

Office of Rail and Road

Review of Highways England's capability
to plan and deliver its RIS2 enhancement
capital programme



24 March 2021
Mandate Reference: ORR/CT/20-28



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1. Abbreviations

APM	Association for Project Management
BAU	Business As Usual
BCR	Benefit Cost Ratio
BIM	Building Information Modelling
C&P	Commercial and Property Directorate
CDF	Collaborative Delivery Framework
CIP	Complex Infrastructure Programme
CRM	Customer Relationship Management
DCO	Development Consent Order
DfT	Department for Transport
DIP	Delivery Integration Partner
DTP	Delivery Transformation Programme
FTE	Full Time Equivalent
IBIP	Improving Behaviours Improving Performance
ICM	Initial Capability Model
IPC	Integrated Project Controls
IPT	Integrated Project Team
MP	Major Projects Directorate
Oft	Open for Traffic
ORR	Office of Rail and Road
P3M3	Portfolio, Programme and Project Management Maturity Model
P3O	Portfolio, Programme and Project Office
PCF	Project Control Framework



	Planning Inspectorate
PPA	Project Performance Accelerator
RDP	Regional Delivery Partnership
RIP	Regional Investment Programme
RIS	Road Investment Scheme
RP	Road Period
S&P	Strategy and Planning Directorate
SGAR	Stage Gate Assessment Review
SMA	Smart Motorway Alliance
SME	Subject Matter Experts
SMP	Smart Motorway Programme
SoW	Start of Work
SRN	Strategic Road Network
TA	Technical Advisor
TfN	Transport for the North



2. Executive summary

2.1 Background

Highways England and Office of Rail and Road

Highways England was set up by the UK Government in 2015 as a government owned company and given responsibility for the management of the Strategic Road Network (SRN) in England and Wales.

At the same time as establishing Highways England, the Office of Rail and Road (ORR) was given the responsibility of being The Highways Monitor. Its role includes to review whether Highways England is delivering against the Road Investment Strategy (RIS) plan effectively and meeting its licence requirements.

Road Investment Strategy 2

Funding is set out in five-yearly Road Periods. On 11th March 2020, the UK Government published the second Road Investment Strategy (RIS2) covering Road Period 2 (RP2) from April 2020 to March 2025. At the heart of RIS2 is a list of planned enhancements to the SRN that the Government is funding Highways England to deliver. The government allocated £27.4bn over five years to Highways England, of which £14.2bn was for enhancement schemes. This compared to £6.87bn of the capital budget invested into major schemes in Road Period 1 (RP1). At the same time, Highways England is expected to deliver efficiency savings of £2.23bn over the five years.

In order to meet this significantly increased capital investment plan and challenging efficiency targets, Highways England embarked upon a number of major change initiatives during RIS1. These have included enhancing its ability to deliver projects, investing in the competences of its staff, creating communities of practice led by Heads of Profession and reshaping its contracting models. All of these are expected to deliver greater levels of capabilities over the RIS2 period.



2.2 Our remit

In November 2020, Highways England and the ORR jointly commissioned Nichols to conduct a review of Highways England’s capability to deliver its RIS2 enhancement programme, with a focus on the capabilities required in ‘project development’ and an emphasis on projects that are classified ‘below Tier 1’ (or sub-Tier 1). Tier 1 projects are typically over £500m, novel or contentious projects, and are subject to a higher levels of scrutiny and oversight by Department for Transport (DfT) and Her Majesty’s Treasury.

‘Project development’ covers the Options and Development stages of the Highways England project lifecycle Project Control Framework (PCF), shown in figure 1:

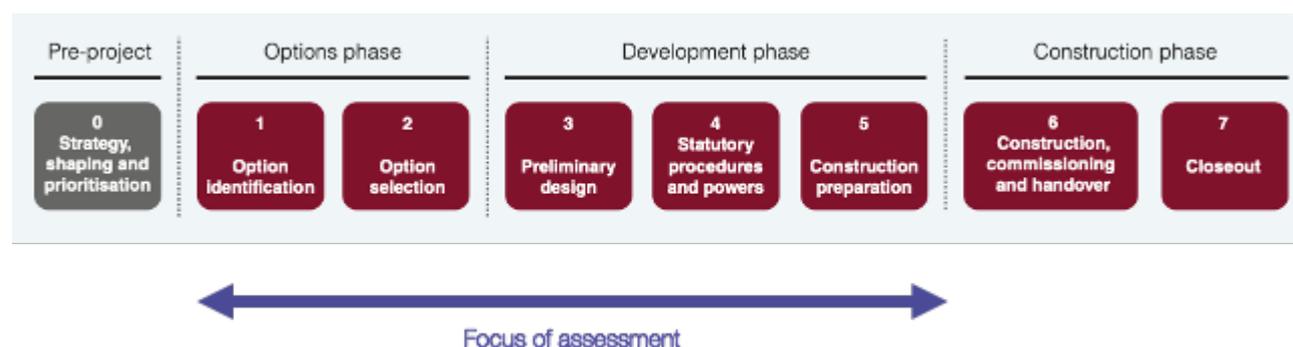


Figure 1: Span of project development against Highways England Project Controls Framework

The outcomes from the project development (or pre-construction) stage of a project are important enablers to successfully completing the rest of the project within budget and timescales. In the context that Highways England delivers infrastructure projects, these outcomes include:

- 1 A solution that optimally delivers the client(s) requirements and strategic intent.
- 2 A solution that has gained all the required statutory powers and consents it requires.
- 3 Strong stakeholder advocacy.
- 4 A solution that has been optimised for construction with all key risks understood.



2.3 Outcomes sought from our review

As our joint clients, we agreed with ORR and Highways England the respective outcomes that they were seeking from our review:

ORR – A potential concern about the performance of sub-Tier 1 projects and that Highways England's capability in the pre-construction (PCF Stages 0 to 5) may be a causal factor. ORR requested an initial review of project development capability for below Tier 1 projects:

- To provide a 'snapshot' of current capability, using an appropriate benchmark, and to highlight potential threats to delivering the RIS2 portfolio.

Highways England – There are already a number of key improvement initiatives underway that are part of a plan to continue to improve Highways England's programme management capability. To build on these, Highways England wanted to understand from a project development capability perspective:

- Are the initiatives focused on the right things (do they enhance the right capabilities)?
- Are there any obvious gaps in capabilities that are not being addressed?
- Advice on where to prioritise and focus.

2.4 Our assessment of Highways England project development capability

Our view is that Highways England has performed well, and above expectations based on our experience of how organisations typically perform when assessed against specific capabilities for the first time.

We also acknowledge Highways England's strong aspiration and collective desire to drive improvements in its capability. Compared with other similar infrastructure organisations we have reviewed, Highways England has an industry leading long-term vision for an infrastructure project delivery organisation.

Highways England's challenge is how to balance working towards this vision, whilst successfully delivering projects across roads periods. For RIS2, Highways England needs to take account of how much project team capacity is available to implement and embed change, and maintain sufficient focus on project delivery.

Highways England already uses the Portfolio, Programme and Project Management Maturity Model (P3M3) to assess and focus improvements in project and programme management. In their last independent assessment in late 2018, Highways England scored 3.1 for project management, which is characterised as there being a consistent approach to project management that is consistently used across the organisation. P3M3 measures generic or non-domain specific capabilities for portfolio, programme and project management. As such, it does not assess the other specific technical capabilities necessary to be successful



in project development. Our capability assessment of project development focuses on these other capabilities and complements those measured by P3M3.

The technical capabilities that are important to a successful outcome from project development are domain-specific (road infrastructure projects) and also context-specific (public sector delivery within Road Periods). We developed a capability model bespoke to Highways England's context to underpin our assessment using our experience of assessing project development capability with two other large infrastructure project delivery organisations. We identified the most important or 'material' capabilities through a review of published good practice and extracting success factors from previous reviews of Highways England's projects. From this research and interviews with stakeholders, we determined that our assessment model should contain sixteen capabilities in three broad groups: develop the investment, create the environment for success and improve performance and efficiency.

As this was a new model for project development, it was the first time that these sixteen technical capabilities were being assessed. Overall, across the whole range of capabilities, we assessed Highways England above the expected level based on our experience of how organisations typically perform when assessed against specific capabilities for the first time. Some of the capabilities came out as more developed and similarly some were less developed: ten of the capabilities are already well developed and six have opportunities for further development. There are already improvement initiatives underway to develop two of the six capabilities that require further development.

2.5 Highways England improvement initiatives

Highways England has put in place an extensive programme of change initiatives in response to the increased scale and complexity of RIS2; in anticipation of RIS3 and beyond; and to respond to expectations set by key stakeholders when RIS2 was agreed. The initiatives reflect an evident corporate desire to drive improved performance and appear to have a sound underlying rationale. Both internal and external stakeholders have the perception that Highways England cares about further improving its capability to deliver projects and programmes.

Implementation and embedment of some of the key initiatives has been harder, taken longer and required more effort than originally anticipated alongside delivering RIS2. We believe that the change aspirations have exceeded the capacity of the project teams to implement and embed change.

Our view is that the Integrated Project Controls (IPC) initiative is crucial to the successful delivery of RIS2 and will also have a significant, positive impact on Highways England's project development capability for all projects including Tier 1 projects.



Recommendation 1

We recommend that Highways England prioritises its available capacity to focus on speeding up completion and embedment of IPC; by setting a clear target date for completion based on a costed and resourced plan taking account of any constraints on project teams to support change in addition to project delivery.

Acceptance criteria for completion should include:

- Information flowing between the integrated systems with minimal data management intervention.
- Project teams confident in how to use the information to drive improved decision making.
- Impact on project team Business As Usual (BAU) activity is minimised.
- BAU project controls resourcing is adequate to manage the increased level of data collected.

Our view is that Regional Delivery Partnerships (RDP) and Smart Motorways Alliance (SMA) delivery models are key to the successful delivery of RIS2 and will also have an overall positive impact on Highways England's project development capability for sub-Tier 1 projects. There are a number of other existing improvement initiatives, such as the Project Performance Accelerator (PPA), Improving Behaviours Improving Performance (IBIP) and potentially Budget-Led Design that are needed to support achieving successful outcomes from RDP and SMA. Implementing these initiatives needs to be considered in the context of the capacity of the project teams to absorb Delivery Transformation Programme (DTP) change activity.

Recommendation 2

We recommend that Highways England ensures that the available capacity of project teams to absorb DTP change activity is prioritised towards improvement initiatives that directly support the success of RDP and SMA, such as PPA and IBIP.

We recommend that Highways England reviews the sequencing of outputs from its DTP work packages (like Budget Led Design WP2 (Design to Cost) and WP5 (Working Better)) to prioritise support for RDP and SMA.

In addition:

- Consider making PPA available to all parties in the Integrated Project Team (IPT) (including Delivery Integration Partner (DIP)).
- Seek opportunities for acceleration of PPA roll out.



2.6 Capability prioritisation for development

We assessed Highways England's current improvement initiatives to determine their likely effect on further development of the project development capabilities by mapping the alignment between the initiatives and the capabilities. Figure 2 below shows the results of this mapping exercise and provided us with a way of filtering which capabilities need further development that were not already subject to an improvement initiative.

Along the horizontal development axis, the capabilities in the two left hand boxes ('Priority focus for completion' and 'Do something about') are capabilities that we assessed to be less developed. The capabilities in the right hand two boxes ('Continue as working well' and 'Determine appropriate target') were correspondingly more developed.

On the vertical initiative alignment axis, the top two boxes ('Priority focus for completion' and 'Continue as working well') show those capabilities where we identified greater alignment between Highways England improvement initiatives and the capabilities in our model. Conversely the bottom two boxes ('Do something about' and 'Determine appropriate target') represent those capabilities that have less alignment with improvement initiatives. Alignment means the initiative as currently defined would improve the capability as per the criteria in our model.



Initiatives – greater alignment	<p style="text-align: center;">Priority focus for completion</p> <p>A5 – Project controls A3 – Optimise deliverability B4 – Manage supply chain capability</p>	<p style="text-align: center;">Continue as working well</p> <p>A1 – Have clarity of strategic fit, scope, requirements and benefits A2 – Optimise the solution B6 – Embed desired behaviours C4 – Embed continuous improvement</p>
Initiatives – less alignment	<p style="text-align: center;">Do something about</p> <p>B7 – Competence of Integrated Project Team C2 – Knowledge management B1 – Make timely and effective decisions C1 – Tailor working approaches</p>	<p style="text-align: center;">Determine appropriate target</p> <p>B2 – Agree and manage expectations with Government, ORR and other funders B5 – Be an effective client to the supply chain A4 – Secure powers and consents B3 – Engage, inform and influence external stakeholders C3 – Use management information to focus improvement</p>
	Less developed	More developed

Figure 2: Capability prioritisation

The analysis shown in figure 2 provides a high-level filtering mechanism to highlight those capabilities that need an additional:

- Plan to develop them from their current level. That is, the capabilities in the quadrant ‘Do something about’.
- Emphasis on completing existing initiatives that should develop capabilities from their current levels in the ‘Priority focus for completion quadrant’.

As a consequence, we have focused our recommendations on the capabilities in the ‘Do something about’ quadrant that would benefit from a capability development plan.



2.7 Good practice

We would also like to highlight the following areas of good practice that we observed during the assessment:

- Throughout the interviews we gained a palpable and genuine sense that Highways England wants to improve its project development and delivery capability. In most organisations we would get this sense from a few, select people at the centre of the organisation. In Highways England's case we got this from nearly everyone we interviewed, and at all levels of the organisation. In our experience, it is unusual that the need for change is understood so widely in an organisation.
- Both the SMA and RDP represent a step change in contracting models and appear to be significantly better than the contract they replace (Collaborative Delivery Framework (CDF)). They contain both an appreciation of good practice, as articulated in Project 13, and also a pragmatic understanding that realising the benefits from the contracts will require active and sustained interventions.
- Both the PPA and IBIP initiatives are amongst the best of such initiatives we have encountered.

2.8 Potential threats to RIS2 portfolio delivery

We considered whether the four capabilities that are in the 'Do something about' quadrant represent a potential threat to delivery performance of the RIS2 portfolio. We concluded that three (B7, B1, C2) of the four capabilities are a potential threat to RIS2 delivery performance and we have made recommendations below for Highways England to consider.

B7 Competence of the Integrated Project Team

Highways England delivers its projects using an IPT approach.

For below Tier 1 projects in the RIP, IPTs consist of a small core of Highways England staff managing the project who are allocated to it on a full-time basis. This core team is supported by shared resources from regional and corporate functions in Highways England.

The remainder of IPT resources are bought in from various supply chain organisations. Project controls resources are provided from a regional services framework and are shared across projects. Other specialist resources are increasingly provided by the DIPs through an RDP regional framework.

Our assessment has highlighted that the number of the core Highways England staff in the IPTs may be insufficient to manage the complexity of delivering projects whilst also absorbing changes that transform the business.



Recommendation 3

We recommend that Highways England reviews its project and change team resourcing, to ensure that the additional workload on the core project teams arising from change activity matches their capacity to absorb changes and does not endanger project delivery.

Implicit in the IPT approach is that the success of the project depends upon the competence of all the constituent parts of the IPT.

For Highways England staff, there is a structured process for competence assessment and development. This includes a partnership with the Association for Project Management (APM) and encouraging staff to progress through the APM professional qualification scheme to Chartered Project Professional. The current approach has a very strong focus on professional competence.

In addition to professional competences, Highways England staff in IPTs require specific role-related contextual competences. Examples include competencies in managing the RDP and SMA contracts; understanding statutory procedures and powers; and understanding how to tailor and pragmatically apply PCF. There is a lesser emphasis on these contextual competences, which are often focused on with time-limited, specific interventions. As a result, staff missing these specific interventions miss the development of these competences.

Our assessment has also highlighted that whilst the annual capability assessment for Highways England staff is strongly encouraged, it is not mandatory or enforced. The process is effectively opt-in, although people cannot access external training without having completed their capability assessment.

Recommendation 4

Highways England has a strong focus in its training and development on professional qualifications (for example APM chartered project professional).

We recommend that Highways England broadens its approach to competence management to put more emphasis on ensuring that its project staff have the necessary specific role-related competencies and to encourage fuller participation, changing the perception that it is currently an 'opt in' process.

For supply chain staff in the IPT, Highways England relies on the supply chain to provide resources with the appropriate professional and contextual competence and to manage their on-going competence development. For example, IPTs are heavily dependent on shared supply chain resources for project controls. Highways England staff in the IPTs consistently expressed concerns about the level of professional competence of some of the project controls resources deployed, and that contractually Highways England only had right of review of the CVs of the most senior resources. More widely, Highways England staff also expressed concerns about the contextual competence of supply chain resources provided. Examples



included that supply chain resources did not understand how to tailor and pragmatically apply PCF and did not understand the limits of what can be offered or promised as part of formal stakeholder consultation in relation to statutory procedures and powers.

Recommendation 5

We recommend that Highways England review its approach to how it can better assure the professional and contextual competences of supply chain resources working in IPTs.

B1 Make timely and effective decisions

We heard a consistent view across our sample of below Tier 1 projects that the time taken to make clear decisions about changes to projects should be improved. It was highlighted as a common risk to project delivery performance. We understand that there is a clear decision making structure with several levels of committees, and with some decisions that need to revert to DfT. In our review of the Highways England change initiatives, we did not identify any initiatives focused on improving the effectiveness of the current decision making process.

Recommendation 6

We recommend that Highways England review its decision making process to improve effectiveness and timeliness by:

- Clarifying delegations and roles.
- Introduce metrics for time taken to resolve issues escalated for decisions.
- Identify opportunities to accelerate decisions.

C2 Knowledge management

The identification of lessons to be learnt within Highways England is strong. However, the formal sharing and learning of lessons is ineffective from the perspectives of timeliness (lessons are only 'reported' near the end of the project) and a usability (they are hard to search). There are pockets of good practice driven by individuals. In addition, the sizing of the core Highways England staff in the project teams may be insufficient to build and retain knowledge within the organisation. Currently much of the knowledge capital ends up in the supply chain and is then dependent on continuity of their involvement. This has an impact on the effectiveness of a range of project development activities that are important to successful delivery of RIS2, such as stakeholder engagement and preparation of applications for statutory procedures and powers.



Recommendation 7

We recommend that Highways England review its plans and investment in knowledge management to address the timeliness and effectiveness of learning lessons in order to drive realisation of efficiencies throughout the project lifecycle. This should start with an immediate focus on improving timely, progressive learning of lessons across projects on stakeholder engagement and statutory procedures and powers.

Acknowledgement

The review was conducted between November 2020 and March 2021, mostly under UK-wide Covid-19 lockdown restrictions. We are extremely grateful to all those who took part in the various online workshops and interviews. We would also like to thank Rosie Sandoz at Highways England and Claire Brooks at ORR for their timely support in sorting out the logistics of the review.



3. Capability assessment

3.1 Overview

This section of the report responds to two elements of our remit:

- 5.2.2 Review Highways England's capability within the development phase of capital projects below 'Tier 1', including translation of client requirements into technical requirements.
- 5.2.5 Consider best practice for similar work in comparable industries and assess Highways England's capability against an appropriate benchmark.

We developed an Initial Capability Model to provide a framework to assess Highways England project development capability for projects below 'Tier 1'. This model set an initial benchmark based on a number of good practice sources, and the professional judgement of the Nichols team.

3.2 Development of the Initial Capability Model

The Initial Capability Model (ICM) was not a complete model of all capabilities required to deliver a programme but contained those capabilities we judged to be most material to project development (the options and development phases of PCF). It complements P3M3 by assessing specific capabilities that are regarded as having the biggest influence on successful outcomes for capital investments delivered in the UK public sector.

P3M3 assesses generic capabilities that have been shown through experience to have the biggest influence on successful outcomes of generic project, programme and portfolio delivery. The ICM provides more granularity and focus on the specific capabilities required in the early phases of project development. For example, where P3M3 assesses generic 'stakeholder management', the ICM distinguishes between engagement with Government and engagement with other external stakeholders.

We drew on our experience of using a similar approach with another UK based public sector infrastructure delivery organisation in the transport sector. This enabled us to set an initial benchmark to assess the expected performance level of Highways England in each of the capability areas.



3.3 Description of capabilities

Within the ICM we have three capability groupings, which are then broken down into a number of specific capabilities. The three high level capability groupings were:

A – Develop the investment, focused on the progression of projects through PCF stage 1-5.

B – Create an environment for success, focused on non-technical enablers of success.

C – Improve performance and efficiency, focused on driving the efficiency and effectiveness of project development across projects.

In total there are 16 capabilities in the ICM which are set out in Tables 1, 2 and 3 below. We developed criteria to enable us to assess each capability that were drawn from a variety of good practice sources including Project 13, the Project Initiation Routemap, APM Co-Directing Change and the principles behind P3M3.

Group A – ‘Develop the investment’ capabilities

Capability	Assessment criteria
A1 – Have clarity of strategic fit, scope, requirements and benefits	To what extent project teams used strategic fit and benefits to shape and challenge scheme scope and requirements.
A2 – Optimise the solution	To what extent project teams use the Options Phase of PCF (stages 1-2) to seek opportunities to optimise the strategic case for the project in terms of national and sub-national strategies, or whether they are primarily focused on finding the best technical solution that delivers the scope and requirements.
A3 – Optimise deliverability	To what extent project teams use the Development Phase of PCF (stages 3-5) to proactively seeking to optimise time, cost and risk across the development and delivery phases, or whether they are focused on achieving the committed Start Of Work (SOW) milestone.
A4 – Secure powers and consents	To what extent the approach to securing consents reflects the specific characteristics and context of the project and the capability of key external stakeholders.
A5 – Project Controls	To what extent project and programme performance metrics, derived from controls data, are clearly linked to benefits realisation and whether there is clear evidence of continual improvement.

Table 1: Group A – ‘Develop the investment’ capabilities



Group B – ‘Create an environment for success’ capabilities

Capability	Assessment criteria
B1 – Make timely and effective decisions	To what extent governance arrangements reflect the specific characteristics and context of the project, and the capability of key external stakeholders.
B2 – Agree and manage expectations with Government, ORR and other funders	To what extent project teams proactively engage with external stakeholders to secure support for managing key political and strategic risks.
B3 – Engage, inform and influence external stakeholders	To what extent Highways England proactively seeks to use stakeholder views as a factor in optimising the overall investment.
B4 – Manage supply chain capability	To what extent Highways England and its supply chain partners are proactively and continuously seeking to improve capability, in line with Project 13 principles.
B5 – Be an effective client to the supply chain	To what extent Highways England seeks to maximise overall efficiency over short term transactional gain from its supply chain engagement, in line with Project 13 principles.
B6 – Embed desired behaviours	To what extent senior leaders actively seek to support and encourage desired behaviours.
B7 – Ensure that project team members have the competence and experience to operate effectively	To what extent the organisation proactively identifies and anticipates the competence and experience likely to be required in the longer term.

Table 2: Group B – ‘Create an environment for success’ capabilities



Group C – 'Improve performance and efficiency' capabilities

Capability	Assessment criteria
C1 – Tailor working approaches	To what extent projects take account of the context in which they are taking place and the complexity of the project for all key stakeholders, in line with the principles in the Project Initiation Routemap.
C2 – Maximise the value and impact of experience and knowledge	To what extent Highways England systematically learns lessons and develops reusable artefacts.
C3 – Use management information to focus improvement	To what extent Highways England uses management information to assess project, programme and portfolio performance, and also to measure and predict process performance.
C4 – Embed continuous improvement	To what extent there is a focus of continuous improvement, the clarity of strategy and whether there is a culture of continuous improvement.

Table 3: Group C – 'Improve performance and efficiency' capabilities

3.4 Assessment method

We undertook a desk review of materials, including publicly-available reports on Highways England's performance and other materials provided by both Highways England and ORR. We undertook initial interviews with a variety of subject matter experts within Highways England and with external stakeholders including Infrastructure and Projects Authority (IPA), Local Authorities, Planning Inspectorate, ORR and DfT. Their input enabled us to identify those capabilities most important and relevant to project development in a specific Highways England context.

We used and tested the model in four group self-assessment workshops. These workshops provided us with information in order to target interview questions in the main part of our assessment, which was interviews with a representative sample of RIS2 projects. We agreed a sample of 16 projects to assess and interviewed a cross-section of staff from these projects. Table 4 shows the selected projects in the sample, which were chosen to provide a good spread between regions, delivery methods and value.

Scheme	Region	Programme	Phase	Tier	Value £m	Consent route	DCO stage	Interviews
A1 Morpeth to Ellingham	NE	RIP N	Development	2	338	DCO	Examination	4
A1 Birtley to Coalhouse	NE	RIP N	Development	2	197	DCO	Decided	3
M6 Jn 21a to 26	NW	SMP	Development	3	183	DCO	Pre-application	5
M60/M62 Simister Island	NW	RIP N	Options	3	153	DCO	Pre-application	4
M54 to M6 link	Mid	RIP N	Development	2	200	DCO	Examination	5
A5 Dodwells to Longshoot	Mid	Operations	Options	4	17	tbc		3
A47 Thickthorn Jn	E	RIP S	Development	3	91	DCO	Pre-application	4
A428 Black Cat to Caxton Gibbet	E	CIP	Development	1	764	DCO	Pre-application	5
M25 Jn 10 to 16	SE	SMP	Development	3	255			5
A27 Arundel bypass	SE	RIP S	Options	2	274	DCO	Pre-application	4
A303 Sparkford to Ilchester	SW	RIP S	Development	3	135	DCO	Decided	4
A358 Taunton to Southfields	SW	RIP S	Development	1	382	DCO	Pre-application	4

Scheme	Region	Programme	Phase	Tier	Value £m	Consent route	DCO stage	Interviews
A63 Castle Street	NE	RIP N	Construction	2	355	DCO	Decided	2
M6 Jn 13 to 15	Mid	SMP	Construction	2	306			2
M6 Jn 10	Mid	RIP N	Construction	4	48	HA80		2
A34 Newbury to Oxford	SE	Operations	Construction	4	16			2

Table 4: Sample of projects assessed

Notes on Table 4:

Phase – Which phase of the project lifecycle the project was in. Most were chosen to be in either the PCF Options or Development stages, with four from the Construction phase to provide a backward view into lessons that could have been learned from earlier phases.

Consenting route – Whether the consent for the scheme would be achieved via the Development Consent Order process (DCO) or Highways Act (HWA80).

Interviews – How many project staff were interviewed.

The review was undertaken at a snapshot in time. Figures 3 and 4 below show where this snapshot occurred in the timeline for each of the sample projects, showing the Options, Development and Construction phases. The diagrams also show the point at which RIS2 started, and the point in time when this review was conducted.



Figure 3: Sample projects in the Options and Development phases

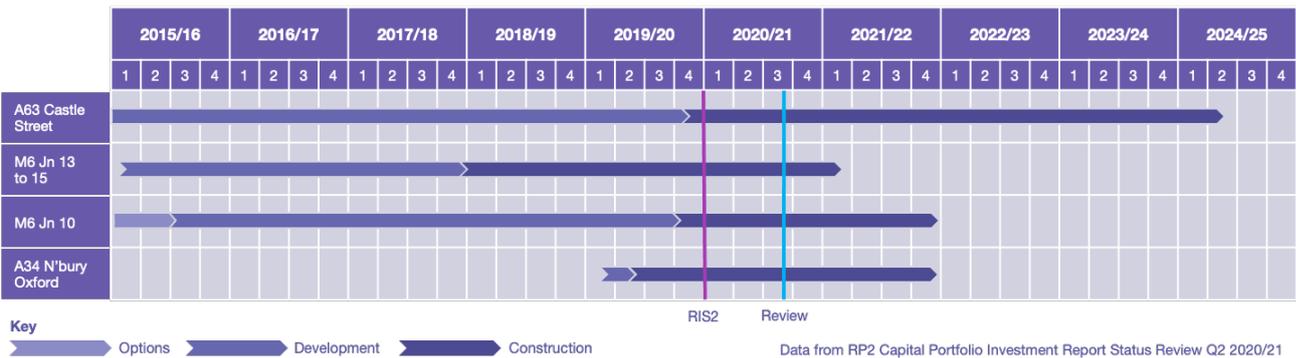


Figure 4: Sample projects in the Construction phase

3.5 Assessment findings

Our assessment findings for each of the 16 capabilities are provided in Tables 5, 6 and 7.

Group A – ‘Develop the investment’ capability findings

Capability	Findings
A1 – Have clarity of strategic fit, scope, requirements and benefits	<p>There are similar numbers of project teams who consistently seek to link scope and requirements to strategic fit and benefits compared with project teams that use strategic fit and benefits to challenge the need for scheme scope and requirements.</p> <p>Smart Motorway Programme projects have significantly less opportunity to use strategic fit and benefits to shape scope and requirements than do Regional Investment Programme (RIP) projects.</p> <p>The sample projects were initiated before the introduction of the new PCF Stage 0 process and Green Book changes in 2020 (see section 6), which we would anticipate considerably strengthening the focus on strategic fit and benefits.</p> <p>There is a consensus view that SMA and RDP have had a positive impact on this capability.</p>
A2 – Optimise the solution	<p>There is a wide range of capability, from projects focused on best value solutions, to examples of teams seeking to align with national and sub-national strategies.</p> <p>In general, project teams focused on optimising the economic case (Benefit Cost Ratio (BCR)) for their project.</p> <p>Smart Motorway Programme projects have significantly less opportunity to align with national and sub-national strategies.</p> <p>The sample projects were initiated before the introduction of the new PCF Stage 0 process and Green Book changes in 2020 (see section 6), which we would anticipate considerably strengthening the focus on strategic alignment.</p> <p>There is a consensus view that SMA and RDP have had a positive impact on this capability.</p>
A3 – Optimise deliverability	<p>Achieving the committed SOW milestone dominated project team thinking with most project teams being focused on hitting the committed SOW milestone whilst reducing risk and uncertainty as much as possible.</p> <p>There is a consensus view that SMA and RDP have had a positive impact on this capability.</p>
A4 – Secure powers and consents	<p>There is a range of capability, with most projects relying on one of a number of ‘templated’ approaches to securing consents based on key project characteristics supported by both internal and specialist resources.</p> <p>In some cases, the approach to securing consents reflected the specific characteristics and context of the project.</p>

Capability	Findings
A5 – Project Controls	<p>Project controls systems are not yet at the point where they provide consistent and integrated data for the project, with specific concerns around aspects of tools and systems that are not yet being consistently applied.</p> <p>There is a consensus view that SMA has had a positive impact on this capability. Whilst it is likely that RDP will have a positive impact on the capability, the consensus view is that it has not done so yet.</p>

Table 5: Group A – Develop the investment capability findings

Group B – ‘Create an environment for success’ capability findings

Capability	Findings
B1 – Make timely and effective decisions	There are a variety of standard governance structures applied to all projects. For example, there are consistently used and well understood governance structures involving Project Committees, Regional Committees, Programme Committees and the Major Project Executive Committee. We heard a consistent view across our sample of below Tier 1 projects that the time taken to make clear decisions about
B2 – Agree and manage expectations with Government, ORR and other funders	There is a range of capability with better project teams consistently identifying and assessing the political and strategic risks outside of Highways England's direct control and how they impact commitments. Other project teams rely on assessing the assumptions necessary that underpin cost and timescale commitments.
B3 – Engage, inform and influence external stakeholders	<p>Highways England values the views of external stakeholders and seeks to accommodate their views where possible subject to funding and impact on project schedule and cost constraints.</p> <p>There were, however, some specific examples of Highways England more actively seeking opportunities to use external stakeholder views to shape the investment.</p>
B4 – Manage supply chain capability	<p>Highways England incentivises supply chain partners to invest in their capability.</p> <p>There is a consensus view that SMA and RDP have had a positive impact on this capability.</p>
B5 – Be an effective client to the supply chain	Highways England balances risk and reward appropriately across the supply chain for RIP. For SMA, Highways England is on the way to seeking to ensure the primacy of project objectives over the interests of individual stakeholders.
B6 – Embed desired behaviours	There are structured interventions in place to encourage desired behaviours.

Capability	Findings
B7 – Ensure that project team members have the competence and experience to operate effectively	<p>The assessment of this capability differs depending on the scope of capability assessment taken with respect to the members of the IPTs. Taking Highways England's development of just their own staff, then there is a structured process for competence development focused on gaining recognised qualifications. However, for the IPT as a whole training is available, but it is ad hoc and generally unstructured.</p> <p>There was also a consistent view that working in an IPT improves the likelihood of overall project success and that it made it easier to reach out to highly skilled capability. However, there is a consistent view that suppliers do not consistently provide the capability they promise (for example, people and systems)</p>

Table 6: Group B – 'Create an environment for success' capability findings

Group C – 'Improve performance and efficiency' capability findings

Capability	Findings
C1 – Tailor working approaches	There is a standard way of scaling the application of project processes and working practices based on a whether a project has multiple potential options (typically the case for RIP projects) or a single option (as is typically the case for SMP projects). The approach scales the number of PCF products required, but at a very granular level. Improving the sophistication of the approach taken to tailoring is likely to drive improvements in project efficiency.
C2 – Maximise the value and impact of experience and knowledge	Project teams consistently identify both positive and negative lessons to be learned. Whilst there is a centrally located repository for recording lessons managed by a central Knowledge Management team, awareness of the repository was very low and only a few interviewees confident that they knew where the repository was on the intranet or how to use it. Whilst lessons are progressively identified throughout the project lifecycle, they are only 'published' in near the end of the project. The format in which lessons are published – as a single, per project report – makes it hard for other project teams to find specific lessons that might apply to their project.
C3 – Use management information to focus improvement	Management information is systematically used to assess project, programme and portfolio performance, but is not yet being used systematically to measure process performance. Some aspects of the work being undertaken on the SMA Business Realisation Plan, such as process benchmarking, align with the type of knowledge management activity required to achieve P3M3 Level 4 through the measurement of process performance.



Capability	Findings
C4 – Embed continuous improvement	There is a clear strategy for improvement, but that there is generally not yet a culture of continuous improvement driven by lessons learned and management information. For example, Highways England has a “HE2025” vision and Major Projects has the Delivery Transformation Programme with supporting Blueprint setting out its aspiration and strategy.

Table 7: Group C – ‘Improve performance and efficiency’ capability findings



4. Project controls

4.1 Overview

This section of the report responds to two elements of our remit:

- 5.2.3 Understand and review how project controls are applied to Tier 1 projects and projects below Tier 1 considering the approach being adopted by the company to roll out and embed 'Integrated Project Controls' across the lifecycle of projects.
- 5.2.4 Review Highways England and its Supply Chain project controls capability and assurance within the development phase of enhancement projects below Tier 1.

We looked at the Highways England PCF, its IPC initiative and reviewed the split between Highways England staff and supply chain resources involved in project controls.

4.2 Project Controls Framework and Integrated Project Controls

Project Controls Framework

Highways England Major Projects Directorates has a very well-established PCF. The 8 stage process covers from Stage 0 (Strategy, shaping and prioritisation) through to Stage 7 (Close out). There is clear guidance on when Stage Gate Assessment Reviews (SGARs) should be carried out, and the governance associated with them.

There are clearly defined products required at each stage of the lifecycle. The PCF is very well understood by the Highways England supply chain. There is a good level of understanding with the supply chain as to the products required, and the Stage Gate Assessment Review (SGAR) approach throughout projects.

Operations Directorate, who undertake some lower value Tier 4 projects, operate a simpler controls framework – the “3Ds” framework – Design Develop Deliver.



Integrated Project Controls initiative

Highways England has an IPC initiative aimed at substantially improving its project controls capability, through training and upskilling of its own staff, acquisition of a range of project controls software tools, and engagement with supply chain providers of project controls expertise. The areas of project controls covered are set out below, as well as the different software packages.

The IPC has produced operating principles, manuals and guidelines across a broad range of project controls disciplines:

- Baseline management
- Planning and scheduling
- Cost management
- Risk management
- Reporting
- Contract management
- Document management
- Customer relationship management

A number of software tools have also been rolled out to support improved project controls. These include:

- Xactium
- P6 Primavera
- Oracle
- Power BI
- CEMAR
- Prism

The next phase in the enhancement of project controls capability will include work to improve the integration of information from the various tools, focusing on cost and schedule integration and Earned Value reporting. This will be complemented by a roll out of Quantitative Risk Analysis (QRA) analysis and reporting on a monthly and quarterly basis from summer 2021 onwards.



Impact of IPC on A5 Project Controls capability

There is a consensus view that IPC is “the right thing to do” and that Highways England has come a long way with its project controls capability. In particular, we consistently heard that IPC has already helped improve the following elements of project controls capability:

- Baseline management
- Planning and scheduling
- Cost management
- Risk management
- Reporting
- Contract management

There is a consensus view that IPC has yet to impact document management, stakeholder engagement and customer relationship management, but equally, it has not made these worse.

Highways England made a conscious decision that a key feature of IPC is to substantially increase the volume of project controls data that is routinely captured in a number of separate systems and is then integrated as part of the regular reporting cycle. A driver for this is to increase the level and quality of data Highways England has available to support cost estimating and cost validation for future projects.

Overall, there is a view that the controls data in the separate systems is more consistently and better managed; and that where systems are integrated that they are positively contributing to improving data quality. During the implementation of IPC, it has become apparent that the additional requirement for data and its integration has highlighted the need for greater consistency of data and coding within each of the previously separate project controls systems, for example, between P6, Oracle and Prism. As a consequence, during the periodic reporting activity, the project control resources have also needed to address data quality and inconsistencies as information is integrated from the various systems. We heard examples of project management staff (and project controls suppliers) spending their time data cleansing and taking monthly screenshots from computers and then using these to manually transfer data from one set of tools to another.

There is frustration about the time it has and is taking to correct these data integration issues and the resulting increasing workload for project controls resources. Another frustration expressed was about the lack of training provided with rollout and that systems had been provided with little on-going support available to secure the knowledge of the best ways to use them. This has led to a consistent perception that too much time is being spent on “data entry” and not enough on “data interpretation”.



We consistently heard that IPC has not yet helped improve the quality of decision-making based on having fully integrated and timely information. Generally, interviewees considered that it would do so when project information is fully integrated and embedded.

4.3 Highways England and its supply chain project controls capability

Integrated Project Team structure

Highways England have made a deliberate choice to implement a thin client approach to project resourcing where there is a small number of core Highways England project management staff full-time allocated to the project with all the other project functions being provided by shared or bought-in resources and services. A typical RIP project below Tier 1 is managed by a core Highways England team consisting of:

- A Senior Project Manager
- A Project Manager
- An Assistant Project Manager

Some projects might also have an additional Assistant Project Manager and/or Project Support Officer.

RIP projects (below Tier 1) use shared resources on a part-time basis across projects. Highways England functional expertise, such as Commercial, Finance, Property & Compensation, are generally provided from a shared resource pool on a part-time basis. Project controls expertise is brought in through a series of regional Project Controls Services contracts from a number of suppliers including: Corderoy; Arcadis; Faithfull + Gould; Turner and Townsend; and Mott MacDonald.

Tier 1 projects also have a Project Director and have dedicated resources for risk management, planning and cost management.

An example of the typical resourcing for a below Tier 1 project team is set out below. The level of resource is set out in approximate full-time equivalents (FTE).



Highways England Core Team	Highways England Shared resource	Bought in, project dedicated resource
<ul style="list-style-type: none"> • SPM • PM • APM 	<ul style="list-style-type: none"> • Programme Leader (0.3 FTE) • Sponsor (0.5 FTE) • Communications Manager (0.4 FTE) • Commercial Manager (0.4 FTE) • Consultation Team (0.2 FTE) • Safety, Engineering & Systems (1-2 FTE) • Property & Compensation (0.5 FTE) • Finance (0.2 FTE) 	<ul style="list-style-type: none"> • Project Governance (2 FTE) • Stakeholder and Comms Lead (1 FTE) • DCO Workstream lead (1 FTE) • Environment lead (1 FTE) • Commercial and supplier workstream lead (1 FTE) • Contract management and financial forecasting (1 FTE) • Land access and property lead (0.5 FTE)
3 FTE	3.5 – 4.5 FTE	7.5 FTE
Project Controls Outputs based service provision		

Figure 5: Diagram showing resourcing levels on a typical below Tier 1 project in the Development stage

Approach to project controls

The Project Controls Services contracts are output-based service contracts, rather than a resource substitution arrangement with specific individuals placed into specific roles. These contracts also appear to incentivise a least cost input rather than incentivise the suppliers to do their best for the project as a whole. We heard from Highways England staff both about the amount of resource provided by the suppliers and the competence of the resources deployed to do the work. The project managers reported limitations to their control over the competence of project controls resources provided to them having right of review of the CVs of only the most senior resources.

Highways England staff at a regional level provide a shared service to check and challenge assurance for the project controls work in the region. In addition, Highways England has introduced communities of practice and associated Heads of Profession for project controls in order to promote greater consistency of practice. Whilst these roles are relatively new and still being evolved, they are likely to have a future positive impact on project controls capability.



Thin client impact

The thin client approach depends on a 'one team' approach and getting all the suppliers (those working client side through the project controls contracts as well as those from the RDP) to acknowledge and work towards the project objectives.

Our view is that there are two areas where the thin client approach could be impacting on Highways England's project controls capability:

- Reduced ownership by project managers of project controls data. We heard concerns that outsourcing of project control data management had led to project managers not sufficiently engaging with the data, questioning the information or feeling ownership or responsibility for it. This reduced ownership by project managers for the project controls information is a threat to project performance.
- Development of Highways England project managers capability to check and challenge project controls information. This capability is typically developed through the project managers having earlier experience in producing project controls data whilst undertaking more junior roles.



5. Procurement models

5.1 Overview

This section of the report responds to the following element of our remit:

- 5.2.6 Understand how the adopted procurement models RDP and SMA contribute to the delivery of improved performance and value for money, avoiding review already undertaken by the Routes to Market.

Our review was undertaken in parallel with the Routes to Market Review by Hyperion Infrastructure Consultancy and Elliott Asset Management. In December 2020 we reviewed a draft emerging findings report from that study and, in order to avoid duplication between the reviews, we agreed with ORR that we would focus on the relationship between the contract models and their impact on project development capabilities.

5.2 Background to Routes to Market

Routes to Market is Highways England's term for the development of the RDP and SMA contractual models which were developed in RP1 to underpin project delivery in RP2 and, in the case of SMA, Road Period 3 (RP3) as well as RP2. The Routes to Market Review referred to above describes the strategies and business cases which underpin RDP and SMA and considers (amongst other matters):

- Benefits delivery.
- How Key Performance Indicators (KPIs) are linked with contractual performance?
- Could lessons from other sectors lead to improvements in contract models?
- Are the procurement models appropriate for RIS3?

We also understand that Highways England aspires to move to an 'enterprise partnership' model of contracting for RP3 and beyond.



5.3 Our understanding of the RDP and SMA models

We have based our assessment of impact on capabilities work on the following summary level understanding of each contract model. The RDP and SMA are both designed to improve the delivery of value for money, and it is clear from the full business cases supporting these models that considerable thought has gone into developing each of the arrangements. As with any innovative procurement arrangement, success will be proved through delivery and we are pleased to note that Highways England recognises the importance of assessing the delivery of planned benefits.

Regional Delivery Partnership

This arrangement applies to enhancement projects within the RIP and was awarded in 2018 as frameworks for each of the six Highways England regions. The model is described by Highways England as a ‘Delivery Partnership’ and its principal features are illustrated in Figure 6 across the PCF stages 1-7.

Customer	Stages 1-2	Stages 3-7	
Highways England (Regional and corporate management functions)	Pre-construction advice	Delivery Integration Partner	Support services
	Technical Advisor		Designer
	Develop Route Options		Works package suppliers
Network Owner Centre of Excellence	Assurance Provider		
	Integrated Procurement Hub Sustainable Improvement Hubs		

Figure 6: RDP parties and principal elements

Highways England acts as network owner and client. It also provides core services such as managing consents, initial estimates of scheme and delivery costs. Highways England directly procures land and some key works such as utilities diversions. It also provides an Integrated Procurement Hub which coordinates matters such as category management, scarce resources and use of Subject Matter Experts (SMEs) across DIPs. Highways England also sponsors RDP Centres of Excellence and Sustainable Improvement Hubs which are intended to share knowledge across the programme.

Technical Advisors are contracted by Highways England to develop route options during PCF stages 1 and 2. Thereafter, Technical Advisors (TAs) provide assurance that Highways England’s technical requirements are being met during the later design and delivery stages by the DIPs.

Delivery Integration Partners undertake the detailed design and construction of the selected options, support Highways England in areas such as consents, stakeholder management, land acquisition and utilities



diversions and procure and deliver works packages. DIPs apply, where appropriate, directions from Highways England’s Integrated Procurement Hub. RDP is designed to work as a collaborative arrangement. In particular:

- Incentives for TAs include a target cost for design services, focus on works start and finish dates and incentives to improve the scheme’s overall BCR.
- Incentives for DIPs include target cost arrangements based on post-efficient costs. Pain share and gain share are set at up to 50% of the total cost variance for each project subject to modifying factors based on achieving key dates and journey times. There are also incentives based on performance measures related to securing the DIP’s share of future work and to the release of gainshare against the target cost.
- There is some alignment of incentives between the TA and DIP contracts. For example, both have incentives based on achieving or bettering the overall scheme budget and improving the BCR.

The incentive arrangements are wide ranging and complex and should in principle incentivise achievement of efficiencies for the RIP programme. They are described in detail in the RDP business case. The arrangements have been designed to deliver outcomes which represent value for money against the Highways England baseline budget for each scheme and build on expectations of improved budget and delivery performance identified during tender evaluation. Of particular relevance to capability impact is that the DIP is contracted to undertake the Development Stage (PCF stages 3 to 5) for a fixed amount which may be a dis-incentive to the DIP to deploy sufficient resources in these stages

Smart Motorway Alliance

This arrangement applies to all Smart Motorway projects (i.e., work associated with the extension of all-lane running on to former hard shoulders). The model is described by Highways England as an “Alliance”, its principal features are illustrated in Figure 7 mapped against PCF stages 1-7.

Customer	Stages 1-7			
Highways England	Alliance Board Member			
	Alliance Board Members	Alliance Board Member	Alliance Board Members	
	Digitally-enabled Design Design Partner (x2)	Production Hub Production Management Partner (with support from all partners)	On-site Assembly On-Site Assembly Partner (x3)	Works package suppliers
				Works package suppliers
Works package suppliers				
Network Owner	Develop Standardised and integrated designs	Integrate Planning & Programming	Pre-fabrication & Construction	

Figure 7: SMA parties and principal elements



Highways England acts as network owner and client. It also acts within the alliance providing services where it is best placed to do so.

Digitally Enabled Design is carried out by two design partners working on a north/south geographical split. The use of digital design technology is intended to improve standardisation, efficiency and the quality of asset information.

The Production Hub coordinates and optimises work activities across the Smart Motorways programme. This is led by a single Production Management Partner with support from other SMA members.

On-Site Assembly is undertaken by three On-Site Assembly Partners working on a north, midlands and south geographical split. These partners undertake pre-assembly and on-site construction work.

All the Alliance partners are represented on the Alliance Board which oversees the planning, design, delivery and performance of the programme. As the SMA is a long-term (10-year) alliance, the agreement sets out to establish common objectives, aligned incentives and collaborative ways of working. We understand that these are focused on developing:

- Investment by the supply chain
- Cultural alignment between the partners
- Increased market capability
- Greater standardisation
- Address skills shortages

These objectives are supported by common pricing arrangement where all partners recover their direct costs (as defined in the agreement) with a pain/gain share arrangement related to overall programme costs. Target costs are determined using a standard estimating model. This is intended to encourage all parties to collaborate towards common goals even if they are not directly involved with a particular work package.

Incentive arrangements include the use of balanced scorecards aligned to Highways England's strategic imperatives with poor performance leading progressively to improvement plans, redistribution of work between partners and, ultimately, termination.

We understand that Highways England has set significant efficiencies targets for the SMA and these are likely to require the partners to collectively develop a high level of maturity in relevant capabilities across both the definition and delivery of work packages. According to the Routes to Market review emerging findings report, areas where efficiencies will be sought include co-location, standardised designs and components, together with use of category management and long-term relationships with specialist suppliers.



5.4 Review of the impact of the RDP and SMA models

Review of documentation

The RDP business case recognises that behaviours and capabilities will need to be developed and to mature in order to meet the expectations for RDP and to prepare for future enterprise partnerships. The business case describes these under four themes: Efficiency, Predictability, Outcome and Benefit Focus, Value Driven Decisions.

The business case describes RDP as providing a step change towards an enterprise partnership model. With a duration of approximately six years, it will be important that Highways England makes good progress in these areas and in embedding the more detailed collaborative working mechanisms within in the RDP model to provide an effective base for future working arrangements. Various initiatives to support this are described. These include:

- Developing workforce structure and competences
- Separation of the roles of client project manager and delivery project manager
- Providing collaboration coaches
- Intelligent customer programme to increase behavioural maturity
- Centres of Excellence and Sustainable Improvement Hubs

Interviews – RDP

We collected the following views from our assessment interviews with representatives of the sample projects. Overall, interviewees were positive about the RDP and the benefits in terms of efficiency, working arrangements and, ultimately, its potential to deliver value for money. Relevant points raised include:

- Due diligence by DIPs taking on schemes developed under the previous contracting arrangement CDF has identified potential problems at a time when they can be mitigated.
- There is a consensus view that RDP and SMA are significantly better contracts than CDF. Early indications are that the arrangements will deliver reduced costs and increased benefits over the lifetime of the RDP. This is assisted by continuity in the team membership.
- The RDP encourages team members to focus on outturns and performance rather than inputs. Reimbursement of TAs based on scheme budget was seen as an important element in this.
- The RDP appears to provide better access to supplier knowledge, experience and capability.
- We heard that supply chain ownership of the solution has increased.
- Use of common sources of information are improving performance.



We picked out several common themes related to the cultural and behavioural changes needed (both the Client side and DIPs) to transition into collaborative working under the RDP:

- There has been significant investment in training Highways England staff in use of the RDP.
- DIPs who are not familiar with the requirements of collaborative working reverting back to transactional commercial behaviours.
- There is recognition that some individuals (in all parties) are finding the shift to the desired behaviours challenging and that some companies within the supply chain are adapting better than others. We encountered these views in interviews and heard criticisms of the behaviours of both Highways England and the supply chain.
- Whilst Highways England interviewees firmly believed that supply chain involvement in meetings, such as Project Committees, was a good thing, they do believe that it makes them wary of what they discuss. They acknowledged they are still trying to get used to the new collaborative way of working.

Feedback on the principles behind RDP was generally very positive. There were, however, some specific points for improvement identified:

- Getting DIPs into contract has not been easy and there were several references to difficulties in agreeing prices for schemes which had transitioned from CDF into RDP. These generally appeared to take the form of delays while DIPs undertook due diligence on schemes that had been progressed by others. Expectations are that this will get easier as everyone's understanding of the contract is embedded and norms become established.
- We heard concerns about incentivisation of TAs to do additional work to support stakeholder engagement. It was felt that TAs would focus more on the direct cost of the additional work than on a latent indirect cost of sub-optimal stakeholder relations.
- We heard that historically, Highways England have been better at expressing scheme requirements in a form best suited to supporting a business case whereas a different and more detailed approach is needed to develop requirements in a form suitable for contracting.
- On two schemes it appeared that the difficulties encountered in agreeing prices had affected the relationship between Highways England and its DIPs. We heard comments from both sides of the contract which raised concerns that relationships could be significantly impaired at best and at worst could completely break down.



Interviews – SMA

We collected the following views from our assessment interviews with representatives of the sample projects.

The views on SMA were almost universally positive, and this appears to reflect the benefits of a close alliance where all parties share common objectives and incentives. Another factor may be the more homogenous nature of smart motorway schemes which means that risks and solutions are perhaps better understood. The comments made by interviewees are summarised under three headings: team working, costs and efficiencies. Interviewees frequently indicated that team working under the SMA is effective. Specific points raised included:

- Supplier and customer demarcation is reduced.
- More openness and collaboration “the team is on the same page and the project has run more smoothly”.
- After slow mobilisation all parties are pulling in the same direction and seeking efficiencies. Highways England systems have been adopted with training ongoing.
- We are seeing collaborative behaviour with suppliers bringing problems forward early and working together to solve these within the budget.

Interviewees raised the following points in connection with costs under the SMA:

- The use of a cost model to provide early certainty of scheme costs is beneficial.
- Common incentives for all parties which are aligned with overall scheme cost work well.
- Some issues appear to have been encountered when disaggregating the costs generated by the model into budgets for different activities to support development of options.

Although it is relatively early days in the operational use of the SMA, interviewees spoke encouragingly about its potential to generate efficiencies. Points raised included:

- “If one part of the alliance is doing well then everyone is doing well and vice versa. There is strong motivation to help each other”.
- Duplication of roles has been reduced. There may be further opportunities to improve efficiency in reporting as the arrangements mature. At present there are separate reviews of monthly reports by the alliance board and Highways England.
- Good challenge between designers and constructors with an example of noise barriers where initial design proposals were modified to improve cost, erection time and to reduce environmental impact.
- Against these points, concern was raised that the value added by the production hub is not yet proven.



Examples of improved collaboration and behaviours

We were given numerous examples of where SMA and RDP contracting model had driven improved collaboration and behaviours, including:

- A DIP that suggested a change/solution (within requirements) that would result in significant savings.
- A DIP having brought in knowledge of rail blockades to improve the planning of a two-week closure on a motorway to insert two large structures.
- A DIP identifying issues with a design that would have affected constructability and driven up costs later.
- SMA alliance partners sharing planning information between consultants in a way that would have been unheard of previously.
- A DIP sharing their thinking and knowledge on Building Information Modelling (BIM) and 3D modelling with Highways England and others on a RIP scheme.

Conclusions

The interviews provided generally encouraging feedback about attitudes to the RDP and SMA models. We assessed the impact of RDP and SMA against the Initial Capability Model and this is summarised in Table 8 in terms of:

Being realised – The review found evidence of improvement being realised.

Expected – The review has not found evidence of improvement yet, however, the mechanisms for improvement are in place and, as a result, we would expect those improvements to be realised.

Monitor – The review has not found evidence of improvement yet and should be monitored going forward. The incentivisation of the parties makes it likely that they will act in a way that realises improvements, however there is a potential counter incentive for RDP with the DIPs being contracted on a fixed sum for the development phase.

Capability	Improved by RDP	Improved by SMA
A1 – Have clarity of strategic fit, scope, requirements and benefits	Being realised	Being realised
A2 – Optimise the solution	Being realised	Being realised
A3 – Optimise deliverability	Being realised	Being realised
A4 – Secure powers and consents	Monitor	Not applicable
A5 – Ensure that work is appropriately defined, planned, monitored and controlled, quality is actively managed	Expected	Being realised
B1 – Make timely and effective decisions	Not applicable	Not applicable
B2 – Agree and manage expectations with Government, ORR and other funders	Not applicable	Not applicable
B3 – Engage, inform and influence external stakeholders	Monitor	Not applicable
B4 – Manage supply chain capability	Being realised	Being realised
B5 – Be an effective client to the supply chain	Being realised	Being realised
B6 – Embed desired behaviours	Expected	Expected
B7 – Ensure that project team members have the competence and experience to operate effectively	Not applicable	Not applicable
C1 – Tailor working approaches	Not applicable	Not applicable
C2 – Maximise the value and impact of experience and knowledge	Monitor	Monitor
C3 – Use management information to focus improvement	Expected	Expected
C4 – Embed continuous improvement	Not applicable	Not applicable

Table 8: Impact of RDP and SMA on capabilities



6. Delivery Transformation Programme

6.1 Overview

This section of the report responds to the following element of our remit:

- 5.2.7 Assess whether the DTP will build the requisite capability to deliver the enhancement capital investment programme in RP2.

6.2 Description of Delivery Transformation Programme

Delivery Transformation Programme

The Major Projects Directorate has a significant transformation programme underway in order to respond to lessons learned in RIS1; ensure the capability to delivery RIS2 is in place; and anticipate the capabilities needed to deliver RIS3 and beyond.

The DTP has six workstreams, see Table 9 below, each of which has a mandate, with project sponsor, objectives, outputs, work packages and interdependencies.

Workstream	High level objective	Work Packages
Budget led Design	Developing the capability, tools and relationships to deliver our schemes to budget	WP1 – Early-stage cost control review WP2 – Design to cost WP3 – Design to budget in options phase WP4 – Design to cost through PCF stages 3,4 & 5 WP 5 – Working better together Major Projects, Commercial & Procurement, and Strategy and Planning
Digital by Default	Creating capabilities to deliver projects digitally end to end	WP1 – Unlocking the power of data WP2 – Digital design and development WP3 – Digital construction

Workstream	High level objective	Work Packages
Innovation Re-applied	Delivering projects with a focus on innovation, repetition and best practice to drive project productivity	WP1 – Best practice early wins WP2 – Standard components and products WP3 – <has been removed> WP4 – Engagement & capability
Project Performance Accelerator	Enhancing project delivery capability, working in fully integrated teams with the expertise to manage and deliver successful projects	WP1 – Informed decisions using project controls WP2 – Contract Commercial Capability WP3 – Design management capability WP4 – Project governance and assurance WP5 – Integrated team working across Highways England WP6 – Setting projects up for success WP8 – Stakeholder Management WP7 – PPA Guidebook and PPA deployments
Home Safe & Well	Improving leadership, behaviours and ways of working that impact health and safety	WP1 – Effective leadership WP2 – Health, Safety & Wellbeing by design WP3 – Learning organisation and insight
Continuous Improvement	To create an environment where our people, processes and systems are continuously improving	WP1 – Embed IPC WP2 – Embedding customer service WP3 – IBIP WP4 – Moving our P3M3 maturity WP5 – Quality WP6 – P3O optimisation

Table 9: Delivery Transformation Programme workstreams

There is substantial ambition in the Delivery Transformation Programme and its delivery is likely to put Highways England in an industry-leading position. Given the scale of ambition and size of the programme, Highways England has developed an associated Blueprint as a way of stepping back and defining how Major Projects might operate in 2025.

The Delivery Transformation Programme has 28 workstreams and Highways England has already started to recognise and anticipate the challenge of rolling so much change out across the Directorate, and in particular how to scale up successful change from one area or one set of projects across the rest of the directorate. With this in mind, it has established a 'scaling and embedding' initiative to assess options for embedding change in the business.



Other Business As Usual improvement initiatives

Highways England has a substantial number of ongoing initiatives underway as part of its BAU activities:

Initiative	Scope
Knowledge Management	Highways England has a central Knowledge Management team in the Major Projects Directorate. The focus of this team is the development a strategy for knowledge management; to provide assurance that projects identify lessons; to develop and populate a central repository for lessons; and to encourage the communication of lessons within the projects community.
PCF Stage 0	Highways England has improved its pre-project development and assessment of potential schemes, with a view to filtering out non-viable schemes earlier using a Strategic Needs Assessment and ensuring that projects are initiated with more robust costs, more robust risks and a better assessment of feasibility. This initiative is being led by the Strategy and Planning Directorate.
PCF Improvement	Highways England has a central team of in the Major Projects Directorate that maintains the PCF. The focus of this team is to provide assurance that PCF is being followed by project teams; provide advice, support and training on PCF; and undertake incremental improvement of PCF.
Communities of practice	Highways England has established a number of communities of practice each led by a Head of Profession. Their purpose is to act as a focal point for professional development and consistency of practice.
Smart Motorways Programme Benchmarking	As part of the Business Realisation Plan supporting the Smart Motorways Programme, the team are undertaking benchmarking and other activities to identify opportunities to drive efficiency and effectiveness across the Alliance.

Table 10: BAU initiatives

6.3 Mapping of initiatives to capability model

Based on the information provided by Highways England, we mapped work packages and initiatives from the DTP and other BAU improvement initiatives against their potential to improve assessed capabilities against our ICM.

We assessed the initiatives as being either “likely to improve” or having a “potential to improve”.

Likely to improve – The initiative, as currently defined, is likely to improve capability assessed against the ICM.



Potential to improve – The initiative, as currently defined, would need reshaping in order improve capability assessed against the ICM.

Likely to improve capability	Potential to improve capability
<p>Delivery Transformation Programme Continuous Improvement WP1 – IPC Continuous Improvement WP1 – IBIP PPA</p> <p>BAU initiatives PCF Stage 0 SMP Benchmarking</p>	<p>Delivery Transformation Programme Budget Led Design – WP2 – Design to Cost Budget Led Design – WP5 – Working Better together Major Projects, Commercial & Procurement, and Strategy and Planning Continuous Improvement – WP4 – Moving our P3M3 maturity Continuous Improvement – WP5 – Quality Continuous Improvement – WP6 - P3O Optimisation Home Safe & Well – WP2 – Health, Safety & Wellbeing by Design Home Safe & Well – WP3 – Learning and Organisation insight</p> <p>BAU initiatives PCF improvement Knowledge Management</p>

Table 11: BAU initiatives

6.4 Green Book 2020

In November 2020, the Government published the Green Book Review 2020 in response to concerns that the government’s appraisal guidance may mitigate against investment in poorer parts of the UK and undermine the Government’s aim to ‘level up’ these areas.

As a result of the review, the Green Book has been changed to include:

- A stronger requirement to establish clear objectives from the outset.
- Places greater emphasis on the strategic case element of the business case compared with the economic case (BCR).
- Increasing the importance of place-based analysis to help drive the Government’s ‘levelling-up’ agenda. The review also announced an expert review into the application of the discount rate for environmental impacts.

The Green Book is important as it sets the yardstick against which business cases for Highways England schemes are assessed. As such, we would expect these changes to incentivise improved project team focus and behaviours relating to capabilities A1, A2 and B3.

6.5 Refocusing current initiatives

To achieve greater alignment between the initiatives and their impact on the capabilities in the ICM we suggest that some of the initiatives are reshaped as set out in Table 12 below.

Initiative	Suggested re focus / reshape
Budget Led Design WP2 – Design to Cost	We suggest reviewing the work package to ensure alignment with the changes in the Green Book 2020. There is a risk that the focus on cost unintentionally acts against the Green Book 2020 intent of increased focus on the strategic case. This is particularly the case for 'unaffordable options' that might have the best strategic fit and case.
Budget led Design WP5 – Working better together	We suggest expanding the scope to include clarification of the roles of the Sponsor and Project Leader, which was raised as an issue in several interviews.
Continuous Improvement WP4 – Moving our P3M3 maturity	We suggest ensuring that the Level 4 requirements for process measurement and knowledge management are both fully understood and embraced.
Continuous Improvement WP5 – Quality	We suggest ensuring that 'right first time' includes consideration of project process (for example stakeholder engagement) in addition to the current scope.
Continuous Improvement WP6 – P3O optimisation	We suggest expanding the scope of this to ensure that the focus of management information covers project, programme and portfolio performance, and also process performance.
Home Safe & Well WP2 – Health, Safety & Well-being by design	We suggest considering whether there are aspects of design for safety that could align with the Green Book 2020 changes.
Home Safe & Well WP3 – Learning and Organisation insight	We suggest ensuring that this is tightly integrated into the existing BAU Knowledge Management activity.
PCF improvement	We suggest ensuring that there is stronger integration between ongoing PCF improvement and knowledge management.



Initiative	Suggested re focus / reshape
<p>Knowledge management</p>	<p>We suggest refocusing this to provide the underpinning capabilities required for P3M3 Level 4 of:</p> <ul style="list-style-type: none"> • Using lessons to be learnt and management information to assess process effectiveness and be able to identify opportunities for improvement. • Shift focus away from publication and communication of lessons to be learnt to ensuring that lessons are learned and systemised through changes to the system of work and training and that those improvements can be evidenced. • Undertaking process benchmarking both within Highways England and outside of it. <p>We also suggest that:</p> <ul style="list-style-type: none"> • Identified lessons need to be centrally collated more frequently to ensure that lessons are learned in a timely manner and not just after a project has completed. • Lessons need to be analysed in a more granular fashion and made available in a way that makes them very easy for project teams to find. • There is specific integration with lessons identified for statutory procedures and powers. • There is a process in place for ensuring that regional and programme Centres of Excellence don’t become disconnected from the central Knowledge Management team.

Table 12: Suggested scope refocus



7. Appendix – Recommendations

No.	Recommendations
1	<p>We recommend that Highways England prioritises its available capacity to focus on speeding up completion and embedment of IPC; by setting a clear target date for completion based on a costed and resourced plan taking account of any constraints on project teams to support change in addition to project delivery.</p> <p>Acceptance criteria for completion should include:</p> <ul style="list-style-type: none"> • Information flowing between the integrated systems with minimal data management intervention. • Project teams confident in how to use the information to drive improved decision making. • Impact on project team Business As Usual (BAU) activity is minimised. • BAU project controls resourcing is adequate to manage the increased level of data collected.
2	<p>We recommend that Highways England ensures that the available capacity of project teams to absorb DTP change activity is prioritised towards improvement initiatives that directly support the success of RDP and SMA, such as PPA and IBIP.</p> <p>We recommend that Highways England reviews the sequencing of outputs from its DTP work packages (like Budget Led Design WP2 (Design to Cost) and WP5 (Working Better)) to prioritise support for RDP and SMA.</p> <p>In addition:</p> <ul style="list-style-type: none"> • Consider making PPA available to all parties in the Integrated Project Team (IPT) (including Delivery Integration Partners (DIP)). • Seek opportunities for acceleration of PPA roll out.
3	<p>We recommend that Highways England reviews its project and change team resourcing, to ensure that the additional workload on the core project teams arising from change activity matches their capacity to absorb changes and does not endanger project delivery.</p>
4	<p>Highways England has a strong focus in its training and development on professional qualifications (for example APM chartered project professional).</p> <p>We recommend that Highways England broadens its approach to competence management to put more emphasis on ensuring that its project staff have the necessary specific role-related competencies and to encourage fuller participation, changing the perception that is it currently an ‘opt in’ process.</p>
5	<p>We recommend that Highways England review its approach to how it can better assure the professional and contextual competences of supply chain resources working in IPTs.</p>



No.	Recommendations
6	<p>We recommend that Highways England review its decision making process to improve effectiveness and timeliness by:</p> <ul style="list-style-type: none"> • Clarifying delegations and roles. • Introduce metrics for time taken to resolve issues escalated for decisions. • Identify opportunities to accelerate decisions.
7	<p>We recommend that Highways England review its plans and investment in knowledge management to address the timeliness and effectiveness of learning lessons in order to drive realisation of efficiencies throughout the project lifecycle. This should start with an immediate focus on improving timely, progressive learning of lessons across projects on stakeholder engagement and statutory procedures and powers.</p>

