



Review of efficiency, sample-based
review and deliverability of Highways
England's draft Strategic Business Plan

June 2019

Office of Rail and Road

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1. EXECUTIVE SUMMARY

The Office of Road and Rail (ORR) is currently in the process of providing advice to DfT on the level of challenge and deliverability of Highways England's plans for the second road investment strategy, RIS2, which will run for five years from April 2020. Highways England submitted its draft Strategic Business Plan (dSBP) to ORR, which includes Highways England's approach to building up its costs for operations, maintenance, renewals and enhancements and the efficiencies that it proposes to deliver in RIS2 in these areas.

ORR commissioned CEPA to support its review of Highways England's proposed efficiencies, and also to perform a high-level analysis of the deliverability of its proposed enhancement programme.

Our work examines four areas:

- At a high-level, the approach that Highways England is using to forecast efficiencies that are available to it and the evidence that supports its efficiency estimates compared to other sectors.
- The efficiency targets set by UK regulators in sectors similar to Highways England, as a high-level sense check on the efficiencies proposed by Highways England.
- At a detailed level, Highways England's approach to forecasting costs and projecting efficiencies for a sample of its planned expenditure. We examine the build-up of pre-efficient costs, and the efficiencies that Highways England is proposing to deliver to reduce these pre-efficient costs, for selected cost rows split between operations, maintenance and renewals, and assess the efficiencies proposed for Highways England's enhancements programmes.
- At a high-level, the deliverability of the proposed enhancement programme, in order to conclude whether the programme reflects lessons from RIS1. We focus primarily on the programme, schedule and duration and timing of key stages.

The overall objective of these reviews is to comment on the extent to which the efficiencies included within Highways England's proposed RIS2 programme are challenging yet achievable and consider key risks to delivery of the proposed enhancements programme within RIS2.

Approach to efficiency

In relation to the approach to efficiency we conclude that:





- Highway's England's approach, as applied to the operations, maintenance and renewals sample areas we examined, is consistent. Starting costs are identified, developed from an estimate of need and then adjusted for known cost increases. A cost challenge is applied to the starting costs, this comprises both upward and downward cost drivers. The resulting costs are stated as the "pre-efficient" cost estimate. An efficiency challenge is then applied by identifying any ways in which outputs can be delivered more efficiently, this produces the "post-efficient" cost estimates.
- By contrast, the most recent approach applied to Network Rail removed inefficient costs from historic unit costs before applying an efficient challenge. Highways England do not make an adjustment to historic unit costs, so all things being equal, we would expect a larger efficiency challenge to be applied.
- Highways England should have a greater range of options available to it to reduce future costs for renewals than are available to regulated companies in the [REDACTED] sectors because it has greater ability to flex its outputs, resulting in a higher apparent efficiency than in those sectors.

We also note that:

- While there are generally clear statements on *what* level of efficiency is included in the dSBP, there is less information on *why* this level is appropriate, particularly for operations and maintenance costs.
- The information provided within the dSBP to support the build-up of costs and the level of efficiencies is less complete than we would expect based on our scrutiny of other regulated company's plans¹. For example, we see little evidence on the efficiency, or otherwise, of Highway's England's historic costs established via benchmarking of those costs or underpinning processes to other infrastructure companies.

¹ This may reflect the maturity of Highways England, compared to companies that have been subject to regulation for a longer period.





- We have not received (in the plan or through subsequent requests), sufficiently detailed information on the build-up of costs in many cases, or of plans and evidence to support the level of efficiency that is proposed.

We therefore have only a low to moderate level of confidence in the robustness of the efficiencies being proposed.

Efficiency targets from other similar industries

Comparing Highways England to other sectors suggests its proposed levels of efficiency are within the range specified by regulators elsewhere, noting that the efficiencies proposed for operations and maintenance are around the middle of the comparator range, while renewals and enhancements span the comparator range.

Table 1.1: Highways England efficiencies compared to regulated industry targets

	Regulated industries' targets	Highways England ²
Operations	1.5% to 4.7% p.a.	2.2% p.a.
Maintenance		3.6% p.a.
Renewals	1.6% to 4.4% p.a.	4.5% p.a.
Enhancements		1.5% to 3.6% p.a.

Source: CEPA Analysis

Operations and maintenance

- For operations and maintenance, the evidence underlying Highways England's efficiency approach is not comprehensive. In particular, evidence required to assess the robustness of the pre-efficient costs has been lacking in both Highways England's dSBP and the responses provided to subsequent queries.

² Both operations and maintenance figure for Highways England are based on the respective costs within the Operations directorate. This does not include corporate support, business services, or capitalised staff and project costs.





- An example of is the move to an “Asset Delivery” approach in managing operations, maintenance and renewals. The roll-out of this revised approach was completed in 2016 or 2017 in five of Highways England’s 12 areas, and Highways England are proposing savings of around [REDACTED] when fully rolled out. However, no evidence of savings in the five areas where rollout of this approach has been completed is provided and the proposed level is based on “management judgement” rather than efficiencies delivered to date.
- In some areas, in particular for business support costs such as human resources, better evidence including benchmarking has been provided. This has allowed us to understand forecast costs and efficiencies in more detail. Our conclusion is that costs and efficiencies in this area are reasonable.

The proposed efficiencies for some cost areas appear to be challenging others are less so, but the basis for these efficiency estimates is not clear or transparent. There is a general lack of evidence and information which reduces our confidence in the likelihood of delivery of the efficiencies. Overall, we consider the efficiency challenge set for operations to be low, when compared to the range set by other regulators, but the target set for maintenance is in line with expectations.

Renewals

- The build-up of pre-efficient costs for renewals is based on historic unit rates and anticipated renewal volumes. An efficiency challenge is then applied to these costs, resulting in post-efficient cost levels. As would be expected, the pre-efficient unit costs are highly dependent on the mix of work undertaken by Highways England. For example, Highways England anticipates renewing pavement to a greater depth than previously. The greater depth increases the unit rate of renewing pavement but should reduce whole life costs. Careful monitoring of costs and delivery will be important to ensure that the approach is developed and delivered in a manner which ensures that improved unit rates come from improvements in delivery rather than reductions in scope, and that cost in RIS3 can be assessed and forecast robustly.
- Proposed renewals efficiencies are associated with specific changes or improvements in approach. These changes in approach are defined only at a high-level, with no detailed plan provided as to how they might be delivered. Nonetheless, the proposed efficiencies are intuitively logical e.g. in improved asset management and procurement where ORR’s





capability reviews also identify scope for efficiency. Aggregate levels of efficiency proposed are also in line with what we would expect based on previous reviews of Highways England's capability.

We consider that the efficiencies proposed are challenging, however, given the lack of detailed delivery plans ORR will need to ensure that they not achieved through scope reduction in RIS2.

Enhancements

- Enhancements are long-term schemes that may span more than one Road Period, with construction itself often contained within a single period. Highways England currently plans to start works on many of the projects that will be completed in RIS2 within RIS1. We do not examine the build-up of pre-efficient costs or costing of risks for these enhancements³, but look exclusively at forecast efficiencies of enhancements that are in development or construction in RIS2.
- We find that embedded efficiencies for Smart Motorways, at [REDACTED], are in the range that we would expect for enhancements. Delivery of these efficiencies seems likely, since they are based on an Alliancing model that is in place.
- Embedded efficiencies for the Regional Investment Programme, at [REDACTED], are toward the top of the range that we anticipated. Overall, the level of efficiency is higher than we would expect, since much of the construction will commence in the first 2 years of RIS2. However, the forecast level is not unreasonably high. The level of efficiencies delivered is highly dependent on the success, or otherwise, of the Regional Delivery Partnerships (RDPs). This dependence on a single approach makes monitoring of the delivery more important. We suggest that the ORR carefully examine the roll-out of the RDPs to get early warning of its success or failure.
- Highways England have not proposed embedded efficiencies for its largest or Tier 1 projects but have proposed small efficiencies to contribute toward their efficiency KPI rather than embedding the efficiencies within their target costs. Highways England's underlying concern in applying KPI, rather than embedded, efficiencies for Tier 1 schemes

³ That work is being undertaken by others.





appears to be the impact on the risk of the projects. As an example, ~£2.3bn of spend on new enhancements in RIS2 is on the Lower Thames Crossing (LTC), and there is significant uncertainty in the outturn costs of the scheme. We consider that it would be better to commit to embedded efficiencies on this project (and that these should be roundly double those set out as targeted efficiencies) whilst at the same time ensuring a sufficient risk fund, rather than applying a different efficiency methodology as a result of concerns about risk.

- Given the scale of risk funds that might be necessary for Highways England’s mega projects, we think it may be preferable for the governance and management of these large schemes to be separated from the wider enhancements’ portfolio.

We consider that the efficiencies proposed are challenging for the RIP and the SMP, albeit that further efficiency might be available for the SMP given the type of works involved. Efficiencies for the Tier 1 projects, in particular the A303 and LTC, are small and have been proposed as a KPI rather than committed as embedded efficiencies. We believe that the efficiencies for these two projects could be roundly double the level proposed by Highways England, but unlocking this requires suitable risk funding, and potentially greater separation of these mega-projects from the rest of Highways England’s portfolio.

Deliverability

The deliverability review focuses on the 112 projects that were scheduled to start on site in RP1. Many of these projects are now scheduled to start on site in RP2.

We understand from discussions with Highways England and ORR that the schedule on which our analysis is based is likely to be changed. In particular, 12 projects face risks to timely delivery. Nevertheless, based on the information provided with the dSBP⁴, we note the following:

- There is a significant peak in projects scheduled to start works at the end of RP1; 24 projects are forecast in the dSBP to start on site in a single month. These particular schemes typically

⁴ Change control has taken place since the dSBP submission and will continue to evolve.





have been allocated a shorter development phase than either schemes that have already started works or that are forecast to start works in RP2.

- It seems likely that these schemes have been accelerated to meet an internal deadline to start works in RP1 and as a consequence, there is a material risk this peak cannot be delivered to its current schedule without further mitigating actions. We estimate that start of material works on these schemes would typically be up to 18 months later than currently forecast (based on time taken on other schemes), and this risks a similar length of delay in their completion. Most of these schemes will still be open for traffic in RP2 if delayed by this amount. However, two schemes would not open for traffic until RP3 if they were delayed by 12 months.
- The profile of delivery of the Regional Investment Programme (RIP) and the Smart Motorways Programme (SMP) are very different - no Smart Motorways are due to open for traffic in the final two years of RIS2 while there is a roughly fourfold increase in the value of RIP schemes that open for traffic compared to the previous eight years. In the final year of RIS2 five particularly large RIP schemes are due to be delivered. ORR should monitor the progress of these RIP schemes particularly carefully given the large step up in work volume.
- Three schemes are outliers in terms of the assumed duration of construction: a greater value of scheme is scheduled to be delivered in a shorter time than elsewhere in the portfolio. We suggest that the schedules of these projects are examined in greater detail before the SBP is agreed.
- A further three, smaller schemes are also particularly likely to be delayed based on this analysis. These projects are at risk of delay at two stages: during the March 2020 peak in start of works and in construction where they have durations that are around 12 months shorter than similarly sized projects. Again, we suggest increased scrutiny of these projects before the SBP is agreed.

Overall, we conclude that the currently proposed enhancements schedule is not realistic. The delay of 12 projects, should it be agreed, may increase programme deliverability but a peak in start of works at the end of RP1 would remain. To ensure deliverability of the enhancement portfolio, further reprogramming should be considered before the SBP is agreed.

Additionally, we believe that it is important for all parties to acknowledge that the volume of delivery in RP2 is greatly in excess of that delivered in RP1. Highways England will need to





increase its resources and capabilities substantially to enable it to deliver such a large enhancements programme, and we note that, in our experience, recruiting sufficient numbers and quality of resources in areas such as commercial and project management is time consuming, difficult and expensive. We suggest that the ORR monitors Highways England's progress in these key areas to better understand the risks to programme delivery.

As noted above, £2.3bn (19% of the total £12bn forecast spend on enhancements) is intended for the LTC in RIS2. The total cost forecast for this scheme is currently £5.7bn, with an open for traffic date in 2027/28 (RIS3). We are concerned about the scale and timing of this scheme, compared to the remainder of the programme. The spending on the scheme increases throughout RP2, it therefore seems likely that if there are cost pressures on the programme or the risk provisions are insufficient, that given that most other schemes will be complete or well through construction when problems for LTC might arise, there will be limited scope for Highways England to reduce costs or delay delivery on other schemes to compensate within the funds available. The only likely alternative would be a material delay in the delivery of the LTC, which would likely further increase costs.

To guard against this, and to reflect lessons from regulation and assurance of other "mega-projects", we suggest that the review and assurance for LTC is compared to that of other projects such as Crossrail, HS2 and Crossrail 2, and that lessons are learned from the recent reports on the assurance and control of Crossrail.⁵ While LTC is assured and governed in similar ways to Crossrail 2, its funding is not ringfenced in the way that typically occurs for such large projects. To ensure that the likelihood of delivery to the current timescales is maximised and it does not overly influence the rest of the enhancement programme it may be necessary to ringfence LTC funding, management and delivery in some way, possibly considering it separately from the remainder of Highways England's capital programme.

⁵ <https://www.nao.org.uk/report/crossrail/>

