



OFFICE OF RAIL AND ROAD



Highways monitor

Update on Highways England's capital planning and asset management

February 2017



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Executive summary

Purpose

1. This report provides an update on Highways England's progress in:
 - developing a robust capital baseline plan; and
 - improving its asset management and information – with particular focus on road condition.
2. It does not provide a full review of the company's operational performance – our next annual assessment will provide this in summer 2017.

Context for this update

3. Highways England manages the motorways and main A roads in England. In doing so, the company must deliver the government's Road Investment Strategy (RIS). This includes investing more than £11bn between April 2015 and March 2020 – maintaining and renewing the network, delivering 112 major improvement schemes and carrying out targeted improvements through dedicated funds. In doing so, the company is also required to deliver £1.2bn of efficiency improvements.
4. Highways England's delivery of improvement works is vital to reduce the impact of congestion and to deliver better performance outcomes for road users and the public. Its delivery of maintenance and renewals work is essential to make sure that our strategic roads remain safe and in good condition.
5. ORR monitors Highways England and reports on its delivery of the RIS and on the company's compliance with its licence. We published our first annual assessment of Highways England in July 2016. This highlighted areas of good performance, but also concerns about the company's longer-term capital investment planning and delivery. We noted that the company:
 - can do more to plan, deliver and assure its maintenance and renewal works effectively and efficiently;
 - should develop more robust plans for delivery of improvement works; and
 - needs to provide better evidence to support claimed efficiencies.

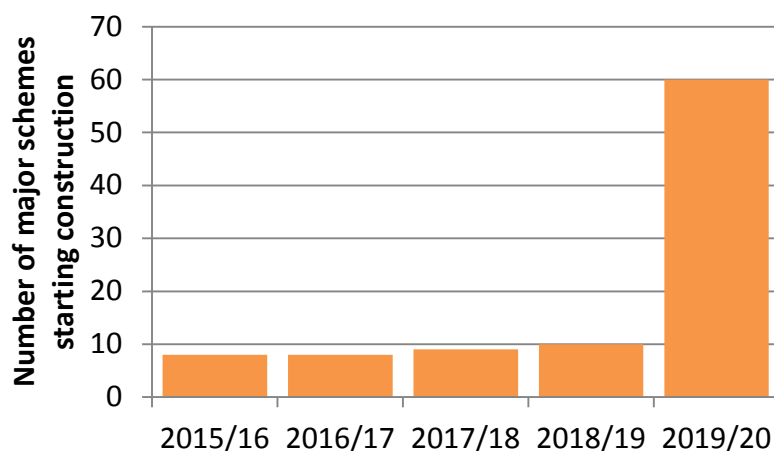
6. We also raised these concerns with the Department for Transport (DfT). As a result, Highways England has been implementing a number of changes and reviewing its capital investment plans.
7. Since our annual assessment Highways England has reported that road condition has dropped below the target level set in the RIS. We have raised concerns with the company about how it is managing its assets and how it is assuring the quality of its reporting. We are also investigating the implications of the drop, including whether there are safety implications.

Highways England's capital baseline improvement plans

8. Highways England developed a capital baseline plan in March 2016, intended to provide greater clarity about what capital works it will deliver in Road Period 1 (April 2015 to March 2020), their timings and expected costs. Through our annual assessment 2015-16 and our ongoing engagement with Highways England and DfT, we have made the following observations about this baseline:
 - the company had not set a clear baseline for the scope of what it planned to deliver for each major scheme;
 - the March 2016 baseline plan assumed that 60 major schemes would start construction in the final year of the road period, with limited evidence that this was deliverable – see figure 1;
 - the company had more to do to demonstrate that its cost forecasts for its capital portfolio were robust – its forecasts were significantly higher than its funding in the first road period. The company stated that some of this was due to over-programming¹, but had not set out a plan to manage these costs down;
 - there were large differences between forecast costs and the baseline for many schemes – for example, cost forecasts for 31 major schemes were more than 50% higher than the baseline assumption for Road Period 1; and
 - the company needed to confirm that its baseline proposals (including the planned construction profile and proposed levels of expenditure on schemes in the first road period) were aligned with stakeholders' expectations.

¹ "Over-programming" refers to planning more work and expenditure than is funded in anticipation of some works being delayed or removed from the programme.

Figure 1: Current baseline for major scheme starts



9. We challenged the robustness, deliverability and affordability of the company's baseline plan, and asked the company to review it and provide regular updates of progress. The company has established a capital portfolio management office, which is delivering work to improve its capital baseline plan. The work is expected to conclude by early summer 2017.
10. We have reviewed the company's progress in developing an improved capital baseline plan. This update report finds that:
 - Highways England has taken forward work to develop a more robust capital baseline plan although it has taken longer than originally expected. Its revised plan for its major schemes is not yet complete but we have seen evidence that it will draw on improved information about what will be delivered, when and for what cost;
 - the revised baseline plan has the potential to improve outcomes for road users – for example reducing disruption by planning roadworks better. The revised baseline also has the potential to spread the planned start of works to ease delivery constraints;
 - the revised baseline plan is expected to propose a range of changes to the RIS. Where schemes are no longer assessed to be value for money they are likely to be removed – and this is in line with expectations set in the RIS. The revised baseline is also expected to include changes to the scope of a number of schemes and changes to the schedule of certain schemes;
 - Highways England's current forecast costs for its capital portfolio delivery are approximately £0.8bn higher than the funding level.² The revised baseline is

² Based on the company's forecasts as at August 2016.

expected to reduce the gap between forecasts and funding, but not completely eliminate it. The remaining difference is likely to include over-programming and contingency reserves, as part of the company's approach to managing risks. However, the company needs to produce clear plans to explain how its forecasts will be managed down to deliver within funding, and we expect to see these plans in early 2017; and

- the revised capital baseline plan is not yet formally approved. It will need to go through DfT's change control process and to be given visibility so that stakeholders, including road users and the supply chain, understand the plans.
11. There are lessons to be learnt for future road investment strategies. For RIS2 it will be important that there is greater clarity upfront about investment requirements. This can be achieved through specifying schemes which are more developed, and through carrying out a more robust assessment of deliverability and affordability.
 12. Highways England must continue to focus on longer-term improvement plans to deliver improved portfolio management capability – for example, making sure that it has the capability to identify and mitigate risks across its programmes of work.
 13. We recognise that Highways England is still developing its capability in portfolio and programme planning and management. We therefore welcome the focus that Highways England has applied to these challenges, and believe that its commitment to developing a revised baseline will give greater certainty to the supply chain and stakeholders who are preparing to deliver this important programme of investment.
 14. We continue to monitor progress and have recently commissioned an in-depth study into Highways England's major schemes programme, and a review of the company's portfolio and programme management. We will report on these in our annual assessment for 2016-17.

Highways England's management of its assets and data

15. In our annual assessment we reported that Highways England has more to do to plan and deliver its renewals work efficiently and effectively. We also highlighted the need for the company to improve its asset management capability.
16. Highways England reports a key performance indicator showing the condition of its roads based on surveys of road surface condition and skid resistance. It has a target of delivering 95% in good condition.³ At the end of 2015-16 the company reported that 95.4% of its roads were in good condition. In July 2016, the company reported

³ Highways England is required to keep the percentage of the pavement asset that does not require further investigation for possible maintenance at 95% or above.

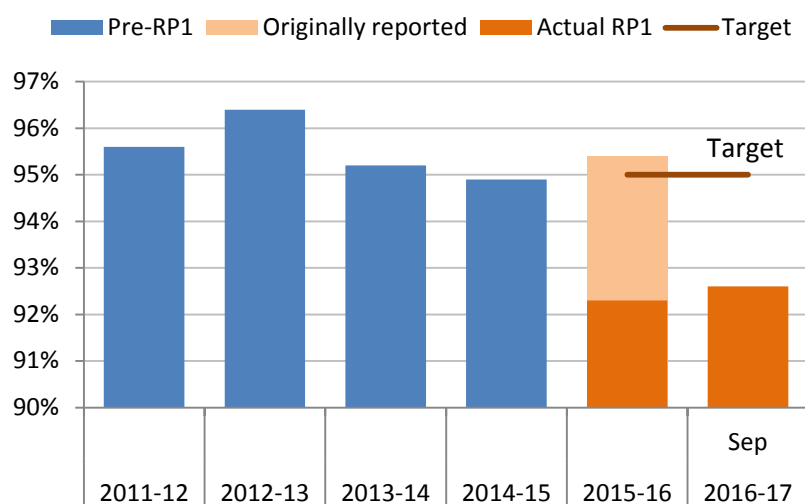
that condition had fallen to 92.3%⁴ – lower than the target of 95% – as a result of analysis of data collected but not analysed during 2015-16.

17. While there is not a direct correlation between the road condition indicator and safety, a reduction may indicate an increase in safety risk which Highways England must manage. The company has given us assurances that the safety of the network is not compromised. We have required the company to evidence the actions it has taken to mitigate any safety risk and how it will improve road condition to meet the target. We have also raised questions about how it will ensure that it reports current information and reports clearly where there are data issues. As a result, the company has carried out an investigation into its management of road condition and begun to develop a remedial plan.
18. With respect to Highways England's management of its assets and data, our update report finds that:
 - the condition of the network has fallen below the 95% target due to deterioration in skid resistance⁵;
 - Highways England has further work to do to report to us the causes of the drop in road condition and its implications, and to demonstrate how it is managing any possible safety implications. The company is developing a remedial plan to deliver the target. It is important that the remedial plan is evidence-based and efficient – taking account of the long-term need of the asset. The company expects to produce the remedial plan by February 2017;
 - It is now apparent that the percentage of road in good condition was 92.3% at the end of 2015-16, against a target of 95% (see Figure 2). Highways England has acknowledged that it can improve its data reporting and assurance, and has committed to develop better processes. We will monitor this closely and take action if improvements are not delivered; and
 - Highways England must continue to focus on improving its asset management capability over the longer-term. This should include improved planning of renewals work and forecasting of its impact to ensure that the network is maintained in a safe and serviceable condition.

⁴ Highways England corporate reporting for May 2016, received by ORR in July 2016.

⁵ The skid resistance measure is adjusted based on prior years' readings. Highways England reports that the lower skid resistance for 2015-16 is the result of lower readings in 2013-14 and 2014-15.

Figure 2: Road condition on the strategic road network



19. We are now taking forward work to review the company's compliance with the RIS and its licence with respect to the quality of its reporting and management of road condition. We will report on this by summer 2017. We have recently commissioned an in-depth study into Highways England's management of maintenance and renewals that will include a review of the pavement condition issue. We will present our findings in our annual assessment for 2016-17.

Next steps

20. We expect Highways England to take action in the following areas:
- understanding and managing any safety implications of lower road condition;
 - delivering a robust plan for improving the condition of the network to achieve its target;
 - setting out a clear plan showing how the gap between current forecasts and funding for capital delivery will be managed down;
 - formally agreeing its revised capital baseline plan with DfT, including taking the proposals through the change control process;
 - demonstrating that it has improved its data / information assurance processes; and
 - improving its portfolio and programme management and asset management capability.
21. We will closely monitor these actions, and report on them again in our annual assessment.

1. Context for this update

Background

- 1.1 Highways England is a government-owned company, established in April 2015 and tasked with managing the motorways and main A roads in England.
- 1.2 In July 2016 ORR published its first annual assessment of Highways England's performance. The assessment was broadly positive about performance in 2015-16, but we also reported concerns that the company needs to establish more robust long-term plans for asset management and investment delivery.
- 1.3 This report provides an update on Highways England's progress in these areas.

Key findings in our 2015-16 annual assessment

- 1.4 We reported our concerns that Highways England had not yet fully demonstrated how it is managing risks to delivery of the Investment Plan in the remainder of the road period. We reported that the company was working on improvements to its plans, and to the management of its portfolio of capital investment.
- 1.5 We stated that the company's improvement plans should:
 - set clear, agreed baseline assumptions for the scope, cost and timing of major schemes;
 - demonstrate how the company has assured that the baseline is deliverable;
 - set out current delivery forecasts;
 - explain how the portfolio will be delivered within the funding available; and
 - demonstrate a portfolio approach to managing investment – for example, integrating its asset management and network improvement programmes.
- 1.6 We reported concerns about Highways England's management of its assets and stated that the company should plan and deliver its renewals work more efficiently and effectively.

Developments since our 2015-16 annual assessment

- 1.7 In July 2016, Highways England reported a drop in its network condition Key Performance Indicator (KPI). The KPI reports road surface (pavement) condition,

which fell to 92.3% – significantly below the RIS target of 95%. At that time the company had more work to do to understand the causes. It has since confirmed that the drop reflected a reduction in road surface skid resistance calculated for 2015-16.

- 1.8 We have been engaging Highways England closely and it is developing its plans to address the timeliness of its data reporting and the current shortfall in delivering the target.
- 1.9 The company has given us assurances that the safety of the network is not compromised, and we are examining the evidence provided.
- 1.10 On capital investment planning, Highways England has been working collaboratively with DfT to improve its capital baseline plan. This work is now starting to produce outputs, although it has taken longer than originally planned.

Purpose of our update report

- 1.11 This report provides an update on Highways England's progress in capital planning and delivery against the issues identified in our 2015-16 annual assessment. We also cover asset management – in particular the issues with road condition management identified since the annual assessment. We provide stakeholders with transparent information about Highways England's plans and its capability.
- 1.12 The report focuses on Highways England's:
 - management of the capital investment portfolio;
 - programme of major schemes in the road period; and
 - asset management, with particular focus on the management and reporting of road condition.

This report does not cover performance against all of the outcomes set out in the RIS Performance Specification. We will cover this in our next annual assessment of Highways England's performance in summer 2017.

2. Highways England's capital baseline improvement plans

The need for a clear baseline plan

2.1 The RIS sets out the performance outcomes and major improvements that Highways England must deliver over the five years from April 2015 to March 2020. It also sets out the funding available, some of which was dedicated (ring-fenced) to specific purposes. Highways England committed to delivering the RIS and set out how it would do so in its Delivery Plan. However, for many of the major improvement schemes more development work was required to set out the detail of their scope, costs and timings – to develop a robust capital baseline plan.

2.2 The company's baseline plan is important because:

- it provides stakeholders – including those that fund Highways England and the companies that supply the sector – with clarity about what capital investments will be delivered, when, and at what cost;
- the company's investment impacts on the experience of road users – for example, road users are affected by roadworks but also experience the benefits delivered by capital works;
- works may be delivered more efficiently if there is clarity about future investment and the supply chain can plan to meet the demand;
- wider stakeholders benefit from clarity about plans for improvement – for example, through mitigation of noise from the network, or air quality improvements; and
- the company can only be held to account for delivery if there is clarity about its planned investment.

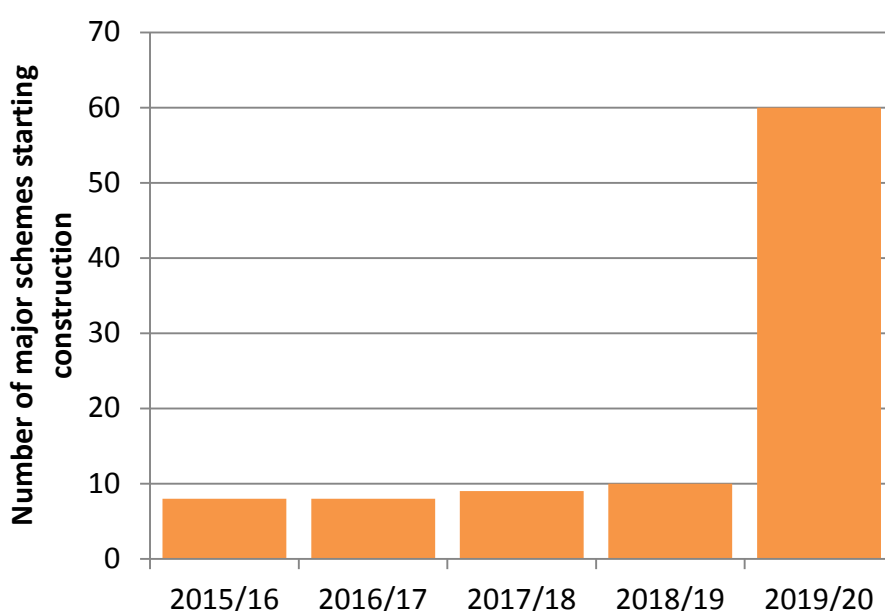
2.3 The baseline should provide the plan against which ORR will hold Highways England to account. It should be supported by evidence that it is deliverable and affordable.

Our concerns with the current baseline

2.4 Highways England developed its current capital baseline plan in March 2016. In our 2015-16 annual assessment and our ongoing engagement with Highways England and DfT, we identified a number of concerns about this baseline:

- it does not set out clearly the scope of what is planned to be delivered for each major scheme;
- it assumes that 60 major schemes will start construction in the final year of the road period, as shown in figure 2.1, with limited evidence that this is deliverable or efficient;
- it is not fully demonstrated to be affordable; and
- it is not clear that it is fully aligned with funders' expectations – including the planned construction profile and expenditure.

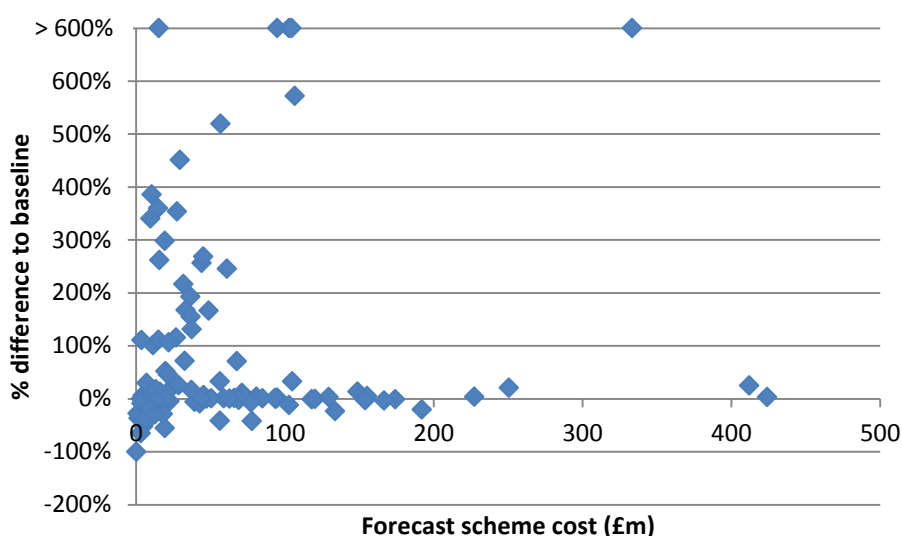
Figure 2.1: Current baseline for major scheme starts



2.5 When the company set out its March 2016 baseline it also submitted its latest forecast of costs for the major schemes. We raised concerns that:

- the cost forecasts for its capital portfolio needed further work. The forecasts were £1.7bn higher than the funding baseline for the first road period. Highways England had not set out a plan to manage these costs down; and
- forecast total costs for many schemes showed large variances to the baseline. For example, cost forecasts for 31 schemes were more than 50% higher than the baseline for Road Period 1 – see figure 2.2.

Figure 2.2: March 2016, differences between major scheme cost forecasts and baseline estimates (for Road Period 1)⁶



- 2.6 We challenged the robustness, deliverability and affordability of the company's baseline plan. We asked the company to review it and provide regular updates of progress. As a result the company has been improving its capital baseline plan, and expects to conclude this work by early summer 2017.
- 2.7 Highways England has recognised the need to improve its portfolio and programme management capability to develop robust capital portfolio plans. We agree with that view. This includes understanding delivery constraints, affordability, risks and opportunities across the portfolio of projects.

Highways England's capital baseline improvement plan

Capital portfolio management office

- 2.8 Highways England has recognised that it needs to improve the way it plans and delivers its capital portfolio. The company has been taking forward work to establish a capital portfolio management office, which has been set up to:
- establish and maintain a capital baseline;
 - reconcile portfolio / programme delivery performance against the capital baseline;
 - provide management information to stakeholders; and

⁶ Note that we have excluded the A14 Cambridge to Huntingdon scheme as an outlier. The forecast scheme cost in March 2016 was £1.26bn, 1% lower than the March 2016 baseline.

- support implementation of capital programme management and relationships across business functions.
- 2.9 The capital portfolio office is currently improving the provision of information to support the decision making of Highways England's governance bodies.
- 2.10 A programme delivery partner has been appointed to support the capital portfolio office, including providing mentoring and knowledge sharing.
- 2.11 The capital portfolio office is working to establish greater transparency and assurance around the delivery of the portfolio. It has implemented a programme of improvements to deliver a revised baseline. So far, the work has focussed on delivery plans for the major schemes. This programme of work includes:
- reviewing the projects and programmes that make up the capital portfolio, cataloguing firm commitments, reviewing scope and approved or pending changes;
 - reassessing value for money of projects based on the most up-to-date understanding of benefits and costs estimates – to present options to government where value for money has changed and to prioritise;
 - considering options for improving road user experience – for example, considering the best way of scheduling major schemes which impact on the same routes or geographical locations to reduce customer disruption (Highways England has called this the “corridor” approach.);
 - considering options for reducing risks to affordability and deliverability – for example, smoothing the profile of works to manage resource demands; and
 - developing costed scenarios for a revised baseline plan.

Outputs from the improvement plan

- 2.12 Highways England has shown us some of the emerging outputs from its improvement plan, including initial results from its revised baseline work.
- 2.13 The company is reviewing the 112 major schemes specified in the RIS with a particular focus on the scope of the schemes and the latest understanding of likely cost. It has carried out work to:
- improve the robustness of major scheme cost forecasts, identifying risks and opportunities;

- intervene to mitigate risks and increase delivery confidence – for example, identifying and mitigating scope creep beyond RIS requirements and funding availability; and
- identify opportunities to maximise project value for money.

2.14 This work has resulted in the company reducing the difference between forecast costs and funding from £1.7bn to £0.8bn. It has also identified seven schemes where it considers that either the scope of the schemes specified in the RIS needs to be changed, or extra expenditure needs to be agreed. Additional expenditure may impact the second road investment period.

2.15 Highways England has completed its review of the value for money of the major schemes. It has reassessed the economic appraisal of each scheme. This can inform the reprioritisation of certain schemes, and potentially support removal of those schemes that do not represent value for money.⁷

2.16 By autumn 2016, Highways England had identified a number of major schemes that represented a high risk to delivering value for money.⁸ These schemes were subject to further detailed review, which improved the value for money assessment in some cases. The company is reviewing options with DfT about how to progress the remaining schemes.

2.17 The company has worked to improve road user outcomes by reviewing the timings and management of schemes that affect common routes or geographical regions. This “corridor” approach has resulted in proposals for rescheduling schemes (advancing or deferring them) to manage their impact on road users. For example, Highways England has considered options to:

- schedule schemes that affect common routes / regions at different times – so that there are fewer roadworks at any one time;
- carry out adjacent schemes at the same time where appropriate – so that roadworks and delivery are more efficiently managed; and
- manage when schemes start or their construction sequence – to maximise the distance between roadworks.

⁷ The RIS specifies that the schemes which are committed to in the Investment Plan will enter construction during the first road period “Provided that the necessary statutory approvals are granted and the scheme continues to demonstrate value for public money”.

⁸ These schemes were assessed as being low or poor value for money.

2.18 The company has analysed 13 corridors and developed three scenarios. In simple terms the scenarios are based around:

- minimising the impact on road users, with no cost or schedule constraints (scenario 1);
- minimising the impact on road users, with no schedule constraints but without any additional increases to cost forecasts in Road Period 1 (scenario 2); and
- reducing the impact on road users, constrained by the last open for traffic date of any scheme in the corridor, while seeking to manage cost forecasts in the first road period and schedule schemes to minimise delivery risks (scenario 3).

2.19 Scenario 1 results in increased forecast costs in Road Period 1, scenario 2 is neutral, whereas scenario 3 results in the deferral of costs from the first road period into the second road period. Under scenario 3, start of construction works on a number of schemes would potentially be deferred into the second road period.

Our assessment of the emerging baseline plan

2.20 Highways England is making progress in developing portfolio management capability improvements. The establishment of the capital portfolio office is an important enabler of this.

2.21 The capital portfolio office has brought more rigour to the understanding and management of its portfolio. It has also brought a structured approach to the development of the revised capital baseline plan. This is largely in line with the staged approach associated with best practice management of portfolios.⁹ In particular, the company is:

- reviewing all of its projects and programmes to understand the extent of its portfolio;
- categorising its projects and programmes with some consideration of how they contribute to delivering wider RIS objectives;
- prioritising the portfolio based on an assessment of value for money;
- balancing the portfolio based on its available resources (for example, funding constraints) and the impact on road users (for example, seeking to minimise congestion); and
- developing options for a revised plan and seeking agreement with funders.

⁹ As set out in Management of Portfolios, Axelos Global Best Practice.

2.22 While the company has improved its capability, there is more to do.

- It is early days for Highways England's portfolio and programme management function; it will need to embed best practice within the organisation in the coming years. We are working with the company to understand its plans.
- The company's asset management capability needs to mature to make sure that it realises the benefits of delivering maintenance and renewals work alongside enhancement schemes.
- The company has not yet shown us evidence that it is monitoring indicators which will provide an early indication of delivery constraints. We are reviewing progress in more detail, and will report on this work in our next annual assessment.

Key finding 1: Highways England has made good progress in establishing a portfolio management approach but this will take time to embed and mature.

2.23 The work that Highways England has shown us on its revised baseline demonstrates real progress, but it has taken longer than originally expected. The company has been developing this work in consultation with DfT. This should help in gaining formal approval, through change control, for changes to the RIS. The revised baseline will need to set out clearly what will be delivered, when, and at what cost. Indications are that the revised baseline will be more robust, and be supported by an improved assessment of deliverability and affordability.

Key finding 2: Highways England has provided evidence that the capital baseline improvement plan is progressing towards delivering a more robust baseline – setting out what will be delivered, committed milestones and associated costs. There is more to do to finalise the revised baseline.

2.24 Highways England has informed us that it is currently taking forward work to define the detailed scope of each of the major schemes, but we have not yet seen its full output. It must provide this as part of its agreed baseline. We will review and report on this in our 2016-17 annual assessment.

2.25 After carrying out work to improve the robustness of its major scheme forecast costs, the company has provided us with revised forecasts. The company now reports a reduced difference between forecast costs and funding of £0.8bn – and this is before the work to revise the baseline.

2.26 Highways England has carried out improved value for money assessments and identified schemes for which the case for investment is not yet fully made. These assessments use the company's latest understanding of the scope of each major scheme and the latest forecasts of costs and benefits. Highways England has worked closely with DfT in reviewing scheme value for money. It is appropriate to review the need for these schemes with government – including looking at the wider strategic case. Where the case for investment is not yet fully made, some schemes may not be taken forward – but this must be formally agreed.

Key finding 3: Highways England has carried out improved value for money assessments of its major schemes based on the latest information on costs and benefits. The revised baseline plan may omit a number of schemes specified in the RIS where they no longer represent value for money.

2.27 In carrying out its corridor approach, Highways England has started to apply a programme and portfolio level understanding to deliver in a better way. The company has considered the risks and dependencies between major schemes, seeking to minimise delays and avoid concurrent roadworks on adjacent sections of the network. This has the potential to improve outcomes for road users.

Key finding 4: The revised baseline plan has the potential to improve outcomes for road users – for example, reducing disruption by planning roadworks better.

2.28 The corridor approach may also spread the planned start of works of its major schemes to ease delivery constraints. The company's current baseline assumes that 60 major schemes will start construction in the final year of the road period. The revised baseline is likely to bring some schemes forward, but also to defer some into Road Period 2. This is likely to be a more efficient approach, with a smoother profile of resource requirements within Highways England and its supply chain.

Key finding 5: The revised baseline plan has the potential to spread the planned start of works of major schemes which may ease delivery constraints and improve efficiency.

2.29 Considering the likely outputs of the revised baseline work in the round, it is clear that the company's proposals will result in a number of changes to the RIS. The proposals include:

- changes to the scope of a number of schemes specified in the RIS;

- removal of a number of schemes specified in the RIS where these are no longer assessed to be value for money; and
- changes to the schedule of schemes specified in the RIS and / or Delivery Plan – likely to include deferring a number of schemes into the next road period.

We expect this to deliver benefits as it will allow more efficient delivery and less disruption for road users. The net effect of these changes is that Highways England is proposing to deliver fewer schemes and a reduced scope in the first road period than was set out in the original RIS.

2.30 The revised baseline is also expected to result in the removal of some costs from Road Period 1. This would reduce the gap between current forecasts of scheme costs and funding – but not completely eliminate it. The remaining gap is likely to include over-programming and contingency reserves, which are appropriate approaches to managing risks. However, the company needs to produce clear plans to explain how the full difference between forecast costs and funding will be managed, and we expect to see these plans in early 2017.

Key finding 6: Highways England's current forecast costs are £0.8bn higher than its funding. It expects the revised baseline plan to reduce, but not eliminate, this difference between forecasts and funding. The company must produce a clear plan to address the remaining difference.

2.31 Highways England has made progress in developing its revised baseline but there is more work to do. The company must now:

- bring together the workstreams outlined above to produce a clear set of options;
- provide comprehensive underlying data and assumptions that support the revised baseline – for example, scheme scope information, baseline costs and schedule milestones;
- set out its analysis to show that the revised baseline is deliverable and affordable – for example, carrying out quantified risk analysis, and demonstrating its modelling of the plan's resource requirements; and
- set out a clear plan for how current expenditure forecasts will be managed down to deliver the revised baseline with the funding available.

2.32 Highways England must provide clear reasons for the proposed changes and agree them with DfT. It should state whether and why the new baseline is considered to be

consistent with the funding. DfT will need to agree the revised baseline through formal change control. Highways England must make sure that there is sufficient visibility of its revised baseline to make sure that some of its benefits – such as more efficient planning and delivery – can be realised.

Key finding 7: The revised baseline must be agreed formally through change control and be given visibility so that stakeholders, including road users and the supply chain, understand the plans.

2.33 The need to make substantial changes to the baseline partly reflects the short timescales in which the first RIS was developed. This led to specification of some major schemes for which the scope, costs and risks were not sufficiently understood to provide certainty that they should go ahead.

2.34 As schemes have developed, it has become apparent that certain scheme costs assumed in the development of the RIS were significant underestimates. There are also instances where it is becoming apparent that Highways England could have been more rigorous in its approach to reviewing and accepting the RIS. It is important that these lessons are learned in the development of the next RIS.

Key finding 8: There are lessons to be learnt for RIS2. It is important that there is greater clarity upfront about investment requirements. This can be achieved through specifying schemes that are more developed, and through carrying out a more robust assessment of deliverability and affordability.

2.35 Highways England must continue to develop its evidence base over the coming months. We will report on further progress in our annual assessment 2016-17.

2.36 We have recently commissioned joint work with Highways England to establish its current portfolio and programme management capability and its plans for improvement. We will continue to monitor delivery of the longer-term plans to develop and embed capability in this area.

2.37 We have also commissioned work to carry out an in-depth review of a sample of Highways England's major schemes. We expect this to provide us, and the company, with valuable information about good practice and potential areas for improvement. We will report on both these studies in our annual assessment 2016-17.

3. Highways England's management of its assets and data

The need for good asset management

3.1 The strategic road network is of vital importance to the UK economy. The way it is managed and maintained impacts on the safety, serviceability, performance and efficiency of the network.

3.2 Highways England's management of the network assets is critical to:

- ensure the safety of those that use the roads and work on them;
- deliver the levels of service and performance that road users expect;
- maintain and renew the network in a way which represents value for money for the public over the long-term; and
- deliver outcomes for the wider public – such as an improved environment and economic growth.

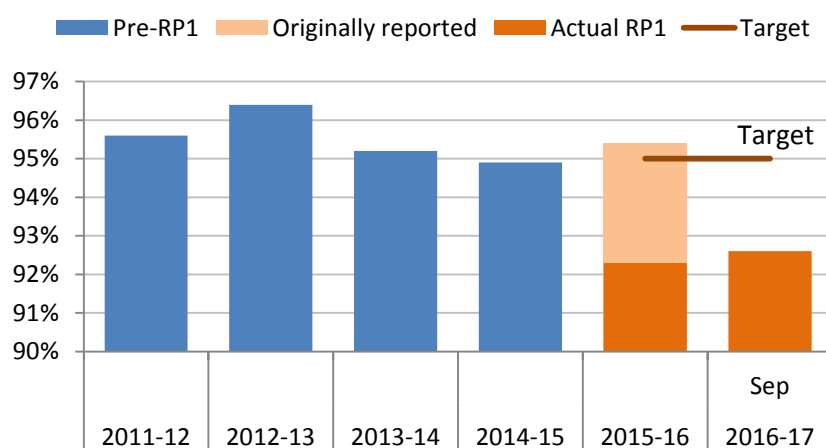
Our concerns with Highways England's current asset management

3.3 In our annual assessment 2015-16 we highlighted concerns about the company's level of maturity in managing its assets. We noted concerns about the company's assurance of its planned and actual renewals volumes, and its understanding of the differences between delivered volumes and plans. We also reported that the company changed the profile of its renewals work during the year, resulting in a 35% increase in renewals expenditure in the final quarter. We consider that the company could do more to ensure that it is planning and delivering its renewals work effectively and efficiently. Highways England acknowledges this and is working to improve and develop its approach and capability in this area.

Our concerns with road condition management and information

- 3.4 Highways England must keep the network in good condition. It has a KPI target of maintaining road (referred to as pavement) condition at or above 95%.¹⁰
- 3.5 The road condition KPI is based on measurements from two surveys:
- a traffic-speed condition survey measuring road surface profile (including rutting and unevenness); and
 - a survey measuring skid resistance.
- 3.6 The KPI calculation, based on the two surveys, is set out in the company's Operational Metrics Manual.¹¹ This results in a percentage of the network which "does not require further investigation for possible maintenance". Highways England has measured road condition in this way for many years, and the KPI has historically been around 95%.
- 3.7 While there is not a direct correlation between the KPI and safety, deterioration in the KPI may indicate an increase in safety risk. Road surface profile may become a safety issue beyond certain levels, for example, if ruts are greater than 20mm in depth. A reduction in skid resistance will increase safety risk if not managed appropriately.
- 3.8 In July 2016, Highways England first reported that its pavement condition KPI had fallen below the target, to 92.3%, for the month of May.

Figure 3.1: Road condition on the strategic road network



¹⁰ Highways England is required to keep the percentage of the pavement asset that does not require further investigation for possible maintenance at 95% or above.

¹¹ Highways England's Operational Metrics Manual: <https://www.gov.uk/government/publications/highways-england-operational-metrics-manual>.

3.9 Highways England has confirmed that its reporting of the drop in network condition was delayed because its contractor could not upload skid resistance data to a database to normal timescales. Had this delay not occurred, the company would have reported network condition of 92.3% in its year-end statements, not 95.4% as was reported at the time.

3.10 This raises two related, but separate, concerns relating to the company's:

- management of road condition; and
- reporting of accurate road condition information.

Highways England's management of road condition

3.11 Road condition which is below the KPI target is of concern for the following reasons:

- the reduction in the network condition measure may indicate an increase in safety risk on the network;
- the level of network condition is lower than the target set in the RIS – it may result in poorer road user experience;
- Highways England may not be efficiently managing its network assets in a way which meets the requirements of its licence.

3.12 We have written to the company to set out these concerns and are reviewing the company's compliance with the RIS and its licence.

Highways England's reporting of accurate road condition information

3.13 The delay in loading skid resistance data meant that Highways England's published reports did not contain up-to-date information. The company did not make this clear at the time. The delay also meant that the company's plans for 2016-17 were not based on the most recent condition measurements, and were therefore less robust than they could have been.

3.14 The delay in reporting of pavement condition data is of concern because:

- timely collection and analysis of network condition data is essential in developing robust plans to make sure the network is safe and serviceable;
- reporting data which is not current risks misleading the public about Highways England's performance;

- the company may not be fully complying with the requirements of its licence; and
- this issue may point to a wider concern with respect to Highways England's assurance processes and corporate governance.

Highways England's plans for improving its asset management

Plans for improving management of road assets

3.15 Following Highways England's reporting of the network condition KPI issue, we have engaged the company closely to understand the robustness of the data, the cause of the drop in performance, its implications and the company's plans to improve condition to meet the target.

3.16 In response to the drop in the network condition measure Highways England has:

- carried out a review to understand what is behind the drop in condition information – it has identified that the collection and analysis of data is robust, and that the drop in condition is caused by a deterioration in skid resistance on the network;
- commissioned a review of those parts of the network with lower skid resistance measurements – it is working with its regional teams and suppliers to decide what interventions are required on the network;
- reviewed accident rates on the affected parts of the network and analysed the correlation between poor road surface and road infrastructure related accidents;
- commissioned detailed investigations to build a plan for asset interventions; and
- developed options for its forward programme of works to address the shortfall in network condition.

3.17 Highways England expects to have developed a network condition remedial plan by February 2017. We will review this plan with the company.

Plans for improving accuracy of reporting

3.18 Highways England has recognised that it must do more to make sure that the data it holds and reports are sufficiently current and assured. The company is:

- carrying out work to define how its executive and board will sign-off its year-end reporting for 2016-17. The company is aiming to complete this in January 2017;

- improving its year-end assurance processes – for example, carrying out three levels of audit on the reporting of all its indicators. This is a greater level of assurance than was carried out in 2015-16;
- carrying out work to ensure timely and consistent escalation of risks to delivering KPI targets – for example, through delivery of internal workshops;
- providing a data confidence assessment in its data reporting;
- reviewing where its guidelines need to be improved to make sure that there are no other areas where they may contradict with wider obligations to use current data; and
- reviewing its communications with stakeholders (in particular with DfT) with the aim of strengthening processes.

3.19 In addition, Highways England has developed a coordinated data improvement plan, which includes asset information. It is continuing to deliver this plan and we are monitoring its progress.

Plans for improving asset management capability

3.20 Highways England has started to improve its asset management capability. The company aims to ensure that it has an asset management system that is consistent with industry standards (ISO 55000) by the end of the road period.

3.21 In taking this forward, the company has:

- established a set of asset management principles;
- developed an asset management strategy; and
- set out an asset information improvement plan as part of a wider coordinated data improvement plan.

3.22 Highways England has previously measured its asset management capability to inform its forward plans and is currently commissioning a further review of capability.

3.23 Highways England has looked at the reasons for differences between delivered and planned renewal volumes. The company investigated a sample of the 120 renewals schemes with largest variances in 2015-16 (representing approximately 7% of capital renewal schemes and approximately 32% of the variance in delivered volumes to plan). It found that:

- 69% of variances were due to poor planning (such as schemes being completely removed or entirely new ones added), and poor reporting (such as inaccurate reporting of volumes delivered from contractors); and
- 31% of variances were due to changes in scheme scope because of variation during delivery (for example, because better asset information was obtained).

3.24 The company recognises that weaknesses in its planning and reporting in 2015-16 have been repeated this year. It is now starting to analyse volume variances across its regions in 2016-17.

3.25 Highways England has identified the following improvements to take forward:

- **building a better plan:** building an improved renewals plan for 2017-18, providing greater central oversight and quality assurance;
- **better governance:** improving its understanding of changes to plans in-year;
- **addressing the resources capability gap:** improving its planning, monitoring and assurance capability and complementing it with external expertise where required; and
- **addressing the systems and processes gap:** applying more robust processes now and considering system changes in the future.

3.26 One way in which Highways England is improving asset management is through a new approach to working with its maintenance and renewals suppliers – the Asset Delivery model. In this approach, Highways England is taking greater control of identifying investment needs and planning schemes prior to works delivery. For example, it is identifying renewal needs, planning road occupancy and managing asset data directly.

3.27 The Asset Delivery model is expected to: improve value-for-money, bring the company closer to its customers, and improve asset management decision making. It implemented this approach on part of its network (Area 7) from July 2016, with further network areas to follow in 2017-18.

Our assessment of the emerging plans

Management of road condition

3.28 From our engagement with Highways England we have established that road condition information collected during 2015-16 shows that the condition of the network at the end of 2015-16 was 92.3% and was therefore below the target of

95%. The company's latest reporting shows that there has been an improvement during the year but the KPI remains below target.

3.29 The cause of the deterioration in network condition is lower skid resistance. The skid resistance measure is calculated based on the latest year's readings, with an adjustment applied based on readings from the three previous years. Highways England reports that the lower skid resistance for 2015-16 is the result of lower readings in 2013-14 and 2014-15.

3.30 We are currently reviewing the company's compliance with the RIS and its licence with respect to network condition.

Key finding 9: The condition of the strategic road network has fallen below the 95% target due to deterioration in skid resistance.

3.31 We are reviewing whether lower skid resistance may have led to an increase in safety risk. Highways England implements a risk-based approach to maintaining skid resistance which it has set out in a standard.¹² This defines the actions to be taken if skid resistance falls below certain levels. The company has been carrying out investigations with its regions and suppliers to understand the impact of the lower skid resistance measurements and to ensure that appropriate mitigating actions have been taken, or are planned. As part of our investigations we have asked Highways England to demonstrate that it is compliant with its standard and is taking appropriate action to manage any potential safety impact.

3.32 Highways England has also carried out analysis showing that since 2011-12 the network condition measure has been on a worsening trend, but that the number of fatal and serious collisions due to poor or defective road surface has been on a downward (improving) trend. We consider that there may be many factors influencing this picture (for example, vehicle technology may have an influence). However this does suggest that lower skid resistance has not yet led to worse safety outcomes.

Key finding 10: The deterioration in skid resistance may mean some increase in safety risk – although we have not seen evidence that this has led to worse safety outcomes. The company must demonstrate how it is managing any potential safety impact.

3.33 While management of safety is our main concern, deterioration in road surface condition may also lead to poorer road user experience. Highways England must now bring the network condition measure back to the target level. It is developing a

¹² Highways England standard DMRB HD 28/15 sets out its approach to managing skid resistance.

remedial plan to do this. It is important that this plan is evidence-based and efficient – taking account of the long-term need of the asset. The company expects to produce its remedial plan by February 2017.

Key finding 11: Highways England is developing a plan to bring network condition back to the target level of 95% and expects to share this with us in February 2017.

3.34 In support of our investigations we have asked the company to explain how its recovery plan will affect its activities and expenditure plans.

3.35 Highways England now needs to plan better to make sure that it will deliver the network condition target in the future. We have asked for evidence that its planned improvements to its asset management (including understanding of asset condition, degradation and planning of interventions) will provide sufficient certainty that it will deliver the target in future.

3.36 We are currently carrying out an in-depth review of Highways England's management of its road and structures assets, which will include a detailed review of all of the issues set out here. We will report the findings of this review in our annual assessment for 2016-17.

Reporting of accurate road condition data

3.37 We are investigating, with Highways England, why road condition data collected in 2015-16 was not reflected in its end-of-year reporting, and why this was not highlighted as an issue. We are reviewing the company's compliance with its licence in this area and will report on it by summer 2017.

3.38 It is now apparent that the percentage of road in good condition was 92.3% at the end of 2015-16, against a target of 95%. The company has committed to a number of actions to improve its data assurance processes as set out previously. We are reviewing whether these are an appropriate response to our concerns. We will monitor delivery of improvements in this area closely.

Key finding 12: Highways England has acknowledged that it can improve its data reporting and assurance, and has committed to develop better processes. We will monitor this closely and take further action if improvements are not delivered.

Asset management

3.39 Highways England is developing a comprehensive asset management system with the aim of reaching best practice by the end of the first road period. We have seen evidence that it is developing an asset management strategy and supporting management processes. However, we note that the company originally planned to publish its asset management strategy in April 2016 and has not yet done this.

3.40 Highways England has recognised weaknesses in its current development and delivery of renewals plans. The work that it has carried out to understand the differences between planned and delivered volumes of renewal is a useful first step in informing further improvements. The company now needs to:

- make sure that its asset information is of sufficient quality to build robust plans;
- develop improved planning of asset management interventions, including over the medium- to long-term;
- continue to analyse and understand the reasons for differences between delivered volumes and plans; and
- develop improved assurance processes to demonstrate that it is doing the right amount of maintenance and renewal works to:
 - maintain or improve safety performance;
 - deliver network performance requirements now and in the future; and
 - seek to minimise costs over the lifetime of its assets.

3.41 We recognise that some of the improvements will take time to deliver. We are currently working with the company to gain a shared understanding of the company's current asset management capability and future improvement requirements. We will report on this work in our annual assessment for 2016-17.

Key finding 13: Highways England must continue to focus on improving its asset management capability over the longer-term. This should include improved planning of renewals work and forecasting of its impact to ensure that the network is maintained in a safe and serviceable condition.

4. Next steps

Actions required

4.1 We expect Highways England to take action in the following areas:

Management of road condition

- understanding and managing any safety implications of lower road condition;
- delivering a robust plan for improving the condition of the network to achieve its KPI target;

Capital baseline plan

- setting out a clear plan showing how the gap between current forecasts and funding for capital delivery will be managed down;
- formally agreeing its revised capital baseline plan with DfT, including taking the proposals forward through the change control process;
- reflecting the revised capital baseline plan in its delivery plan updates;

Quality assurance

- demonstrating that it has improved its data / information assurance processes – including for its 2016-17 year-end reporting;

Capability

- improving its portfolio and programme management capability; and
- improving its asset management capability.

Monitoring delivery

4.2 We will monitor Highways England's progress in the areas identified by this report, informed by our programme of in-depth reviews and capability assessments.

4.3 We will next report on the company's performance and efficiency in our annual assessment of Highways England's performance in 2016-17.

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