

Office of Rail and Road

Sample based review of Highways
England's major schemes



31 March 2017
Review Report



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Introduction

The Department for Transport (DfT) published its Road Investment Strategy (RIS) for the 2015/16 to 2019/20 Road Period (Roads Period 1 or RP1) in December 2014. This described the first steps of the Department's long-term ambition for the strategic roads network. Highways England published its Delivery Plan 2015-2020 in March 2015. This Delivery Plan responded to the RIS and detailed how it will deliver its strategic outcomes and measure success, its plans for the 112 schemes that form its major improvements investment plan.

In autumn 2016 ORR requested that Nichols undertake a review of an indicative sample of 10% of Highways England's major schemes. The objectives for the review are to:

1. Understand the robustness of the processes which Highways England is using to project manage the development and delivery of its major schemes and make investment decisions.
2. Identify and assess any potential systemic issues in the development, management and delivery of the major scheme programme.
3. Evaluate project outcomes and outputs, costs and delivery against business case assumptions.
4. Assess whether projects are being managed in a way that takes account of risks and opportunities in the company's wider portfolio of capital works.



The criteria that underpinned the selection of the sample RIS projects for review included to:

- Ensure a spread across the different stages of development and delivery
- Ensure a widespread geographic coverage
- Include projects within the Smart Motorway Programme (SMP), Road Investment Programme (RIP) and Complex Infrastructure Programme (CIP)
- Target specific projects highlighted as indicating variances compared to baseline assumptions
- Include 'route/corridor' assessments focused on programme management themes

The sample RIS projects that were selected and agreed with ORR and Highways England were:

Project	Stage
M1 junctions 28-31	Open
M60 J8 to M62 J20 smart motorway	Construction
A21 Tonbridge to Pembury	Construction
A14 Cambridge to Huntingdon	Construction
M4 junctions 3-12	Development
A63 Castle Street	Development
A2 Bean and Ebbsfleet	Options
M42 junction 6	Options
A12 Chelmsford to A120 widening	Options
A30 Chiverton to Carland Cross	Options



The two further reviews undertaken to assess programme management themes were:

Programme	Stage
A1 Northumberland	Development
A303/A30/A358 corridor	Options

The purpose of the review was to identify overall conclusions and any systemic or common themes arising from a review of the sample of projects and schemes. It was not to assess the individual projects.

We wish to acknowledge and thank Highways England for its full cooperation and support with this review, notably in providing over 700 documents in a compressed time frame, and for a well-managed process of engagement and clarification within its project teams. We have been impressed by the professional, open and transparent manner in which this review has been conducted by Highways England's staff.



Findings – sample of projects

Our findings are set out under the 13 scope categories defined in ORR's review remit.

Project definition, scope

There was good evidence in the sample projects that the 'Client Scheme Requirements' (CSR) is used, alongside the business case and project management plan, to articulate project definition and requirements. However, the quality of the CSR's varied in terms of style and content often with different levels of detail on scope, options, costs, schedule, constraints.

We found insufficient focus and quantification of 'requirements' expressed in terms of projected benefits, outputs, outcomes and RIS goals/Key Performance Indicators (KPIs), resulting in a lack of a clear, measurable baseline reference point for project development that can be used to differentiate options and to inform decisions. The absence of a strong connection between project requirements and outputs, outcomes and benefits means there is a risk that the project may not deliver all of the benefits intended.

We found evidence in several projects that highlighted problems with asset and/or ground conditions. In all cases there were mitigating circumstances. However gaps in surveying of ground and asset condition information prior to Start of Works (SOW) ultimately affected project scope, leading to unplanned work, cost and delay during construction phase.

We received evidence of lessons learnt products for all the sample projects and also saw evidence of this learning being applied. For example, Investment Decision Committee (IDC) oversight on how ground condition risks could be mitigated on other projects, and its request for SMP pilot scheme lessons to be circulated to all smart motorway projects helped clarify scope and reduce cost.



Business case

The majority of the projects we reviewed had an up to date business case that had been well developed and maintained throughout the project life cycle. In general, we found good evidence of business case led focus and decisions on those projects. This included in relation to economic value for money (as expressed by Benefits to Cost Ratios, BCRs) and for some projects, of an additional whole life cost approach. We found some inconsistency in detail and quality in early stage schemes prior to Outline Business Case (OBC)/investment-decision stage. This inconsistency could impact on the robustness of project plans and decision-making at option selection stage, or on the risk of variances to value for money, cost and schedule emerging at a later stage.

Business cases for larger 'Tier 1' projects were of a high standard. They included additional high quality material and refined narrative, and were strengthened by content from DfT and Highways England assurance bodies. This may serve as best practice for pragmatic use on a wider selection of projects.

Project development and management

We have found good evidence of consistent application of Highways England's Project Control Framework (PCF) being applied to support the management and delivery of its major projects. In all of the projects sampled we found PCF process and its component products and processes were an integral part of the management of projects. There were a few instances of inconsistent quality, although we reviewed over 700 documents in total, so these were a small minority, and included some documents that were in development at the time of the review.

We reviewed a large number of governance and assurance papers, including those to Highways England's Board, its IDC and submissions to DfT. These provided evidence that issues were being surfaced proactively at governance groups and Stage Gate Assurance Reviews (SGAR) in line with the Company's Investment Decision process. Examples included measures to tackle projected cost over-spend and environmental challenges. One major project indicated a focus weighted too much on progressing development work and not enough on dealing with a major scope, cost and delivery challenge. Governance processes were not fully effective in ensuring early visibility and control of this issue, although this project was entering into formal Change Control during our review.



We identified a particular concern in respect of delivery schedules. We found many references in the sample project documents and in discussions with project teams airing significant challenges in meeting schedule imperatives linked to RIS/Ministerial commitments. Projects are typically stating achieving the Start of Works by March 2020 as the key goal. This is being driven from Highways England's Delivery Plan commitments to the end of the RIS1 period; 40 of its 112 projects (i.e. over a third) are forecasting the same March 2020 SOW date. As a consequence of so many projects driving hard to get to the same 'start line' (just before the end of the RIS1 period) we believe that there is a portfolio level deliverability risk.

To achieve these demanding timescales, several projects were undertaking concurrent PCF stage activities in order to maintain or recover/accelerate the schedule. This may help de-risk a project; such as in identifying ground condition problems earlier, but may make governance/assurance much more challenging. It is also in tension with the core principles of PCF that "a project can only be in one stage of the lifecycle at any point in time; and there is a clear process for moving between stages".

Undertaking PCF Stage 3 surveys, traffic modelling and preliminary design during Stage 2 creates a risk of abortive work or development work running ahead of options/business case fundamentals. Delivering PCF Stage 4 and Stage 5 concurrently may result in a different trade-off, notably design and procurement uncertainty, and hence poor cost definition and risk transfer that could give rise to change and cost increase during construction. It may result in the contractor's Target Cost being set while uncertainties remain, or risk a lack of precision on when in time is best to do this, with several projects indicating that contracts were set without a substantively complete design, although this was known and mitigating action in place.

We found evidence of a consistent use of risk assessment products and processes. Projects typically reported 'Top 5 risks' for IDC/Board papers, and we found evidence of good practice in risk escalation at all decision stages. However, we also found that some projects, while holding detailed risk registers, do not always appear to identify the most important 'strategic' risks the project is facing.

The total risk provision within outturn cost estimates did not correlate well to the level of development maturity and certainty and the project specific challenges in all cases. If insufficient risk allowances are included in estimates, cost increases during delivery become more likely, as was experienced on the projects in delivery that we reviewed. Early stage projects are particularly susceptible to this, as unforeseen issues arise when new information becomes available and the project design is developed.



We found some inconsistencies in the treatment of portfolio risk within the sample projects' cost/budgets and value for money appraisals. Projects refer to costs with and without this at IDC/SGAR reports, giving rise to uncertainty in how these are managed. We did not find evidence of any portfolio risk management process to demonstrate how the organisation reports, identifies and tackles portfolio-level themes or systemic risks across the 112 projects.

We did not find a consistent approach to capturing and reporting key assumptions made in respect of projects, including at all investment decision stages, so there is often insufficient clarity and focus on these as potential risks. For example, assumptions regarding survey information, asset and ground condition information, model data and assurance and the need for additional funding.

Procurement process

Most of the sample schemes were procured using Highways England frameworks, in particular, the Collaborative Delivery Framework (CDF). Use of this framework on larger schemes created challenges because the maximum value for lot 3b is capped at £450m, so Highways England must award multiple contracts for schemes estimated to cost more than this amount. This creates contract interfaces, and additional risk that must be managed, although Highways England is implementing a delivery model designed to create incentives on the contractors to collaborate. There is a risk that the incentives in the underlying works contracts may frustrate the good intentions of collaboration and joint venture working assumed in the delivery model.

It does not appear to be appropriate to procure such large schemes from framework contracts, although we understand from Highways England that it is unlikely that comparable schemes currently at options stage will be procured this way. Lessons learnt from CDF are being incorporated in the new 'Routes to Market', which will replace CDF in 2018.

Highways England is proactively engaging its supply chain and has developed a comprehensive procurement plan, though acknowledges this is evolving for projects at an early stage of development. The evidence we reviewed suggested a standard 'templated' approach is being assumed (CDF/ECI/NEC Target Cost with pain/gain share). This may save time as it allows the procurement and statutory processes to be run in parallel rather than in sequence, but may not achieve an optimal risk allocation for Highways England.



Statutory process

For schemes that require statutory powers, most are being taken forward using Highways Development Consent Order (DCO) Applications. This offers some certainty and allows Highways England to plan its resourcing. We saw good evidence that Highways England has learnt lessons from early DCO schemes and has developed a comprehensive 'DCO Toolkit' with elements of this helping to mitigate against design change or risk of further statutory processes which could delay progress. A DCO Process Map has also been developed to describe the broad schedule and steps through the PCF process for schemes requiring DCO. We observed this being used on early stage projects we reviewed.

Estimating and investment decisions

We found good evidence of a mature and consistent approach to cost estimating, and challenge/intervention by Highways England's commercial team. Cost estimates were available for all projects. As would be expected, the level of detail provided in these reflected the stage of development of the project, with some early schemes providing high-level estimates, and later schemes introducing input from Highways England's supply chain with which to test/benchmark estimates prior to construction. Estimates of risk allowances are discussed separately under project development and management above.

Highways England's Commercial Directorate oversees a mature estimating function and substantial cost database on highways costs and pricing. Highways England places a high degree of emphasis on this as, in many cases reviewed, target prices are negotiated with Tier 1 suppliers and not competitively tendered. Category management is used to ensure competitive pressures are applied at sub-contract level, which accounts for up to 90% of costs. Target prices are normally negotiated when the designs are sufficiently developed, usually following completion of the statutory process. Early stage schemes are estimated by Highways England. We have reviewed the organisation's cost estimation manual and a number of estimates prepared for the sample schemes, and these appear to be robust and comparable with other infrastructure organisations. IDC and other Board submissions also demonstrated that decisions are being requested/escalated proactively in line with the Company's Investment Decision process.



Two projects were proposing future RIS2 (2020-25) funding as a phasing 'solution' to help deal with increased costs. This may have wider implications for affordability and planning if this approach is widely replicated. It is also not explicit why these projects are seeking additional funding and others with similar cost challenges were focused on getting back within budget.

Identifying and realising opportunities, efficiencies

Evidence was provided for all of the projects of an efficiency register as a standard product. The register's focus is on 'bottom up' scope and value engineering solutions, which means that its benefit varies by stage of development. We found evidence of more significant opportunities and efficiencies achieved 'top down'. For example, the M42 Junction 6 and M4 Junctions 3 to 12 projects, which have completed a cost saving exercise. While we did not see evidence of scope efficiencies in the SMP schemes reviewed, the smart programme is designed by Highways England to deliver capacity, user satisfaction and smooth flow of traffic in a much more cost efficient way than carriageway widening.

While we found evidence of a quantified record of project-based efficiencies that are being collated at portfolio level, further work is required to communicate efficiency plans consistently across the business in support of the organisation's efficiency KPI target for RIS1.

Outcomes/outputs/costs/delivery variances from business case/baselines

Several of the projects reported variances on cost, schedule and value for money compared to RIS and business case baselines. While there were project specific factors involved, we found two underlying factors evident:

Baseline change – if the original baseline was 'set' at an early stage of development, involving a 'snapshot' view at RIS formulation/approval, or based on immature cost estimates, scope definition or with several scheme options still under consideration within the business case.

Uncertainty, risk or assumptions – when carried forward from early stages of the project, explicitly or otherwise, to manifest later in project delivery; for example in relation to asset information, ground conditions, level of design completion and operational requirements.



The consequences of these factors will be exacerbated if they emerge later in project delivery, when the scheme option is fixed, risk provisions are reduced, the project team cannot manage out impacts and there is little leverage with contractors.

We did not find robust evidence of a structured approach to variance reporting and benefits management used to track variances at each PCF stage and assessments on whether and how scheme and business case benefits align to baseline assumptions/requirements. We did find examples of this variously within project documents and assurance papers, notably when dealing with and approving changes, although the genesis of variances was difficult to navigate from evidence and was not consistent in all projects.

Linkage to RIS Performance Specification KPIs and PIs

We found good reference to the RIS Performance Specification goals in a number of early stage projects. Inevitably this was not the case in the later-stage projects that were already in delivery when the RIS was announced. In general, linkages to RIS performance metrics are not explicitly stated at a project or option level, such that outcomes and outputs are clearly defined as benefits to be realised.

Highways England's portfolio office reports show clearly the overall maturity of the RIS portfolio after two years of RP1, with 50% of schemes at option stage and 75% at options/development stages combined. Many project budgets were set at an early stage of development, with inevitable uncertainty and, we heard, cost estimates put together rapidly to meet RIS timescales. There is likely to be an inherent portfolio level RIS1 cost and delivery uncertainty because the majority of schemes are at an early stage of development.

There is a potential knock-on risk to RIS2 plans associated with cost and delivery risks associated primarily with the large number of early stage schemes. Projected scheme costs that fall in RIS2 are broadly comparable to those in RIS1. The uncertainty noted above and in findings on schedule and cost risk would impact on RIS2 plans and budgets that could have an important bearing on Highways England plans as developed closely with the DfT.



Wider portfolio, maintenance and renewals (M&R)

Both the SMP projects reviewed planned to incorporate resurfacing works within their scope, although both experienced problems during delivery, with not all of this work undertaken, therefore efficiency opportunities to integrate these M&R works within the scope were not fully realised. This was reported to be due to problems in securing commitment and funding within the organisation.

We did not find evidence of M&R opportunities either being addressed (or indeed being missed) in the larger body of early stage projects we reviewed. These have much further work to do on options and scope before this can be considered in detail.

Business enabling capabilities

The sample review process was well supported and managed by Highways England's Strategy & Planning Directorate, providing visibility and understanding of the RIS portfolio and projects, awareness of specific issues and their causes, and efficient access to information and project teams. We also found reference to good Commercial Directorate input and challenge to cost estimating and evidence of analysis/economist team input to appraisal and modelling related assurance.

We found a lack of role clarity in some of the projects sampled. There is not a clear internal sponsor role, with this effectively being discharged by the Senior Responsible Owner (SRO) who is also, for some projects, embedded in the project team. We did not see how sponsorship, as distinct from project management, capability and roles are discharged, notably in tackling major issues.

It was not possible to conclude if Highways England has sufficient, experienced staff to tackle what are invariably demanding projects; to stay on top of and act as 'intelligent client' for project development and delivery, and its consultant and contractor supply chain. Organisation charts suggest some teams may be under-strength and rely on interim staff to fill senior roles. We did find evidence of well-resourced teams for larger projects entering delivery. While we have not found systemic gaps in resources, there is a risk that having sufficient staff with appropriate capabilities becomes a critical constraint approaching the end of RP1 given the large number of schemes all reaching delivery stage at the same time.



We reviewed Highways England's quarterly portfolio office reports as a valuable data source and as context for the sample project reviews. The control and rhythm of reporting may need strengthening to tackle discrepancies, and a lack of an overview of key issues and actions and rolled-up portfolio level metrics may inhibit its value as a management tool.

Lessons learnt

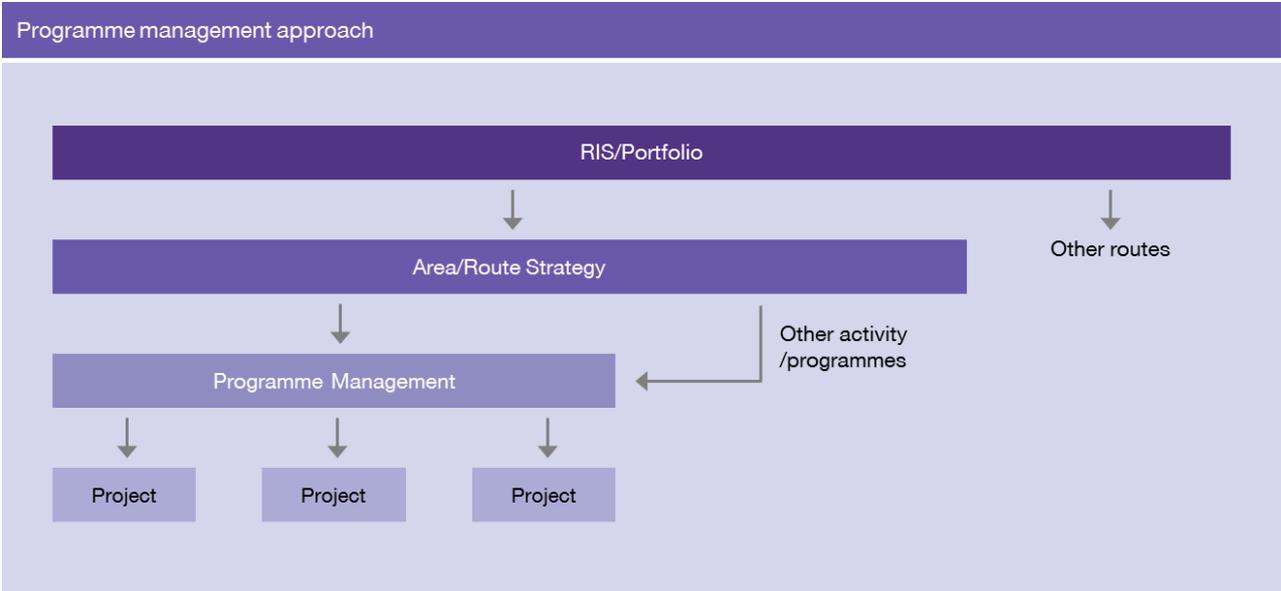
Discussions with the project teams demonstrated candour and openness in respect of the challenges faced on their schemes, even where there have been problems, and a good understand of the lessons learnt. We reviewed a number of good, and some excellent examples, of lessons being identified and shared widely across the RIS projects, drawing on lessons learnt registers held at project level, covering know-how on good practice as well as advice on how to avoid repeat problems.

Evidence largely showed projects supporting the learning process 'bottom up', though with some direction from IDC demonstrated. We did not see evidence of how Highways England manages this process centrally in holding lessons learnt information and leading communication 'top-down' to assure that it has shared lessons to all relevant projects.



Findings – programme management approach

A programme management approach is needed to manage the flow-down of the route strategy to project level, as illustrated below.





We assessed how inter-connected projects were being managed in order to realise opportunities and deliver a holistic outcome for strategic routes and with a clear 'line of sight' back to RIS outcomes. This is based on an assumption that strategic objectives for routes, as set out in Route Strategies¹, more directly map to RIS outcomes. We assessed Highways England's use of a programme management on two early stage routes:

- The A303/A30/A358 corridor, as set out in the A303 Amesbury to Berwick Down SOBC. This is at an early stage, with three projects planned to start at the end of RIS1. The total programme comprises nine projects anticipated for delivery over at least 10 years.
- The A1 in Northumberland, which comprises two complementary RIS projects to upgrade stretches of the A1 to a continuous dual carriageway, together with junction enhancements and overtaking lanes.

We saw evidence that Highways England has developed a Route Strategy² and economic rationale for the A303/A30/A358 route as an 'expressway' linking the South West, London and the South East. RIS1 includes three major projects. The route strategy is also used to inform and guide long-term plans for delivery of an integrated programme which also include A303 schemes anticipated for delivery in RIS2.

Highways England is addressing the programme business case challenges posed by many inter-dependent projects delivered over a long period of time, where the scope and extent and timing of the programme may vary. It is working with DfT on guidance for programmatic appraisal and commissioning expert input to support this. Highways England also flagged the need for a long-term programme view of governance, investment decisions and funding that will need to be agreed with the DfT to support this strategy, as delivery will span multiple Roads Periods.

The programme is at an early SOBC stage, so we would not have expected to see evidence of detailed programme management delivery plans, for example, integrated schedules, programme level interdependencies, risk and opportunity management and integrated programme teams. Highways England is anticipating development of these elements, although early joint working is underway across the three RIS1 projects and teams, to align schedules and assess options for integrated delivery, together with Operations Directorate input.

¹ Route Strategies: Our high-level approach to informing future investment on roads.

² South West Peninsula: Route Strategy, April 2015.



The A1 Northumberland Programme team is proposing to deliver two projects as a small scale programme, and effectively piloting a number of aspects of this within Highways England. While activity to date is well founded, the works do not appear to be a particularly strong candidate as a 'programme' as such, as distinct from a project that comprises several distinct scope elements.

A wide area/route perspective was taken in modelling and business case appraisal at the earlier pre-options/options stage of development, in order to shape and optimise the package of works proposed for delivery in RIS1. The two shortlisted projects are establishing programme management plans and products. This is drawing on MSP³ principles and products as programme management best practice to develop its plans. This approach is at an early stage of development maturity. We believe that care may be required not to adopt new solutions and practice without Highways England sense-checking if/how they fit within the 'organisations processes', and not make assumptions on new products or wider changes.

The team is navigating through the PCF process, which it acknowledges is not straightforward as the PCF process and associated governance is not designed to be used for a programme management approach. This means that the A1 Northumberland programme is finding regular challenges with the PCF process, products and the associated governance approvals. These are potentially useful as learning to reapply elsewhere within the organisation.

³ Managing Successful Programmes ® methodology and processes used for managing a programme.



Conclusions

The ORR set the following four objectives in their remit, which are considered below and inform our suggested recommendations in Section 5.

Objective 1

Understand the robustness of Highways England's processes in project managing the development and delivery of its major schemes and in making investment decisions

We have interpreted 'robustness' as passing three tests:

1. That processes are well defined
2. There is evidence that processes are consistently used
3. There is evidence that they are being applied to a high level of quality in order to achieve their intended outcome, i.e. they are effective

We have evaluated these tests using our findings at project, programme and portfolio level.



Project level

At project level we found that processes were robust.

We observed many areas of good practice within Highways England during our sample review. In particular we noted the following examples:

- Committed and delivery focused project teams
- Comprehensive PCF processes for the management and delivery of projects
- In most cases, a strong and effective response to key issues arising
- Top-down value/efficiency challenge to cost pressures on specific sample schemes
- Excellent response and support to this Review by provision of evidence, awareness of issues, thus demonstrating a culture of openness to external assurance activity
- A strong lessons learnt culture evident within and across projects

Programme level (management of outcomes for key routes)

At programme level, we conclude processes are not robust as the first of the three tests of robustness failed.

With RIS2 in mind, Highways England has started to develop a route strategy/'corridor' approach using programme management. We believe that this is an important step towards ensuring that geographic sets of projects are optimised in order to deliver strategic route outcomes.

The programme approach will need greater emphasis from leadership within the organisation in order to re-balance the current project delivery and schedule imperative (see Objective 2) with an enhanced focus on using a programme management approach to optimally deliver route-level goals and outcomes, therefore, to become more 'outcome focused'.



Portfolio level

Our assessment of robustness at portfolio level is covered in our conclusions on Objective 4 below.

Summary

We conclude that Highways England's processes in project management are robust, but they are not yet robust at programme or portfolio level.

The Highways England's leadership team should prioritise establishing and embedding programme and portfolio management approaches to ensure a greater focus on early stage planning so that an optimal set of projects is selected for RIS2 and beyond.

Objective 2

Identify and assess any potential systemic issues in the development, management and delivery of the major scheme programme

A number of our findings indicate potential systemic issues in the development, management and delivery of the programme that are evident in variances compared to baseline and business case assumptions.

Timescales

There is an apparent culture of over-emphasis on delivery to timescales. Highways England is fully focused on delivering its RIS commitments.⁴ Its plans indicate over a third of these schemes are targeting start of work in the final month of RP1 in March 2020. The projects reviewed indicate significant challenges in achieving this commitment, and show signs that this is influencing behaviours and solutions that may create trade-offs and risk during delivery.

⁴ RIS Delivery Plan commitment to start or deliver 112 schemes within RP1 (2015 to 2020).



There is a significant risk associated with this profile of work, as the majority of the RIS project portfolio is at an early stage of development and, without weakening the organisation's strong delivery focus, we believe that there will need to be change in order to set a more realistic profile and improve the robustness and deliverability of these plans.

Cost

While the processes underpinning Highways England cost estimating are robust, there are a number of variances in the sample projects in terms of value for money, cost and schedule. We have concluded that there are two key reasons for this. Firstly, the baseline was 'set' at an early stage of development for many projects, based on immature cost estimates, scope definition or where there are multiple options under consideration. Secondly in more mature schemes, uncertainty, risk and assumptions were carried forward from earlier stages, manifesting later on when there is less opportunity for Highways England to deal with them.

The level of risk provision budgeted for in some early stage schemes sampled may also be insufficient, and so could lead to cost increases during development and delivery. We believe that Highways England may need to review/revisit risk provisions for early stage schemes where there is still significant uncertainty in scope and costs. This could create portfolio level planning and affordability problems if some of the variances we have seen evidence of are replicated widely across the RIS portfolio.

Other factors

We also identified issues in relation to:

- Gaps in ground and asset condition information that led to unplanned work, cost and delay during construction on a number of projects.
- Procurement routes for larger schemes affected by constraints on frameworks and influenced by schedule imperatives.
- Knock-on impact on planning and delivery of RIS2 if delivery timescales for early stage projects, whether planned or otherwise, start to slip (the total cost of the 112 projects in the RIS2 period is over £7bn).



Objective 3

Evaluate project outcomes/outputs, costs and delivery against business case assumptions

In addition to the key reasons for variances compared to baseline and business case assumptions flagged under Objective 2 above, we have also concluded that there is insufficient definition and specificity of project requirements and RIS performance metrics that are effectively applied at a project and option level.

We also flagged that two early stage projects were considering 'phasing', using RIS2 funds to deal with projected overspend, unlike other projects tackling the same issue via cost challenge. This inconsistency needs to be assessed, with assurance and IDC scrutiny of assumptions being made on RIS2 spend across the portfolio.

Objective 4

Assess whether projects are being managed in a way that takes account of risks and opportunities in the company's wider portfolio of capital works

At portfolio level, we conclude processes are not yet robust. This assessment is based on our findings from the sample review that there are portfolio processes in place to enable projects to be managed in a way that takes account of risks and opportunities in the company's wider portfolio of works. There are still, however, gaps and evidence suggests that they are not fully robust and effective, and are still maturing.

These issues relate to:

- Efficiency opportunities to integrate M&R resurfacing works within the scope of two Smart projects were not fully realised which may indicate a potential interface issue between Major Projects and Operations Directorate.
- Some apparent inconsistency in the treatment of portfolio risk within project budgets, and no overall portfolio risk management plan is evident.



- No consistent approach to capturing and reporting key assumptions made in respect of projects.
- Further work is required to communicate efficiency plans consistently across the business in support of the organisation's efficiency KPI target for RIS1.
- Need of a portfolio-level resource plan for projects that linked to the demand profile across the 112 schemes. There is a risk that Highways England resources and capabilities become a critical constraint approaching the end of RP1, given the large number of schemes all reaching delivery stage at the same time.
- Portfolio office reporting on the RIS is still developing, although the control and rhythm of reporting may need strengthening to tackle discrepancies. In addition a lack of an overview of key issues and actions and rolled-up portfolio level metrics may inhibit its value as a management tool.
- No overall central portfolio-level lessons learnt management process to coordinate and disseminate learning across the RIS.



Recommendations

The following are proposed as recommendations and suggestions for Highways England to address the findings of this review.

Recommendation 1

RIS baseline review (see conclusion for Objective 2)

In the light of our findings on early stage project cost, schedule and uncertainty/risk we recommend that Highways England undertake a comprehensive RIS1 baseline review, the remit for which includes to:

- (i) Assess the portfolio level deliverability risk associated with so many schemes driving to the same SOW date at the end of 2019/20. Assess the portfolio level impact of this to RIS1 profiles for delivery, cost/funding, resources and supply-chain capacity.
- (ii) Identify priority projects and assess the need or opportunity to re-base schedules for these. The focus for this is on proactively tackling portfolio level delivery risk/challenge in (i) and not loosening the strong delivery focused culture within projects. Change Control should be applied as appropriate in line with Highways England's and the DfT procedures.
- (iii) Integrate (i) and (ii) with the findings of and response to ORR's Highways monitor update on Highways England's capital planning and asset management, dated February 2017.

This recommendation will also help to establish a more robust basis for future planning of RIS2 and also support the 'Road Investment Strategy: post-2020' (DfT/ORR/Highways England), and so inform discussions that may be required with ORR and DfT/SoS on the implications of the above.

Indicative date for completion: end of 2017/18.



Recommendation 2

Guidance to projects (see conclusion for Objectives 2 and 4)

There were a number of findings that indicated a need to achieve more coordination between project teams and centralised Highways England functions, for example in relation to the way in which lessons learnt are communicated. We suggest that Highways England develop guidance/PCF advice to communicate to RIS projects in relation to:

- (i) Need for greater precision/quantification in the definition of project 'requirements' and measurable reference to RIS KPIs that will help support the assessment of options and investment decisions.
- (ii) Why and when it is possible (or not) for projects to deploy concurrent PCF stages/accelerated works, whether intended to pursue schedule commitments or otherwise, and how risks in this respect should be addressed and made clear in assurance terms.
- (iii) Tackling asset and ground condition risk and in relation to other survey information, and the extent to which gaps in these area are permissible in the run up to delivery. This will need to be flexible to suit project circumstances, and also mitigate problems with out of sequence and abortive works and cost. We recognise that this is an area Highways England is already looking at.
- (iv) The minimum level of design work outstanding at the point at which target costs are set and also when the notice to proceed is given.
- (v) Risk provisions through project development and delivery. This is not intended to be prescriptive, as project specific factors and quality of risk analysis also come into play, but to be explicitly consistent with the prevailing level of development, optioneering, uncertainty, assumptions and information gaps.
- (vi) Governance over projects impacting on or making assumptions about RIS2.

Indicative date for completion: end of 2017.



Recommendation 3

Procurement (see conclusion for Objective 2)

We recommend that:

- (i) The use of frameworks (in particular CDF Lot 3b for large schemes) and template arrangements (CDF, ECI, NEC target cost with Activity Schedule) is tested alongside other appropriate options⁵. Scheme specific factors and issues should drive the appropriate commercial requirements and procurement strategies.
- (ii) Commercial requirements and procurement strategies are developed, assured and agreed before start of work dates are committed in Highways England's delivery plan. Where dates are defined before these prerequisites are agreed, for example as a result of HM Government policy or announcements, then resultant risks are made clear to the shareholder and monitor and proactively mitigated by Highways England.

Indicative date for completion: ongoing (routine).

Recommendation 4

Portfolio management (see conclusion for Objective 4)

We recommend that Highways England reviews and, as necessary, strengthens the following:

- (i) Portfolio reporting controls, to be in the current process and so help drive out discrepancies in data, include executive summary information and advice on the key issues raised, urgent actions and portfolio level metrics for MI/management reports.
- (ii) Development of a single source of information on project variances (cost, value for money, schedule and efficiency).

⁵ Highways England has indicated that A303 Amesbury to Berwick Down and Lower Thames Crossing are expected to be procured through OJEU arrangements.



- (iii) Mechanisms to escalate and support opportunities and help cut through any funding obstacles to integration of M&R works within Major Project delivery where these fit organisational priorities.
- (iv) Development of benefits management capability, which is linked to suggested improvements in project definition of requirements and RIS KPIs in Recommendation 2 above.
- (v) Central portfolio-level function to identify, hold and disseminate lessons learnt.

Indicative date for completion: end of RP1.



Recommendation 5

Programme management (see conclusion for Objective 1 and 4)

We acknowledge and support Highways England's initiative to introduce and develop its route-level programme management approach. The development and embedment of the programme management needs to be expedited in order to influence the strategy for and development of the RIS2 portfolio and projects. We therefore recommend that ORR agrees with Highways England a plan for the completion of programme management processes as soon as is practical. The plan should include the following:

- Focused leadership support and communication of priorities within Highways England, given the prevailing culture is on project delivery. This will need countering towards a much greater focus on programme outcomes
- Establishment of route/programme level setup, roles, governance and controls needed to support and drive this and influence projects
- Consider how PCF and governance approvals may need to be adapted over time or supplemented by clear guidance to encourage a programme approach where appropriate
- Support for the A1 pilot programme to review its approach and products, the appropriate extent of MSP application, investing in staff training for Highways England staff and (in due course) sharing learning within the business and potentially creating a 'Community of Practice'

The plan should build on formal Government support and approval of the approach in terms of planning, funding and investment decision making, as optimising value and delivery at a corridor/programme level will require a long-term view spanning several Roads Periods (in the case of A303/A30/A358)

Indicative date for agreeing the plan: June 2017



Recommendation 6

Resource and capability (see conclusion for Objective 4)

An assessment of Highways England resources and capabilities to deliver RIS projects was not within the scope of our review. However, in the light of the step-change in scale of commitment and with many projects all reaching delivery at the same time at the end of the RIS1 period, we recommend that Highways England assess its future resource and capability requirements, to manage risk in this regard and to ensure that it is well placed to respond to the challenge ahead.

Indicative date for completion: indicatively 2018.

