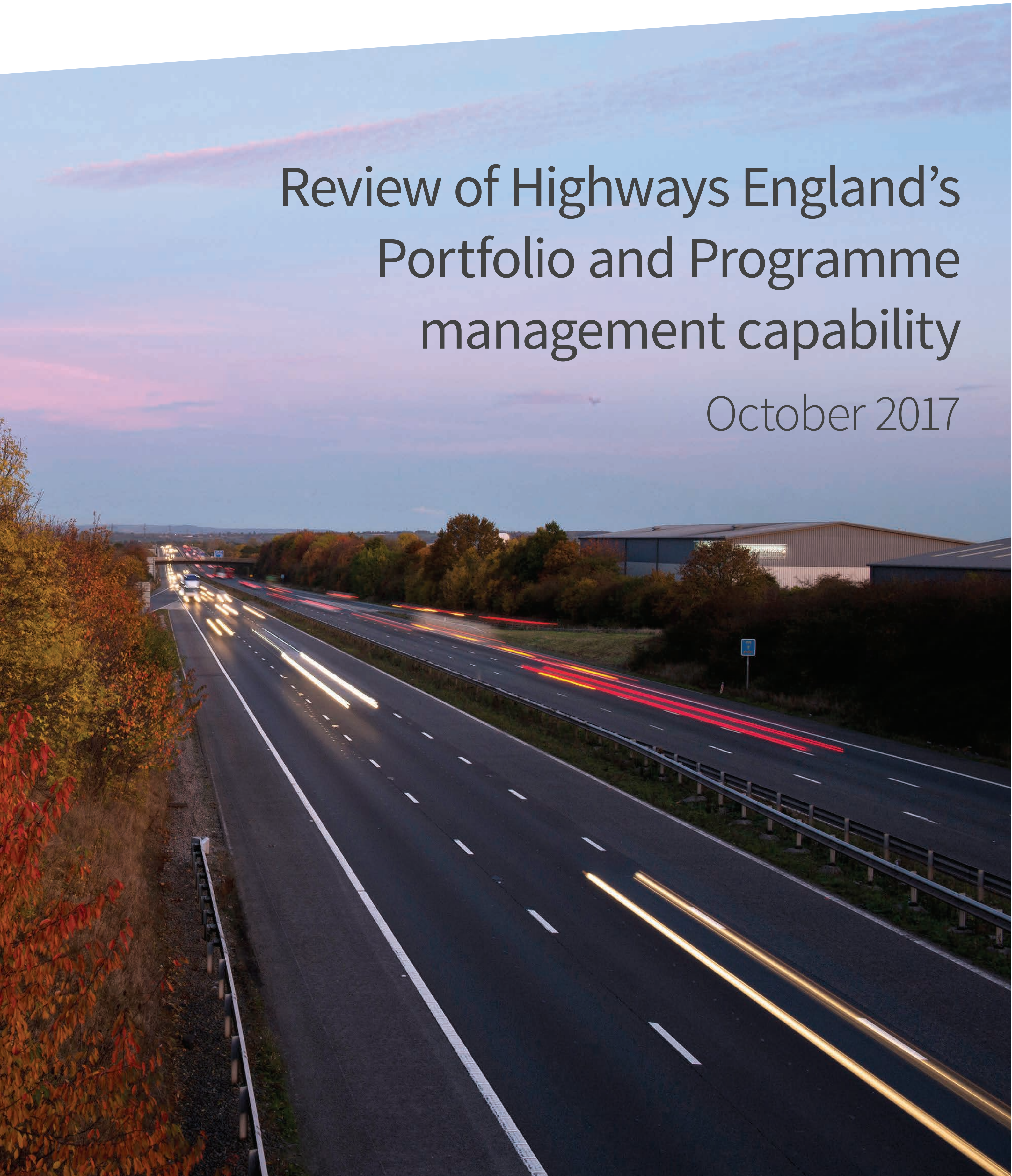
Review of Highways England's Portfolio and Programme management capability

October 2017



Contents

Executive Summary

The Office of Rail and Road (‘ORR’) and Highways England (‘HE’) have commissioned CITI to review HE’s portfolio and programme management capability and determine the scope for efficiency improvements. The findings from our review are summarised below:

1 Current portfolio and programme management capability

HE’s programme management capability is well established and maturing. However, its portfolio management capability has received less focus until comparatively recently and is therefore less well established but is developing rapidly.

2 Plans to improve capability by the end of Road Period 1

Detailed plans exist to further develop programme management capability, which if followed could lead to a high level of capability by the end of Road Period 1 (‘RP1’).

Given the strong determination to improve but with less detailed plans to further develop portfolio management capability, the level of maturity that could be reached by the end of RP1 is far more variable. Although, if a continued focus is placed on portfolio management capability and detailed plans are developed in the near term it is possible that a significant increase in maturity could be reached by the end of RP1.

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3 Improvement trajectory for capability to the end of Road Period 2

Currently there are too many variables to confidently predict the exact trajectory to the end of Road Period 2 ('RP2') but it is anticipated that:

- programme management will maintain the high level of maturity attained by the end of RP1, and
- portfolio management will reach maturity in the early stages of RP2 if this hasn't been achieved by the end of RP1 due to other more pressing priorities.

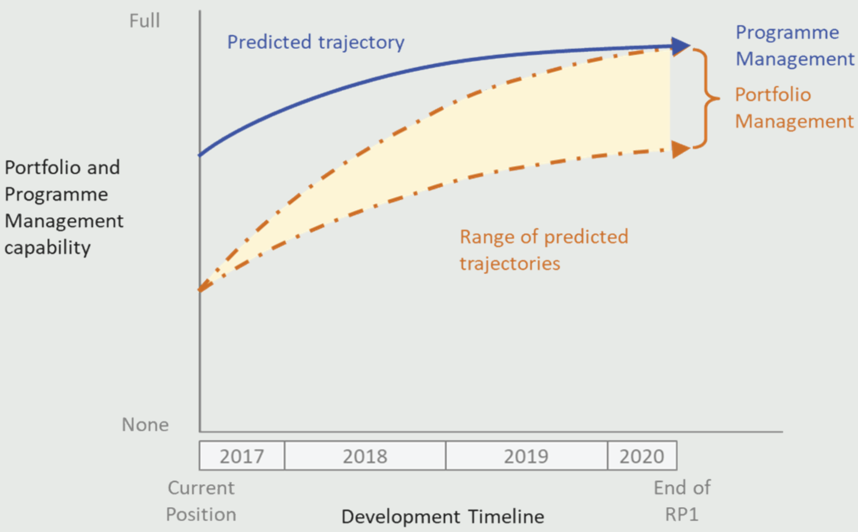

Figure 1 – Trajectory of improvement
(Please note the figure is indicative and not scaled.)

4 Scope for efficiencies resulting from these improvements during Road Period 2

Based on our experience and case studies of similar portfolios, noting HE is governed differently from a fully commercial company, we estimate that the adoption of a full portfolio and programme management capability by HE would make the execution of its capital portfolio 10-15% more efficient than if it did not have any capability in this area. As shown by the improvement trajectories in section 3, HE already has a significant capability in this area and the efficiency register indicates that approximately half the current rate of efficiency savings can be attributed to portfolio and programme management. Taking in to account the total savings to date in RP1 and the estimated proportion of those attributable to portfolio and programme management, it is reasonable to conclude that a significant proportion, but not yet half, of the 10-15% savings potential from portfolio and programme management is

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already being achieved.

The remainder of the 10-15% savings potential should be achievable by HE given its present level of commitment and approach. It has detailed plans in place to deliver further capability that broadly align with the remainder of RP1 which should generate a further significant increase and reach a saving level in the region of approximately half the savings potential. Future plans to be detailed and implemented through RP2 should generate the final savings and achieve the remainder of the 10-15% potential. Determining exactly the proportion of the remaining savings to be achieved in RP2 is difficult to estimate because of the number of variables and distance into the future, not least the actual outcome of RP1, so 'Figure 2 – Potential Savings' is indicative and cannot be scaled.

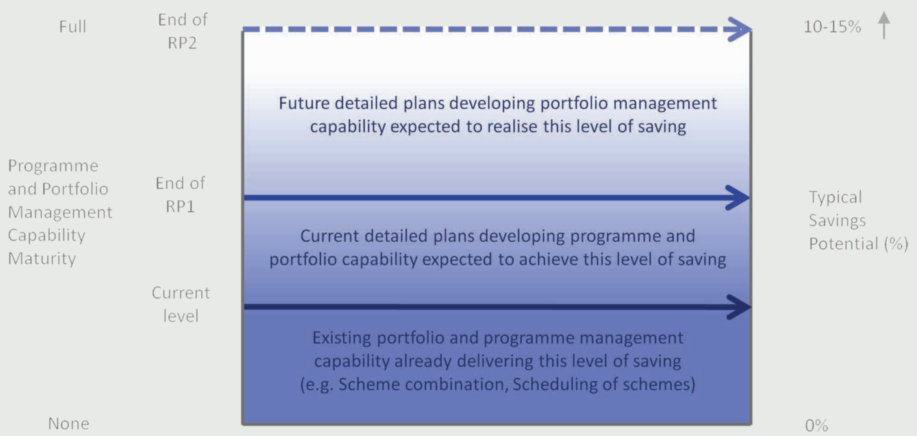


Figure 2 – Potential savings

(Please note the figure is indicative and not scaled.)

Conclusion

HE is making good progress realising savings from portfolio and programme management and there is scope for further savings as summarised above. It is recommended that HE continues to implement the detailed plans in place for programme management capability development and develops and implements further detailed plans for the development of portfolio management. Continuing to implement HE2020 together with reviewing and considering the recommendations in this report will significantly contribute to the pace of development. A further capability review is recommended at the end of RP1 to re-confirm management focus, robustness of plans, review progress, update the trajectories to the end of RP2 and assure the realisation of savings from portfolio and programme management capability.

Introduction

The purpose of this report is to determine the efficiency improvements that HE can make by improving the way that the company manages its portfolio and programmes of capital projects (designated funds, major improvements and renewals to the strategic road network) during Road Period 2 (‘RP2’) April 2020 to March 2025 by developing its portfolio and programme management capability.

Introduction

Context

ORR is the government appointed independent monitor of performance and efficiency for England's Strategic Road Network. Since April 2015, they have been monitoring HE to hold the company to account on its commitments to improve the performance and efficiency of England's Strategic Road Network.

HE is the government owned company mandated with operating, maintaining and improving England's strategic road network (4,400 miles of motorways and major A roads). Formerly the Highways Agency ('HA'), it became a government company in April 2015.

Upon transition in April 2015, HE changed from a legacy organisation with an annual funding and planning horizon to an organisation with a five year funding and planning horizon. Additionally, this change included a substantial increase in delivery to 112 schemes and associated funding exceeding £11bn for the period 2015-2020 (RP1).

As well as significantly increasing the number of major schemes and in turn the size and complexity of the portfolio, this change also means that HE is required to take a greater role in developing the Road Investment Strategy ('RIS') from conception and the long-range strategic planning of the selection, prioritisation, development, resourcing and delivery of the portfolio of schemes.

To meet this need, it was recognised by HE senior executives that a corresponding step change in capability to operate and plan over a longer term horizon as well as an increase in headcount to accommodate the increased delivery was required. HE has been rapidly developing its portfolio and programme management capability to meet this challenge.

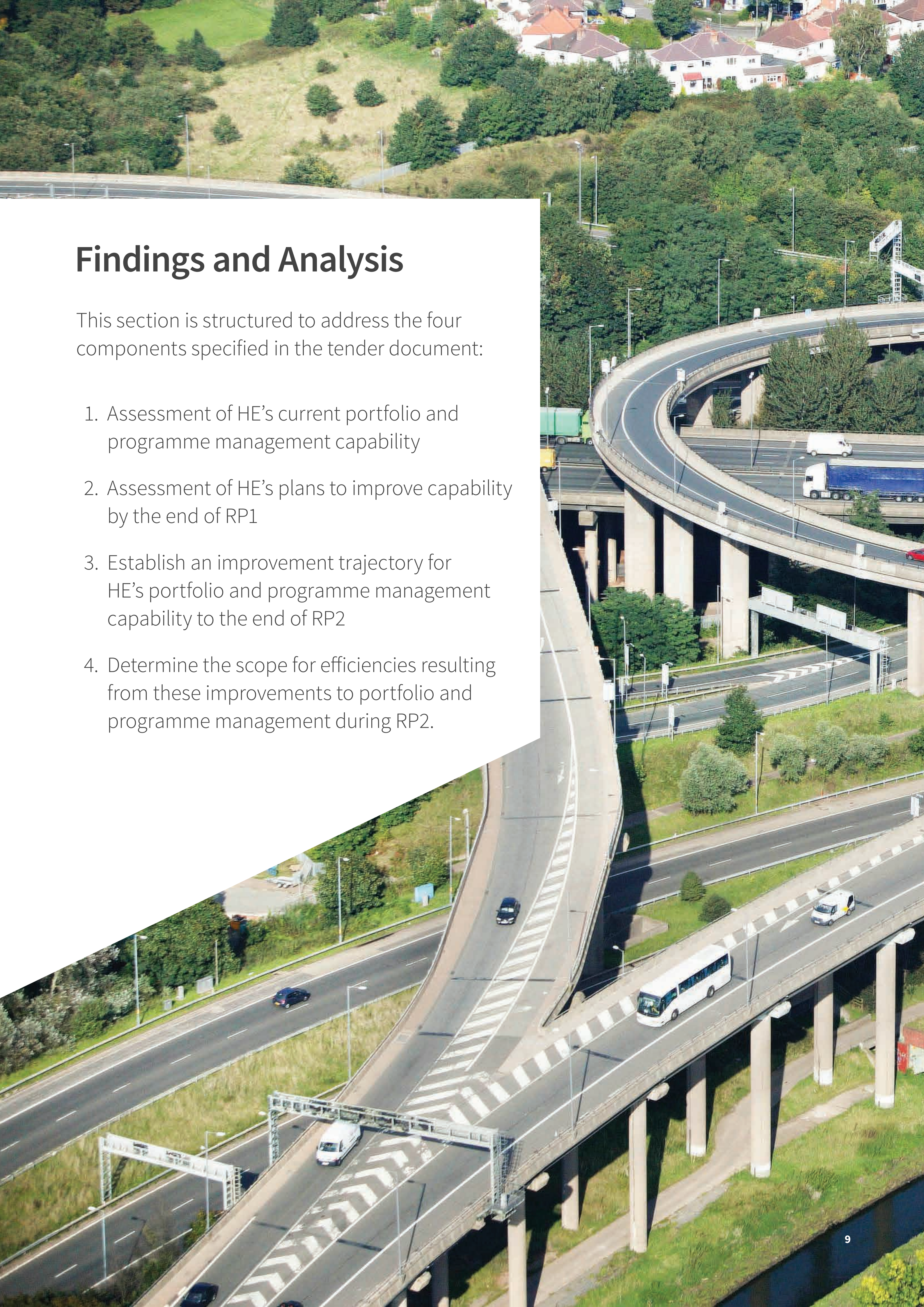
ORR together with HE invited CITI to review HE's portfolio and programme management capability and the potential for further efficiency savings in RP2 and beyond, as appropriate.

Our approach

CITI has many years' experience working with clients in different sectors developing, implementing and improving portfolio and programme management capability. We have drawn on this as well as established best practice to undertake the analysis and determine the recommendations, recognising the unique status of HE as an infrastructure provider recently formed as a government owned company from an executive agency.

Acknowledgement

CITI would like to thank the staff of both HE and ORR for their generous cooperation in our research and in the preparation of this report.



Findings and Analysis

This section is structured to address the four components specified in the tender document:

1. Assessment of HE's current portfolio and programme management capability
2. Assessment of HE's plans to improve capability by the end of RP1
3. Establish an improvement trajectory for HE's portfolio and programme management capability to the end of RP2
4. Determine the scope for efficiencies resulting from these improvements to portfolio and programme management during RP2.

Findings and Analysis

1 Assessment of Highways England's current portfolio and programme management capability

Portfolio management capability

HE has made it consistently clear in its published documents that it is committed to developing portfolio management. This commitment was borne out during interviews undertaken for this report.

The initial requirement for portfolio management was recognised and developed during the conception and formation of HE from the HA. The longer term funding and planning horizon, greater responsibility for delivering outcomes and substantial increase in capital delivery meant that HE would need to undertake greater management of the portfolio of work. In particular HE needed to:

- take over high level and early stage scheme planning and ordering of the portfolio previously undertaken by the DfT
- optimise the portfolio to maximise throughput of new projects (schemes) in conjunction with maintenance and renewals activity
- manage the increased size of the portfolio
- facilitate the efficiency savings being targeted.

Capital Portfolio Management

The first stage to developing portfolio management was the establishment of the business unit 'Capital Portfolio Management' ('CPM'). This unit was conceived by the Major Projects Change Programme and incubated in Major Projects. Although originating from Major Projects, it was always envisaged to be a pan HE entity and it is increasingly growing its pan-organisation influence and facilitation of capital portfolio management across the directorates.

The current focus of CPM is:

- constructing and optimising a baseline capital portfolio plan that is value for money and deliverable
- optimising business policies, processes and initiatives in support of constructing and managing the capital portfolio
- providing visibility and advice on HE improvement initiatives funded from the capital budget
- supporting the drive for effectiveness of outcomes which in turn releases value and drives efficiency
- further developing portfolio management by working with other directorates to establish an integrated portfolio management office change group.

Capital Portfolio Management staffing

The senior roles in CPM have been staffed by permanent HE personnel and they are responsible for the areas expected in a developing portfolio management function.

Being relatively new and growing quickly, CPM has necessarily engaged contractors to assist with resourcing where permanent resources were unavailable. The majority of the contractors have been supplied by the Programme Delivery Partner ('PDP') which is supporting scheme delivery as well as the Major Projects Change Programme. The PDP is made up of a consortium of PwC, Mace and CH2M. They have been commissioned on task

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notes to undertake specific tasks rather than via role descriptions for populating particular roles.

CPM is aware that the full range of role descriptions does not yet exist for the developing CPM team and is planning to develop the rest of these together with a career path for developing CPM staff as well as inputting to and encouraging a wider career path for portfolio management across HE. Writing the role descriptions and recruiting permanent HE staff into the posts will reduce the reliance on contractors. In turn this will provide a more efficient resourcing model for CPM and ensure the capability being developed is retained by HE on a permanent basis. A career path will also increase staff retention and further retain capability

> **Recommendation 1.1:** Complete the drafting of CPM role descriptions and fully resource the unit with permanent HE staff.

For some of the other more senior roles in HE, outside of CPM, the need for portfolio management skills is described in their role descriptions as shown in 'Appendix 1 – Job descriptions and roles analysis'. This means portfolio management is recognised as existing more widely across HE than in just CPM.

> **Recommendation 1.2:** Construct a portfolio management career pathway for the longer term development of CPM and the wider portfolio management across HE.

Portfolio and Project Control Frameworks

The Operations Portfolio Control Framework ('OPCF') and the Major Projects Project Control Framework ('MPPCF') describe very well how to manage projects within their portfolios and explain the stage gate approval process for individual projects. The MPPCF has recently been strengthened to reflect the new responsibilities of HE, for example, projects will now consider if renewals can be incorporated within them. However, neither framework includes processes for how to manage at a portfolio level the scheduling, dependencies, resource contention, risks and interaction of elements across a wider enterprise portfolio. An enterprise portfolio is that which operates at the very highest level in an organisation and encompasses the totality of the organisation's investment in changes required to achieve its strategic objectives. Enterprise portfolio management ('EPfM') is the management of that portfolio to optimise the overall organisation wide change in pursuit of the strategic objectives. The level of governance and management associated with EPfM can vary depending on the organisation and environment so the framework to operate within should be tailored accordingly.

> **Recommendation 1.3:** To support the increasing maturity in portfolio management, develop and document more advanced portfolio management processes for managing dependencies, contention, risks, resource usage and scheduling at an enterprise portfolio level.

Good practice - Optimising the Portfolio

As reported in the National Audit Office ('NAO') March '17 report 'Progress with the Road Investment Strategy', there are up to 16 projects which do not appear to represent good value for money. It is recognised that these need to be addressed by redesigning, merging, delaying or cancelling projects. This is a core discipline of good portfolio management

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practice. With Executive and Board level support, CPM has optimised the portfolio to free up valuable resource and accelerate the remaining portfolio. A separate independent and recent review into the value for money and deliverability of the portfolio concluded that the planning and risk management undertaken by HE, and in particular CPM, was thorough and robust.

Considering the recency of formation of CPM it is a testament to their efforts and rapid pace of development that the level of output being achieved is as high as evidenced by the recent review above.

Further examples of good practice in portfolio management can be seen in 'Table 1 – Examples of good practices in portfolio and programme management' which shows the breadth of adopting portfolio management across HE. It shows that whilst CPM is very important and a cornerstone in the development of portfolio management in HE, it is not the only instance of developing portfolio management. Taken together, the wider examples of portfolio management and CPM's work optimising the portfolio indicate the current high growth rate across all of HE which provides a strong foundation for further growth.

Programme Management Capability

HE has an established and maturing programme management capability. This has been a major part of the focus of the Major Projects Change Programme. In particular there are examples of:

- appropriately constructed, established and managed programmes (See 'Appendix 2 – HE's utilisation of programme types')
- knowledgeable and experienced programme staff
- role descriptions and a new career path developed for those working in programmes
- awareness of the importance of programme management to the efficient delivery of schemes.

Programme management in HE is more developed and mature than portfolio management. There is more guidance and documentation supporting programme management than portfolio management. For example, there is a capability maturity model, accompanying maturity assessments and career path for programme management. These are on the 'to do' list for portfolio management.

Programme Hubs

Programme hubs provide information to CPM and are a key communication conduit with CPM but belong to the respective programmes they directly support, providing a programme and project management support function. Within the Major Projects Directorate, they are undergoing significant development via the Major Projects Change Programme. Currently the hubs appear to focus on aggregating and summarising management information from individual schemes via progress dashboards and risk registers. The aim is to achieve a higher maturity level and undertake more control, advice and guidance. Actively developing the capability of programme hubs will enable them to support portfolio management approaches, such as, managing consolidated risk registers and relative prioritisation.

> **Recommendation 1.4:** Continue the development of programme hubs in support of the further development of portfolio and programme management capability.

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Consolidated Risk Management

Some risk reporting within HE, for example in Major Schemes, combines all individual scheme risks to provide a programme wide view. While this provides individual scheme oversight, there also needs to be an overview of the net effect of the consolidated risks on the overall risk profile of the programme. This will enable any underlying causes to be managed centrally where appropriate. This central management of programme wide risks is a common feature of mature portfolio and programme management. The approach is already being undertaken in the Smart Motorways Programme ('SMP') and it would be worth rolling out the principle across other major projects and renewal programmes. Please see the glossary for further details on aggregated and consolidated approaches to risk management in portfolios and programmes.

> **Recommendation 1.5:** Ensure a consolidated as well as an aggregated view of risk exists for portfolios and programmes.

Resource constraints

HE has significantly grown its staff base since formation in order to undertake its additional responsibilities and delivery of the larger and more complex capital portfolio. Programme and Project management resourcing has been a major part of this growth. HE is continuing to recruit in order to reach its planned resourcing level. The number of schemes starting in the final year of RP1 is greater than in any previous year and HE is recruiting in preparation. Although recruitment has been lagging behind the target the gap is narrowing quickly and HE is confident it will hit its target resource level.

In the meantime, HE has utilised the resources of the PDP to support and partially resource the Major Projects Change Programme to develop capability. The capability is now largely designed and HE is moving the implementation across to HE permanent staff so the capability can be internalised. This will reduce the dependence on external resources and provide a more efficient resourcing model.

> **Recommendation 1.6:** Continue the migration of the resourcing of the Major Projects Change Programme to permanent HE staff to ensure the change is internalised and in reducing the dependency on external resources is delivered more efficiently.

Although good progress has been made, staffing is not yet at full complement and the shortage of key resources is a principal threat to achieving the effective and efficient delivery of HE's capital portfolio of work as well as the realisation of savings.

A portfolio management technique that usually increases throughput and can ease concerns associated with resource constraints is the organisation wide central management of scarce resources. With this, the scarce resources are identified and allocated out to Directorates, assignments and outcomes that provide the greatest return. This prevents Directorates or initiatives holding onto scarce resources to only work on outcomes which although important to that area might ultimately be sub-optimal for the overall portfolio.

HE has considered managing scarce resources centrally but this is considered a short term solution when the staff pay budget is not yet fully utilised. It has decided instead to concentrate on recruiting additional resources and reallocating the staff budget to areas of greatest need. This is considered a more permanent solution to fixing the constraint rather than managing within it.

If resource constraints still exist when the staffing budget is fully utilised and further

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recruitment is not possible, HE should consider re-visiting centrally managing key resources so they can be shared and deployed on the most important and valuable outcomes.

> **Recommendation 1.7:** Keep under review and be ready for centrally allocating key resources in case resource constraints exist when the staff pay budget is fully utilised.

As HE continues to develop and it reaches its full complement of staffing and its operating model matures, it may need to review the ratio of resource expenditure to capital expenditure to ensure the correct level of management resourcing exists to deliver the portfolio expediently and efficiently. The Strategic Workforce Planning Tool that has recently been designed and is just being implemented will contribute to this. Unlike a commercial organisation that has greater latitude to move funding between different categories, HE in being government owned has less flexibility and will need to manage the constraint in collaboration with the DfT and ORR. There are instances where programmes have sometimes used Capex funding to develop efficiency savings when operational expenditure funds were not available, for example standardised gantry design on Smart Motorways or CRM software on the Lower Thames Crossing.

> **Recommendation 1.8:** Keep the ideal ratio of operational expenditure to capital expenditure under review to ensure the optimum level of operational resourcing is being used to manage and deliver the capital portfolio as efficiently and expediently as possible. Collaborate with the DfT and ORR to inform future RIS planning accordingly.

Realising target savings

The high level efficiency saving target of £1.2bn is widely publicised and understood at a macro level within HE. The definition of how these savings will be targeted has been laid out in the Capital Efficiency Delivery Plan. The Efficiency and Inflation Monitoring Manual details how the savings will be measured.

HE's efficiency register and subsequent efficiency report categorises savings into efficiency themes. Portfolio Management and Programme Management are not explicit themes in their own right. There are two saving categories 'Scheme Combination' and 'Scheduling of Schemes' which are largely within the portfolio and programme management area and serve as useful proxies indicating the level of savings already being made in this area. For 16/17 they contributed 45% of the savings for that year.

Reviewing the savings recorded in the other categories that could be attributed to Portfolio and Programme management suggests it is not unreasonable to conclude that approximately half of the efficiency savings currently being made by HE could easily be attributed to Portfolio and Programme management.

It is important to be aware that portfolio and programme management are management approaches and practices that exist alongside and overlap with other management approaches. A saving being targeted by portfolio and programme management could easily be executed via, say, the supply chain in the way particular schemes are procured. To some extent this is already reflected in the efficiency savings register where there is a marker to show the change driver as opposed to the category the efficiency has been recorded under. The change driver marker includes programme management but not portfolio management.

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In order to further target savings from portfolio and programme management it might be worth considering a reporting mechanism that identifies, records and highlights the savings attributable to both portfolio and programme management. This would show the valuable savings already being made as well as act as a reminder to continue to focus on portfolio and programme management for future savings. This would support the old adage of 'what gets measured gets managed'. It might be that alongside reporting efficiency attributable to portfolio and programme management capability HE might also want to report efficiency against the other two capability review areas of procurement and asset management.

Recommendation 1.9: Consider a reporting mechanism that highlights savings from portfolio and programme management to further promote efficiencies to be gained from the use of portfolio and programme management.

If an additional reporting mechanism is developed, care needs to be exercised to avoid double counting the savings. Extending the example above where a saving prompted by the use of a portfolio management approach might be executed via, say, supply chain provides a situation where both areas may want to claim the saving or inadvertently both record the saving. Either way, savings can only be counted once when constructing the overall saving total so the saving will have to be apportioned appropriately or duplicates removed when creating overall totals.

Examples of good practice

Noted in Table 1 are examples of good practice in portfolio and programme management. As mentioned previously, these examples show that programme and especially portfolio management are organisation wide within HE.

Table 1 - Examples of good practice in portfolio and programme management

Consolidated risks

The Smart Motorways monthly risk report includes consolidated risks that concern the entire breadth of the programme, not just an aggregated list of individual scheme risks.

Aligning investment and renewals

Regional Investment Programme (RIP) boards have been formed with RIP structures and Repairs and Maintenance regional structures geographically aligned to provide 'joined up' interventions and savings. There are also instances where scheme business cases have explicitly considered repairs and maintenance opportunities.

Resource availability

Planning is currently being undertaken to manage availability of contractors and plant at end of RIS1 / start of RIS2. This is being done at an HE portfolio level and in coordination with other national infrastructure providers such as Network Rail, Hinckley Point and National Grid.

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Local Enterprise Partnerships ('LEP')

Engaging with LEPs and Local Authorities to deliver some jointly funded projects through their supply chains, e.g. M4 Junction 17 project managed by Wiltshire County Council and M27 Junction 9 managed by Hampshire County Council on behalf of Highways England and the LEP, relieves the pressure on critical resources in HE's portfolio.

Combining works

Project overheads and method related costs have been saved as well as disruption to road users minimised by consolidating schemes such as M1 Jct 23a-24 and M1 Jct 24-25.

Accelerating benefit realisation

HE has already identified and brought forward schemes to enable the earlier realisation of benefits such as the A19 coast road, M1 Jct 45, and A52 Nottingham Jcts.

Strategic Financial Planning

Establishing this function was a necessary enabler to improving longer term planning and management.

Board Investment Committee

Provides a suitable platform for implementing portfolio management by setting the strategic direction and sanctioning resources to execute and deliver the portfolio.

Efficiency case studies

The SMP is looking to provide an order book for central reservation barriers, which will allow the use of pre-cast rather than slip-formed barriers, at a significant cost saving. It is good programme and portfolio thinking to adopt such an asset standardisation approach. Once the saving is captured and entered onto the central efficiency register, there is a comprehensive governance mechanism involving the local PMO, Finance Business Partner and then the Commercial and Procurement team to ensure the saving is valid and if greater than £750k a case study is written up so other areas can see if they would benefit too.

Corridor approach

In order to enhance route performance, reduce disruption to road users of multiple road works along routes and to smooth demand on the supply chain, the capital portfolio has been reviewed and optimised to bring together schemes that can be linked and joined up under corridors.

Corporate Workforce Capability

Two of the options being proposed by HE for building corporate workforce capability are recognised portfolio management techniques for dealing with the management of scarce resources in a portfolio, namely moving resources around programmes (refered to by HE as 'bounce') and adjusting the portfolio to undertake what can be achieved with the resources available (refered to by HE as 'blend').

Findings and Analysis

Sharing good practice

There is significant evidence of good practice in running programmes and increasing examples of good practice in portfolio management. The efficiency saving portal and associated case studies for descriptions of individual savings over £750k is the primary vehicle to capitalise and share the good practice more widely across HE. This works well for mainstream efficiency savings but does not have the level of detail or ability to easily search and obtain specific lessons learned in portfolio and programme management. As mentioned previously there are not any dedicated efficiency saving categories for portfolio and programme management and only programme management is covered under the change driver field. Additionally, a dedicated central database or repository for wider lessons learned in portfolio and programme management does not currently exist.

It is good practice for lessons learned to be shared with other in-flight programmes and portfolios as well as for informing future entities being conceived. This should apply organisation wide and include non-scheme projects and programmes and initiatives such as those being established and under way in HE2020. Ultimately this forms part of organisation wide knowledge management for HE.

> **Recommendation 1.10:** Ensure lessons learned in portfolio and programme management are captured clearly and easily shared across the wider company portfolio.

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2 Assessment of Highways England's plans to improve capability by the end of Road Period 1 (2020)

Current initiatives

'Highways England 2020 - Our Organisational Plan' ('HE2020') brings together all the elements of HE's plan for organisational change into one place. It describes the change initiatives being undertaken in each directorate as well as initiatives spanning the organisation.

Two of the cross-organisational initiatives have a direct impact on improving portfolio and programme capability. They are:

- Capital Portfolio Management
- Capability Management

The governance and decision making improvements being made in the 'better decision making initiative' should also assist the development of portfolio and programme management capabilities as both are key to successful portfolio and programme management.

Within one of HE's directorates, Major Projects, there is a Change Programme focused on improving programme and project management within the directorate. This was also the place of conception of CPM.

Capital Portfolio Management

This HE2020 cross-organisational initiative is building and developing the capital portfolio management functionality which is a major contributor, but not the only as evidenced by the other change initiatives in HE2020, to the development of portfolio management in HE. The main focus is on facilitating Integrated Portfolio Management across the company and the first step of this is an Integrated Portfolio Management Office ('IPMO') change group. This is a virtual group that is chaired by Finance and Business Services and draws on a number of directorates in pursuit of optimising the delivery plan and associated processes and practices. This correctly recognises that portfolio management is an organisation wide management practice.

CPM has made significant progress since its formation as borne out by the recent independent review into the value for money and deliverability of the portfolio. As a function it is maturing and has set a vision of where it wants to get to and has outlined a blueprint. The detailed planning required to complete and deliver against the blueprint and realise the vision was in its early stages as this report was being drafted and so was not available for review.

> **Recommendation 2.1:** Fully develop and share the detailed development plan for CPM and IPMO to increase the certainty and confidence in building the blueprint and achieving the vision for increased portfolio management capability.

There is a strong commitment to achieving the vision and staff who are more than capable of leading the change but, due to other priorities, a detailed development plan has yet to be produced. This has resulted in a degree of uncertainty. As a minimum, a detailed plan would provide the baseline against which progress could be monitored. It would also confirm the resourcing required which in turn would assist CPM in staffing up with permanent HE personnel rather than continue the use of external resources/contractors.

Findings and Analysis

Provided there is continued focus it is very possible for CPM and the wider integrated (enterprise) portfolio management approach to reach a significantly increased level of portfolio management capability by the end of RP1 but it is a steep development curve. However, it should definitely be able to reach maturity within RP2.

Capability Management

This HE2020 cross-organisational initiative is developing the capability HE requires to deliver RIS1 and set the foundations for RIS2. Within the project, programme and portfolio management area, this initiative has focused on project and programme management first. The initiative has developed a project and programme manager capability maturity model, capability assessment tool and career pathway which are currently being implemented.

The intention is to also include portfolio management in the near future. Until then this means that capability development in portfolio management due to this initiative will continue to lag behind project and programme management capability development for at least the immediate future.

As with the CPM initiative above, it is possible for this initiative to provide a significant level of portfolio management capability by the end of RP1 but it is a steep development curve. As some development activities necessarily have long gestation periods, it is more likely for it to achieve maturity within RP2.

For programme management capability development this HE2020 cross-organisational initiative is much further advanced as indicated by HE's current capability in this area and has clear plans for continued capability development. Provided these plans are implemented as planned it is expected this initiative will deliver an increasing level of maturity in programme management capability within RP1.

> **Recommendation 2.2:** Increase the focus on portfolio management capability development within the HE2020 cross-organisational capability development initiative in order to support the expedient development of portfolio management capability across HE.

Major Projects Change Programme

This was formed following the creation of HE to better manage Major Projects in the new environment where HE was given greater responsibility for delivering a suite of outcomes, not just outputs, across Major Projects and maintenance and renewals. It is concerned with improving programme and project management systems.

This programme is well established and has made good progress designing and constructing the new systems and processes required to support the management and delivery of Major Projects. It is now rolling them out and migrating from using external PDP resources to internal permanent HE staff. Not only does this assist the internalisation of the change within HE, it is also a more efficient resourcing model. Change implementation and management (using the outputs of initiatives to change HE), as opposed to change control (controlling the scope and baseline plan of projects), is a new and emerging area for HE.

Improving change management capability will become increasingly vital to HE to ensure the successful adoption and implementation of HE2020 as it progresses and its initiatives increasingly implement change.

This programme appears suitably resourced and governed to succeed. It is expected to continue to develop programme management capability in Major Projects and reach a high level of maturity by the end of RP1.

Findings and Analysis

HE2020 Organisational Plan

HE has chosen to run HE2020 as a series of distributed change initiatives with directorates taking the lead on designing and implementing the change in their areas. There is minimal central management. For example, there is no central change management budget for HE2020. Each directorate funds its own change initiative or contribution to cross-organisational initiatives.

This mechanism has been chosen so the directorates can manage their own rate of change so not to adversely impact their delivery.

When adopting such a change approach the questions that often arise are:

> *What is the priority when directorate delivery and HE2020 compete for resources?*
>
> *Could HE2020 proceed more quickly and efficiently if there were dedicated resources that could be deployed on change initiatives without adversely affecting day to day delivery?*

It is important that HE keeps this under review, especially as it develops its portfolio management capability where management across a portfolio will become more easily facilitated. For example, centralised budgets make it easier to fund dedicated resources that can be deployed in different areas of the business as required to work on change initiatives, allowing directorate staff to retain their focus on delivery. As HE is still below its full staff complement this might be useful.

Recommendation 2.3: Keep the balance between distributed vs central control of HE2020 under review, especially as capability in portfolio and programme management matures.

Given the interdependent nature of the directorates and cross-organisation initiatives it might also be worth considering slightly more, but still light touch, central governance and coordination to:

- facilitate and increase collaboration between directorates
- provide consistency in approach with other programmes in HE and standardise outputs to ease implementation
- coordinate schedules and sequence the implementation of change to prevent change fatigue
- centrally manage scarce/key resources to optimise throughput and maintain momentum
- consolidate risk management to reduce the overall budget for mitigation
- capture and share lessons learned to continuously improve performance
- increase the likelihood of timely benefit realisation
- eliminate or reduce re-work from sub-optimisation.

Looking closer at risk management, the use of consolidated portfolio risk management techniques could prove useful to HE2020. Managing risks directorate by directorate in support of an overall organisational change plan requires each directorate to budget for mitigating the worst case scenario. Taking a portfolio view and consolidating the risk management with central facilitation can model the overall worst case scenario which will almost inevitably be less than aggregating directorate by directorate. This in turn reduces the overall mitigation budget making for a more efficient programme and reduced funding provision.

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Recommendation 2.4: Given the interdependent nature of the change initiatives consider slightly more, but still light touch, central governance and coordination of HE2020 to optimise the implementation of change and realisation of benefits.

Resource planning/constraint

HE is implementing a new strategic workforce planning tool. This provides resource predictions for schemes and in turn the portfolio. As the tool is embedded it will improve the estimation of resource requirements. This should in turn provide more advanced notice and confidence of resource demand profiles as well as earlier identification of critical resources. The gap between actual and planned headcount is narrowing quickly but resourcing remains a primary constraint to progress.

Recommendation 2.5: Continue to implement the strategic workforce planning tool and refine its calibration as required.

During interview, the senior managers consistently displayed clear insights into the priorities and wider purpose of their role (how it should fit in with the 'big picture') and were eager to improve the organisation. However, as the rate of progress developing capability is constrained by a lack of HE permanent resource it is reasonable to suppose that a model that focuses on this constraint and helps to make the necessary amount of resource available should prove attractive.

Findings and Analysis

3 Establish an improvement trajectory for Highways England's portfolio and programme management capability to the end of Road Period 2

The additional responsibilities for HE of managing a larger and more complex capital portfolio requires development of a capability that HE has recognised and is rapidly developing. As previously described, progress in programme management capability is advancing well with portfolio management at an earlier stage in its development.

The plans for continuing to develop programme management are well documented and provide a basis for measuring progress. As such, it provides greater confidence of achievement. The vision and blueprint for integrated portfolio management is understood and articulated at a high level within HE2020 but the detail is still being drafted and developed. Without detailed plans and monitoring points there is much less certainty as to the timings and maturity levels at key points but there appears to be no reason why significantly increased capability will not be achieved. There is certainly the motivation and understanding to succeed but no detailed plans as yet. This uncertainty is reflected in the trajectory in 'Figure 1 – Trajectory of improvement'.

Figure 1 shows the relatively more mature current position of programme management and the single trajectory reflects the high degree of confidence in executing its robust improvement plans. The current position of portfolio management is less advanced than programme management but there is a strong determination and the potential to reach a similar level of maturity by the end of RP1, certainly during RP2. The range of trajectories for portfolio management reflects the necessary uncertainty due to the relatively lower current position, less detailed planning in place and steepness of the trajectory.

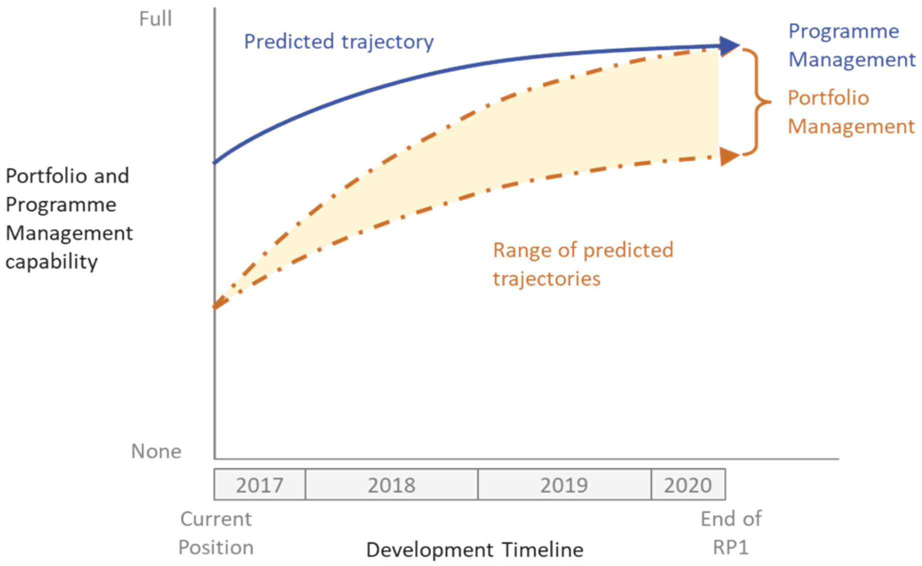

Figure 1 – Trajectory of improvement

(Please note the figure is indicative and not scaled.)

Findings and Analysis

There is a relatively high degree of confidence in the predicted maturity of programme management by the end of RP1. The length of the timeline and the steepness of the portfolio management trajectory suggests it would be prudent for HE to undertake a further light-touch review into this capability area at the end of RP1 to ensure the continued focus of management, robustness of future plans and achievement of progress at that point in time. Whilst doing so, a brief re-confirmation of the programme management trajectory would be worthwhile.

Programme management is expected to maintain a high level of maturity through RP2 and portfolio management could reach a similar level during the early stages of RP2 if not by the end of RP1. Due to the number of variables and uncertainties, it is not currently possible to predict the outcome to the end of RP2 with any greater precision.

> **Recommendation 3.1:** Undertake a further light-touch portfolio management capability review at the end of RP1 to re-confirm management focus, robustness of plans and progress to update the trajectory into RP2. Whilst doing so, re-confirm the programme management trajectory as well.

Findings and Analysis

4 Determine the scope for efficiencies resulting from these improvements to portfolio and programme management during Road Period 2

The linkage between improvements in portfolio and programme management capability to the efficiency savings that can be made in managing a portfolio of investment is complex as there are many variables to consider. It is not a precise science and we cannot, therefore, be certain of the outcome. Two main sources of information used to establish a link between capability improvement and efficiency saving are our experience in working with other clients in this area and publicly available case studies.

For the case studies, we have undertaken desk based secondary research of different organisations that have successfully implemented portfolio and programme management. They cite ranges for the quantitative efficiency improvement, reflecting the difficulty directly linking efficiency to portfolio and programme management. 'Appendix 3 – The benefits of implementing portfolio management' details the case studies.

Before translating the case study estimates and our experience into what is possible in HE we took into account that HE is a Government owned company and infrastructure provider, recently formed from an executive agency, and is governed differently from a fully commercial organisation. It is more constrained in its funding options, decision making and has less freedom to structure the portfolio than a fully commercial organisation. Accordingly, the target savings level for HE is correspondingly lower than the savings being cited in the case studies and our own experience.

Taking the case studies and our own experience into account we are of the view that the adoption of full portfolio and programme management capability by HE would make the execution of the portfolio approximately 10-15% more efficient than if HE did not have any capability in portfolio and programme management.

It is important to note that HE already has a significant capability in portfolio and programme management as shown in the improvement trajectories in the previous section. The efficiency register shows that approximately half the current rate of efficiency savings can be attributed to portfolio and programme management, as described in the 'Realising target savings' paragraph in section 1. Taking into account the total savings to date in RP1 and the estimated proportion of those attributable to portfolio and programme management, it is reasonable to conclude that a significant proportion, but not yet half, of the 10-15% savings potential from portfolio and programme management is already being achieved.

Taking the forward position of the trajectories, the minimum expectation would be to achieve a significant further increase and reach a saving level in the region of approximately half the savings potential by the end of RP1 by executing the detailed plans already in place. The upper expectation to achieve the savings potential in full should be feasible in RP2 if HE continues to develop its capability by constructing detailed plans for portfolio management and considering the recommendations in this capability review report. This is summarised in 'Figure 2 – Potential savings'.

If HE is constrained in being able to focus, as currently envisaged, on portfolio and programme management it is highly likely the savings potential would also be constrained and reduced accordingly.

Findings and Analysis

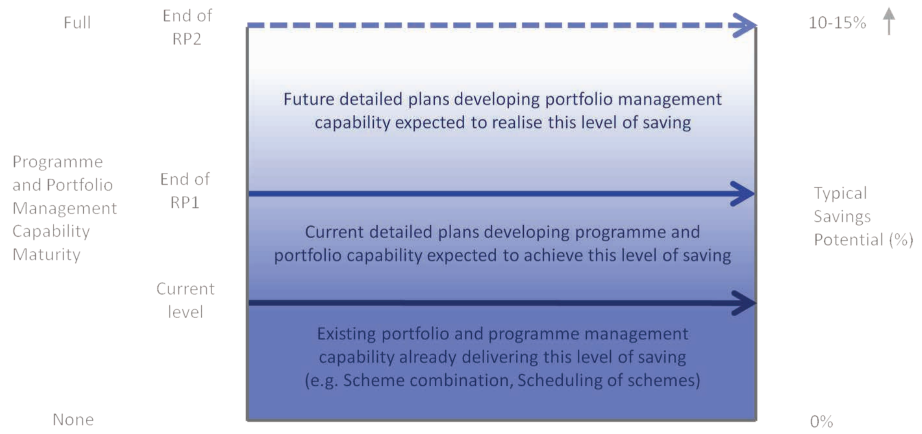

Figure 2 – Potential savings
(Please note the figure is indicative and not scaled.)

Further details on the assumptions and estimating method behind 'Figure 2 – Potential Savings' can be found in 'Appendix 4 – Capturing current efficiencies and estimating future efficiencies'.

Efficiencies to date

Reviewing the efficiency savings achieved so far in this Road Period (15/16 and 16/17), shows:

- HE has exceeded its own targets
- the absolute saving per year has increased
- the saving as a percentage of the capital portfolio spend per year has also increased.

With only two years' worth of data points it is too soon to be confident of a trend but it is interesting to observe the coincidence of this with the rapid development to date of portfolio and programme management.

Such an analysis would be much easier with a specific savings report for portfolio and programme management to compare against (recommendation 1.9). Without this report it will be difficult to monitor and link capability development to improvements in efficiency.

If an additional reporting mechanism is created it need not replace the existing reporting. Portfolio and programme management are not mutually exclusive to the existing reporting categories. It is possible to use at least two of the existing categories as proxies for portfolio and programme management. As mentioned previously, there needs to be an awareness that portfolio and programme management prompted savings might easily be recorded in other categories, for example Scheduling of Schemes, and care should be taken not to double count the savings. In other words, a significant proportion of the £1.2bn saving is already being delivered by portfolio and programme management as shown in 'Figure 2 – Potential savings' and borne out by analysing the efficiency register. However, there isn't currently a dedicated report showing it.

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Accelerating the savings

Recommendation 2.3 stresses the importance of keeping the balance between distributed vs central control of HE2020 under review, especially as the capability in portfolio and programme management matures. This is likely to become increasingly important to the implementation of change and in turn the unlocking of savings. HE2020 is developing the very capability that can improve the way that both HE and HE2020 can be structured and managed to further develop capability and realise savings.

> **Recommendation 4.1:** Ensure the business case and plans for HE2020 are kept under constant review for opportunities to accelerate HE2020.

Conclusion

HE is striking a conscious balance between focusing on scheme delivery and building capability in order to achieve the target savings. As the Road Period progresses the savings target increases in both absolute and percentage terms so the contribution by portfolio and programme management capability will become increasingly important. It is paramount HE continues its development in this area.

Fortunately, improving portfolio and programme management capability will also make it easier to run HE2020 which in turn will further increase capability as well as deliver the other changes also contributing to the efficiency being targeted.

Whilst HE is resource constrained it is unlikely that HE2020 could proceed any faster without affecting delivery. However, as resourcing increases and capability develops it might be possible to increase the pace of further capability development. This will need to be kept under review as will investing additional short term funds into the plan in order to unlock savings sooner. The value of savings being targeted means only a small increase in cost to achieve the return is still a very good investment.

Above all, detailed portfolio management plans need developing and progress monitoring to assure that the required trajectories being predicted are achieved.

> **Recommendation 4.2:** Ensure the relevant initiatives within HE2020 which facilitate the further development of portfolio and programme management capability development remain suitably resourced and are not delayed.

Appendices

1. Job descriptions and roles analysis
2. Utilisation of programme types
3. Benefits of implementing portfolio management
4. Capturing current efficiencies and estimating future efficiencies
5. Interviews undertaken
6. Documents reviewed

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Appendix 1 - Job Descriptions and Roles analysis

We examined the following role descriptions within the Major Project Directorate (‘MPD’) to assess the extent to which the roles were involved in portfolio management at a wider level in HE

Role	Reporting to
Programme Director, National Infrastructure Group	Executive Director, Major Projects and Capital Portfolio Management
Project Sponsor (Chair) (Regional Sponsor SMP)	Programme Director
Capital Portfolio Director (Head of CPM)	Executive Director, Major Projects and Capital Portfolio Management

Programme Director (‘PD’)

This role has some visibility of and engagement with wider organisational portfolio concerns, reporting directly to the Executive Director, Major Projects and Capital Portfolio Management. The PD is expected to engage with the Portfolio Office Directors in Major Projects and Operations.

While the role’s main purpose is leadership of the MPD and focused on the internal effectiveness of the directorate, there is recognition for the need to ensure integration with other HE directorates, to ensure adequate communications with wider stakeholders, and to liaise with the HS2 and Heathrow expansion projects. The establishment of a National Infrastructure Group within MPD appears to be the mechanism for managing these external interfaces with other major infrastructure providers.

The role mandates identifying scheme options for the next Road Investment Strategy period (RIS2) based upon the route strategies and studies ‘carried out elsewhere in Highways England’s business’. This indicates that the directorate’s work will take account of wider organisational portfolio priorities.

This evidence indicates appreciation of the need to take a wider view of resourcing as well as internal and external portfolio dependencies. However, the PD role description largely focuses on leadership within the MPD.

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Project Sponsor (Chair) (Regional Sponsor SMP)

This role initiates and oversees the delivery of a portfolio of projects (within the MPD), and engages with the Investment Decision Committee and CPM, as well as maintaining strong relationships with external stakeholders. It oversees the development business cases of projects that reflect the aims and objectives of the RIS and fit with longer-term HE strategy.

The role is largely focused on overseeing projects within the MPD portfolio.

Capital Portfolio Director (Head of CPM)

There is currently only an outline role description available but the HE2020 cross-organisational initiative for CPM describes the future direction of CPM which the Capital Portfolio Director leads. The CPM initiative is central to establishing Integrated Portfolio Management across the wider HE and working with other Directorates to do so.

Conclusions

The Programme Director and Project Sponsor roles within MPD are using portfolio management approaches within MPD and, to a lesser extent, across the wider HE portfolio.

The Capital Portfolio Director (Head of CPM) is necessarily using portfolio management approaches and, further still, encouraging them across the wider HE.

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Appendix 2 – HE's utilisation of programme types

Programmes, in all instances, are a collection of projects and business as usual work initiatives that have a central, visionary, strategically-driven objective. As a consequence they frequently have to accommodate the achievement of persistent cultural and behavioural change. As the journey to the end state cannot be clearly defined and planned in the early stages, programmes are essentially complex and risky because of high levels of uncertainty. Equally, their structures have to be able to accommodate flexibility as changes in direction or route to the vision are likely to occur over time.

They also typically have extended timescales (usually beyond eighteen months) as a result of the scale of work that they are required to undertake. This in itself represents another source of complexity and management challenge because, naturally, over extended timescales the external (supply, demand and political) environments also change.

Beyond these common characteristics there are three distinctly different types of programme which have different management demands. These three types are styled as 'embedded', 'isolate' (sometimes known as 'green field') and 'portfolio'.

HE is using each type in its organisation demonstrating a significant level of maturity in programme management.

A brief description of each is offered below.

Embedded type programme (business change programme)

Description: The primary driver of this type of programme is the recognition of the need for wholesale change within the organisation to bring about a new operational paradigm. This is normally as a response to strategic developments and the adoption of a new vision for the organisation. Understanding the customer and business value propositions and mapping these to the change from current to future state is critical to successful management.

Hallmarks: The unique characteristics can include high levels of complexity (particularly organisational/political complexity). Programme critical interfaces (PCIs), where the outputs or outcomes of one project combine with the outputs or outcomes of others to provide key points of value to the overall programme and require programme level management.

Direction of management attention: As these programmes are heavily benefits dependent, management must focus sharply on the achievement and embedding of the behavioural change that will give rise to additional value. This means the development of clear and supportable benefits positions against which management can regulate and set direction of the constituent works (organising appropriate tranches of projects between periods of consolidation) and gain the support of the 'change agents'. Stakeholder engagement is the other key area of focus, as such programmes will almost inevitably cross organisational boundaries. Hence boundary management should feature prominently in the manager's skill set.

HE Example: Within HE the Major Projects change programme is an example of this type of programme. Aimed, as it is, at bringing about an operating model that encompasses new ways to project manage the delivery of schemes.

Isolate type programme (sometimes called 'green field' type programmes)

Description: This type of programme, as the title suggests, is driven by the need to master a new strategic capability that is not part of the overall organisation's current skills or behaviour set. Establishing a new strategic business unit for an established business might represent such a type of programme.

Hallmarks: Limited 'political impact' across organisational boundaries – although there

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will have to be operational interfaces, 'isolate' programmes do not usually represent a political threat to existing areas of the business. New skills, new additional assets or new challenges that can best be addressed or approached outside.

Direction of management attention: Identifying, developing and optimising new skills, capabilities and processes are the route, for these programmes, to the attainment of value. Leaving a legacy of useable 'lessons learned' and technology/processes that can be replicated cheaply and effectively anywhere else that the organisation chooses to is also important.

HE Example: Within HE the Complex Infrastructure Programme is an example of a green field type programme. Acquiring transferable skills and processes in new areas (such as complex stakeholder engagement) is fundamental to this programme's success.

Portfolio type programme

Description: The portfolio type programme has a clear strategic objective which is unlikely to alter. This means that the work that will deliver the objective can be readily identified and planned. Due to the volume of work (much of which is similar in nature), its efficient management is one of the primary challenges in this type of programme. Consequently it is closer in management style to a portfolio than a programme; however it is legitimately a programme because of its strategic and unitary objective.

Hallmarks: The unique characteristics of such a programme are a clear and stable objective. Large volumes of similar work. A constrained resource-pool capable of delivering the work. Relatively low contention amongst the client, supplier and internal boundaries as to the necessity or direction of this type of programme.

Direction of management attention: The challenge is essentially one of delivering significant volumes of work so the focus of management attention should be on achieving and spreading cost efficient approaches; both in material and process terms.

HE Example: The Smart Motorways Programme is a perfect example of the portfolio type of programme.

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Appendix 3 - The benefits of implementing portfolio management

The examples cited below are taken from a desk study of different organisations who have implemented enterprise portfolio management. They each describe a positive impact on their organisation's overall performance. All describe qualitative improvements including:

- better decision making
- greater collaboration across their organisation
- better market competitiveness
- increased ability to react to market changes
- greater clarity of purpose.

Much of these qualitative improvements can already be seen in HE too, such as, but not limited to, the HE2020 cross-organisational initiative 'better decision making' or obtaining greater market competitiveness through enterprise wide procurement 'Routes to market' or providing greater clarity of purpose with the publication and use of rich pictures in HE2020.

Further details including quantitative estimates of efficiencies are described below.

ORR report[1] proposed how Portfolio Management could enable savings of 6 – 18%

Recommendations in this report included 'mechanisms to better manage the portfolio of programmes and the interactions between programmes'.

Citing benefits of a more integrated approach, the report used the example of Thameslink, a programme introducing new operational concepts and technology, but lacking an effective strategy for systems integration to deliver an effective transport service.

The key to success has been the development of a clear 'route map to success' and a multi-discipline, multi-stakeholder Systems Integrator – effectively an enterprise-wide portfolio level management and governance mechanism for technical design– to ensure that the system design reliably delivers the expected benefits. This has delivered significant benefits that we would expect to be features of enterprise portfolio management, such as:

- modelling and communicating to stakeholders how the organisation will operate
- identifying and removing non-value adding requirements

The report then highlights further potential for savings by:

- reduced over-engineering of systems
- better selection of more effective approaches, leading to faster programme implementation during the expensive later phases, reducing overheads and delivery staff costs; and
- increased focus on delivering transport outcomes.

1 ORR, 'Realising the Potential of GB: Rail Final Independent Report of the Rail Value for Money Study', 2011

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Another area examined was supply chain management – optimising sustainable value delivered to customers against suppliers' costs. They recommended:

- development of a clear and consistent supply chain strategy
- deployment of appropriate contracting frameworks
- visibility of future demand to allow forward planning and identification of problems/ opportunities
- utilising strategic partnerships along the supply chain
- providing incentives to stimulate continuous improvement in outputs through long-term strategic alliances.

One train manufacturer estimated that there are potential savings of 20% in the cost of manufacturing trains through a combination of:

- a smoother demand profile
- running procurement processes better and
- more standardisation of vehicles.

> “ *…the industry needs to develop mechanisms to better manage the portfolio of programmes and the interactions between programmes* ”
>
> **ORR**

A study[2] by the Crown Estate claims over 31% savings from enterprise-wide management of procurement

An in-depth study of offshore wind costs cited enterprise procurement management as a driver of savings through:

- consolidating procurement contracts and so reducing interfaces, contingencies and cost overruns
- improving interface management
- sharing of best practices and facilities
- development of joint intellectual property among the same tier of the supply chain
- economies of scale leading to productivity improvements by standardising processes and components and by increasing volume throughput and run lengths
- moving away from lump sum contracts, and introducing incentive mechanisms.

Using a Supply Chain Efficiency model, they reported that supply chain savings (and attendant benefits to the cost of capital) contributed significant improvement to the bottom line.

Although the savings were realised and categorised under procurement, the enterprise wide approach was utilising portfolio management concepts. This shows that portfolio management co-exists with and overlaps other functions and management principles within an organisation.

> “ *These supply chain levers have the potential to reduce capital and operating costs and / or risks* ”
>
> **The Crown Estate**

[2] The Crown Estate: 'Offshore Wind Cost Reduction, Pathways Study, 2012

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A number of other reports describe the scope for savings by adopting portfolio management.

McKinsey claims[3] savings of 15% to 30%

The study examined a range of small to medium sized engineering projects (worth up to $50 million) in the chemical sector. The portfolio management disciplines contributing to this financial improvement were:

- alignment of capital strategy allocation with corporate strategy
- optimising portfolios for cost, value and risk
- streamlining front-end concept and design
- implementing lean project governance and stage-gate processes.

PWC reports[4] 25% revenue increases, with project ROI improved by up to 28%

The report claims that companies that excel at portfolio management typically complete projects more efficiently in terms of cost and time, and that effective portfolio management can enable companies to achieve improved financial results. They identify the necessary components as:

- strong governance and accountability at appropriate levels of the business to ensure strategic alignment, make effective decisions and escalate issues
- regular reviews of the portfolio performance monitoring and benefits realisation processes to ensure that proactive action can be taken to remedy underperformance
- use of EPfM offices to support and assure good portfolio management practices.

Ernst & Young cites[5] 30-40% improvement in project success

The case study, of public sector organisations, describes how portfolio management helps ensure benefits achievement and improved clarity of decision-making which leads to improvement in return on investment.

It describes how corporate planning and the business operating model must be linked to enterprise portfolio planning, management and delivery in order to achieve full organisational benefits.

[3] McKinsey: 'Small equals big: Unlocking savings in small to midsize capital-project portfolios in chemicals', April 2016

[4] PWC 'Strategic portfolio management - How governance and financial discipline can improve portfolio performance', June 2012

[5] Ernst and Young: 'In control: how project management can improve strategy deployment' from Performance (volume 5, issue 1), February 2013

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KPMG reports[6] how project savings can be leveraged across the enterprise

KPMG took the example of a money-saving innovation - offsite modular construction – produced relatively modest savings at project level by reducing construction times. However, when adopted at the enterprise portfolio level, significantly larger savings were realised, more than merely aggregating savings over several construction projects. The enterprise portfolio perspective allowed companies to introduce even greater savings through:

- adoption of standardised components,
- lower procurement cost of components arising from economies of scale, and
- reduction in procurement and design costs.

[6] KPMG: 'Smart construction', April 2016

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Appendix 4 – Capturing current efficiencies and estimating future efficiencies

Current efficiencies

The principal source of information for understanding the current savings attributable to portfolio and programme management is the efficiency register. Currently there is no dedicated efficiency category for portfolio and programme management, so proxies in the register have been used to estimate the current level of saving. The main proxies are 'Scheme combination' and 'Scheduling of schemes' – both portfolio management techniques. Until a dedicated saving category for portfolio and programme management is available it is not possible to be more precise than to observe that approximately half of the current efficiency savings achieved in 16/17 can be attributed to portfolio and programme management.

Future efficiencies

The level of savings possible from HE having a fully mature portfolio and programme management capability compared with not having such a capability is necessarily articulated as a range (10-15%) to represent the inherent uncertainty in both estimating the future outcome and in being able to record and measure it. Linking portfolio and programme management capability to efficiency is not a direct relationship. There are a great number of variables and intermediate steps that all carry a degree of uncertainty and make the overall relationship complex.

To illustrate this, the Major Projects Change Programme is implementing at least eight new processes, all of which are expected to contribute to the more efficient delivery of the portfolio. However, determining exactly how much each process will contribute is difficult to predict. Each process will create a number of changes that in turn will lead to efficiencies. To undertake this type of bottom up estimate would be a massive task with a high degree of uncertainty generated by aggregating each individual uncertainty.

Instead, a top down estimating approach has been used in this report where the overall efficiency saving achieved in similar situations elsewhere, noting HE is governed differently from a fully commercial company, is used to derive the 10-15% potential saving level.

With this in mind it is not possible to be more precise than to estimate that:

- taking into account the total savings to date in RP1 and the estimated proportion of those attributable to portfolio and programme management, it is reasonable to conclude that a significant proportion, but not yet half, of the 10-15% savings potential from portfolio and programme management is already being achieved
- the current plans in place to the end of RP1 are likely to achieve a further significant increase and reach a level of saving in the region of approximately half the 10-15% savings potential by the end of RP1
- the remaining proportion (approximately half, but this will depend on the outcome of RP1) of the 10-15% potential should be achievable in RP2 provided the future detailed plans are developed and implemented by HE.

This is summarised pictorially in 'Figure 2 – Potential savings' which is indicative and cannot be scaled.

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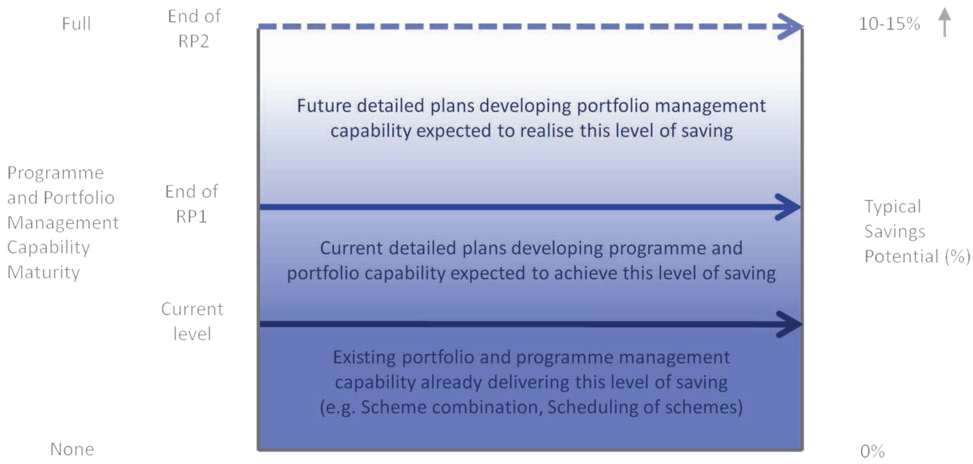

Figure 2 – Potential savings

(Please note the figure is indicative and not scaled.)

Examples of the types of changes that are expected to further increase capability and contribute to the further savings predicted during Road Period 1 are:

- increased staff retention from rolling out Project and Programme career paths
- increased sharing of good practice in portfolio and programme management practices
- increased internalisation of capability by continuing to migrate to permanent HE staff.

Examples of products being delivered that should increase capability are:

- risk management tools
- scheduling tools
- strategic workforce planning tool
- CRM system
- information collaboration tool
- project and programme management change management system
- cost management system.

For Road Period 2, examples of the possible changes that might contribute to the remaining savings are much harder to define. Developing and implementing the detailed plans for portfolio management mean the principles could manifest themselves in a number of different ways for HE. Some possibilities are identified below; however, these cannot be fully determined until the outcomes from the changes implemented in RP1 are established.

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HE may find that a combination of some of these concepts and continuing or furthering other changes from RP1 will be more appropriate at the time.

- corporate identification, prioritisation and allocation of scarce resources to increase throughput and momentum
- consolidated risk management across all portfolios to reduce the risk profile and mitigation budget
- enhanced reporting of savings from portfolio management in order to target further savings
- detailed role profiles and career path for portfolio management, reducing staff turnover and increasing productivity
- a possible extension or successor to HE2020, perhaps HE2025
- central budgets and resources for implementing change
- increased sharing of good practice in portfolio management.

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Appendix 5 - Interviews undertaken

Mark Bottomley	Monitoring and Regulatory Compliance Divisional Director
Chris Bell	RIS1 Sponsorship Team
Adam Blenkharn	Efficiency Modelling and Forecasting Team Leader
Alex Cairns	Business Improvement Team
Gary Elflett	Business Improvement Team Leader
Jeremy Bloom	Strategy and Planning
Alan Couzens	Capital Portfolio Director (Head of CPM)
Nickie Gill	Major Projects Capability and Capacity Partner
David Haimes	Director of Regional Investment Programme within Major Projects
Stewart Jones	Programme Management Office, Regional Investment Programme
James Lowth	Director of Portfolio Office within Major Projects
Ted Miller	HE Workforce Planning Lead
Priesh Patel	Head of Reported Data and Business Systems, Smart Motorways
Shaun Pidcock	Programme Director, Smart Motorways Programme, Major Projects
Nick Sharman	Head of Strategy Finance
Matt Stafford	Value Management, Regional Investment Programme
Paresh Tailor	Head of Capital Sponsorship
Chris Taylor	Complex Infrastructure Programme within Major Projects
Russell Wallis	Major Projects Change Programme

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Appendix 6 – Documents reviewed

HE documents

- Assignment Brief for the position of Strategy and Sponsorship Director, Smart Motorway Programme for Highways England
- Board, Executive and senior management structure, October 2016
- Capability Assessment Tool Overview
- Capability Assessment Milestones and Activities - Draft
- Capability Maturity Assessment: Programme Management and Collaboration
- Capital Efficiency Delivery Plan Road Investment Period 1
- Capital Portfolio Management – Team Introduction
- Capital Programme Review– Major Schemes progress status
- Change Implementation Plan on a page evolution of management information and capability
- Commitments Log
- Efficiency Register
- CPM Early discussions on remit
- Current and Historic Benchmarking Workshop with ORR
- Efficiency Evidence and Assurance – Overview Document – 3 March 2017
- Efficiency Guides – Purpose and Governance – 13 August 2016
- Efficiency and Inflation Monitoring Manual
- Efficiency Saving Case Study
- Executive Committee Report: MP Scheme Oversight and Decision Making
- HE response to ORR report on their supply chain capability
- Highways England 2020 – Our Organisational Plan
- Highways England 2020 – Our Organisational Plan – Executive Summary
- Highways England 2020 – Our Organisational Plan – Draft
- Highways England 2020 Steering Group Pack – Draft for discussion
- HE2020 Plan Steering Group Terms of Reference 2017
- Highways England Annual Report and Accounts 2015-2016
- Highways England Annual Report and Accounts 2016-2017
- Highways England Delivery Plan 2015-2020
- Highways England Delivery Plan 2016-2017
- Highways England Delivery Plan 2017-2018
- Highways England Efficiency Report 2015-16
- Highways England Efficiency Report 2016-17 draft
- Highways England Operational Metrics Manual June2016

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- Highways England Strategic Business Plan 2015-2020
- Improvement Implementation Plan (Annex A)
- Innovation, Technology and Research Strategy Programme
- Job description - Assistant Project Manager
- Job description - Programme Director, National Infrastructure Group
- Job description - Programme manager
- Job description - Project Director
- Job description - Project Manager
- Job description - Project Sponsor (Chair) (Regional Sponsor SMP)
- Job description - Senior Project Manager
- Learning and Resourcing 3 year Plan 2016 – 2019
- Major Projects Corporate Capability Measure - Draft
- Major Projects Organisation Structure – 28th Nov 2016
- Major Projects New Systems and Processes Roll Out
- Major Projects PPM Career Pathways Draft
- Major Projects Career Pathways Overview
- MP Change Programme Plan
- MP Change Programme Presentation
- Major Projects Project Control Framework
- NDD Portfolio Control Framework (Operations PCF) Frequently Asked Questions (FAQ)
- Network Delivery and Development Directorate, NDD Portfolio Control Framework – Changes For This Release v1.0
- Network Delivery and Development Directorate, Portfolio Control Framework Handbook
- PCF on a page
- Performance Monitoring Statements Year end 2015-16
- Procurement plan Road Investment Strategy period 1 2015-2020
- Project Economic Appraisal Tool (PEAT) User Documentation
- Project Economic Appraisal Tool Training Slides
- Regional Investment Programme Risk Management Plan
- Response to ORR Annex A
- Risk and Early Warning Management Plan
- Route strategies: Strategic Outline Business Case - A1 Bristol Box (M49 Junction)
- Strategic Workforce Planning Recruitment Dashboard Overview Presentation
- TAME software tools

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ORR documents

- Annual Assessment of Highways England's Performance April 2015 – March 2016
- Annual assessment of Highways England's performance: Summary April 2015 – March 2016
- Approach to the second Road Investment Strategy
- Highways Monitor: report on HE's capital planning and asset management Feb 2017
- Initial assessment of Highways England's performance in 2015-16
- Monitoring Highways England's network investment 's approach
- Review of Highways England's delegated expenditure controls 27 July 2016

DfT documents

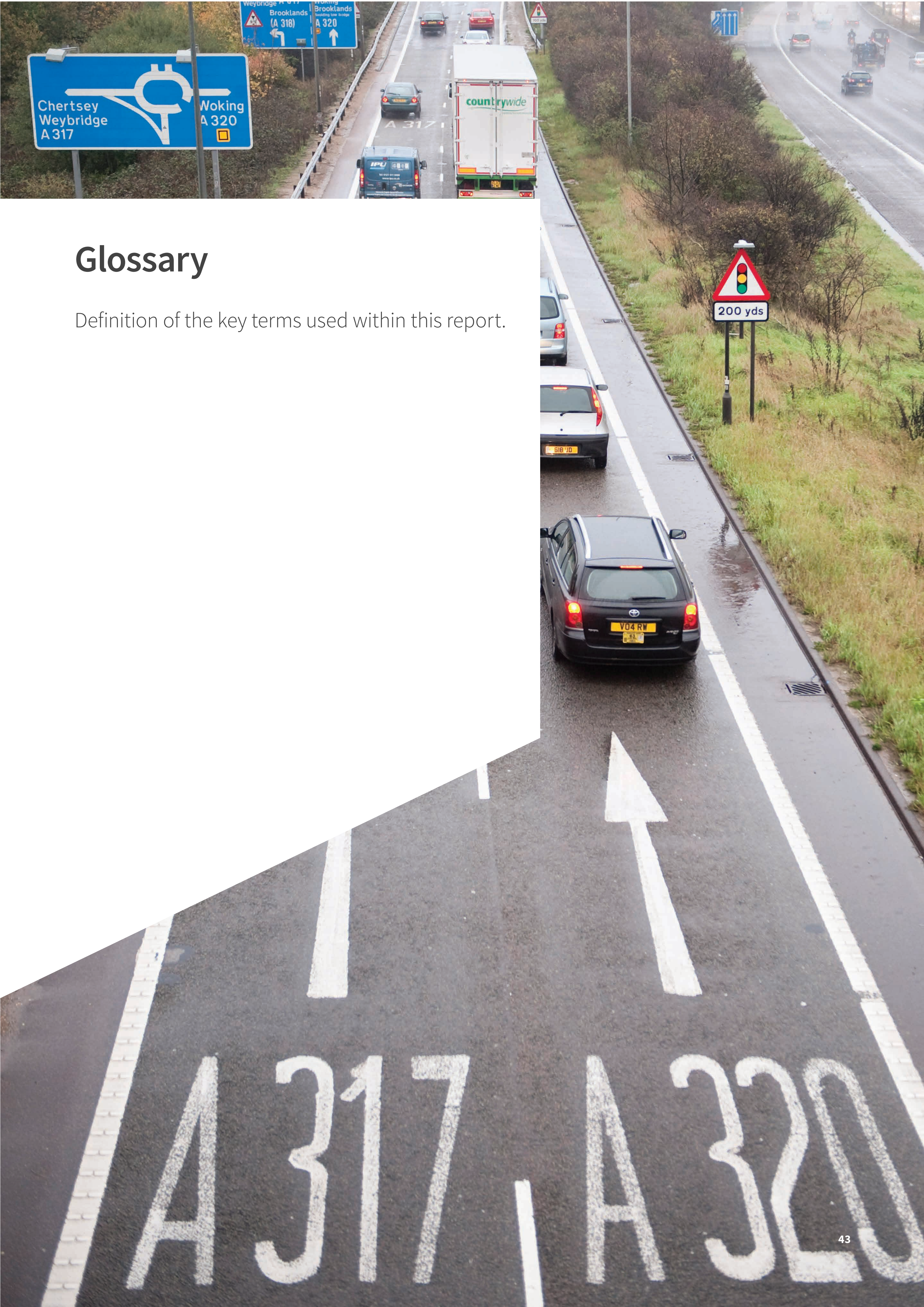
- Early Assessment and Sifting Tool (EAST) Guidance
- RIS amendments to 31st March 2016
- Road Investment Strategy: for the 2015/16 – 2019/20 Road Period Presented to Parliament pursuant to section 3 of the Infrastructure Act 2015
- The transport business cases
- Transport Analysis Guide - the transport appraisal process

Other documents

- CREDO: Review of Highways England's Supply Chain Capability
- Deloitte: Highways England People Strategy
- HM Treasury: Infrastructure Cost Review: Measuring and Improving Delivery
- IPA Annual Report on Major Projects 2016-17
- NAO: Progress with the Road Investment Strategy

Glossary

Definition of the key terms used within this report.



Glossary

Aggregated approaches
Is the collecting together of all information, knowledge and views from the level below in order to try and establish a 'comprehensive' view of the current position and/or options. For example, understanding the number and severity of all the risks faced by all the projects within the portfolio or programme would represent an example of an aggregating approach. Whilst comprehensive, aggregation doesn't attempt to identify or highlight the key portfolio wide risks or underlying causes driving similar individual risks.

Assurance
Is the proactive planning and management of activities aimed at safeguarding, as far as is reasonably practicable, investment funds to reduce risk.

CAPEX (capital expenditure)
Funds designated for the acquisition or development of permanent assets. These will reflect through into HE's balance sheet. See also 'Opex' and 'Totex'.

Consolidated approaches
In contrast to aggregation, consolidation focuses on the underlying drivers, key trends and characteristics of the overall portfolio which are then best managed centrally for the overall benefit of the portfolio. For example, recognising from many different projects there are common trends across the portfolio provides the opportunity to manage the trend more efficiently at a central portfolio level. Doing so might lead to sub optimisation in some projects but this is more than compensated for by the greater benefit overall. By contrast, an aggregated approach is optimised at the scheme level which invariably is less efficient than optimising at the portfolio level. For example, it is more effective to plan and allocate critical resources centrally than to have separate initiatives continually competing for the same resource. Likewise for risk management, a consolidated view and approach looks at portfolio wide risks and underlying issues which it is more efficient to manage centrally. It complements individual risk management being undertaken at the scheme/project level.

Capital Portfolio Management ('CPM')
Within HE, CPM is a department that is responsible for optimising the efficiency and value for money of the capital portfolio. It is a cornerstone in adopting portfolio management and is encouraging the wider use of portfolio management across HE by establishing an Integrated Portfolio Management approach.

Customer Relationship Management ('CRM')
Within HE, CRM is the mechanism that assists the engagement with large numbers of stakeholders and interested parties typically found on high profile or complex schemes.

Department for Transport ('DfT')
The DfT is the government department that sets the strategic goals for the strategic road network, provides the funding and oversees, via the ORR Highways Monitor, HE's delivery of road investment.

Designated Funds
A series of ring fenced funds designated to Highways England to address a range of issues beyond the traditional focus of road investment. These funds allow for actions beyond business as usual. They help Highways England to invest in retrofitting measures to improve the existing road network and maximise opportunities to deliver additional improvements as part of new road schemes. They focus on the environment, cycling, safety and integration, air quality, innovation, growth and housing.

Glossary

Enterprise portfolio management ('EPfM')
Portfolio management carried out at the highest level within an organisation and encompasses the totality of an organisation's investment (Opex and Capex) to achieve its strategic objectives.

The level of governance and management associated with enterprise portfolio management can vary depending on the organisation and environment. It can range from light touch and virtual to highly centralised and formal as required. Please also see 'Portfolio Management'.

Governance
In general this is the organisation's authority/decision making model. It includes definitions of roles, supporting processes, procedures and systems. It is more than just assurance.

Highways Monitor
Highways Monitor, part of the ORR, monitors and reports to the Secretary of State for Transport on Highways England's performance.

OPEX (operational expenditure)
Funds designated for undertaking normal ongoing day to day business operations. These are reflected in an organisation's profit and loss account. See also 'Capex' and 'Totex'.

Portfolio
A grouping of projects brought together under a single entity for management convenience. Typically this is because of resource commonality, subject/technical skills commonality or geographic or operational reasons. In essence portfolios are about maximising the organisational impacts when operating in a constrained environment.

Portfolio Management
Portfolio management manages an organisation's investment in changes (programmes, projects and change activities) required to achieve its strategic objectives. Its goal is to optimise the throughput of change in the organisation in pursuance of the organisation's strategic aims and values.

A top-level strategy for the portfolio is developed to indicate organisational business targets, spending priorities and risk appetite. This in turn gives direction to lower level delivery planning, which includes the balance of cost, benefit and risk to achieve optimal outcomes. This involves identifying necessary trade-offs between otherwise unrelated work initiatives, rescheduling or adjusting constrained resource allocations within the portfolio. All lower level decisions about resourcing and scheduling and scheme selection are subordinated to achieving optimal enterprise portfolio outcomes.

For this to work effectively there is a need for a clear line of sight between strategic decisions and lower level decision making. Options are developed and then decisions overseen through appropriate layers of governance bodies and new enterprise portfolio roles including enterprise design authority, portfolio director, and portfolio office management. Jointly, with top-level sponsorship, they ensure that the portfolio of change

- represents an effective allocation of resources (maximising value, minimising low-value work)
- reflects the risk appetite and the cost and other constraints of the organisation
- realises the desired organisational benefits
- is delivered effectively and cost-efficiently.

Please also see 'Enterprise Portfolio Management'.

Glossary

Portfolio strategy
This describes the corporately determined balance of the three factors of 'benefits maximisation', 'resource optimisation' and 'risk minimisation' in pursuit of current corporate strategy.

Programme
A grouping of projects and 'business as usual' initiatives brought together under a single entity in pursuit of an organisation's strategic objectives. They differ from portfolios in several ways two of the most significant of which are; all constituent pieces of work must be contributing towards the same strategic goal and each piece of work must have value from the strategic vision perspective.

Further details of different programme types are provided in 'Appendix 2 – HE's utilisation of programme types'.

Programme Management
The efficient and coordinated management of programmes (projects and change activities) to achieve beneficial change. See also 'Programme'.

Project
A discrete and temporary piece of work focused on the delivery of a defined set of outputs.

Sub-optimisation
Describes the deliberate reduction of one or more facets of an initiative's (or combination of initiatives) business case in favour of increasing another facet because it fits the business objectives rather than the initiative/s. For example, deciding to sacrifice some of the utility of a bespoke product in order to minimise cost by using a standardised design; would represent the sub-optimisation of functionality to achieve greater overall cost saving.

Throughput
A key area of portfolio management focus where the objective is to achieve the highest volume of output within the constraints imposed by the portfolio strategy.

TOTEX (total expenditure) / Whole Life Cost
This is a compound word describing the gross combined total of both CAPEX and OPEX. It is a useful concept because it allows the balancing of the two at an optimum level. It helps understand if it is beneficial to spend more capital funds up front in order to reduce operating funds in the future. It is particularly useful when examining the relative merit of two similar options as it provides a single overall figure for comparison.

About CITI

CITI was initially established as a specialist university institute in 1983; fusing the expertise of Cranfield University with the interests of six major users of change management: British Aerospace, British Gas, British Petroleum, British Telecom, Cable & Wireless and Longman.

Today, CITI is focused on providing support to our clients who are intent on improving the success of their change initiatives. Our long heritage in developing capability feeds into our consultants' knowledge and skill base, while the experience gained in supporting clients to develop their change capability enriches and keeps alive the theories and practices we employ.

Our proudest achievement is the way our clients say they have benefited from working with us - our models and approaches merging seamlessly into the way they work to implement successful change.

The true measure of value, and what makes our history the basis of CITI's future, is the longevity of our relationships with our clients - some lasting more than 20 years - as our partners and client-friends.

We are justifiably proud of our heritage at CITI. With over 30 years' experience in the areas of transformation, change, project, programme and portfolio management, we are recognised leaders in our field. We work with organisations and individuals to transform their ability to manage change by applying our expertise and experience. For individuals we offer training and development and for organisations we offer consultancy and advice.

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