terms it found that Network Rail was better prepared to deliver efficiency improvements in CP6 than it was five years earlier at the equivalent point at the start of CP5, and that the £3.1bn target remained appropriate. The ORR's high-level assessment did, however, highlight a number of potential issues[3].

An Independent Reporter review by Nichols was jointly commissioned by the ORR and Network Rail in April 2019, to provide an in depth independent assessment of Network Rail's preparations to deliver its renewals and efficiency plans in the early part of CP6.

The review is initially required to assess two Network Rail routes, Scotland and Wessex, with the remaining six routes assessed in a second phase. Network Rail has recently announced a new devolved structure comprising 13 routes operating within five regions. This re-organisation is planned to be implemented during 2019, concurrent with this review process, so the review will be based on the existing route structure.

[2] 2018 periodic review final determination - Overview of approach and decisions, ORR October 2018. A copy of this may be accessed here.
[3] Letter to Network Rail, ORR 28 March 2019. A copy of this may be accessed here.

Scope

The purpose of this review is to assess Network Rail's preparations to deliver its plans in the early part of CP6, the findings of which will be an input into ORR's upcoming Monitors. The key objectives are to provide an independent assessment of:

- The reasonableness of Network Rail's routes renewals workbank planning for years 1 and 2 of CP6, and hence its preparedness to deliver committed renewals plans for CP6.
- The reasonableness of route efficiency planning, and its preparedness to deliver committed efficiency savings in the first two years of CP6.

It is also required to identify and assess the good practices being adopted by the routes in respect of these two key elements, as well as any areas of weakness or opportunities for improvement.

The mandate set out that the review would be undertaken in two phases:

- Phase 1, an assessment of Network Rail's Scotland and Wessex routes, the results for which will feed into ORR's July Monitor.
- Phase 2 to look at the remaining six Network Rail routes and feed into ORR's November Monitor.

There will be a stage gate review by ORR and Network Rail after the completion of Phase 1 and before the commencement of Phase 2, to confirm whether Phase 2 is required and the scope of it.

This report covers the Phase 1 assessment of Wessex and Scotland routes only.

Review methodology

Phase 1 of the review assessed Wessex and Scotland routes existing information and documents on its renewals and efficiency plans, supported by detailed discussions with their respective route teams. It comprised an initial planning period, a fieldwork stage working with teams from the two routes, and finally a desktop phase to consolidate findings and develop this draft report to ORR and Network Rail.

Acknowledgments

We would like to thank both Network Rail's route and centre teams for their cooperation and support during phase 1 of this review, providing a significant body of documents, arranging meetings for the review teams throughout the fieldwork phase, and responding to a series of additional clarifications and requests for detailed evidence on its renewals and efficiency plans.

Structure of the report

The review covered Wessex and Scotland routes for both renewals planning and efficiencies. Given the scope of the review is broad for both renewals and efficiencies and to aid readability of the report, the main body of this report is structured as:

- Part A – review of renewals planning
- Part B – review of efficiencies delivery

Each part contains:

- Introduction.
- Findings.
- Conclusions.
- Recommendations.

In support of the above, the key information/data forming the basis of our review is contained in:

- Annex A – Scotland renewals data.
- Annex B – Wessex renewals data.
- Annex C – Scotland efficiencies data.
- Annex D – Wessex efficiencies data.

Part A – review of renewals planning

Introduction

The following is an extract of the mandate scope for our review of renewals planning.

"The reporter will review the route's latest workbank planning data, the level of work authorised in Oracle and breakdown of the route's planned efficiencies for years 1 and 2 of CP6 (plans for years 3 to 5 of CP6 are out of scope).

Renewals workbanks

The reporter should assess the preparedness of the route to deliver its renewals plan in CP6. This should be based on the latest data in Network Rail's leading indicators report together with discussion with the route of the implications of the data. Based on its assessment, the reporter should identify opportunities for improving the route's approach to reporting its preparedness for delivery of renewals workbanks in CP6.

In reviewing Network Rail's Renewals workbank planning for 2019-20 and 2020-21 the reporter should:

1. Obtain the latest workbank planning data from Network Rail's leading indicators report (this shows the level of work booked, and level of work authorised in Oracle, Network Rail's renewals project management system).

2. Establish the reasons for any variance between the level of work authorised in Oracle and the glide path plan for authorisation in 2018-19.

3. Assess the reasonableness of any variance, including plans to recover shortfalls.

4. Consider whether the use of the level of projects that have achieved financial authorisation is an appropriate leading indicator.

5. Verify the maturity of the route's workbank as a snapshot in time in terms of actual progress leading to completion for schemes to be delivered in 2019-20 and 2020-21.

6. The reporter should consider whether there are better leading measures for indicating Network Rail's preparedness for renewals workbank delivery. This should include, but not be limited to, considering whether tracking progress of work-banks through GRIP stages could provide useful leading indicators, (for example using the distribution of scheme status through development to substantial completion)."

Step 1 – obtain latest workbank planning data

To undertake our review, we requested data from both routes and the centre. The primary data sources were status at Period 1 (2019/20) of year 1 of CP6, with an exception for the authorisation status for Wessex being from Period 2 draft. Our data sources are contained in Annex A for Scotland and Annex B for Wessex.

Key data used in our review

Baseline renewals data

For volumes and costs for both routes to check that the basis of the route plans was correct and traceable:

- for Scotland Tables, A1 and A2 in Annex A.
- for Wessex Tables B1and B2, with graphical representation in Figure B3 in Annex B.

Authorisation Status (Oracle)

Data extracted from Network Rail's renewals project and financial management system 'Oracle':

- for Scotland Table A3 for year 1, Table A4 for year 2, Figures A5 and A6 in graphical form in Annex A.
- for Wessex Table B4 for year 1, Figure B5 in graphical form, Table B6 for year 2 in Annex B.

Leading indicator reports

A leading indicator report is generated and issued each period by Network Rail's Business Review Team (Group Finance). It includes five measures based on route based planning and mobilisation data held in Oracle, Network Rail's enterprise resource planning system for projects and as supplied by route based teams. The measures are as follows:

1. **Disruptive access.** The proportion of total access hours estimated to be required in year 1 that are booked within Network Rail's Possession Planning System (PPS).

2. **Workbank planning: level of project authorisation.** Amount of work authorised by the route's investment panels (as reported within Oracle) compared to the aggregate renewals budget for the year.

3. **Workbank planning: workbank stability.** Change to the total cost of work forecast for the year, as reported each period, expressed as a percentage of the total value for the year.

4. **Maintenance capacity.** Not relevant to our renewals review.

5. **Efficiencies.** Total value of aggregate year 1 opex and capex efficiencies achieved or accrued. This is relevant to managing efficiencies targets which we cover later in this report.

We have considered the first three leading indicators in our review of the renewals programme. The leading indicator report only addresses year 1 of CP6. We understand that indicators for year 2 are being developed and will be reported in the near future.

The report includes 'glidepaths' for each of the three indicators. The glidepaths, produced by each route, represent forecast baselines or targets, where the difference or 'variance' between forecast and actual data in any reporting period is considered as a potential 'leading indicator' of readiness to deliver, or otherwise flag areas which may hold potential issues. Leading indicators can be used to identify or influence future activity; as distinct from lagging indicators which record past activity.

We obtained the draft CP6 leading indicator report for period 1 from the routes and Network Rail centre, and used this as the basis for the fieldwork phase of our review. We discussed the content, development process and latest status of this report with Network Rail centre, who released a final, updated version of its period 1 report during review phase 1. The main differences between the two draft versions is that the latter now includes route-specific glidepaths. Earlier versions showed a standard glidepath for all routes. The draft and final leading indicator data for the workbank planning are enclosed:

- for Scotland Figure A7 in Annex A
- for Wessex Figure B7 in Annex B

Route Asset Management information

We also obtained more detailed planning and management information from our discussions with RAMs in the routes. For example, for Scotland Table A8 in Annex 1.

Our review sample

We used business planning data to select a sample of the four largest asset groups in each route (expressed by cost in years 1 and 2 of CP6) for our more detailed investigation. This sample comprised track, signalling and structures workbanks in both routes, as well as earthworks within Scotland, and Electrification and Plant (E&P) within the Wessex route. This represented 88% of total renewals work in Scotland and 81% in Wessex in years 1 and 2 of CP6.

Consistency check of source data

Both routes provided a summary and details of their baseline renewals volumes and budgets for CP6. This provides detailed volumes and budgets (in nominal or 'cash' terms) for CP6 based on the RF11 update. The routes also provided a summary level reconciliation between the Final Determination and the RF11 update together with the update from 2017/18 prices to cash values.

Wessex route also provided renewals workbank costs broken down per asset group and year, as set out in Figure B3 in Annex B.

Route budgets and volumes match the RF11 totals provided by Network Rail centre and ORR, though noting minor rounding differences. In accordance with the mandate for this review, we have not reviewed any adjustments agreed between Network Rail and ORR to reconcile the RF11 baseline with the Final Determination or the asset management and business planning processes which led to its development.

We assessed route data with respective teams to verify that these match Network Rail's agreed targets for CP6. The routes confirmed that these budgets form the basis for detailed planning and reporting by their RAMs in managing their renewals portfolios.

Step 2 – establish the reasons for any variances in level of work authorised against glide paths for year 1 and 2

Check for variance against glide path

There are significant variations in the level of development and authorisation within the route renewals workbanks in year 1 of CP6. For example:

- **Scotland.** At the end of reporting period 1 the route has authorised 63% of its year 1 work. For the four largest asset groups, this is 69%. Within the sample, authorisation levels vary from 97% for structures to only 33% for signalling. Reference to Table A3 in Annex A.
- **Wessex**. At the end of period 1 the route reported 61% authorisation. At the end of period 2 this had risen to 70%. For the four largest workbanks it is an average of 79% in a range from 93% for structures down to 58% for electrification and plant. Reference to Table B4 in Annex B.

Good progress is being made in development work and authorisations for year 2 compared with the corresponding period last year. Current data for this is available within Oracle and is updated and tracked by the routes:

- **Scotland.** At the end of period 1 the route is reporting a 4% year 2 authorisation level. Reference to Table A4 in Annex A.
- **Wessex**. At the end of period 2 the route is reporting a 12% year 2 authorisation level. Reference to Table B6 in Annex B.

These levels are above the corresponding periods last year (1% and 2% respectively). Network Rail plans to start to report on glidepaths for year 2 authorisation from period 4 of year 1.

Establish the reasons for variations and explanations

Based on route data and discussions with the routes, there are a number of explanations proposed by the routes to justify variations in the authority levels compared with the glidepath for year 1. These include:

- **Variations in the scope and type of work.** These result in contrasting project development lifecycles; for example, drainage schemes tend to be smaller, simpler repeatable items with shorter planning periods, whilst signalling and some track schemes are more complex with longer lead times; and are also typically the higher cost projects.

- **Profile of work.** For example, Wessex plans a greater proportion of works requiring disruptive access later in the year (periods 11 to 13) as this is favoured by its operators; so, authorisation work for some significant projects is not needed early in the year. Scotland reports that a number of works which were in an advanced stage of development were brought forward to year 5 of CP5, and that this has artificially depressed authority levels for work in early CP6.

- **Authorisation strategy.** Wessex route highlighted their strategy to pursue authorisation for key projects and workbank packages when sufficient development work has been to confirm their costs and the deliverability of plans, notably for GRIP stages 6-8. It confirmed it could authorise more earlier but does not do so as it considers that this would not be good governance and may import risks to delivery. As an alternative strategy, the Scotland route seeks full life-cycle authority for development and delivery of some major programmes such as within its earthworks, structures and track renewals workbanks.

- **Previous work.** Some in flight projects were previously authorised in the latter stages of CP5. These do not, therefore, appear in CP6 year 1 authorisation targets. While not a major factor, this does provide additional reassurance that some projects that are not yet authorised for delivery are already part-authorised and development work is underway. We noted this in Wessex for a number of its workbanks.

- **Over-planning.** This is evident in some asset groups, for example within structures, track and E&P in Scotland (the route suggested over-planning represents up to 25% of the level of unremitted schemes). This may enable the route to transfer renewals spend between workbanks to optimise use of funds if risks materialise in specific areas. We have not assessed over-planning levels in detail, and how this may inflate authorisation levels, but note that the financial balance shown by net budgets/costs may mask practical difficulties in substituting expenditure across asset groups.

- **CP6 mobilisation**. There is evidence that the workbank profiles for year 1 start at a lower level. For example, in the Scotland route, year 1 accounts for 17% of CP6 renewals expenditure and in Wessex route the equivalent is 13% of CP6 total costs. This may indicate a 'lag' in authorisations in year 1 as plans are mobilised and CP6 work ramps up, that may not be the case in subsequent years. This factor does not directly affect the percentage of budget authorised but may partly explain why this is lower than was anticipated when the glidepath was set.

Conclusions

There are below average rates of authorisation in some asset groups, with the lowest of these evidence of potential risks to delivery. There is lesser risk to delivery where component projects are of low cost or complexity, with consequential short development and mobilisation timescales. Conversely this may be indicative of risks to delivery in asset groups which contain complex programmes.

The slow progress in developing signalling schemes in Scotland represents a more significant risk. The route is looking at re-profiling the signalling portfolio to achieve the same outputs across CP6 whilst maintaining capex in years 1 and 2 substituting over planned work in other asset groups. We understand that proposals will be made at the time of the RF4 business planning update in July 2019.

Step 3 – assess reasonableness of variances and plans to recover shortfalls

We assessed the route's workbank plans to improve authorisation levels. We conducted detailed review meetings with route teams (Director Route Asset Manager (DRAM) and/or RAMs) responsible for each of the asset areas covered by our sample, to seek evidence of progress and preparedness for work in years 1 and 2.

Scotland route

The route has a below average level of authorisation for year 1. The leading indicator report shows that Scotland has the second lowest level of authorisations nationally and we have identified and discussed our view of the potential risks associated with specific asset groups above.

The Scotland route considers that the current level of authorisation does not represent a risk to delivering renewals spend in 2019-20. This is justified on the basis that authorisations are a standing agenda item for review at DRAM governance meetings and that appropriate actions are taken to identify and manage emerging issues. Examples cited include:

1. The adverse variance to the glidepath in periods 11 and 12 was identified as arising from delays in authorising the track renewals portfolio. Whilst we have not been able to identify detailed evidence in connection with this, we accept that progress with authorisation is considered in the route's management processes and that management was able to identify and monitor this issue.

2. A potential shortfall in signalling renewals has been identified and action is being planned to mitigate capital expenditure by substituting other renewals expenditure in 2019-20 and increasing signalling volumes in the later years of CP6.

The data underlying the work authorisation leading indicator is discussed above and we have seen management tracking documents which indicate that the position is visible to and managed by the RAMs. We would however observe that the recording of actions and evidence that they are actively being progressed and closed has been limited in the past but recently appears to have improved. It is important that this is sustained so that there is a clear log of actions relating to issues which may affect work volumes and expenditure and visibility that these have been closed out.

We discussed variances and plans to recover shortfalls in each of the detailed review meetings, which are summarised in Table 1 below.

Asset group	Authorised	Key points
Track	75%	Year 1 work is reported to be all on track for authorisation (this is not reflected in the P1 reports). Year 2 is on track for authorisation by the end of calendar year 2019 but development and long lead items are already authorised.
Signalling	33%	There has been progress in authorising schemes since Period 13 and approximately 33% are now authorised. A high workload at the end of CP5 reduced the availability of engineering staff to progress scheme development and this impacted on the authority process. Slippage of Perth re-signalling to CP7 also has potential to disrupt planning for CP6. Key schemes for years 1 and 2 are Carstairs and Edinburgh. There are some challenges in progressing operational interfaces for the Edinburgh scheme. The route is examining re-profiling of signalling volumes to deliver CP6 outputs and mitigating any shortfall in capital spend in years 1 and 2 by bringing forward signalling and other renewals. An updated plan is expected to be available for the RF4 update to business plans.
Structures	97%	As a route-wide aggregated report, the leading indicator report is not recognised although corresponding, low level data is held in trackers and other management reports and reviewed via the governance meeting process.
Earthworks	92%	Authority levels and the issue of remits is tracked via Governance Meeting report packs. Leading indicator report not used by the RAM team.

Table 1: Key issues on progress from detailed review meetings – Scotland route

Wessex route

We compared the preliminary glidepath estimate provided to Network Rail centre in 2018 with its detailed renewals workbank plans. This demonstrated that the original glidepath was too optimistic for the breakdown and timing of work and authorisations subsequently planned to be required. The route acknowledged that its original forecast was indicative and not a robust, informed estimate tailored to its year 1 plans, with insufficient appreciation then of the intended use of this data. The variance or shortfall to the glidepath as previously reported was therefore not accurate.

Wessex provided sample evidence of plans to progress and to complete its authorisations for year 1 and beyond. We reviewed evidence for each renewals workbank including extracts from Oracle data and sample projects and investment panel papers. A summary per workbank is summarised in Table 2 below. The route's strategy is to seek authority when individual projects or workbank packages are developed sufficiently to provide confidence in cost and delivery plans; typically, at GRIP 4 or 5, so it does not authorise programmes via a GRIP 1-8 panel decision, as appeared in some case within Scotland.

Asset group	Authorised	Key points
Track *	83%	One third via Network Operations (NO – also referred to as works delivery) in year 1 – acknowledged behind plan due to challenge on costs/forecast. Q1 fully authorised, remainder to panel in June, with expenditure ramping up from period 4. Two thirds year 1 works via IP substantially authorised – further authorisations for GRIP6-8 planned for panels in June-October for late year works/disruptive access.
Signalling *	83%	£28m already authorised for Feltham re-signalling via IP – the major programme in phases throughout CP6. Next authority in June. One third via NO, with 100% of year 1 authorised, and 60% of year 2.
Structures *	93%	Substantially authorised, split 50:50% IP and NO.
Earthworks	29%	One third via NO, substantially authorised. Two thirds via IP not authorised, with authority panels in priority tranches set for Jun/Aug/Sep/Oct. GRIP 1-3 authorisations in place for year 2-3 development work.
Buildings	5%	Programme of work developed to GRIP 1-4 during mid to late CP5. 50% of works scheduled for periods 11-13 – short tasks, not possession dependant. Authorisation plan in place – panel to 50% authority period 3, to 90% in period 7.
Drainage	60%	Small workbank (1% of year 1 costs) for repeatable items; almost entirely via NO with small amount via IP Track. Remaining authority is for GRIP 5-8 only.
E&P *	58%	Series of smaller repeatable items spread over remainder of year 1, with greatest works in late year 1. Split across NO and IP – GRIP 1-3 complete and papers for GRIP 4-8 in process, with panel authority for remaining in July.

Table 2: Assessment of authorisation levels and plans (* denotes top four asset types – Wessex route)

Step 4 – consider whether financial authorisation is an appropriate leading indicator

A progressive increase is expected in the proportion of work authorised by route investment panels covering any given financial year. For year 1 of CP6 this will build up throughout year 5 of CP5 to the start of CP6 and continuing in early periods of year 1 as the workbank is firmed up through the route's business planning process.

There is an incomplete picture of the variance between work authorised and the glidepath plan. Early versions of the leading indicator report showed shallow glidepaths which stopped at period 13 of 2018/19 at 55% of projects authorised. Actual data showed that both routes had reached at least this level by period 1 of 2019-20 albeit that progress lagged behind the glidepath for nearly all periods. The amended glidepaths in the updated report show greater shortfalls in performance against the routes' own targets.

Route	Glidepath target	Actual
Scotland	90%	63% (period 1 data)
Wessex	95%	70% (period 2 data)

Table 3: Summary of current performance against the Financial Authorisation Lead Indicator t (Source LI report)

The leading indicator report does not extend beyond period 3 and so there is not a complete target for the move to full authority.

The leading indicator report glidepaths have been subject to refinement and change early in year 1, so variances reported previously will not have provided a robust position. The leading indicator process is relatively new, and it has taken time to establish a forecasting and reporting rhythm for this with the centre and all routes. It is not clear, therefore, that the data viewed as a precursor to this review was a reliable indicator of variances. Routes initially provided indicative glidepaths based on limited and relatively immature and evolving workbank planning information, so some of these proved to be optimistic or inaccurate. A previous version of the report also included route-average rather than route-specific data for disruptive access. This has since been corrected.

In the light of the above, caution is required in the interpretation of variances and in prioritising plans to address them. We have summarised the factors which may limit the validity and usefulness of the recent glidepaths. These factors condition the 'reasonableness' of the apparent variances and therefore on actions being taken as a result, i.e. because they do not all represent an accurate picture of actual variances there is no directly equivalent action plan to recover from them.

Network Rail is further developing its leading indicator process and glidepaths for year 2. Authorisation levels for year 2 are not yet included in the leading indicator report. Its centre team plans to engage all routes in summer 2019, during the business planning phase for year 2 (between RF4 and RF7). It has stated that intends to learn from the issues experienced in setting glidepath for year 1, including to address the above issues. It also plans to augment the measures included within the report to establish a more rounded assessment of delivery confidence. Four areas being considered are process/policy, stakeholder engagement, prioritisation and governance/assurance.

Scotland route

Route management data matches the high level picture in the leading indicator report. The route was able to verify the project authorisation data, which is extracted from Oracle. It reflects locally held data as at Period 1 of 2019-20 (apart from a 2% overlay adjustment which reduced the authorised percentage to align with the Leading Indicator report).

The aggregation of data conceals significant variances between asset groups. The aggregation of data from all the asset groups masks variances in particular areas. The route holds disaggregated data for this indicator as illustrated in Tables A3, A4 in Annex A. We saw evidence that authority levels are reported and considered at the DRAM's periodic governance meeting with actions being identified and tracked. As noted above, the route team considers that lower levels of authority are manageable for asset groups with short project development times but may indicate delivery risk on more complex portfolios. As this is a relatively new measure, further work would be required to establish realistic glidepaths for each asset groups and to calibrate these against relevant average lead times.

It is difficult to identify when low levels of authority become a risk. It is currently difficult to differentiate between areas where normal management action can be expected to address the apparent shortfalls in project authorisation and those where real issues may be emerging. This said, it is clear from our discussions with the Signalling RAM team that a combination of advancing work to CP5, related shortages in resources to develop new works and changes to the timing of an enhancement project is a significant issue. This is flagged in the updated leading indicators report and the route is working to develop a solution for inclusion in the RF4 update. It is clear that the route has recognised that this is a risk to its renewals programme and is working to mitigate it. The full implications will need to be reviewed once this work is complete.

Wessex route

The leading indicator report has consistently identified a significant variance between the route's glidepath and its actual level of authorisation. The glidepath forecast rapidly increasing levels of authorisation in the latter stages of 2018/19, rising from 5% in period 9, to 90% by period 12 and then 95% at the start of the current year. Actual authorisation levels are significantly lower. While the variance between the two has closed rapidly from 79% in recent periods, the latest report still shows a 34% shortfall between 61% authorised and a forecast of 95%. The report commentary flags, however, that Wessex authorisations are now at 70% (see Table B4 in Annex B) largely due to period 1 data capture falling before the route's most recent investment panel decisions were incorporated (so actual data may lag by up to a period in any given report).

There are contrasting levels of authorisation by asset types within individual Wessex workbank plans that are not explicit in the overall indicator. For example, as show in Table B4 in Annex B, the headline level of authorisation at 70% in year 1 comprises 83% for both track and signalling, 93% for structures and 58% for E&P. These are the four largest workbanks sampled.

Conclusions on appropriateness of financial authority as a leading indicator

Financial authorisation is a useful but coarse and not sufficient measure of preparedness to deliver planned work. Discussions with the routes and a review of a significant body of documents provided good evidence of this. It relies upon readily available data within Oracle and so is easy to track and report as a proxy for preparedness compared to more complicated tools (for example, earned value or Cost Performance Index (CPI) and Schedule Performance Index (SPI) reporting)

Financial authority should only be used as part of a balanced set of leading indicators.

Financial authorisation has limitations that need to be recognised by recipients of the leading indicator report. These limitations include:

- While projects cannot proceed without authority, granting it is not a conclusive indicator that all matters are complete. For example, in Scotland's track and earthworks portfolios, the route advised us that a whole year's work is authorised in advance, and then remitted and issued to IP for development and delivery.

- Each workbank, and different project types within them, have varying lead times and levels of pre-planning and mobilisation. For example, large signalling schemes require longer development periods than routine plain line track renewals.

- Aggregation of authority status across all asset groups may mask potentially significant issues at workbank level, such as those emerging on the Scotland signalling portfolio.
- It does not pick up work on remits/proposals or previously authorised phases of projects. For example, current proposals for GRIP 4-8 signalling and track work in Wessex.
- It may prove difficult to set reliable and accurate glidepaths.

Aggregated glidepaths used by the leading indicator can mask issues within individual asset groups and their basis is not backed by objective data based on past performance and drop dead dates.

We set out suggested additional leading indicators in our report recommendations section.

Step 5 – verify the Workbank Maturity

Introduction

In this section, we set out how we approached verifying the overall maturity of the route's renewals workbank as a snapshot in time in May 2019, in terms of actual progress made leading to completion for schemes to be delivered in 2019-20 and 2020-21. In line with the mandate for this review, this assessment does not correspond to a deep dive assurance review on all renewals delivery plans or risks to year 1 renewals delivery and costs that result.

We approached verifying the workbank by:

- establishing a delivery reference model for renewals containing stages against which progress can be assessed and key factors necessary for delivery
- gathering existing progress data and mapping against the reference model:
  - from existing leading indicators
  - from investigations with the route

Renewals Delivery reference model

Our reference model has four main areas to measure workbank maturity, as illustrated in Figure 2 below. These are:

- 1 – Workbank development
- 2A – Authorisation and project development
- 2B – Delivery planning
- 3 – Contractor design and construction

We will consider each of these in the context of the routes and sample of asset groups which we reviewed but readers should note that we focussed our fieldwork in this area in the Scotland route.

Leading indicator report mapped to Delivery Reference Model

The overall 'CP6 readiness indicator' assessment included in the Leading Indicator report presents a comparison between all routes against an average position, and needs route-specific context to interpret it. (Refer to figure 1). This aspect of the leading indicator report is intended by the centre team to illustrate relative and not absolute differences, and hence to flag areas and potential issues/risks to drill into with each route. It ranks routes compared to an all-routes average metric. This can create a presentational issue; for example, a route may be low ranked and be categorised as 'behind the curve', yet still be tracking to its plan. It is also affected by route context ,for example, access planning and authorisations will follow the profile of work per route and will inevitably generate differences, and there are signs that routes are adopting different approaches to work related to these measures.

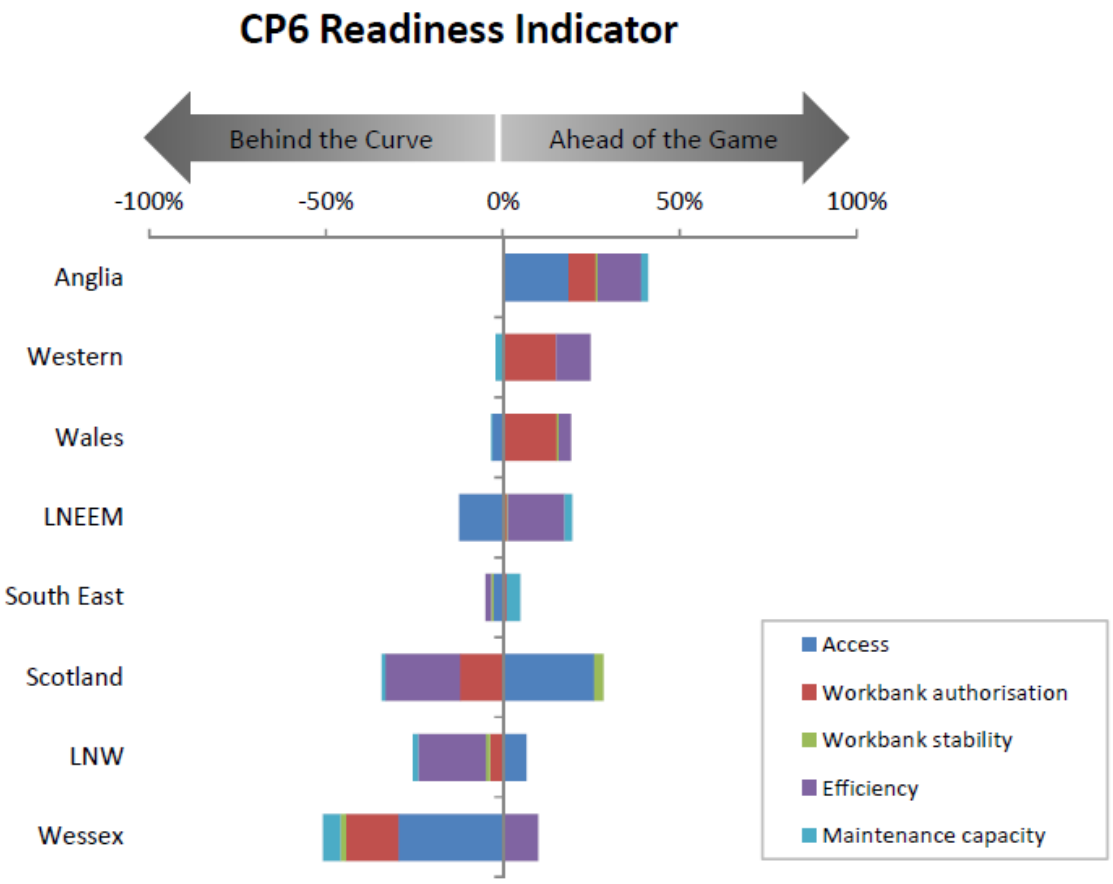


Figure 1: Network Rail's 'CP6 Readiness Indicator' from period 1 leading indicator report

The leading indicator report considers three aspects of renewals workbank maturity in terms of the levels of disruptive access, project authorisation and workbank stability. This is mapped to the reference model in Figure 2 below.

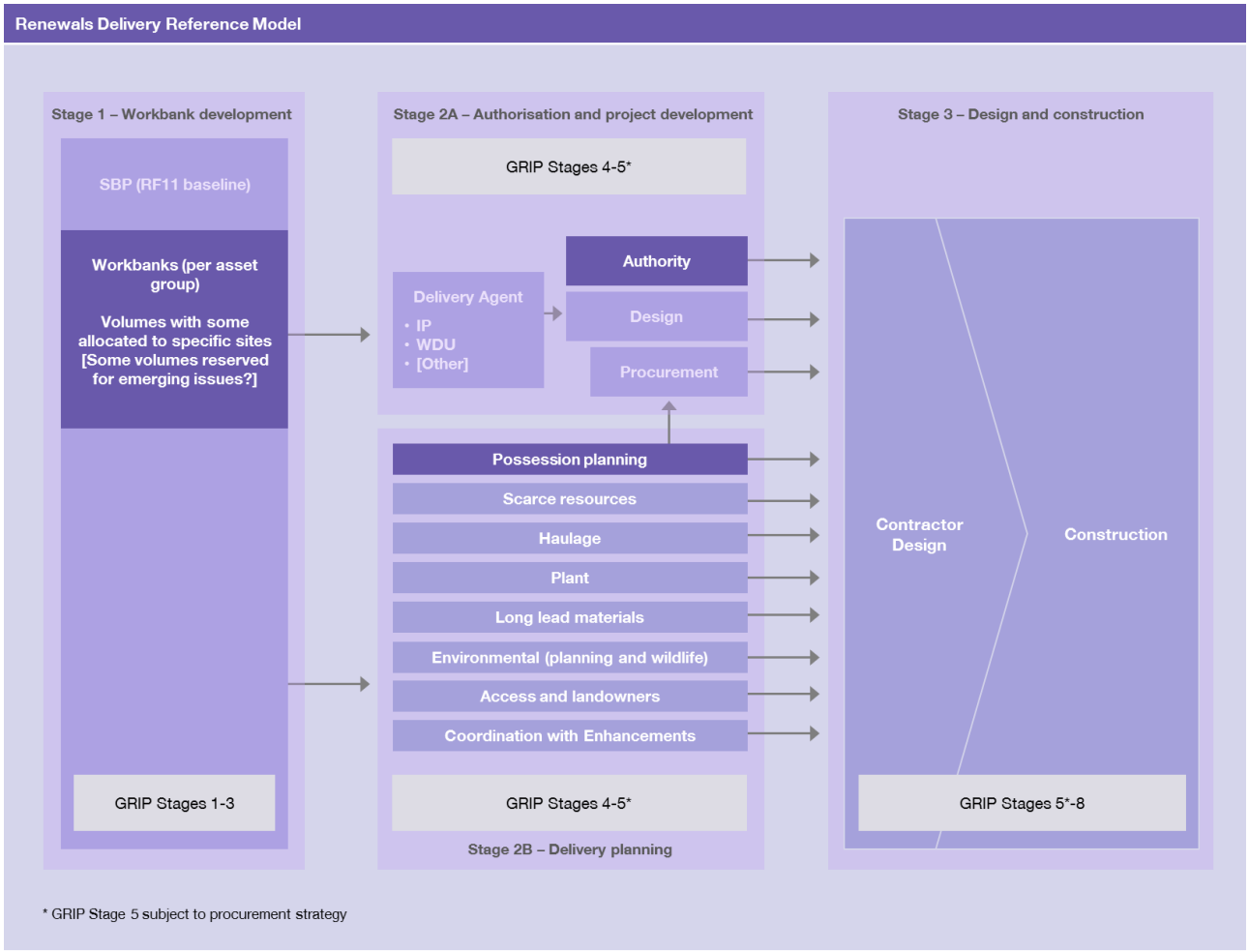


Figure 2: Work development activities and coverage by leading indicators

Other progress information is available

We sought other evidence of progress for each of the four areas of the delivery reference model during our meetings with the routes.

Area 1 – Workbank development

The asset management process which leads to development of the workbank for the whole control period has been reviewed in detail by ORR as part of the PR18 process and has not been considered further in our work. The workbank reflects RAMs' balanced view of the level of renewals necessary to keep the railway safe, comply with asset management policies and deliver the outputs required by ORR's final determination for CP6. The workbanks are managed by the RAMs (and coordinated by the DRAM) so that changing circumstances and emerging issues are managed within the overall budget. The workbank is therefore, to some extent dynamic and it is important that change is both limited and controlled.

The only leading indicator in this area is workbank stability. This measures change to the total cost of work forecast for the year, as reported each period, expressed as a percentage of the total value for the year.

This measure focuses management on improving quality and support to its strategic objectives; confidence to project teams and the supply chain on workbank plans; reduces risk of inefficient or unsafe working and; supports continuous improvement and delivery of efficiencies.

- The aggregate value across all workbanks could mask changes within and across asset groups that would not affect the indicator.
- The indicator includes 'over planned' (up to 20%, as confirmed by Network Rail centre) work that is then ready to be substituted if core work is cancelled or postponed – it is not clear if this is a consistent approach across all routes or if/how over-programming is being consumed and reported as stable work.

Scotland

Workbanks are well defined for years 1 and 2. Remits have been issued to delivery agents for 89% of year 1 work and 51% of year 2 (see Annex A). The most significant apparent risks for year 1 are in the Signalling and drainage asset groups where levels of unremitted work (i.e. work not sufficiently defined to support issue of a remit) are 49% and 50% respectively. Drainage was not covered by our sample but, at £6.6m and with relatively short project development timescales, we accept the route's view that this is not a significant issue at this point. The risks and mitigating action connected with the signalling portfolio has been discussed previously and the route is working towards reporting an updated plan at RF4.

Work has been over planned in three asset groups. The route is reporting negative levels of unremitted work for the Structures, Track and E&P asset groups (see Annex A). This totals approximately £12m for year 1 and provides some security that this work may be available to be substituted in the event of cancellations or delays to planned jobs.

Workbank stability is reported at 85% for period 1 (see Figure A7 in Annex A). This appears to indicate a significant level of change and is therefore potentially of concern. The route recognises this but considers that (a) some degree of change is reasonable if management is dealing with dynamic circumstances in an agile way and (b) that this is a new indicator with further work needed to understand its message and how to differentiate between 'good' and 'bad' change. In this context, the route sees 'good change' as being that which improves efficiency of packaging or delivery. There is merit in this concept but timing and minimising disruption to existing plans are critical factors to be assessed in the change control process.

The route operates a workbank change control process. We sought evidence of change control through our detailed review meetings. There is not a documented procedure for change control outside the trigger levels in the authority process, but we saw evidence that the RAMs have systems to track significant changes and that these are reviewed through the DRAM's governance meetings. Changes are identified by RAMs, either as a result of regular design and progress reviews with IP or other delivery agents or emerging asset condition information. These are assessed against working business planning documents for each asset group and, where changes are considered necessary, these are recorded on a change log for approval through the governance meeting. The process is managed by a technical clerk.

We did not undertake a deep dive into the operation of this system or attempt to reconcile the recorded changes with the stability indicator but the process appears to be comprehensive and mature.

Wessex

The route has demonstrated a satisfactory and improving level of workbank maturity for year 1 of CP6. Evidence confirms that this is commensurate with the status of the portfolio at present, two months into a five-year delivery plan. The £1.33bn workbank is defined and documented, with evidence of granular scope and cost breakdown for all items, comprehensive work planning, repeatable processes to manage, develop and deliver schemes, and governance arrangements to oversee and challenge place for this. To support its workbank plans the route has:

- Defined a three-year baseline plan for plain line track and a five-year plan for S&C renewals. We sampled several track projects within the route's £59m plans for year 1 as evidence of these plans.
- Established a five plan for the phased development, delivery and commissioning of the Feltham re-signalling programme (circa £250m). We sampled a number of panel papers on this programme.

Area 2A – Authorisation and project development

This area of the delivery model covers identification of delivery agents for the workbank, design development and authority and the procurement of contractors ready for delivery.

The only leading indicator in this area is project authorisation. We have discussed this in detail in a previous section.

The delivery agent for the majority of renewals is Network Rail's IP. IP is currently organised into a number of regional and specialist teams. Regional teams cover general renewals through teams focussed on individual asset groups. Specialist teams cover areas such as high output track renewals and major signalling works. Less complex work is delivered via NO.

As part of its 'Putting Passengers First' initiative, Network Rail is reorganising the regional IP teams to better align them with the routes and such a change has the potential to disrupt delivery of the renewals programme. We note that the routes see the change as building on what are already well aligned working arrangements and therefore beneficial to performance.. We have not considered these changes any further in the review.

Provision of a remit to the delivery agent is an important step as it represents the threshold between asset management and project delivery. The status of remits is recorded through a variety of tracker spreadsheets with some recording 'issue' and others recording 'acceptance'.

Design development can be tracked as work packages progress through the stages of GRIP but data in Oracle overstates the position. For example (and subject to how a project is configured), if enabling works progress to stage 6 the whole project will be recorded as being at this stage. Nevertheless, the measurement of GRIP stages provides an indication of how the portfolio is progressing towards delivery. An example of this is provided for Scotland (see figure A9 in Annex A).

Procurement status is not recorded but can be derived from Oracle. The limitations on granularity of reporting we identified above also apply to this. Capture of notice to proceed under framework contracts would be necessary to improve accuracy of this measure.

Scotland

Work is predominately delivered by IP. The renewals work for the four asset groups in our sample are predominately delivered by IP through a series of framework contracts. Smaller/less complicated packages are delivered by NO with these works delivered in shorter planning timescales.

Tracking data is variable and held in different formats across asset groups. RAMs manage their portfolios with the aid of 'tracker' and 'business plan' spreadsheets. Whilst these have common features, they do not follow a common template. Based on these records, progress in developing and issuing remits for the sample we reviewed is summarised in Annex A. This shows that the extent of readily available tracking data is variable with the structures asset group providing the best records. Very little analysis was possible of the status of the track and signalling portfolios. It seems likely that this data exists and is being reviewed at lower levels of management, but further work would be necessary to consolidate this into a single, high level dashboard should more visibility be required.

GRIP status is available from Oracle. We have undertaken a preliminary analysis of the GRIP status of Scotland Route's year 1 workbank. This is shown in figure A9 in Annex A.

This analysis indicates that over 25% of the year 1 workbank is currently at GRIP stage 5 or below (i.e. it has not progressed to construction. For the reasons explained previously, this is likely to be an understatement.

Wessex

In common with Scotland route, Wessex reported progress in awarding new framework contracts to support the CP6 renewals programmes. Examples identified by our review of sample asset groups included:

- Awarded a new track contract, which is transitioning and mobilising at the start of year 1 (and which contributes to the current short-term variance to plan) and that contractibleness efficiency targets already secured for CP6; and
- Mobilised a new multi-disciplinary framework for workbank development and delivery.

Area 2B – Delivery planning

The only leading indicator in this area measures planning of disruptive access. This is based on the number of hours booked versus the estimated number of hours required.

Depending on the nature of the work, there are a number of other long-lead enabling activities which should be considered. These include:

- Ensuring that scarce resources such as signalling testers will be available.
- Verifying that there is sufficient capacity in the supply chain for local peak workload (renewals and enhancements).
- Identifying and securing adequate freight haulage services.
- Reserving on-track plant (for example, tampers).
- Procuring long lead materials.
- Obtaining environmental approvals (for example, planning permission and wildlife protection).
- Securing and constructing temporary access arrangements.
- Ensuring that planning assumptions are coordinated between renewals and enhancement programmes.

The risks associated with these matters were considered by ORR in their final determination for CP6[4].

Much of this work is undertaken through existing support functions such as IP, Route Services and access planning teams using 'business as usual' processes. However, there does not appear to be positive confirmation of the status of these enabling activities visible at portfolio level. This creates a theoretical risk that key activities may be missed thus jeopardising planed work.

Scotland

The route reviews delivery planning issues as part of its Management Board Report (MBR) and governance processes. We saw evidence that long-lead planning and resourcing issues were being considered in IP reports and were visible at high level reviews.

[4] Review of Network Rail's proposed costs, ORR October 2018

Wessex

The route was transparent in acknowledging risks it faces in delivering its workbank. We did not explicitly address risk to delivery within this review mandate, however the route acknowledged a number of challenges it faces in delivering its commitments, including:

- **Workbank delivery.** Notable issues including the capacity and capability of its works delivery units and uncertainty in the scope and costs for earthworks renewals.
- **Enterprise risk or national changes.** For example, due to organisational changes and (as in CP5) changes to workbanks. Note that the collapse of British Steel occurred during the review process.
- **Track performance.** The route set out plans to tackle the level of Temporary Speed Restrictions (TSRs) that significantly impacted services in late CP5, and which represent a key part of its efficiency plans for CP6. This included its summer readiness efficiency plan.
- **Signalling.** Feltham re-signalling is a major programme being developed and delivered in phases throughout CP6. While the overall programme is at an early stage of development, there is evidence plans for the current phase are well established, and benefit from significant work in CP5. Nevertheless, the scheme represents a significant challenge for the route.
- **Efficiency.** Targets require a reduction in the unit costs for delivery of renewals workbanks over five years as a result of a number of initiatives and business changes, with inherent uncertainty flagged in the quantum of saving that may be expected for some initiatives. Risks to efficiency are dealt with in the following chapter of this report.

Area 3 – Contractor design and construction

Work under construction is managed predominately by IP with less complex works managed by NO. IP and NO representatives attend relevant MBR and governance meetings and progress, issues and risks are reported with a focus on cost (AFC versus budget) and volumes delivered against target. A financial performance measure (FPM) is used to track performance against targets and as an indicator of efficiency.

Reporting systems are well established in Network Rail and can be considered as being mature. This review has not examined management review of the data or how emerging risks and issues are managed in each route.

Scotland

The route was able to provide samples of a comprehensive suite of reports used at the DRAM governance meeting and samples of supporting reports from IP. For the four asset groups in our sample, the summary position at Period 2 is shown in table 4.

Asset	Budget				Volumes			
	Year 1 budget £m	Year 1 Forecast £m	Variance £m	Variance %	Year 1 target (units vary)	Year 1 forecast (units vary)	Variance (units vary)	Variance %
Earthworks	25,494,109	23,697,429	1,796,680	8%	690	1,101	411	37%
Signalling	78,760,714	78,952,346	-191,632	0%	81	64	-16	-25%
Structures	61,374,907	61,376,119	-1,212	0%	14,376	14,568	192	1%
Track	113,937,896	113,934,265	3,631	0%	232	222	-10	-5%

Table 4: Year 1 summary for selected asset groups in Scotland at period 2

The route was able to explain key variances as follows:

- Earthworks – reduced costs and extra volumes as a result of improved packaging (for example, line of route renewals on the Kyle line).
- Signalling – reduced volumes due to planning issues (described previously). Budget held pending re-planning at RF4.
- Track – provision to maintain volumes through over planning.

Management has a good focus on achieving the year 1 targets. The reports provided and discussions with the DRAM team indicate that management has good visibility of progress to date and displays a good focus on achieving its capex and volume targets for year 1.

Conclusions

We have summarised progress information available to us to support verification of the maturity of the workbank against the four stages of our Delivery Reference Model.

Delivery Model stage	Leading Indicators	What other data is available?
1 – Workbanks development	Workbank stability	• List of work packages in RAM business plans • Change control records
2A – Authorisation and Development	Financial Authorisation level	• GRIP stages in Oracle • Remit trackers (by RAM) • Procurement status in delivery agent records
2B – Delivery Planning	Disruptive possessions booked	• Qualitative information in route, IP and SCO records
3 – Contractor design and construction		• Reporting of outturn Anticipated Final Costs (AFCs) and volumes • Financial performance measure (FPM) in route management information

Table 5: Summary of progress information using the Delivery Reference Model structure

It is not possible to verify all aspects of workbank maturity using the current leading indicators and the other supporting progress information available within the routes. To fully verify workbank maturity, it would be necessary to have a more comprehensive set of indicators and metrics that represent all elements of the reference delivery model.

More broadly-based leading indicators for 2A development would be helpful in providing more assurance. We support the Network Rail plan for indicators to be set out properly for year 2, to be reported from beginning of current year.

It is important to have over planned work as contingency both for cancellations and against the event that contingency funds become available.

Step 6 – are there better leading measures for indicating Network Rail's preparedness for renewals workbank delivery?

Introduction

Subject to our comments in the preceding section, we consider that the existing leading indicators for renewals are useful and should be improved and supplemented, albeit addressing the notably data issues that have affected recent reports (i.e. improve these first and get it working properly), and ensuring a proactive focus on the year 2 (the indicator for efficiencies).

We have considered other potential leading indicators that rely on readily available management information, and provide a satisfactory balance in terms of value to the route compared to the effort required in generating the data, i.e. where more complex proprietary products or major programme tools (Earned Value, CPI and SPI) may not be appropriate.

GRIP stage tracking

We have considered whether tracking progress of work-banks through GRIP stages could be a useful leading indicator.

As described previously, tracking aggregate authorisation levels for the route's renewals portfolio does not provide robust assurance on preparedness, as authority does not equate to progress, and will vary according to a route's strategy for this. A scheme could be anywhere within an authority window and may not be on-track for delivery, which becomes an important issue when authority is granted for a block of renewals projects and/or for multiple GRIP stages. Tracking at an aggregate level may also mask issues at individual workbank level.

Network Rail centre (and each of the routes we reviewed) advised that they did not consider that tracking of delivery preparedness using GRIP stages would be a useful additional indicator. They based this view on wide variability in development timescales per GRIP stage and the risk that tracking progress through each stage will not provide assurance on schedule adherence or slippage and so the indicator would not act as a robust schedule performance indicator. We consider that it may be possible to address these concerns by measuring variances in planned and actual progression through GRIP stages but the feasibility of this (and of alternative ways of demonstrating progress towards final delivery would need further consideration.

Other indicators considered

- Cost and volume for the year, expressed by value achieved versus baseline total for the year. This is already available in management data for each asset area. These would provide a high level CPI) and possibly an Output Performance Indicator (OPI) outcome performance indicator. Whilst this is essentially a trailing indicator, trendlines may provide signposts to future performance.

Other aspects we considered but discounted:

- We considered whether change control is a potential indicator of risks to or instability of workbank but note that each occurrence will need sufficient context to confirm significance (or otherwise). This information is not held in Oracle data, so may not provide a simple metric.

Conclusions on other leading indicators from available data

Considering all of the above, we believe that tracking the distribution of scheme status through GRIP development has merit as a more granular measure despite the concerns raised. We also believe that this should be reported at work package level by asset group, to provide assurance on the relative level of preparedness of each. This is information that is available within Oracle at a higher level. A glidepath forecast for this is not recommended initially, due to the likely difficulties of calibrating and adequately assuring this. It may be feasible to introduce asset specific glidepaths as understanding of such a measure grows.

Recommendations

The following are recommended areas for improvement for monitoring of renewals delivery derived from across the 6 review Steps set out above.

Recommendation R1

The suggested improvements identified earlier in this report to leading indicators for renewals should be addressed as part of Network Rail's plans to improve the value and credibility of the Leading Indicators process planned for later on this year. This includes providing indicators that cover the 'current year + 1', and more granularity for different asset groups. We refer to the work already in hand by Network Rail to further develop its leading indicator process, so our recommended improvements are considered as part of that process.

Recommendation R2

That the centre identifies good practice and provides templates and guidance to the routes to improve the consistency, accessibility and standardisation of the trackers and other tools used to manage renewals portfolios. This should recognise the differing characteristics of renewing specific asset groups. The objective is to improve management information so as to make assessment of workbank maturity easier and in more detail than provided by the lead indicators.

Recommendation R3

That the feasibility of establishing an additional GRIP stage leading indicator is examined as a measure of progress for each workbank, potentially broken down into development (GRIP 1-4) and delivery (GRIP 5-8).

Recommendation R4

Additional lead indicators (centre or route based) are developed based on existing information and introduced as soon as possible for: (a) remit issue and acceptance by the delivery agents; (b) procurement status and; (c) forecast start of works (on site) date; to improve the coverage of leading indicators for highlighting issues with renewals delivery progress.

Recommendation R5

The quantum of over-programming is considered as a leading indicator to measure the level of resilience of the current year's work plans to slippage and other factors affecting routes' capability to deliver its targets.

Recommendation R6

That glidepaths used with Lead Indicators are further developed, disaggregated to asset groups and calibrated against typical lead times for asset types, supported by appropriate quality control and governance arrangements necessary to define and set these with the routes.

Part B – review of efficiencies delivery

Introduction

To assess the preparedness of the Scotland and Wessex routes to deliver efficiency savings in the first two years of CP6, the review considered the routes' latest opex and renewal (capex) efficiency plans. We reviewed the overall quality of these plans, whether the efficiency forecasts appear reasonable based on those plans, and whether they are consistent with the routes' agreed allocation within the £3.1bn total of efficiencies within the final determination.

Within each route, the review focused primarily on 'material efficiencies' that represented the top 70% by value (£35m for Wessex and £65m for Scotland) of opex and capex efficiencies in years 1 and 2 of CP6. For a complete list of the 27 initiatives reviewed for Wessex and the 21 initiatives in Scotland refer to Annexes D and C respectively.

We have set out our findings using the structure used in the mandate:

1. Quality of the description of business change and how it will generate efficiency.
2. Calculation of the forecast efficiency.
3. Arrangements for monitoring progress in implementing business changes.
4. Approach to risk identification and management.
5. Identification and documentation of limitations in forecasting of efficiencies.

a. Quality of the description of business change and how it will generate efficiency

The route has developed high-level summaries for each efficiency initiative documenting, in most cases, details of relevant business changes. Both routes identified high-level efficiency categories consistent with the 'fishbone' framework developed as part of the business planning process for CP6 that informed ORR's final determination, and consistent with guidance provided by Network Rail's central efficiency team. Within these categories, route management and individual asset groups identified and developed specific initiatives and sub-initiatives where savings could be achieved within their area.

A templated approach was used by both routes to document efficiency initiatives, including a description of the business changes proposed in CP6 and how these drive cost efficiency. For example, within Wessex, a consistent 'one-page' plan has been produced for each opex and capex efficiency supported by back-up documents. This one-page summary covers a description of the efficiency, the rationale for efficiency savings, efficiency target values and calculation assumptions, governance arrangements, and high-level milestones for enabling activity and notable risks and mitigations.

Scotland has high-level one-page summary for opex and capex initiatives. In addition, the DRAM has implemented a more detailed template for asset groups to document their initiatives, which amongst other content describes; what is planned to be different for CP6 and how it drives cost reduction.

There is marked variation in the quality and level of detail in documentation on business changes and how they will generate efficiency, i.e. there is not a broadly consistent base level of information on efficiency plans to support each initiative.

We found a number of good examples of well-documented business change descriptions for opex efficiency initiatives that clearly identify and explain the change from current state to future state consistent with forecast savings.

Of the number of good examples within Wessex is Cyclical Access – a new regime has been developed and formally agreed with operators, and is now been implemented by workbank delivery units; Contracting Strategy – the route is working closely with the supply chain to provide greater visibility of work and driving efficient unit rates without compromising on the required quality to deliver safety and performance; Safer Isolations – the route is deploying new infrastructure that will improve worker safety and enable more efficient use of access, which is a critical enabler for a number of capex efficiency savings. Within Scotland, the Relief Signalling Strategy includes a clearly articulated business change with respect to rostering and increased use of relief staff to reduce overtime. The Energy Savings initiative documents a clear action plan to reduce electricity, fuel and water consumption.

Not all opex efficiencies are accompanied by adequate information on business change, for example:

- Initiatives describe enabling activity, but not the business change itself – for example 'Lean optimise winter circuits'.
- Initiatives that are considered as continuous improvement of 'business as usual' activity rather than a new business change project/programme, for example 'Stable Workbank – Track'.
- Initiatives are at concept or early planning stage where plans and business changes are not set out or are still being developed, recognising that it is early in year 1 of CP6, for example, Better Every Day 'Lean' initiative within both Scotland and Wessex routes, which are generally continuous improvement rather than business change initiatives.

Renewals related efficiencies are managed as part of routine renewals workbank delivery governance, however documentation of efficiencies as business changes is not sufficient. The majority of capex efficiencies are linked to delivery of relevant renewals workbank projects and programmes to a 'post-efficient' budget. Activity to enable the efficiency is generally well-understood, including some business change. The value of the efficiency is typically applied as a top-down saving or unit cost reduction; drawing on experience, professional judgement and (in some cases) data, although is described only at high-level. This approach assumes that if the work is delivered to the post-efficient budget, then the efficiency will have been achieved (and that headwinds will not have varied from planning assumptions).

Delivery of workbank portfolios to post-efficient budgets is via by the route's various delivery agents, including IP, and NO. The efficiency is, in effect, 'contractualised' across a large number of projects, some spanning across several efficiency initiatives. The efficiency owner may have overarching accountability for achieving the efficiency savings, although the onus resides with the delivery agents to implement work that will deliver the savings. This diversified approach makes it difficult to fully assess the status of each efficiency initiative.

Evidence from both routes demonstrates that renewals related efficiencies are planned as a mix of improvement initiatives and a series of business changes. The mandate for this review focussed on business change but nevertheless we would expect to see minimum level of definition for process improvements. Without defining and tracking measurable changes (of whatever type), it is difficult to provide reasonable assurance that implementation of business change is progressing or that implemented change will be sustained.

Case study

Workbank planning is one of Wessex's biggest capex efficiency initiatives. Learning from CP5, changing plans add cost, result in abortive work, short notice alterations and claims from contractors. Stable plans across CP6 are intended to enable the route to avoid these problems, optimise resources and provide a framework that other efficiency initiatives can link into (for example, cyclic access and contracting strategy). An assumed unit cost saving is derived, which is cascaded to all affected delivery units, projects and contracts within post-efficient budgets. There is therefore no granular or quantified 'line of sight' between the initiative, the consequential business and project changes and the efficiency outcomes. The route's stated mission is to deliver what it said, when it said; and believes that adopting a business change led approach and tracking a web of decomposed efficiency impacts would not be appropriate, and may distract from this mission.

Wessex demonstrated clear ownership of business changes, with resources in place to manage this. The Wessex Route Finance Director demonstrated clear ownership and detailed knowledge of efficiency plans. Each efficiency has a defined Project Managers as initiative owner who is responsible for planning, delivery, monitoring and reporting. We met a number of these Project Managers, who provided additional detail on their efficiency plans, including how these are being embedded within working practice, for example, in implementing Plain Line Pattern Recognition (PLPR) and eddy current initiatives. A Business Change Project Manager has also been appointed to oversee the efficiencies programme and to help to embed a consistent approach across the route in identifying, developing and monitoring efficiencies in CP6.

b. Calculation of the forecast efficiency

We address the route's calculation of efficiencies in this section. Consideration of the uncertainty and risk within these forecasts and in delivery is covered in the section on 'approach to risk identification and management'.

There is a significant variation in the level of detail provided on efficiency calculations to justify the forecasts provided. The level of detail underpinning calculations of forecast efficiencies varies depending on the scale and nature of the efficiency, and the maturity of the initiative and business change. There are also notable differences between the two routes.

Within Wessex, there are a number of good, detailed calculations, notably for the opex initiatives sampled. Evidence included one-page 'bottom up' calculations using cost rates norms for resource and plant as calculation inputs, and range estimates for forecast savings spread over each year of CP6. The majority of forecasts were reportedly informed by CP5 experience and data. Examples include:

- **Lean 'right first time'.** A schedule of staff, activity and plant cost rates built up based on an assumed reduction in lost shifts due to poor planning and setup.
- **Speed reduction plan.** Ranged estimates for reduced frequency of TSRs, using CP5 data, where a planned programme of mitigation avoids high cost of unplanned intervention as well as train services/passenger impact.

For Scotland, there are some examples of 'bottom-up' calculations underpinned by more granular analysis of available cost data and impact of business changes. Examples include:

- **Relief Signaller Strategy.** Net cost (negative efficiency) in year 1 for the recruitment and training of additional staff, with forecast overtime savings derived thereafter.
- **Signalling renewals efficiencies.** Were commonly calculated on a project-by-project basis and considered the work type and their knowledge of the asset. This approach provides greater granularity of savings identified and allows for better monitoring of forecast verses actual results.

By contrast there are notable examples of efficiencies with relatively little detail on underpinning calculations. This is most typical of capex efficiency initiatives where, as noted previously, they are not structured as individual business changes with corresponding 'bottom-up' estimates. A number of these efficiencies have been calculated based on top down unit cost reductions, informed by data and experience from CP5 and by applying professional judgement; with varying levels of detail on the documented evidence of inputs and assumptions to justify the calculation. For example:

- Wessex's contracting strategy for track, by changing the organisation and set up bring together PL and S&C teams, is anticipated to save circa £37k per point-end and £31k per km of PL renewal; resulting in a £10.7m efficiency in CP6. Similarly, its £17m efficiency spread across structures, building and drainage workbanks is based on rate savings from work planning, stable workbanks, supply chain changes and a new working group to challenge the process and estimating.

- In Scotland two initiatives, Energy Savings (£2m for years 1 and 2) and Better Every Day (£1.8m for years 1 and 2), have been based on a top-down set savings target (offsetting 13% increase in utilities and £10,000 Lean savings per maintenance Section Manager respectively). This makes the calculation method and inputs simple, however without undertaking a bottom up calculation of the sub-initiatives required to achieve these savings it is difficult to validate the reasonableness of this forecast. Similarly, without having identified all sub-initiatives that need to be implemented in year 1 (and planned and executed) the assumption that savings will achieve the year 1 forecast appears untested at this point. Both initiatives assume a savings will be released in year 1 at the same rate as for the following four years of the control period. This assumption makes the overall CP6 forecast more susceptible to risk of non or late delivery savings initiatives in the early years of the control period.

The forecast time-profile of efficiencies for CP6 follows workbank profile for capex efficiencies with some risk adjustment applied to opex efficiency initiatives. Sample initiatives were profiled per annum according to forecast benefit realisation. For capex efficiencies, these are typically profiled to align with the profile of the relevant workbank/volumes (although we were not able to quantify this in detail). Examples were evident where prudent assumptions were made about progress in year 1, notably for initiatives that are at an early or conceptual stage. Several Wessex capex initiatives are schedule to deliver benefits from year 2 to allow time for enabling and planning activity to be implemented. Similarly, within Scotland the Intelligent Infrastructure Central Strategy assumes nil savings in year 1 and then three sub-initiatives in year 2 achieving a savings of £1.3m. through a reduction in resources required.

Various efficiency initiatives are closely related or interdependent on each other. Examples include stable workbank, cyclic access, Lean and Intelligent Infrastructure (II). Whilst there was no evidence of double counting of efficiencies, it is not clear what assumptions have been made regarding the interdependencies and how the risks that result are being managed.

The majority of efficiencies initiatives reviewed have not had assumptions verified by the Cost Benefits Working Group (CBWG). Outside of the route finance teams, there was not a high-level of awareness of the CBWG, and forecasts developed within routes were assured within their own governance processes. We understand the CBWG was not in place or a mandated process for preparation of renewals efficiencies. However, in addition to forecasts being validated within the route, we are advised that GB wide efficiency working groups were formed for each asset group and led by DRAMs to provide consistency and verification of approach to renewals efficiency calculations across the various routes.

The routes have used centralised forecast models. The development of calculator models by the CBWG is relatively new and still developing within Network Rail. We have been advised that three national initiatives have been modelled. These are II, PLPR and Electrical Safety Delivery (ESD). We have not reviewed the models, which are of a very large file size.

Wessex confirmed that they have used modelled metrics and outputs to inform their own efficiency calculations for the three initiatives, but that they were too complex to use at a working level. Wessex also provided some evidence of liaison with other routes on other initiatives that are not yet covered by CBWG models, notably Click Rostering and PLPR efficiencies. Scotland has used the Intelligent Infrastructure model and informed us had a high level of engagement with the CBWG with respect to determining an appropriate level of risk in the forecast to reflect the realities of implementing the initiative in Scotland.

c. Arrangements for monitoring progress in implementing business changes

For the avoidance of doubt, in this section we are assessing a) the arrangements for monitoring progress in implementing business change, rather than b) monitoring progress in achieving efficiency savings targets. We make this distinction, as the approach to implementation planning and monitoring of progress required to support a) and b) are different. However, we acknowledge the linkage that should exist between implementing business change and deriving associated efficiency savings.

There is limited evidence of implementation plans for business changes, and implementation of efficiency plans in general. Both routes have documentation describing the business change associated with efficiencies, but there was limited evidence of implementation schedules, showing project tasks, resources and milestone delivery dates. The lack of project timelines makes it difficult to assess whether the year-on-year savings profiles of each initiative is linked to the timings of the delivery milestones. Furthermore, without having a timeline of milestones that depict business change, it is difficult to monitor progress of what and when actions need to be implemented to achieved the targeted efficiencies.

Wessex does have high level summaries that set out milestones for early enabling activity for each efficiency initiative, but they do not include sufficient detail to explain how the implementation of business changes will be monitored at delivery level. Examples include:

- **Cyclical access.** Historic milestones are listed up to 'timetable goes live' in December 2018, and hence this £744k per annum opex efficiency is reported as all milestones being complete. There is a basic narrative on what changes are effected as a result, but no details on how this will be achieved and monitored throughout CP6; and
- **Lean speed reduction plan.** Milestones in spring 2019 are 'develop and publish speed reduction plan', 'anticipated benefits confirmed' and 'Develop process for tracking benefits'. The route has stated that a programme of mitigation work is underway and that it will track TSRs, though again detail is lacking within the high level project milestones.

For Scotland's capex efficiencies, the route has developed a templated spreadsheet across all asset groups to track high-level actions and provide a consistent reporting mechanism for the DRAM. However, from our review of the actions being tracked, they appeared to have limited association to the actual milestones that would result in business change (and associated benefits). The actions also appear to be short term, and do not show what future actions are required to achieve efficiencies beyond year 1. Conversely, Scotland's Relief Signaller Strategy has a milestone timeline of business changes that can be linked to the efficiencies forecast year-on-year.

Scotland also showed us a project workbook that had been developed as a planning tool for Opex efficiencies. The workbook contains timelines, milestones and RAID (risks, assumptions, issues & dependencies) log. However, the workbook had not been used by any of the initiatives we reviewed in our sample. Similarly, the route advised us that opex efficiency activities are to be scheduled using Primavera P6. At the time of our review this had not been undertaken for any of the initiatives in our sample.

Route monitoring of capex efficiencies is primarily though the project management processes of delivering renewals workbanks within post-efficient budgets. Noting that much of the responsibility for achieving the efficiency initiatives resides within the delivery teams, as embedded within their remitted work (and aligned to the post-efficient budget), we found little evidence of reporting from the delivery team to RAMs regarding progress of business change. Reporting to the RAM focuses on project delivery and any efficiency related reporting tends to be through how projects are tracking to budget with the emphasis being on the financial progress of efficiencies rather than the implementation of business change. The routes have advised that renewals efficiencies are generally driven by improvements to existing business processes rather than material business changes. We also understand that a number of the initiatives are

considered to be enablers to efficiency rather than projects that will directly result in business change and resulting benefits. As such, attention is not applied to the monitoring of progress of these activities.

The exception to this is IP Signalling, who are currently developing a framework to track individual efficiency initiatives against all GRIP stages on each individual project. While we understand this approach is in its early stages, this may provide an approach for other delivery teams to follow.

Project governance and senior oversight of business change is still being established for CP6. The routes have governance structures to monitor the progress of efficiencies that appear appropriate. The documentation includes meetings terms of reference, defined attendees and meeting frequencies frequency (periodic or quarterly). As these forums have very recently been established, we have not been able to review their effectiveness. We also understand that they have only recently been set up in Scotland as some of the initiatives are still being defined, planned and with implementation yet to commence (for example in Scotland - LEAN, Energy Savings and II Central Strategy initiatives). We are advised the regularity and rigor of efficiency governance meetings will increase from this period.

Central monitoring using the efficiency tracker used to report the progress of efficiencies is still maturing. Common to all efficiency initiatives (both capex and opex), the central benefits team have introduced a templated tracking spreadsheet, which route's report each Period the status of their efficiencies. The tracker includes a confidence indicator for route's to report the maturity of the efficiency with respect to project definition and linkages to benefits. The tracker focuses on the realisation of benefits, rather than the implementation of business change. However, we understand this tracker is still being refined and routes are still becoming familiar with the reporting process. In particular, the reporting of confidence levels appears to be relatively immature.

d. Approach to risk identification and management

There is marked variation in the level of detail in identification of delivery risks and potential mitigations. Within Wessex, the top three risks have been identified for each efficiency initiative, together with a mitigation action. The detail is high level and does not provide an indication of the probability of the risk, impact or proximity. It is also not apparent when a risk is live, mitigated or retired. Examples include:

- **Right first time, reduction in lost shifts.** The two risks identified are that the improved process proves ineffective (mitigated by monitoring lost work and applying management intervention as necessary) and savings prove optimistic (mitigated by periodic monitoring of actual savings); and

- **Better every day, electrification (design).** The two risks identified are that the condition of existing equipment does not allow for the use of generic design (mitigated by early identification of risk to allow development of other options in time for delivery) and integrated breaker technology is not approved (mitigated by close liaison with development team and route client).

The risk logs are monitored and reviewed in various meetings including the Deliverer Sponsors Meeting, the RAM governance meeting, the DRAM governance meeting and the Business Review Meetings.

For Wessex capex efficiencies, the route advised that the renewals teams have separate project risk registers, of which we saw evidence within the Project Brief for the Track Inspections and Performance Enhancements project. It is not explicit how these are linked to the specific efficiency initiatives.

Alongside the efficiency risks, the route also holds a risk provision against non-delivery of opex efficiencies, set at 50% of the range estimate (£13m) plus the value of the ESD stretch target (£12m), and a risk provision against non-delivery of capex efficiencies (£32.5m).

Whilst Wessex are confident that they have clear ownership of risks and that they have been taken into account in their forecast efficiencies, they do recognise the need to enhance their risk management.

Within Scotland, we found no evidence of risk registers or other project management tools to capture risks and track mitigation activities for efficiencies. Nor are we aware that risk workshops associated with ensuring the deliverability of efficiencies have been held, although we understand workshops with delivery units were held to generate efficiency ideas and estimate associated savings.

For Scotland capex efficiencies, renewals teams manage project delivery risks foremost, with risks to efficiencies being a subset insofar as they may affect delivery to the post-efficient cost budget. Delivery units report project risks up to RAMs and the DRAM through regular reporting (for example, outturn and MBR reports) and flag risks associated with project delivery aspects such as scope, timelines, resources and budget (including efficiencies). As efficiencies in the renewal groups are predominantly delivered through managing to post-efficient budgets, risks associated with efficiencies are mainly within the context of budget related risks. While we reviewed some examples where risks to achieving a particular business change of an efficiency initiative was reported, these appeared to be exceptions rather than common practice.

There is a varied approach to assessment of uncertainty in the forecast savings. Wessex has adopted the following approach to ensure consistency in its assessment of uncertainty in the forecast efficiency savings:

- Initiatives with a >75% confidence level that the initiative will be achieved adopt the full value.
- Initiatives with a <75% confidence level adopt a mid-point of the efficiency range within the calculations.

This approach has been evidenced in the opex forecast calculations, where a mid-point range of bottom-up forecasts has been adopted for initiatives including cyclical access, click rostering and increased utilisation of the sponsorship team and a full value has been adopted for initiatives includes contracting strategy – MPV contract saving and supply chain SCO rates efficiency. For capex efficiencies, we have only seen full values presented, despite some confidence levels being rated amber or green.

For each initiative, the assumptions underpinning the calculations vary in level of detail, for example II/RCM has listed all of the assumptions underpinning each element of the forecast, whereas contracting strategy E&P has simply stated that 'efficiency values have been based on unit rates achieved at trial sites towards the end of CP5'.

For Scotland capex efficiencies while many asset groups have calculated top-down forecasts of savings, our understanding is that the delivery units have undertaken a bottom-up calculation to provide some assurance that the forecast can be achieved. In Scotland, the DRAM has implemented a templated approach to documenting efficiency initiatives, which includes a section that notes the level of confidence/likelihood the route has to achieve the forecast savings. This confidence level is revised periodically as the route's planning matures. For example, Earthworks E1) access planning – forecast non-risk adjusted, confidence moved from low to high.

Scotland has also been conservative in some of its efficiency forecasts. For example, the assumed savings of the Relief Signaller Strategy was based on a worst case scenario of achieving only a modest reduction in overtime. Likewise, Scotland's forecast for the Intelligent Infrastructure Central Strategy assumes zero savings in year 1 of CP6 to allow the route time to develop and implement plans to commence in year 2. The initiative's forecast was derived using the CBWG calculator for the programme and the route applied the most risk adverse adjustment to their forecast.

Some efficiency forecasts are yet to be validated bottom-up. There are examples from both routes where implementation plans have yet to be identified. An example in Wessex is 'Lean' continuous improvement, where initiatives which make up this relatively small efficiency have not yet been identified, to a target of £380k per year in CP6. In Scotland, the forecast savings for Energy Savings and Better Every Day Lean initiatives are set targets (13% energy cost reduction challenge to avoid increased rates and

£10,000 savings per Sector Manager respectively). The forecasts also assume a year-on-year continued saving once the required business change is implemented. For both initiatives, savings are achieved through the implementation of many sub-initiatives that are defined, planned and implemented by the route. Scotland has yet to fully identify and forecast estimated savings for all sub-initiatives to a point that it can be validate that the £2m for Energy Savings and £1.8m for Better Every Day can be achieved in years 1 and 2 of CP6.

There are areas of uncertainty in forecast savings for Scotland to consider in RF4. Scotland is continuing to develop plans to optimise and stabilise its signalling workbank for CP6, as discussed earlier in Part A of this report. With the workbank planning still to be finalised, there are a number of signalling efficiency forecast savings currently at risk and are documented with at a 50% confidence level. These initiatives are those with efficiencies closely tied with workbank delivery (E1 - Access, E3 - Stable Work, E5 - Lean and E8 - Improved Contracting) and are forecast to achieve a total of £10.9m savings in year 1 and 2. The route is aware of this forecast risk and will making required treatment to reflect the updated position in RF4.

Scotland's property strategy is also at risk of not achieving the forecast £6.5m saving in year 1 and 2 of CP6 (or £19.8m over the control period). The initiative assumed that the route would purchase a property that has subsequently been sold to another party. We understand the route is now close to defining a revised property strategy and once this has been further developed, Scotland will take the required action to address its revised efficiency forecasts.

e. Identification/documentation of any limitations with the approach for forecasting efficiency

We found examples where limitations had been identified and documented in the forecast efficiencies. Documents evidence that some efficiency forecasts are inherently uncertain with assumptions made using minimal and/or historic data. This affects the size and profile of potential savings and introduces risks of inaccuracy. Examples include:

- Wessex: Lean continuous improvement, identified as 'amber' status (i.e. risk to programme and risk to realisation of full benefits) as initiatives are yet to be defined and therefore forecast is based on a stretch target, evenly profiled across CP6.
- Scotland: Structures E1 Access – calculations were based on inadequate data available at the time.

- Scotland: The Intelligent Infrastructure Central Strategy assumes that benefits are achieved through a reduction in required labour supply and that efficiencies will be achieved through reducing the number of employees forecast to be recruited each year. This review has not assessed the forecasting method or assumptions for employee recruitment to understand the extent to which these can be considered hard financial benefits.

We found examples where lessons learnt have been embedded into efficiency forecasts.

Examples from Wessex include:

- Click Rostering has used lesson learnt from the CRT2 trial at Tottenham DU and the initial Click Roster work in Wessex to identify that savings are achievable.
- Right first time, reduction in lost shifts based on historic data from 18-19 and current unit rates.
- PLPR, II and ESD initiatives have used the outputs from the CBWG to inform their calculations.

Examples from Scotland include:

- Development of Activity Based Planning (ABP) models has provided greater alignment between maintenance work activity and costs.
- For Intelligent Infrastructure Central Strategy, in CP5 Scotland reflected efficiency forecasts at full value provided by central team. For CP6, Scotland has applied a greater risk adjustment. This approach was applied to reflect the early stage of the programme as well as reduced confidence due to issues associated with CP5 delivery

Efficiency data

The routes efficiency calculations match the targets set via the 2018 periodic review process and subsequent fishbones and baselines established at RF11 (January/February 2019). The relevant data to support this is summarised in Annexes C and D. This is underpinned by a detailed cost breakdown per initiative, sub-initiative and (for capex) workbank, per year of CP6.

Within the Wessex route, one former £40m fishbone 'scope efficiency' item is not included in its baseline as this was delivered at the end of CP5, and so is absorbed within business as usual by the route (although is still appearing within the centre's efficiency tracker). There have also been a number of re-allocations between individual initiatives and between opex and capex efficiency programmes, although the CP6 target

remains unchanged and performance is currently forecast at slight above this target. The route's required 'stretch target' of £23.5m has been included and apportioned to a number of efficiency initiatives via professional judgement, and where deemed by to be appropriate and realistic by the Route Finance Director (RFD); for example, Click Rostering. This was to ensure that the stretch amount was owned and with defined activity required to deliver it.

The current forecasting product and process has several limitations which in aggregate reduce the accuracy of the monthly forecasts. Examples are:

- Trackers are essentially reporting forecast data put together previously, and not tracking efficiencies that have been monitored and confirmed as delivered at a granular level per initiative.
- 'Per period' tracking appears to be too frequent to represent a bottom-up assessment of progress so, as stated elsewhere, this is not providing quality and robustness, and no obvious assurance to validate this data.

Forecasting/tracking is supported by a 'BRAG' classification, which is prominent in Wessex though not within Scotland. This is summarised as:

- Blue – all milestones complete, efficiency starting to deliver benefits, extremely high confidence level.
- Green – all milestones on track, high level of confidence.
- Amber – milestones either slipping or likelihood of slipping with risk to programme and risk to realisation of full benefits.
- Red – milestones slipped, high likelihood of not realising forecast efficiency.

We note these definitions differ from those within Network Rail's leading indicator report described in Part A of this report.

While this classification provides a reasonable basis for rating the status of initiatives, evidence demonstrates a relatively high proportion of 'blue' efficiencies reported in period 1 of year 1 of CP6, on the basis that all early or 'enabling activity' milestones have been fully completed. This may result in an over-stated assessment of business change implementation and thus benefits realisation throughout CP6, or a risk that problems in delivery are overlooked. i.e. an initiative could be performing badly during CP6, yet reported as blue because its enabling activity milestones were completed. There is potential for subjectivity and thus inconsistency in reporting across routes.

Efficiency data and management information is not set out in a clear and controlled format. This exists in a number of documents that have been developed both before and subsequent to the start of CP6, with a number of iterations and adjustments made as efficiency initiatives were refined, and targets agreed. Details of all of the changes made are not well documented, although they could be traced with the help of additional narrative by the RFD.

Wessex route has acknowledged that this has resulted in a somewhat disjointed set of documents, with changes (and the reasons for these) not always sufficiently clear. The route is already considering work to address this as a result of the review process. There is an opportunity to pull together a consolidated data pack that provides a single source of opex and capex efficiency cost data, the formal 'baseline' for these, BRAG classification, the audit trail on changes and hence version control, and the standardised inputs to efficiency trackers and the leading indicator report.

Conclusions and recommendations

This section draws together our conclusions of our review of efficiencies and provides specific recommendations for the ORR and Network Rail to consider.

The areas addressed as per the reporter's mandate are:

- Quality of efficiency plans.
- Reasonableness of savings forecasts, based on efficiency plans.
- Consistency of total efficiencies with final determination.
- Efficiency plans assurance factors.

Quality of efficiency plans

While templates are used there is inconsistency in the description of business changes and how they will generate efficiencies. There does not appear to be a common understanding of 'what good looks like' with regards to how templates are used across initiative owners. Descriptions often do not clearly articulate what the step-change is from as distinct from business as usual.

An area of improvement for routes to consider would be to provide greater guidance with templates and perhaps a completed example to illustrate the appropriate level of information required. Documentation of the business change should clearly describe the current and future state associated with the change. This should also apply for less significant business changes, such as improvements to existing business processes.

Efficiency plans lack milestone dates and an implementation timeline. Documentation particularly lacks details regarding a timeline schedule of milestones of when business changes will be implemented and benefits released. Without this it is difficult to understand the relationship between the year-on-year benefits forecast and when business change is required to occur. Without a baseline implementation timeline monitoring of business change is difficult. To assist with consistent definitions of milestones, a SMART (Specific, Measurable, Achievable, Realistic and Timebound) approach should be considered; noting that any business change, including improvements to existing processes, should be measurable.

Recommendation E1

We recommend that a consistent approach to documenting details of the implementation is applied within the routes, which includes milestone dates of when business change is to occur in addition to the major tasks and resources allocated. This timeline needs to align with the year-on-year efficiency forecast assumptions.

There is limited risk management in relation to the delivery of efficiency initiatives. There was limited evidence of formal risk management in relation to handling uncertainty in the delivery of efficiency initiatives. This does not provide assurance that efficiency forecasts have been appropriately adjusted for risk or that delivery plans have been developed to mitigate against known risks.

Recommendation E2

Implementation of a simple risk register to consistently record and rank risks and to track the delivery of mitigation actions is recommended. The identification of risks will assist with a) ensuring that efficiency forecasts have been appropriately adjusted for risk and b) delivery plans have been developed to mitigate against known risks.

Furthermore, that a formal risk workshop is held during the development of efficiency initiatives and that the register is periodically reviewed as part of project governance.

Reasonableness of savings forecasts based on efficiency plans

We found varying degrees of quality in relation to the documentation of forecast calculations including the sources of inputs, assumptions and treatment of risk. Unlike descriptions of efficiency initiatives, we found no evidence of a templated approach to documenting forecast calculations and recording of assumptions. This, in addition to the insufficient level of detail documented, makes validation of the reasonableness of forecasts difficult. For routes, an inconsistent structuring of forecast calculations limits their ability to provide a well-documented audit trail when changes are made to forecasts in the planning phase and or to easily establish benefits realisation tracking tools. Furthermore, if actual savings do not meet forecasts, routes currently do not have ready access to a well-structured repository of forecast calculations and assumptions to identify why savings were achieved to plan.

Recommendation E3

For each initiative forecast, we recommend at least a basic level of detail is documented and presented in a consistent manner. This would show a line item build-up of key inputs and calculation to arrive at the final forecast. A record of assumptions, including any adjustment for risk would accompany the calculation.

Consistency of total efficiencies with final determination

The latest opex and capex efficiency plans have been refined since the start of CP6. Scotland's efficiency data was consistent with that reported in RF11 and the leading indicator report. Within the Wessex route there were limited variances between RF11, the leading indicator report and their own data, largely due to the treatment of a scope efficiency that has already been incorporated into business as usual plans, so should be consistently excluded from all reports.

Efficiency plans assurance factors

The mandate asks for the Reporter's views on whether ORR and Network Rail are considering the right factors to provide assurance that Network Rail is on track to deliver its efficiency plans.

The leading indicator report currently captures the routes' efficiency forecast savings and actual benefits. It does not consider if individual business changes have been realised. Additionally, the roll up of efficiency data removes the visibility of efficiencies by asset group, profile and individual performance. This lack of visibility means that the reader has to probe further to identify potential areas for concern.

It is understood that the Efficiency Trackers which feed the leading indicator report are still under development and a number of metrics have been tested; to measure percentage range of forecast, project progress and the maturity of project definition through a confidence level for individual initiatives. However, we suggest there are further opportunities to improve the centres awareness of the progress of business change implementation with additional indicators to flag that planning is in place and risks are being managed in areas such as scope, timelines, resources and budget.

Recommendation E4

To provide assurance of delivery against baseline, consolidate existing efficiency data reports into one data-pack owned and controlled by a Business Change Project Manager. This should include a summary dashboard and a change control register to provide an audit trail for efficiency adjustments. This may be linked to production of a quarterly reporting pack to provide assurance on development of initiatives and plans for business change implementation to monitor/realise benefits.

Areas for Improvement

We consider that there are further areas for improvement which could be considered. These are set out below:

- **Portfolio approach/dedicated change resource.** The Wessex RFD reviews route efficiency initiatives during efficiency governance meetings. The meetings consider if each of the projects are progressing as expected and if robust plans are in place to manage any variances. This provides visibility of business change progress as well as efficiency savings on a regular basis, allowing the RFD the opportunity to challenge and intervene if required. The information feeding into the governance meetings is all managed and reported by the Business Change Project Manager. We consider that having a dedicated Business Change Project Manager and regular governance meetings could be adopted in other routes. Scotland route has a similar approach with efficiency review meetings alternating with business reviews (i.e. an eight-weekly cycle).

- **Programmatic approach.** We consider that a programmatic approach could be to strengthen programme management for efficiency initiatives which are common across multiple routes, such as Intelligent Infrastructure Central Strategy to help improve implementation and drive business changes.

- **Sharing of best practice.** For other initiatives that apply to multiple routes, but do not require an overarching programme structure, such as Energy Savings there could be opportunities to improve information sharing, for example, implementing a 'communities of practice' to share learning and best practice on efficiencies across all routes (including external best practice).

- **Skills and capability assessment.** It would be beneficial for the routes to undertake a simple assessment of current skills and capabilities, for example, in project, risk and change management, of key resources leading on efficiency in order to identify any training needs.

- **Assurance of capex efficiencies.** For renewals, our findings showed an emphasis of managing to post-efficient budgets with planning, delivering and monitoring activity undertaken as part of the workbank project governance process rather than explicitly managing the implementation of business change. In a practical sense, and given the nature of renewals delivery we understand how and why asset teams have adopted this approach, however we believe this approach lacks the ability to be able to track individual business changes with sufficient detail. We are aware of IP Signalling's new process and templates they have developed to breakdown and track individual initiatives by project and by GRIP stage. While we understand the approach to work delivery for signalling is different from other asset groups, we would still suggest a review of this approach to seek opportunities to apply a similar methodology across all renewal teams.

- **Procedures and guidance.** It would be beneficial for the routes to produce a simple procedural/guidance document to set out the general expectations for defining, forecasting, planning, implementing and monitoring individual efficiencies. This will help efficiency owners to enhance and develop the work done to date and assist the route to effectively communicate and assure the plans and progress throughout CP6.

- **Risk management.** Central benefits team and routes to consider how individual efficiency forecast risks are currently identified and understood, and whether existing reporting processes and governance have appropriately identified and tracked the issues. This should also extend to the reporting of confidence levels for efficiency initiatives.

Annex A – Scotland route renewals data

Baseline data

Renewals costs	RF11 (January 2019) for CP6 (cash prices)					
	19-20	20/21	21/22	22/23	23/24	Total CP6
Track	£113.9	£183.9	£188.3	£151.5	£113.4	£751.0
Signalling	£79.0	£122.3	£77.7	£82.3	£42.3	£403.6
Structures	£61.4	£76.4	£81.8	£81.9	£74.7	£376.2
Earthworks	£25.5	£30.3	£32.7	£29.6	£31.3	£149.4
Buildings	£21.7	£19.6	£22.8	£25.6	£14.1	£103.7
Electrification & Fixed Plant	£8.3	£13.0	£16.0	£14.3	£14.5	£66.1
Drainage	£14.3	£14.2	£9.7	£7.8	£5.2	£51.3
Telecoms						£0.0
Other Renewals (Route Only)	£1.4	£1.5	£1.5	£1.5	£1.6	£7.4
Renewals	£325.4	£461.2	£430.5	£394.6	£297.0	£1,908.8

Table A1: Baseline renewals budgets

Unit of Measure		RF11 CP6					
		19-20	20/21	21/22	22/23	23/24	CP6 total
Plain Line	Linear track m	154,681	187,896	179,344	191,935	195,249	909,106
S&C	No. of S&C units	77	97	98	79	96	448
Signalling (SEUs)	SEU	20	178	259	264	61	782
Embank/Soil Cut/Rock Cut	No. of	670	731	807	713	709	3,630
Underbridges	Number of assets intervened on	42	52	52	56	54	256
Underbridges	m2 plan deck area worked on	14,345	17,396	17,669	18,335	16,740	84,485
Wire runs	No. of	0	0	5	10	10	25
Conductor Rail renewal	Km	0	0	0	0	0	0

Table A2: Baseline renewals volumes

Authorised levels (Oracle extract)

FY 19-20 Authorised/Unauthorised/Unremitted (not booked) Summary (as at Period 1 2019-20)

	Earthworks	Drainage	Buildings	Structures	Signalling	Track	E&P	Total
Authorised	24,320,081	2,178,908	8,654,256	59,264,022	26,759,168	85,414,829	5,231,331	211,822,597
Un-authorised	498,483	4,431,479	12,089,731	5,128,043	14,785,040	37,356,281	3,235,768	77,524,824
Un-remitted	1,662,525	6,644,614	957,449	(3,017,153)	39,408,136	(8,833,225)	(155,949)	36,666,397
Year 1 Budget	**26,481,089**	**13,255,001**	**21,701,436**	**61,374,912**	**80,952,345**	**113,937,885**	**8,311,150**	**326,013,817**
Authorised	92%	16%	40%	97%	33%	75%	63%	63%
Un-authorised	2%	33%	56%	8%	18%	33%	39%	26%
Un-remitted	6%	50%	4%	-5%	49%	-8%	-2%	11%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Table A3 – Authorised levels extract from Oracle for year 1 (19-20)

Year 2 - FY 20/21 Authorised/Un-authorised/Unremitted (not booked) Summary

	Earthworks	Drainage	Buildings	Structures	Signalling	Track	E&P	Total
Authorised	0	0	0	8,856,000	1,794,750	5,201,668	516,077	16,368,495
Un-authorised	0	6,766,730	12,246,365	6,609,500	61,732,498	126,267,371	3,467,000	217,089,464
Un-remitted	33,520,759	4,251,732	7,324,522	60,903,047	58,797,964	52,439,875	9,024,384	226,262,283
Year 1 Budget	33,520,759	11,018,462	19,570,887	76,368,547	122,325,212	183,908,914	13,007,461	459,720,242
Authorised	0%	0%	0%	12%	1%	3%	4%	4%
Un-authorised	0%	61%	63%	9%	50%	69%	27%	47%
Un-remitted	100%	39%	37%	80%	48%	29%	69%	49%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Table A4: Authorised levels extract from Oracle for year 2 (20-21)

Workbank Authorised Status - data from Oracle

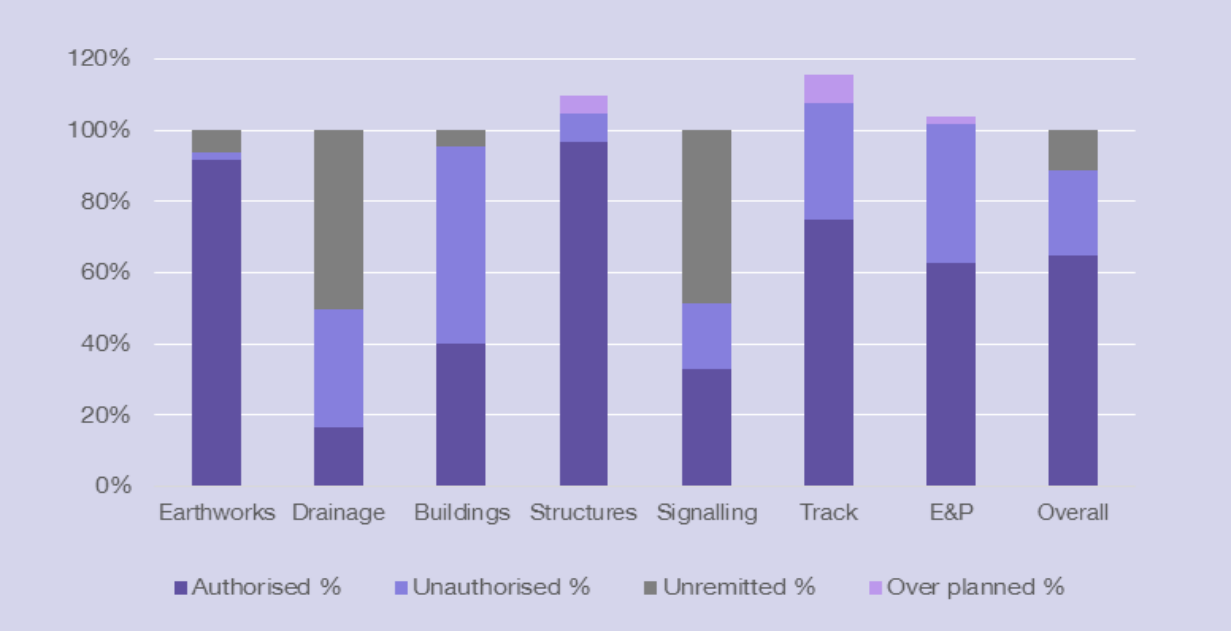


Figure A5: Authority position for year 1 renewals at Period 1 2019-20

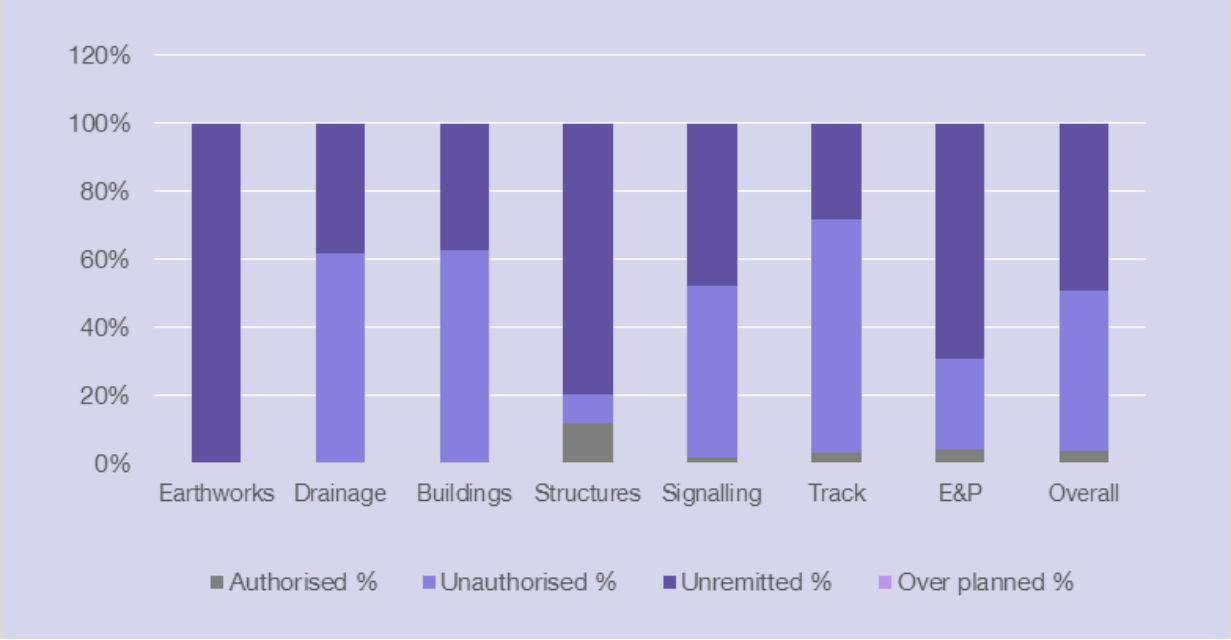


Figure A6: Authority position for year 2 renewals at Period 1 2019-20

Leading Indicators for Workbank Planning from period 1 report (updated version)

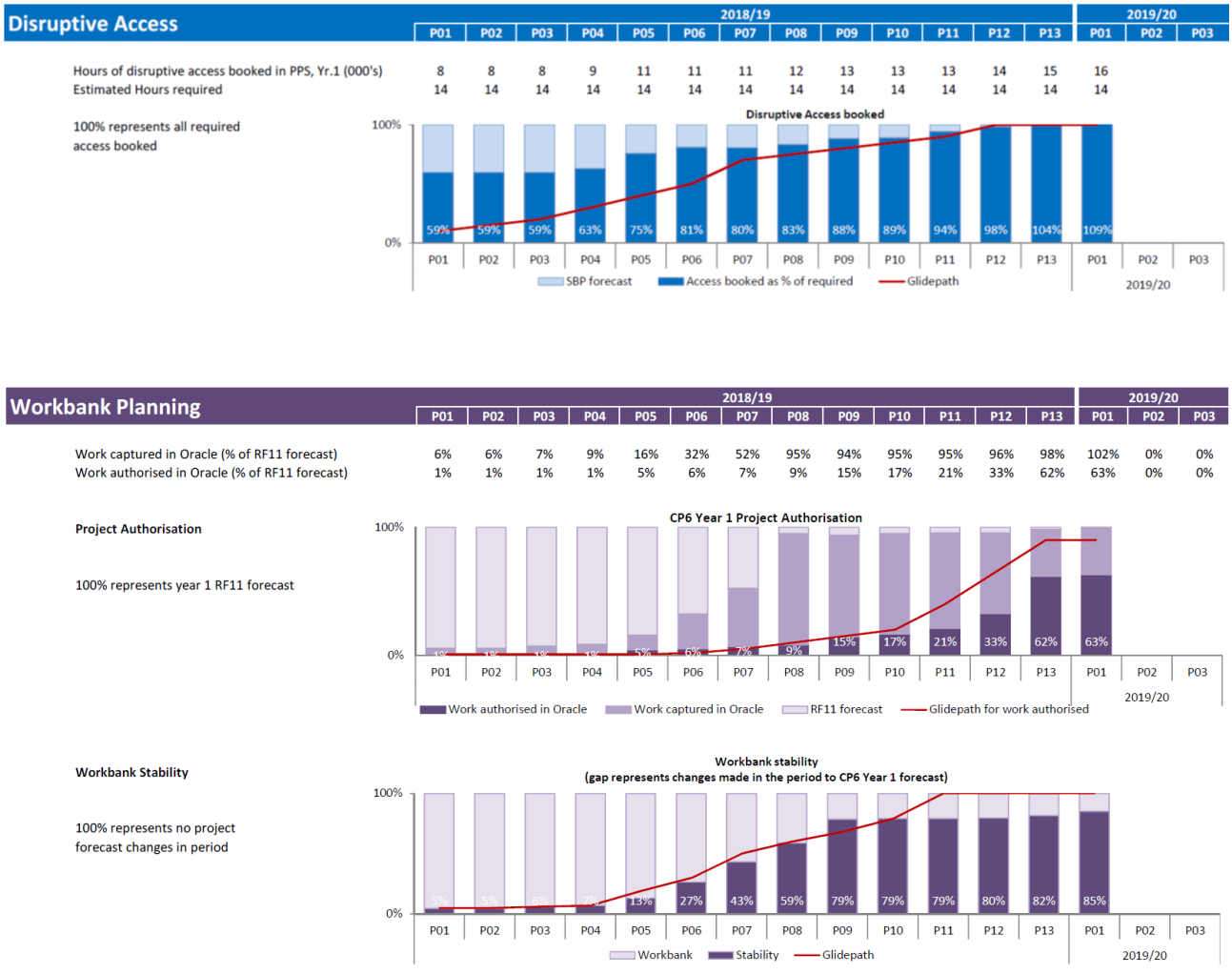


Figure A7: Updated Leading Indicators Report for Period 1

Summary of Delivery Status from RAM tracker documents

Asset group	Status
Earthworks[5]	Year 1 • £32.750m identified in business plan (124% of budget) • 99% of work allocated to delivery agent • Status of remit to delivery agent not recorded • Contract status not recorded
	Year 2 • £40.700m identified in business plan (121% of budget) • 91% of work allocated to delivery agent • Status of remit to delivery agent not recorded • Contract status not recorded
Structures[6]	Year 1 • £68.578m identified in business plan (112% of budget) • all work allocated to delivery agent • £1.261m (2% of budget is recorded as having the remit accepted by the delivery agent • Contract status not populated
	Year 2 • £52.864m identified in business plan (69% of budget) • all work allocated to delivery agent • £36.252m (47% of budget is recorded as having the remit accepted by the delivery agent • Contract status not recorded
Signalling[7]	Year 1 • £56.247m identified in business plan (71% of budget) • 4 items (£2m/4%) not allocated to delivery agent • £41,544m (51% of budget) has remits issued. • Contract status not recorded

[5] 1. TLP Scotland Geotech BP CP6 Master workbook
[6] 1. TLP Scotland Structures BP1920P2 workbook
[7] 6. Signalling CP6 Business Plan (P2 Master Version A) 16May19 workbook

	Year 2 • £124.029m identified in business plan (101% of budget) • Allocated to delivery agent not provided • £63,527m (51% of budget) has remits issued • Contract status not recorded
Track[8]	Year 1 • 348 plain line and 84 S&C sites recorded. Values not in tracker • all work allocated to delivery agent • £122,771m (108% of budget) has remits issued (i.e. over planned) • Contract status not recorded
	Year 2 • 390 plain line and 106 S&C sites recorded. Values not in tracker • all work allocated to delivery agent • £131,469m (71% of budget) has remits issued • Contract status not recorded

Table A8: Delivery status report from RAM tracker documents

[8] 6. CP6 workbank at 29052019 workbook

Delivery progress by GRIP Status

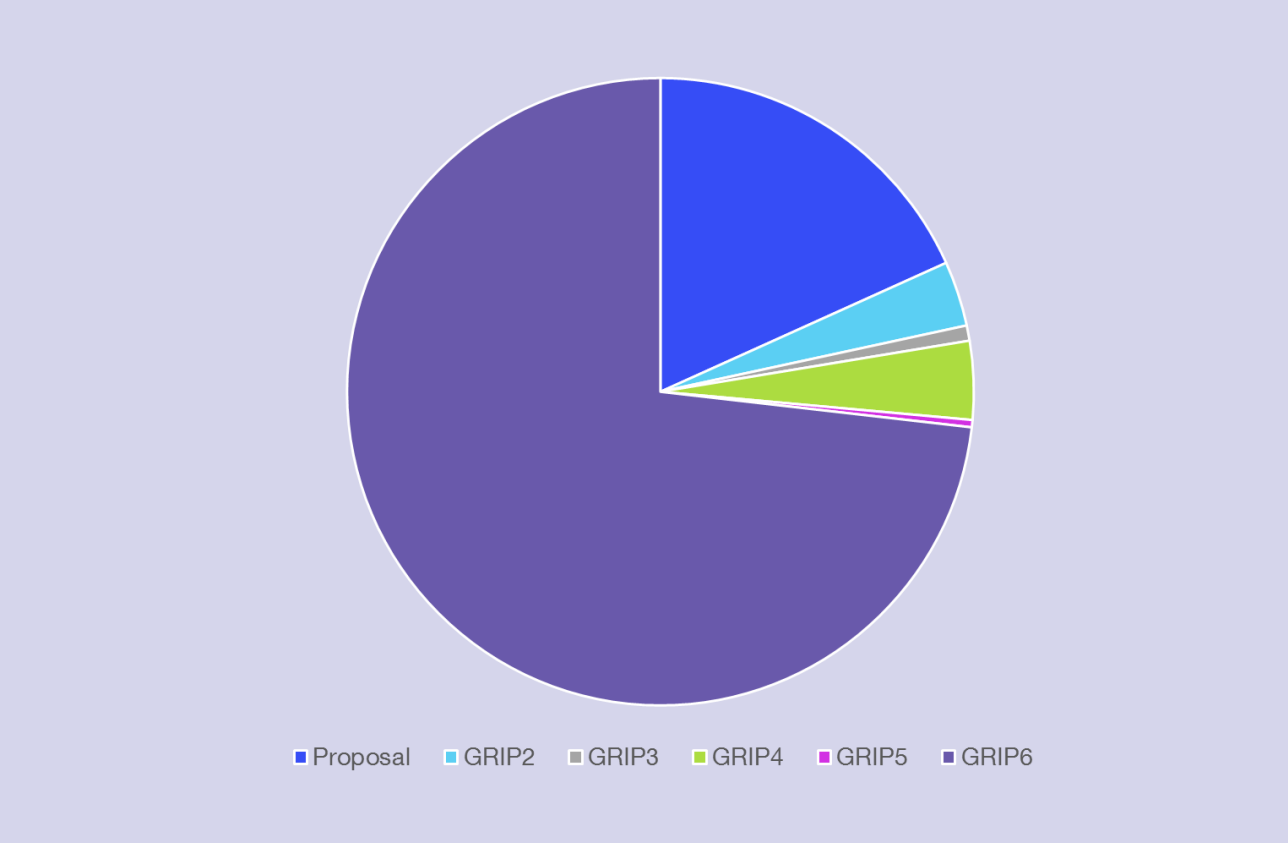


Figure A9: Delivery status by GRIP stage

Annex B – Wessex route renewals data

Baseline renewals data - cost

RENEWALS COSTS	RF11 CP6 (cash prices)					
	19/20	20/21	21/22	22/23	23/24	Total CP6
Track	£58.9	£62.1	£74.3	£96.2	£97.1	£388.6
Signalling Including Level Crossing	£45.7	£77.9	£102.5	£126.4	£101.8	£454.2
Structures	£16.3	£24.5	£44.6	£27.0	£33.6	£146.1
Earthworks	£11.3	£15.2	£19.9	£18.7	£14.5	£79.7
Buildings	£18.6	£26.3	£24.0	£12.1	£4.4	£85.4
Electrification & Fixed Plant	£18.3	£28.7	£36.9	£39.0	£29.8	£152.7
Drainage	£2.4	£3.4	£4.7	£6.1	£6.3	£22.8
Telecoms						£0.0
Other Renewals *(Route Only)*	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
Renewals	**£171.5**	**£238.1**	**£306.8**	**£325.4**	**£287.4**	**£1,329.3**

Table B1: Baseline renewals budgets

KEY VOLUMES

		Year					
	Unit of Measure	14/15	15/16	16/17	17/18	18/19	CP5 total
Plain Line	Linear track m	102,363	123,894	64,336	27,440	29,823	347,855
S&C	No. of S&C units	51	117	63	36	15	282
Signalling (SEUs)	SEU	107	5	0	0	3	115
Embank/Soil Cut/Rock Cut	No. of	73	164	204	227	259	927
Underbridges	Number of asWessexts intervened on	0	0	0	0	0	0
Underbridges	m2 plan deck area worked on	7,511	9,722	4,294	1,838	779	24,144
Wire runs	No. of	0	0	0	0	0	0
Conductor Rail renewal	Km	9	14	16	14	10	61

Table B2: Baseline renewals key volumes

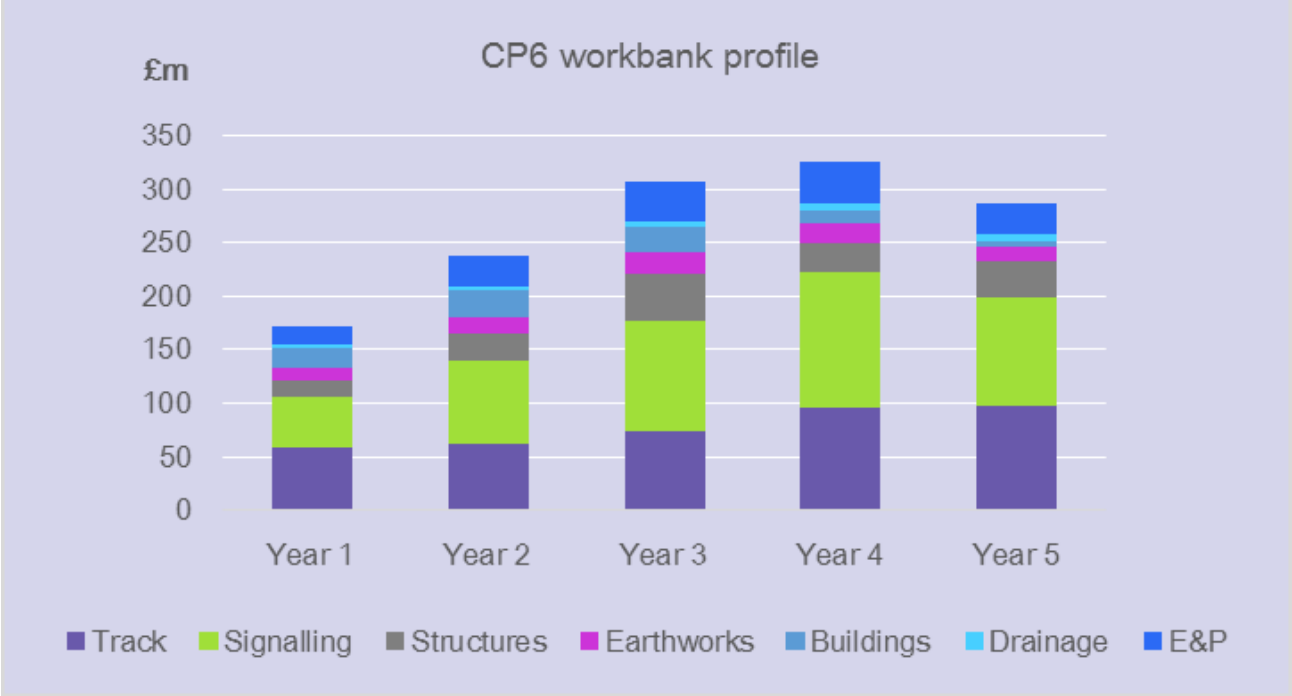


Figure B3: CP6 Cost profile by asset type

Workbank – authorisation status summary

Year 1 summary (from period 2 data)

Renewals	Authorised			Not yet authorised	
Asset	**Up to GRIP4**	**Up to GRIP8**	**Total**	**%**	**Weighted**
Track	0%	83%	**83%**	17%	6%
Signalling	16%	67%	**83%**	17%	5%
Structures	10%	83%	**93%**	7%	1%
Earthworks	10%	18%	**29%**	71%	5%
Buildings	-	5%	**5%**	95%	10%
Drainage	2%	58%	**60%**	40%	1%
E&P	4%	54%	**58%**	42%	4%
Total/average	-	-	**70%**	**30%**	-

Table B4: Authority position for year 1 renewals at Period 2 2019-20

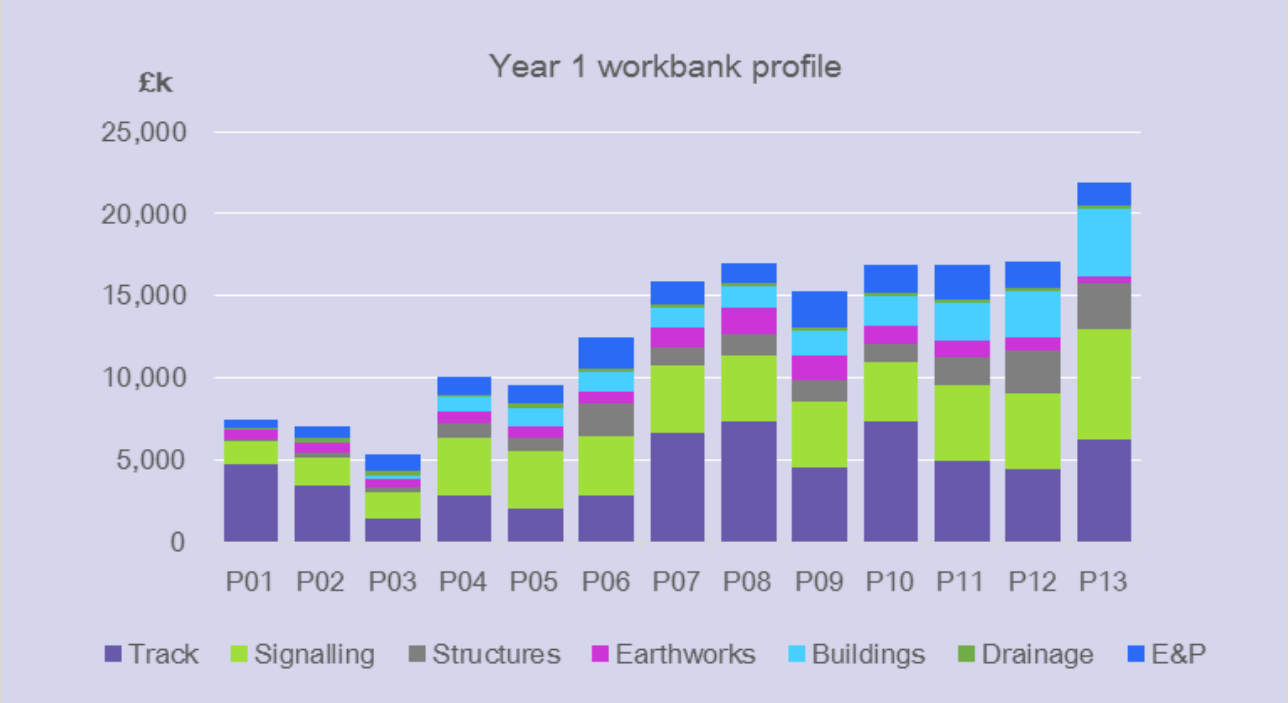


Figure B5: Authority position for year 1 renewals at Period 2 2019-20

Year 2 summary (period 2)

Renewals	Authorised	Not yet authorised	
Asset	**Total**	**%**	**Weighted**
Track	0%	100%	26%
Signalling	57%	43%	14%
Structures	0.1%	100%	10%
Earthworks	0.2%	100%	6%
Buildings	0%	100%	11%
Drainage	0%	100%	1%
E&P	31%	69%	8%
Total/average	12.6%	87.4%	-

Table B6: Authority position for year 2 renewals at Period 2 2019-20

Leading Indicators for Workbank Planning from period 1 report (updated version)

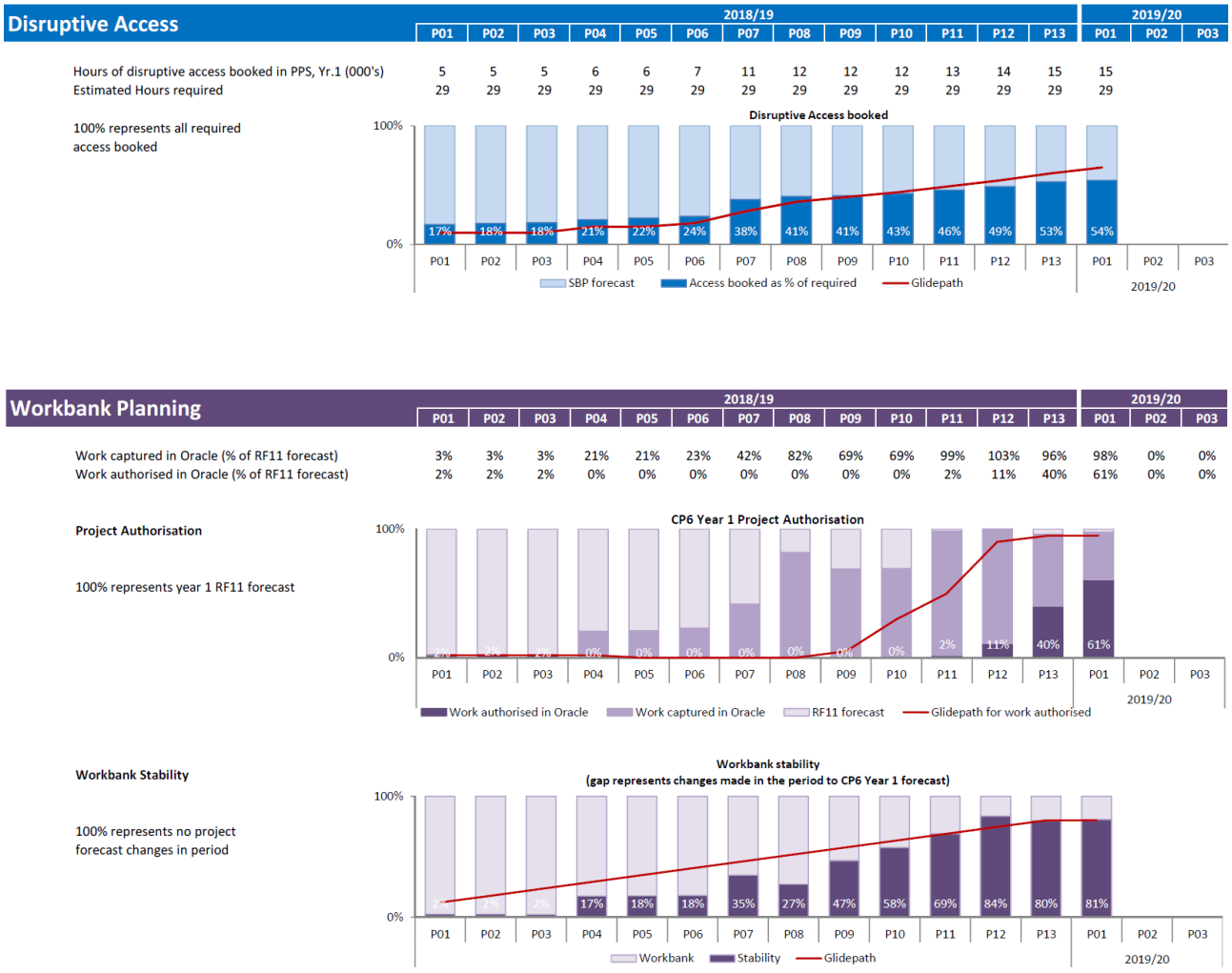


Figure B7: CP6 Leading Indicators Report (updated)

Annex C – Scotland route efficiency data

List of initiatives in our efficiency sample

Type	Asset/Area	Efficiency Grouping/Scheme	£ Millions of Savings		
			FY20	FY21	FY20 & FY21
CAPEX	Track	E1) Optimisation of access	(10.0)	(3.5)	(13.5)
OPEX	Support	Property strategy	(2.1)	(4.2)	(6.3)
CAPEX	Signalling	E2) Early contractor involvement	(0.2)	(4.6)	(4.8)
CAPEX	Track	E9) Supply Chain Organisation initiatives	(1.1)	(2.8)	(3.9)
CAPEX	Track	E8) Improved contracting strategies/packaging/rates	(1.1)	(2.2)	(3.2)
CAPEX	Signalling	E1) Optimisation of access	(0.4)	(2.7)	(3.1)
CAPEX	Signalling	E8) Improved contracting strategies/packaging/rates	(0.5)	(2.4)	(2.9)
CAPEX	Track	E5) LEAN	(1.1)	(1.9)	(2.9)
CAPEX	Track	E2) Early contractor involvement	(1.1)	(1.6)	(2.7)
CAPEX	Signalling	E3) Workbank Planning	(0.4)	(2.3)	(2.6)
CAPEX	Track	E4) Development of works delivery capabilities	(0.7)	(1.9)	(2.6)
CAPEX	Earthworks	E1) Optimisation of access	(1.2)	(1.4)	(2.5)
CAPEX	Track	E3) Workbank Planning	(1.2)	(1.3)	(2.5)
CAPEX	Signalling	E5) LEAN	(0.4)	(1.8)	(2.2)
OPEX	Support	+Energy Saving	(1.0)	(1.0)	(2.0)
CAPEX	Structures	E8) Improved contracting strategies/packaging/rates	(0.8)	(1.0)	(1.8)

OPEX	Maintenance	Better Every Day	(0.6)	(1.2)	(1.8)
CAPEX	Structures	E5) LEAN	(0.4)	(1.2)	(1.6)
OPEX	Maintenance	+Supply Chain Organisation Initiatives	(0.3)	(1.1)	(1.5)
OPEX	Maintenance	II Central Strategy	0.0	(1.3)	(1.3)
OPEX	Operations	Relief Signaller Strategy	1.8	(0.4)	1.3
Total			**(31.9)**	**(58.2)**	**(64.7)**
CAPEX			**(27.5)**	**(42.7)**	**(53.1)**
OPEX			**(4.4)**	**(15.5)**	**(11.6)**

Table C1: List of initiatives in our review sample of CP6 efficiencies

Annex D – Wessex route efficiency data

Baseline efficiency data

Efficiency	Year 1 (£m)	Year 2 (£m)	Year 3 (£m)	Year 4 (£m)	Year 5 (£m)	Total (£m)	% split
Opex	10.6	11.2	14.7	21.3	21.7	79.4	32%
Capex	11.3	17.8	42.2	49.2	46.5	166.9	68%
Total	**21.8**	**28.9**	**56.8**	**70.5**	**68.2**	**246.3**	
%	9%	12%	23%	29%	28%	100%	
Cumulative	9%	21%	44%	72%	100%		

Table D1: Wessex route CP6 efficiency summary Ref: document "SBP to Delivery Plan Efficiencies"

CP6 efficiency	WSX fishbone	NR RF11	WSX RF11	WSX summary	WSX detailed
Opex	72	82	81	79	79
Capex	156	145	166	155	167
Total	**228**	**227**	**247**	**234**	**245**

Table D2: Wessex route CP6 efficiency summary Ref: document "SBP to Delivery Plan Efficiencies"

Coverage of our review sample

Efficiency	Year 1 (£m)	Year 2 (£m)	Total (£m)	% split	Number of initiatives
Opex	6.6	6.9	13.5	44%	8
Capex	6.4	11.2	17.5	56%	6
Total	**13.0**	**18.1**	**31.1**	**100%**	**14**
%	42%	58%	100%		
Cumulative	42%	100%			

Sample % of CP6 1-2 total	61%
Sample % of Opex 1-2 total	62%
Sample % of Capex 1-2 total	60%

Table D3: Coverage of our review sample of CP6 efficiencies

List of efficiency initiatives in our review sample

Type	Asset/Area	Efficiency Grouping/Scheme	FY20	FY21	FY20 & FY21	Note
Capex	Track	Right first time delivery	(2.3)	(2.1)	(4.4)	Top >60%
Opex	Lean	Summer prep - reduced TSR's by 15% of year 5 number	(2.3)	(2.3)	(4.5)	Top >60%
Capex	Track	Stage-gate rigour, Smoothed workbank, spreading fixed costs & sizing organisation correctly in Wessex	(1.7)	(2.2)	(3.8)	Top >60%
Capex	Track	Embedding G4TWD & WD Org structure	(1.3)	(1.3)	(2.7)	Top >60%
Opex	Lean	Right First Time (reduction in number of lost shifts)	(1.1)	(1.1)	(2.2)	Top >60%
Capex	Buildings	Improved contracting strategies/rates (Inc. packaging of works)	(1.1)	(2.5)	(3.6)	Top >60%
Opex	Access	Access - cyclical access agreed at Dec 2018 - already in bottom up plans	(0.7)	(0.7)	(1.5)	Top >60%
Capex	E&FP	Early contractor involvement, early scope definition, and use of minimum specification solutions	(0.6)	(0.9)	(1.6)	Top >60%
Opex	Contracting Strategy	Contract rates - already in bottom up plans	(0.6)	(0.6)	(1.1)	Top >60%
Opex	II	II/RCM	(0.5)	(0.5)	(1.0)	Top >60%
Opex	Supply Chain	Route Services Rates Efficiency	(0.5)	(0.5)	(1.0)	Top >60%
Opex	Train Bourne	PLPR	(0.5)	(0.8)	(1.3)	Top >60%
Opex	Contracting Strategy	MPV Contract Saving (YR2>YR5) (based on revised rates now secured)	(0.4)	(0.4)	(0.9)	Top >60%
Opex	Better every day	Continuous Improvement	(0.4)	(0.4)	(0.8)	Additional sample

Opex	Better every day	Increased utilisation of the sponsorship team	(0.4)	(0.5)	(0.8)	Additional sample
Opex	Contracting strategy	Route Services Rates Efficiency	(0.3)	(0.3)	(0.7)	Additional sample
Opex	Better every day	Corporate rostering - click roster	(0.3)	(0.3)	(0.6)	Additional sample
Opex	Technology	Eddy Current	(0.2)	(0.3)	(0.5)	Additional sample
Opex	Better every day	Optimise winter circuits	(0.2)	(0.2)	(0.3)	Additional sample
Opex	Better every day	Lean - Full year effect of year 5 CP5 initiatives	(0.1)	(0.1)	(0.2)	Additional sample
Opex	Better every day	Lean - Full year effect of year 5 CP5 initiatives	(0.1)	(0.1)	(0.2)	Additional sample
Opex	Technology	RBM (Amber Deviation)	(0.0)	(0.1)	(0.1)	Additional sample
Opex	Better every day	Standardised tasks	(0.0)	(0.0)	(0.1)	Additional sample
Opex	Better every day	Head Wash Repair	(0.0)	(0.0)	(0.0)	Additional sample
Opex	Signalling	ESD Benefits; Other Innovation & Technology Benefits	0.0	0.0	0.0	Additional sample selected to cover Signalling asset
Capex	Track	Contract change; SCO retendering	0.7	(2.1)	(1.4)	Top >60%
Opex	Technology	Electrical safety stretch	0.0	0.0	0.0	Additional sample
			(14.9)	(20.4)	(35.3)	

Table D4: List of initiatives in our review sample of CP6 efficiencies

Annex E – Efficiencies programme: assessing good practice

Context

Network Rail's route-level efficiency plans represent a five year benefits realisation programme. In this programme Network Rail must specify, plan, manage and implement a coordinated framework of changes to resources, processes and behaviours in order to deliver sustainable improvements that, in aggregate, realise the total efficiency savings that Network Rail has committed to deliver.

The Association for Project Management (APM) summarises such benefits programme as follows:

> Benefits-driven change requires proactive management throughout the entire life cycle. An organisation identifies the benefits it needs and initiates changes that are forecast to deliver benefits. During the change, the organisation needs to monitor performance indicators that can reliably predict benefits delivery.

Each of the two Network Rail routes reviewed in phase 1 has created two efficiency sub-programmes, one for opex efficiency initiatives and one for renewals (capex) efficiency initiatives; some of which reflect significant business changes and other that are incremental improvements.

Although individual initiatives may require different approaches to implementation, each programme may be assessed in the context of what is accepted as 'good practice' in benefits realisation programmes, including at programme-wide and initiative levels.

Good practice

Again, referring to APM this can be summarised (but is not limited to) the following:

"The benefits associated with strategic organisational change are delivered through programmes of multiple-aligned projects and change management activity. Such programmes can contain complex interactions between the outputs of individual projects, outcomes and benefits.

The attribution of programme benefits to individual projects and double counting of benefits across a programme can be difficult issues. These should be approached in a pragmatic way and resolved through effective mapping…to a specific project based on the principle of greatest contribution. Without a consistent approach, it is difficult to aggregate benefits across multiple projects and assess their collective impact on business performance across the organisation.

Benefits management is an iterative process with five main steps:

- Define benefits management plan, to explains how benefits will be managed, policies, measurement, roles and responsibilities, priorities and KPIs.
- Identify and structure benefits, which depend on the delivery of outputs and outcomes, interrelationships between these need to be understood through benefits modelling and mapping, each benefit should be documented in terms of priority, interdependencies, value, timescales and ownership.
- Plan benefits realisation, to illustrate the timeline and milestones for realising benefits, dependencies on project outputs or interactions between benefits.
- Implement change, as benefits happen when something changes, permanently changing attitudes and behaviours as well as physical changes, where new opportunities for additional benefits should always be sought.
- Realise benefits, so that changes to the way people work need to be embedded to ensure benefits continue to be realised, a business change manager needs to track realisation and ensure change is permanent, long-term actions and monitoring for continued realisation should be documented as part of the handover to business-as-usual.

Assessment

Our phase 1 conclusions are based primarily on evidence available from the respective routes, however using the above as context for this assessment. We have mapped findings through a standard checklist of key areas, framed around good practice in benefits programmes and the three elements of these that Network Rail referenced in Phase 1 (although these contents could be packaged in a number of ways). This is as set out below. We have expanded these through a series of factors which we regard as representing good practice in the context of the APM narrative summarised above.

It is important to note that the identification of good practice is based on the presence of relevant factors appropriate to the nature of the initiative. It does not imply a prescriptive or detailed level of documentation.

Element	Factor	Description
1. Programme	Objectives	'SMART' clarity of 'to be' end state, results and benefits required ('why')
	Scope	Clear structure; breakdown into discrete projects, initiatives, tasks ('what')
	Plan	Programme/portfolio management plan, implementation arrangements, business management tools, methodology ('how'), schedule and milestones ('when')
	Resource	People and skills/capabilities in place, defined budget and support required, delivery agent and supply chain arrangements, clear RACI ('who')
	Governance	Oversight, coordination, control, assurance, change to or initiating new initiatives, risk management (control)

Element	Factor	Description
2. Forecast	Inputs	Data sources, justification for use
	Calculations	Methodology, build-up/breakdown, key assumptions
	Uncertainty	Definition of and adjustment for risk, use of contingency

	Schedule	Delivery profile of forecast benefits, milestones
	Limitations	Accuracy, constraints, dependencies; described, communicated and managed

Element	Factor	Description
3. Documentation	Reporting	Implementation progress, business change progress, monitoring, issues arising, assurance
	Data	Complete, accurate, appropriate breakdown, match baseline/forecast, audit trail
	Description	Organised, coherent, changes documented. Sufficient to support sustained benefit realisation and replication of success in other business units
	Quality assurance	QA/quality control, version control

With reference to the factors in the table above, we have considered the following three broad criteria to assess a route's efficiency programmes:

Requiring improvement – does not achieve a minimum level of quality or completeness across multiple factors; hence there is a clear risk to the successful delivery of programme and benefits, where improvements should be made to address this.

Sufficient – meets minimum level of coverage and quality across all factors, though with some variations or gaps evident. Opportunities exist or improvement could be made to enhance confidence in deliverability of the programme and benefits.

Good practice – complete and consistent evidence for all factors, covering the full programme and/or sub-programme; exceeds the minimum level required and hence gives greater confidence in delivery of programme and benefits.

This is reflected in our conclusions in Part B of this report, and as set out in the Executive Summary.