

Review of National Highways Supply Chain Readiness for delivery of RIS3

Office of Rail and Road and National Highways

13 February 2026



FINAL REPORT

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Contents

1. EXECUTIVE SUMMARY	1
2. INTRODUCTION	12
2.1. Scope	12
2.2. Approach	12
2.3. Report structure	15
3. STRATEGIC CONTEXT	16
3.1. What makes RIS3 different from RIS2?	16
3.2. Wider infrastructure investment.....	17
3.3. Conclusions of previous reviews	18
4. DETAILED FINDINGS	20
4.1. The overarching supplier view of RIS3 readiness	20
4.2. Our findings by theme	21
4.3. Our findings by supply chain category	33
5. OUR VIEW - RIS3 READINESS RISK AND RECOMMENDATIONS.....	39
5.1. Primary cross-cutting portfolio risks.....	39
5.2. Wider supplier risks to RIS3 delivery	42
5.3. Recommended mitigations	42
APPENDIX A CASE STUDIES FROM OTHER SECTORS	47
APPENDIX B OUR EVIDENCE-GATHERING APPROACH.....	54
APPENDIX C BIBLIOGRAPHY	60

1. EXECUTIVE SUMMARY

Summary: This report in a nutshell

National Highways (NH) is the government-owned company charged with managing and improving England's motorways and major A-roads, helping customers to have safer, smoother and more reliable journeys.

NH and the Office of Rail and Road (ORR) asked us to study the readiness of NH's supply chain to deliver the upcoming third Road Investment Strategy (RIS3, 2026 to 2031), with an emphasis on renewals of existing assets.

We have found that suppliers are broadly confident about delivering RIS3, reflecting progress NH has made to strengthen its procurement mechanisms. The main risk now is execution-related - mobilising many specialists quickly across a larger number of renewals schemes.

Across our evidence gathering, we identified three primary outstanding portfolio-level risks which have the potential to impact delivery – these relate to supplier visibility of the pipeline of works, competition for specialist skills with other sectors, and readiness confidence among smaller firms – alongside a broader set of risks and opportunities that may impact supplier readiness for RIS3.

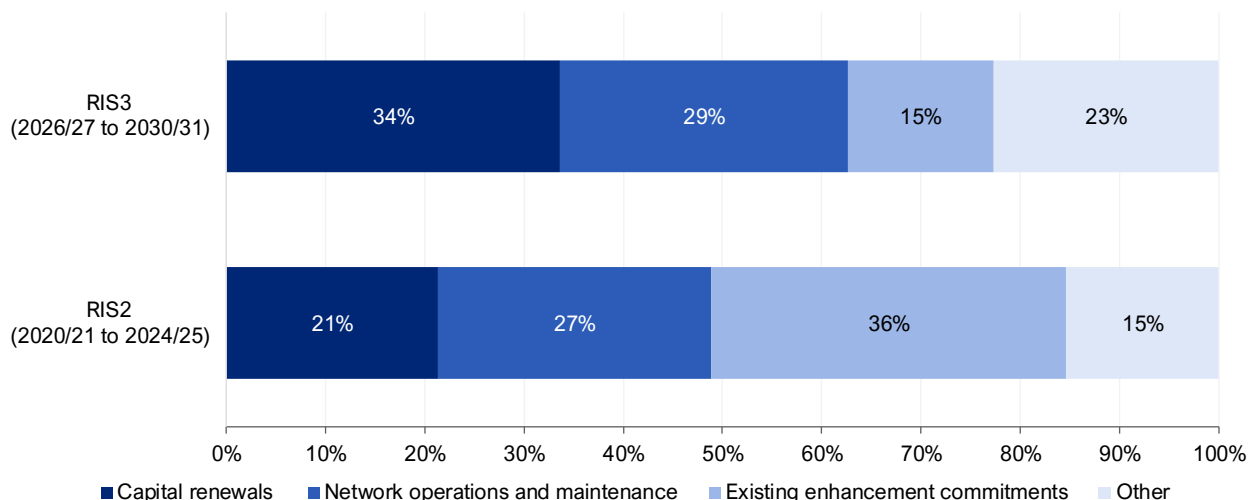
To help mitigate these risks, we present five core recommendations for NH, underpinned by 14 actions. These encompass sharpening scheme-level visibility and funding signals, refining commercial terms, strengthening resilience and cross-sector coordination, and using RIS3 lessons to shape RIS4 delivery models. The latter would help ensure the sector's existing commercial attractiveness is maintained as other sectors scale up investment.

Background context: RIS3 is National Highways' most ambitious capital renewals programme to date. It runs parallel to significantly increased delivery requirements in other UK infrastructure sectors, including water and energy.

While similar to the second Road Investment Strategy (RIS2, 2020 to 2025) in the order of overall spend, RIS3 is characterised by a significantly greater emphasis on the renewal of existing highways assets, now expected to represent the largest single component of a £25 billion draft funding envelope, followed closely by operating and maintaining the network (as illustrated in Figure 1:1). This programme incorporates a wide range of schemes, with particularly ambitious components related to complex structure renewals, and roadside technology deployment.

Figure 1:1: Breakdown of actual spend for RIS2, and forecast spend for RIS3

% of total expenditure



Source: NH financial model as presented in its draft Strategic Business Plan (dSBP) for RIS3. The interim period which bridged the gap between RIS2 and RIS3 is excluded - this covers financial year ending 31 March 2026.

Successful delivery of RIS3 will require a collaborative and resilient NH supply chain across all asset renewal categories, to meet targets and prevent cost overruns or schedule delays.

Notably, RIS3 will need to take place as Great Britain's electricity and water sectors also gear up for their largest ever investment programmes in parallel, competing for resources including skilled people, and, to a lesser extent, materials and plant. Estimates from DESNZ and Ofwat respectively suggest that successful delivery of the Clean Power 2030 and 'Asset Management Plan (AMP) 8' water investment programmes out to 2030 would each represent real terms four-fold increases in investment versus recent historic averages. These factors have the potential to drive meaningful supplier delivery risks for RIS3.

In this context, ORR and NH commissioned CEPA and Elliott Asset Management (EAM) to assess the readiness of the supply chain to deliver RIS3, specifically the renewals component of the programme. ORR and NH wish to identify and assess the risks to the delivery of NH's RIS3 portfolio and the potential for cost escalation and delay.

We have been asked to:

- build a holistic view of NH's supply chain for highways, with a focus on renewals, documenting its structure and anticipated constraints over the next 5-10 years;
- provide ORR and NH with a clear, evidence-based understanding of supply chain capacity, capability, and resilience, as well as the risks that might affect the delivery of RIS3; and
- identify recommended mitigations to identified RIS3 delivery risk – our view of strategies that could be employed to increase RIS3 delivery resilience, applying lessons from other sectors where possible.

This report summarises the findings and conclusions from our research.

It incorporates a review of previous NH supply chain assessments carried out in 2016, 2017, and 2020, so that lessons can be applied to the current challenge. It also summarises fieldwork we have undertaken across the multiple 'tiers' of the NH's supply chain, engaging directly with main contractors, specialist suppliers, sub-contractors, and material providers. Over the course of the study, we have undertaken a comprehensive survey of the supply chain and held a series of bi-lateral interviews and workshops with NH procurement and delivery teams, potential suppliers to the RIS3 portfolio, and organisations operating in wider infrastructure sectors.

Through this engagement, we have assessed the supply chain's capacity, capability and readiness, and the sustainability of contractual arrangements for RIS3, and exposure risks such as pressures from other infrastructure sectors. We have identified short- and longer-term recommended mitigations that NH, ORR and other stakeholders in the highways programme - such as the Department for Transport - may wish to consider going forward, to address supply chain risks in the delivery of the RIS3 portfolio.

A more detailed summary of our approach to the study is provided in **section 2** of this report.

Background context: NH relies on an extensive supply chain that comprises a range of 'tiers' of larger and smaller suppliers across a mixture of works categories. These operate within the different regions of England, and routes to market.

The type of work undertaken by suppliers to NH is diverse, through the life-cycle of solution design and construction, into operating and maintaining the network and beyond.

Consistent with the categorisation of the supply chain used in many other infrastructure capital works programmes, NH suppliers are sometimes referred to as 'tier 1', 'tier 2' and 'tier 3':

- Tier 1 broadly represents primary contractors, tier 2 specialist sub-contractors and tier 3 product suppliers and vendors.
- Historically, a supplier may have been considered tier 1 where NH held a direct contractual relationship with them, but we note it now also holds such relationships with suppliers typically considered lower down the tiers.

Most of NH's procurement comes through framework contracts, with suppliers able to secure works with NH either indirectly (via NH's supply chain) or by directly contracting to NH. The more indirect route, which has historically

been used by smaller suppliers, involves the supply of works through NH's larger more multi-disciplinary (tier 1) suppliers, who then use sub-contractors and sub-consultants (tier 2 and tier 3) for delivery of the works.

However, definitions of these tiers tend to vary, and there is no formal characterisation. As such, this report generally refers to suppliers by their size instead, referencing 'small', 'medium' and 'large' firms, and sometimes Small and Medium-sized Enterprises (SMEs) - the definition of SMEs used in this report is provided in section 2.

We understand given the makeup of the RIS3 portfolio – characterised by growth in the scale and diversity of renewals schemes – that NH expects to rely more on smaller suppliers for delivery than may have been the case in previous RIS periods (for example, in the rollout of roadside technology installations). As a result, the capacity and readiness of what may have traditionally been viewed as lower tier suppliers in the NH supply chain, are also expected to be critical to the delivery of RIS3.

To enable synthesis and a comparison across NH's supply chain, we grouped suppliers into one of six broad works categories, as illustrated in Figure 1:2 below, and, with the emphasis on renewals works, this forms the focus of our commissioned study. We recognise there are distinct sub-categories and activities within each of these broad categories and that some suppliers do not necessarily neatly fall within a single supply chain category. The categories are intended to be used as a broad framework for our assessment, rather than a definitive or comprehensive classification of the supply chain, or how NH approaches its procurement.

Figure 1:2: Our categorisation of the NH RIS3 supply chain, with emphasis on renewals works



Source: CEPA-EAM. More detail on the works included in each category is provided in section 2.2.2 of the main report.

The key frameworks responsible for the delivery of much of NH's RIS investment include:

- **Scheme Delivery Framework (SDF) and its upcoming second iteration (SDF2)** – covering a broad range of renewal, improvement and small scale road construction works;
- **Pavement Delivery Framework (PDF)** – covering the supply of materials, plant and labour to carry out surfacing and pavement construction, with future works to become part of SDF2; and
- **Maintenance and Response (M&R), and its replacement (M&R2) contracts** – covering operation, maintenance and resilience activities across the supply chain categories identified above, and, in future, roadside technology installations.

Aside from bespoke enhancements, the expectation is that RIS3 will be delivered through a combination of:

- interim arrangements that make use of a range of legacy agreements with suppliers; and
- the new SDF2 and M&R2 programmes deployed from 2027 and 2028.

These procurement routes are critical to the delivery of RIS3 renewals and maintenance works, and the resilience of NH's supply chain, as discussed in **sections 2 and 3** of the main report.

Our key findings: Drawing together the supply chain's feedback, views and evidence from NH and our own research, our key findings on supply chain risk and readiness for the RIS3 portfolio are as follows (1-4).

- 1) NH has made significant changes to its RIS3 procurement mechanisms to improve supply chain readiness and capacity, reflected in broad confidence among suppliers in their ability to deliver the portfolio of works.**

However, the RIS3 portfolio is now moving from 'set-up' to the execution phase.

Outstanding delivery risk is, therefore, centred on the mobilisation of many suppliers across a larger number of schemes than before, as focus shifts from set-piece enhancements towards the renewal of existing assets.

Feedback we have gathered is clear that there is good confidence among stakeholders in the supply chain's readiness for the delivery of RIS3. Despite the scale and scope of the capital programme, and pressures from other UK infrastructure sectors, there is broad positivity among suppliers in the feasibility of meeting the delivery challenge that RIS3 raises.

As a demonstration of this, when asked to review the readiness of their own supply chain category, and categories they tended to work alongside, suppliers consistently expressed medium-high to high levels of confidence.

This reflects positively on the evolutionary progress made by NH to date, to engage suppliers and refine its procurement mechanisms for RIS3. Suppliers have sent us a clear signal through both the web survey and bilateral interviews of their keenness to participate in RIS3, and have fed back positively on relationships, including with NH, scoring collaboration and communication strongly overall.

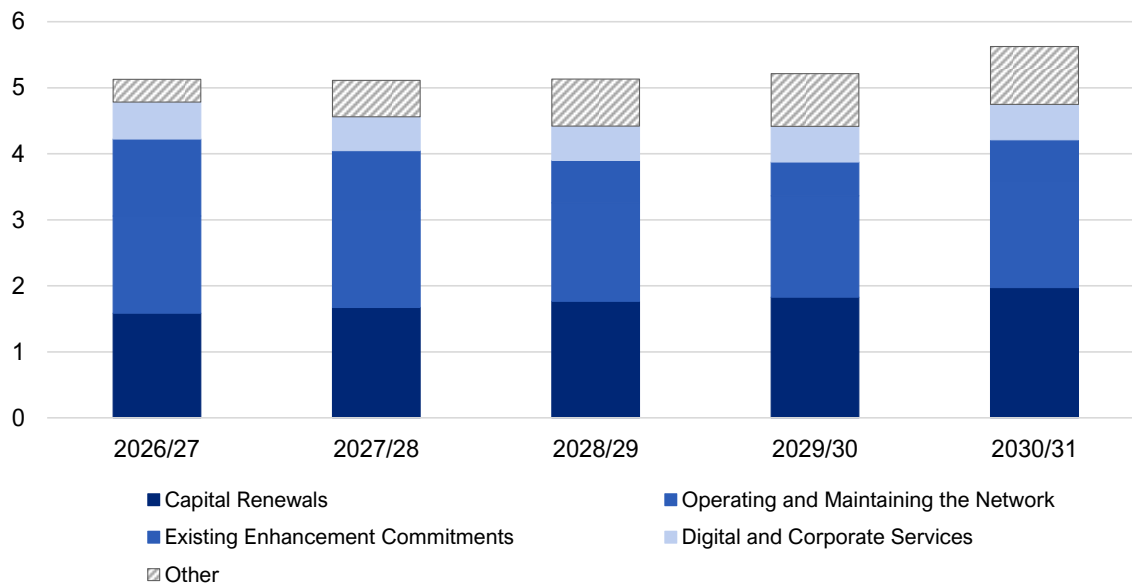
When considering the readiness of suppliers to deliver RIS3 on time and on budget, NH has now designed many procurement levers, making significant changes to improve delivery confidence. Examples include:

- **The introduction of an eight-year tenor for SDF2, up from five to six years for its predecessor frameworks (PDF and SDF).** Longer frameworks that cut across RIS3 and RIS4 should help assist market participation, support relationships with suppliers, and help incentivise longer-term investments in skills, materials and plant.
- **The implementation of a strengthened performance-related workshare (in SDF2).** This is intended to enable an effective response to underperformance once works have begun as well as the allocation of additional work to reward good performance, and so strengthen supplier incentives to appropriately manage costs, delays and quality.
- **Planned centralised and advance procurement of roadside technology components.** There is a particularly significant deployment challenge for technology, with current plans implying an order of magnitude increase in renewals versus RIS2. In this context, the planned centralisation of roadside technology procurement - procured annually in advance of its deployment - has the potential to support a reduction in delivery, cost, and integration risks.

With procurement mechanisms largely designed, our view is that outstanding RIS3 delivery risk is now increasingly in the execution of the portfolio. Specifically, this means the mobilisation of a broad pool of specialist suppliers to deliver a larger and more diverse portfolio of capital renewals, maintaining high delivery levels from the first year onwards. As evidence of this, Figure 1:3 illustrates a relatively even planned investment profile across the RIS3 financial years, with some growth in the final year. In addition, planned expenditure suggests large-scale renewals (>£50m, nominal prices) will only account for approximately 20% of total renewals spend.

Figure 1:3: Annual profile of total RIS3 expenditure, broken down by the largest spend categories

£ billion, nominal prices



Source: Total of individual spend categories in the NH dSBP financial model.

Given increasing competition for skills across sectors and greater reliance on SMEs in growth areas such as technology, NH is likely to need to take a more active role than in the past in managing suppliers and delivery risks, both before contracts start and during delivery, to ensure RIS3 can be delivered as planned.

Section 4 of this report sets out in detail the findings from our research into the capability, readiness and key areas of risk to supply chain deliverability of RIS3.

2) Notwithstanding the positive efforts being made by both NH and the supply chain to prepare for RIS3, three primary cross-cutting portfolio risks stand out from our research, in terms of their potential to impact the deliverability of the RIS3 portfolio.

These relate to a) supplier visibility and certainty over the forward pipeline of works, b) cross-sector competition for specialist skills, and c) the readiness confidence of smaller suppliers, who are expected to be critical to the delivery of RIS3.

Section 5 sets out our view of the overarching portfolio risks stemming from supply chain readiness. To identify and assess areas of risk, we gathered evidence across eight themes of interest under three topics, set out in Figure 1.4.

Figure 1:4: Themes explored through our assessment

Capacity and capability



i) Resource and skills availability



ii) Innovation and technology adoption



iii) Pressure from other sectors / supply chains

Market dynamics and outlook



iv) Market confidence and pipeline visibility



v) Financial health and investment



vi) Resilience and risk management

Procurement and partnership



vii) Contractual and commercial arrangements



viii) Collaboration and communication

Based on our engagement with suppliers, NH and stakeholders (including suppliers and procuring authorities in other sectors), we judge the following risks are the most significant across the above themes.

a) Perceptions of limited visibility and certainty over the three-to-five year pipeline of works appear to be impacting some suppliers' decisions on how they prepare and invest for RIS3.

Theme: iv) Market confidence and pipeline visibility.

A consistent message we received from suppliers was around the importance of longer-term visibility and certainty over the pipeline of works, as two separate but interdependent factors. NH's recent initiatives have improved near-term visibility (typically the next 12 to 18 months), but suppliers indicate that readiness decisions increasingly hinge on having greater scheme-level granularity, visibility and confidence over a three-to-five year horizon. Without this, suppliers reported difficulty prioritising the highways sector, and investing in resources, skills, and their own risk management – particularly where investments have multi-year lead-in times (most notably recruitment). This has the potential to create delivery risk (schedule and cost) for RIS3 and future road investment strategies, which seems most likely to manifest through delays to the recruitment of skilled people. In turn, this frames the execution challenge for NH – mobilising the supply chain to deliver consistently and from day one, while providing confidence for suppliers to take investments now that may have multi-year lead-in times.

NH has implemented initiatives to increase suppliers' rolling view of forward works, including six-monthly updates that focus on the detail of the following year's works, and these may not yet be fully recognised amid recent uncertainty linked to the interim one-year funding settlement. However, three-to-five year visibility remains at region and work type / category rather than the scheme or programme granularity that suppliers seek. Our engagement indicated some erosion of trust among certain suppliers, where promised works did not always come to fruition in RIS2, often for reasons outside of NH's direct control. This illustrates a practical tension between providing earlier visibility and offering firm certainty, which any risk mitigations need to be cognisant of.

b) Increasing competition for specialist skills and workforce retention issues have the potential to constrain suppliers' ability to deliver in practice, once they've been appointed.

Themes: i) Resource and skills availability; iii) Pressure from other sectors / supply chains.

In the context of strong supplier interest in participating in RIS3, we observe that the primary exposure is in the delivery rather than procurement. The wider infrastructure landscape has shifted, and highways is increasingly competing for specialist skills with increasingly ambitious electricity and water investment programmes, within the context of an ageing construction and highways workforce.

In practice, the risk is that suppliers contracted to deliver RIS3 find it difficult to retain and deploy key roles, including specialist engineering, designers, industrial electrical/M&E and certain trades, if higher rates and/or preferable conditions elsewhere attract resource, noting the prevalence of night working in highways.

There is evidence that some sectors are taking an increasingly interventionist approach to developing their workforce, and may have more flexibility over the terms they can offer staff, but suppliers also linked asks for greater pipeline certainty in highways to recruitment decisions.

NH remains alive to resource risk from competing infrastructure programmes through its supply chain intelligence team, category managers and operational forums. We also understand that NH engages with other transport sectors directly through the Department for Transport, to develop a deeper shared understanding of overlapping supply chain pressures. Finally, NH has implemented new processes through the strengthened SDF2 performance workshare, to monitor and adapt to changes in supplier performance within contract.

At the same time, coordinated engagement with non-transport infrastructure sectors to develop a common understanding of supply chain demands and delivery risks does not appear to be typically carried out at the strategic or operational levels.

c) Smaller suppliers appear to be less confident in their readiness for RIS3; this implies programme risk in areas where they are more prevalent, such as civils and technology.

Theme: cross-cutting.

Noting that feedback is drawn from a smaller sample size than some other parts of NH's supply chain, our engagement suggests small to medium organisations (typically specialist sub-contractors or vendors; 'tier 2s' and 'tier 3s') who may have less of a direct contractual relationship with NH, are less confident in their readiness for RIS3 than primary contractors ('tier 1s'). This could increase delivery risk in supply chain categories which are particularly dependent on input from smaller firms, such as technology and civils.

Reasons given include perceived limitations in access to detail on the forward pipeline of works, the burden of managing administrative reporting, and unexpected peaks and troughs in workload. The latter of these points may have been influenced by recent uncertainty stemming from NH's one-year interim funding settlement, which bridged RIS2 and RIS3 (see below). Some smaller suppliers also expressed reticence to invest given past changes to works, and may have less ability than larger firms to flex resources across clients and sectors.

Through its Engagement Council, framework engagement and twice-yearly pipeline updates, NH has taken specific action to strengthen engagement with SMEs, and share pipeline information. In some areas, RIS3 will also create more direct contractual relationships with SMEs, which may support further confidence over time.

Some of the above factors are outside of NH's direct control to mitigate - NH does not have complete influence over every lever to increase supplier readiness:

- Most notably, NH must operate within a funding envelope agreed with the government. Alongside the inherent uncertainty of schemes that in practice will need to be delivered within its agreed funding envelope, this can act as a constraint on the degree of visibility and certainty that NH can in practice provide to its supply chain, relative to some other sectors.
- For example, we are now coming to the end of an exceptional one-year interim funding settlement, before returning to the five-year RIS periods and longer-term strategic programme view that the 2015 Roads Reform envisaged. This one-year period of greater uncertainty will naturally have had some impact on the supply chain's view of programme certainty and stability, and NH's capacity to provide pipeline certainty and visibility.

Nevertheless, the feedback we received indicates a continued focus on providing pipeline visibility and certainty to the supply chain is critical. This then enables the supply chain to invest in capacity, skills and availability of workforce and to manage competing pressures from other sectors where applicable, helping support a virtuous circle of supply chain readiness and capacity in the highways sector. This is an area where all stakeholders in RIS3, including but not limited to NH, should be exploring all opportunities where possible to improve forward pipeline visibility, recognising the inherent constraints that exist within the sector and its funding mechanism.

Our assessment broadly aligns with findings from the Competition and Markets Authority (CMA)'s recently published interim market study on the UK roads and rail civil engineering sectors. This report characterises pipeline uncertainty as a key factor impacting firms' ability to plan and invest in their own capabilities to deliver future work, particularly in relation to future innovation and addressing skills gaps.

The above primary risks are supplemented by several secondary portfolio risks we have identified, primarily around resilience and risk management. These also warrant consideration.

The most notable of these is in the cyber space, where we found limited recognition among the suppliers we engaged with of the potential significance of this risk to the delivery of the programme. Recent examples of cyber attacks on major manufacturing facilities and London borough councils highlight the potential disruption to delivery that can stem from lower cyber preparedness. The challenge here is likely in mitigating risk among older contracts, as well as lower down the tiers of the supply chain where NH may not have a direct contractual relationship.

Additional secondary portfolio risks we have identified include:

- **Input price sensitivity and volatility:** suppliers flagged that inflation and macroeconomic volatility can undermine pricing assumptions and recovery mechanisms, driving affordability and rate pressure. Exposure was raised for steel, bitumen, cement, aggregates and energy, with tariffs a potential amplifier. NH has intervened in some of these areas in the past, to ensure the supply of critical inputs.
- **Road-space access:** although not a supply chain readiness risk specifically, road-space planning and access was repeatedly seen as critical to schedule performance. Risk rises with inconsistent planning, long mobilisation/integration, or external disruption, and is most significant for pavements, structures and technology as installations scale up.
- **Regional pressures:** noting planned SDF2 expenditure is spread fairly evenly across England, our wider evidence-gathering suggests an increased likelihood of regional specialist workforce pressures linked to major investment in energy and water, especially in the South and East regions.

Our engagement suggests there is broad interest among suppliers to participate in RIS3, implying that, at present, highways remain competitive with other infrastructure sectors in attracting suppliers and their investment. However, the wider market is developing. Beyond RIS3, the challenge for NH will be to ensure that, noting the constraints it must operate within, the commercial and contractual terms it offers remain attractive in an increasingly competitive market for scarce resources.

3) Looking broader across all themes, suppliers were most confident in processes for collaboration and communication with NH and each other.

Table 1:5: Full summary of the risks and opportunities we identified for RIS3 supplier readiness, broken down by our themes of interest

Theme	Supplier confidence [†]	Identified risks	Opportunities and existing mitigations
Capacity and capability			
 i) Resource and skills availability	Varied	Competition with other sectors for specialist skills (design, engineering, technology, electrical), and ageing workforce / retention challenge for operational roles.	Scope for more NH-led skills development over RIS3 / RIS4, noting signs supplier-led training for existing staff is underway, and large firms are flexibly redeploying staff across sectors.
 ii) Innovation and technology adoption	Less confident	Perceived frictions driven by factors such as funding availability and challenges progressing from trial to 'business as usual' mean innovation's potential contribution to RIS3 readiness is uncertain.	NH continues to provide funded support, and these funds are still in the design stage for RIS3. Some potential to accelerate uptake by setting out 'standards based' pathways to suppliers.
 iii) Pressure from other sectors / supply chains	Less confident	As investment in other sectors scales to 2030 and beyond, this could translate into pressure on rates, lead times, and (RIS4+) competition on commercial terms offered.	Longer-term commercial changes could sharpen NH's 'offer' in an increasingly competitive market, though strong expected SDF2 participation suggests NH remains commercially attractive.
Market dynamics and outlook			
 iv) Market confidence and pipeline visibility	Least confident	Suppliers perceive pipeline visibility as the largest risk; they seek more granular visibility beyond the next year, to enable effective mobilisation for the portfolio. Evidence suggests this may be impacting recruitment, and may be more acute for smaller firms.	NH's actions to improve near-term pipeline visibility are seen as significant and helpful; where there are opportunities to go further through long-term, scheme-level visibility and certainty, this may help support supplier workforce planning.
 v) Financial health and investment	Varied	Supplier feedback suggests this is not a primary risk, but financial confidence is sensitive to pipeline certainty. Longer-term risk around competition and margins for some suppliers.	NH is continuing to develop its monitoring processes to identify and address supplier fragility, and changes to RIS3 commercial features should support confidence and provide resilience.
 vi) Resilience and risk management	More confident	Self-led supplier risk management may be uneven – smaller suppliers' investment may depend on pipeline certainty. Suppliers perceive meaningful inflation and schedule risk. Cyber risk may warrant greater attention, including in legacy contracts.	NH has a track record of intervening to protect supply of critical inputs; some opportunities exist in institutionalising the approach. Suppliers are broadly confident in their resilience, larger firms provided evidence of 'self-help' mitigations in place.
Procurement and partnership			
 vii) Collaboration and communication	Most confident	Few risks identified. Where risk around collaboration exists, it appears relatively narrow. For example, some changes in delivery models could impact the directness of SME relationships with NH, notably technology SMEs within broader M&R contracts.	Suppliers consistently report positive engagement and mature working relationships with NH, and each other. We observed demonstrated best practice (e.g. regional collaboration models, improved and structured supplier engagement).
 viii) Contractual and commercial arrangements	Varied	SMEs find tender and reporting requirements administratively-heavy. Suppliers raised some concern about risk allocation, likely influenced by exceptional Covid inflation, and noted challenges in setting upfront scheme budgets, particularly for renewals.	NH is in the process of determining contracting and risk-share terms for RIS3, and is actively considering evolutionary changes. Opportunities exist around further streamlining onboarding and payment processes and examining the SME-reporting burden.

Source: CEPA-EAM analysis. [†]As part of our supplier web survey, firms were asked to pick their top two most and least confident themes for RIS3 readiness. More detail is provided in section 4.2.

4) Framing risk by supply chain category, we have identified greater relative risk to RIS3 delivery in the structures, technology and renewals asset design categories.

Alongside our assessment of supply readiness and risk by thematic area, as a secondary lens, we have also considered relative readiness risk at a broad supply chain category level. This is with the aim of highlighting which categories may be relatively more exposed to delivery risk than others, and therefore warrant greater attention.

It is important to recognise that this is a *relative* risk assessment across the supply chain categories. It does not judge whether any individual category is 'low' or 'high' delivery risk. A higher relative risk rating simply highlights areas within the RIS3 portfolio that may need more attention and monitoring during delivery.

Drawing together the various evidence sources, the feedback we have received indicates greater relative risks in categories 4) Structures, tunnels, joints and waterproofing, 5) Technology, signs and lighting, and 6) Professional and design services. These are generally driven by competition for skills with other infrastructure sectors, and in some cases the interaction between that and increased demand in RIS3.

Table 1:6: Summary of relative readiness risk identified across the six supply chain categories

Supply chain category	Relative risk	Summary of drivers underpinning relative risk rating
1) Pavement and road markings	Lower	Mature, flexible supply base; suppliers and their peers express confidence the market can flex across contracts to deliver RIS3 volumes. Some risk exposure exists in specialist sub-categories and global markets, but overall resilience appears relatively strong.
2) Civils, drainage and landscaping	Middling	A mature supply base with self-delivery, but there is competition for skills, and to a lesser extent plant, across infrastructure sectors. Regional pressure from nuclear may be particularly acute in the East, driven by Sizewell C works. Lesser risks exist within sub-categories, largely relating to changes to procurement design and requirements, including biodiversity and carbon requirements in the tree space.
3) Traffic management and barriers	Middling	Experienced supply chain focused on roads, operating across authorities and with some demand from other sectors. Risk is driven by concerns around total demand, workforce age and retention, and execution if road-space access slips.
4) Structures, tunnels, joints and waterproofing	Higher	Identified risk in this area is driven by increased volume of RIS3 works interacting with constraints on available skills, with long lead-in times for development, and cross-sector competition for engineers, installers and trades.
5) Technology, signs and lighting	Higher	Whilst the sector has expressed confidence it can scale to deliver what is asked of it, and the move to centralised procurement and M&R2 should help drive standardisation of design and support reactive works at pace, RIS3 implies an order of magnitude increase in spend over RIS2, with little ramp-up over the period. This, combined with supplier concerns around forward visibility of works, and competition for electrical skills - which can demand higher salaries - implies greater execution risk.
6) Professional and design services	Higher	Significant level of cross-sector competition for specialist design and professional services skills in the context of set-piece major infrastructure investments, compared with the potentially high volume, lower value nature of highways renewals work creates risk. Some of this risk may be offset by the typically large firm size and their ability to benefit from off-shore skills.

Source: CEPA-EAM analysis.

Recommendations: We have identified a mix of shorter and longer-term recommendations to help mitigate the risks we have identified and improve the readiness of the supply chain to deliver RIS3 and beyond.

All parties involved in the delivery of RIS3 – including individual suppliers – have a role to play in mitigating delivery risk. As this report has been prepared on behalf of NH and ORR, and recognising the stage that RIS3 is at, we have focused recommendations on evolutionary mitigations that NH could apply directly. Where accepted, we propose ORR should monitor progress against them, to quickly identify issues and work with NH and the government on solutions, helping ensure the envisioned benefits of RIS3 are delivered efficiently. A similar assessment may be undertaken for RIS4 in advance of procurement design to support effective implementation.

Our recommendations - R1 to R5 - and their underpinning actions (1 to 14) are set out in detail in section 5.3. The table below provides a narrative summary of each recommendation and the actions it contains.

Table 1:7: Summary of recommendations to mitigate identified RIS3 supplier readiness risks

Recommendation	
R1 (actions 1 to 5)	Build on recent efforts to improve transparency over the pipeline of works by focusing on the granularity of the three-to-five year outlook, thereby supporting supplier mobilisation and investment. NH should consider how it might improve scheme / programme-level certainty over the RIS3 duration, including for smaller firms. Where greater certainty over the programme cannot be provided, this could incorporate confidence-rated assessments, and/or other forward indicators of potential pipeline, such as asset condition and end-of-life and obsolescence indicators.
R2 (actions 6 to 7)	Explore opportunities to strengthen confidence in early cost and funding assumptions, helping translate the settlement into clearer signals of scheme and programme commitment for suppliers, and supporting their longer-term investment planning. Working with government, NH should consider how early scheme-level budgets and contingencies reflect uncertainty, particularly for renewals works, and where the scope is not yet well defined. This includes consideration of the practicality of further Early Contractor Involvement in these estimates (noting the incentives challenge), and if further assurances that funding is confirmed can be provided.
R3 (actions 8 to 9)	Continue to refine commercial and contractual arrangements to support delivery confidence and SME participation. Noting the commercial constraints it operates within, NH can build on changes already made, considering whether refinements to indexation, onboarding and reporting policies could support delivery in places, particularly for smaller and specialist suppliers.
R4 (actions 10 to 12)	Reinforce resilience to systemic risks and manage cross-sector pressures. NH should work with government to consider how greater cross-sectoral co-ordination might help to manage shared pressures on skills, suppliers and materials, particularly as infrastructure investment activity intensifies towards 2030. Within RIS3, NH could take further steps on cyber risk, and to institutionalise its record of intervening to ensure supply of critical inputs.
R5 (actions 13 to 14)	Use RIS3 experience to inform decisions on skills, delivery models and market structure for RIS4 onwards, to maintain long-term investment attractiveness versus other sectors. Noting that many of the mechanisms for RIS3 delivery have now been set, NH should keep specialist skills needs under review, building on existing initiatives where possible in the short-term. Over the longer-term, NH should consider the value of alternative delivery approaches, including plausibly taking a more active role in skills development, and the relative merits of alliancing models, and other changes in contractual terms for RIS4 onwards.

Source: CEPA-EAM.

2. INTRODUCTION

The Office of Rail and Road (ORR) and National Highways (NH) has commissioned CEPA and Elliott Asset Management (EAM) to assess the readiness of NH's supply chain to deliver the third Road Investment Strategy (RIS3). RIS3 represents the government's next multi-year investment programme for England's strategic road network. Building on the first two strategies, RIS3 is expected to place new emphasis on large-scale renewals to replace life-expired assets, an expanded portfolio of new assets, and the integration of new roadside technologies to improve safety, connectivity, and user experience.

RIS3 incorporates a particularly notable increase in both the scale and diversity of renewals, requiring a more flexible and capable supply chain. This presents opportunities for adaptive supply chain partners, willing to work collaboratively with NH, but also risks in terms of competing demands for specialist skills. The government's [draft RIS3 publication](#) also sees NH committed to decarbonising its operations and that of its supply chain.

The need for this work also arises in a wider infrastructure landscape with ambitious delivery pressures. In 2024, the National Infrastructure Committee, now part of the National Infrastructure and Service Transformation Authority, identified [systemic challenges facing UK major infrastructure projects](#), including the absence of a long-term infrastructure strategy, inefficiencies in consenting processes, and a constrained supply chain.

These pressures are compounded by concurrent demands from other major infrastructure programmes such as Hinkley Point C, Sizewell C, major investment in electricity and water utilities, and rail (including HS2). The combined effect is potential for significant competition for skilled labour, materials, and contractor capacity.

2.1. SCOPE

This report is designed to provide ORR and NH with a clear, evidence-based understanding of supply chain capacity, capability, and resilience, as well as the risks that might affect the delivery of RIS3. This has incorporated a review of previous supply chain assessments carried out in 2016, 2017, and 2020, so that lessons can be applied to the current challenge. It also summarises fieldwork undertaken across multiple tiers of the NH supply chain, engaging directly with main contractors, specialist suppliers, sub-contractors, and material providers.

Through this engagement, we have tested the capacity, capability, readiness and sustainability of contractual arrangements, and exposure risks such as pressures on the supply chain from other infrastructure sectors.

We have divided the scope into three items, covered by this report.

Scope of this report

We have been asked to:

1. **build a holistic view of NH's supply chain for highways**, with a focus on renewals, documenting its structure and anticipated constraints over the next 5-10 years;
2. **provide ORR and NH with a clear, evidence-based understanding of supply chain capacity, capability, and resilience**, as well as the risks that might affect the delivery of RIS3; and
3. **identify recommended mitigations to identified RIS3 delivery risk** – our view of strategies that could be employed to increase RIS3 delivery resilience, applying lessons from other sectors where possible.

2.2. APPROACH

To provide a holistic assessment of readiness, risk and mitigations, we studied the supply chain through different lenses. These are set out in more detail below, but in summary include:

- **Themes of interest** – broken into eight themes across three topic areas – *capacity and capability*, *market confidence and pipeline visibility*, and *procurement and partnership*. This provided the primary lens through which we have considered supply chain readiness for RIS3.
- **Supply chain category** – the NH supply chain is characterised by a wide range of supplier types. To best enable synthesis and a comparison across the supply chain, we grouped suppliers into one of six broad categories, set out below. To supplement the theme-level assessment, we present a secondary view of readiness risk at category level.

Our approach validated conclusions from a supplier-wide web survey with bi-laterals held with NH, its suppliers, and organisations active in other UK infrastructure sectors. This was supplemented by desk-based research.

2.2.1. Themes of interest

To consider the readiness of the supply chain to deliver on the RIS3 portfolio, we focused on gathering evidence on eight themes, within three overarching topics of interest.

For each sub-theme, we considered ‘what good looks like’ with respect to the readiness of NH’s supply chain to deliver RIS3 and future highways investment programmes, as illustrated in Figure 2.1.

Figure 2:1: Summary of themes explored, and ‘what good looks like’ for each

Capacity and capability



i) Resource and skills availability: having sufficient skilled people and materials to do the job, even in the peaks.



ii) Innovation and technology adoption: low or no barriers to innovative approaches, technology and digitalisation.



iii) Pressure from other sectors / supply chains: little and/or well-managed competition for materials, skills and expertise from other infrastructure.

Market dynamics and outlook



iv) Market confidence and pipeline visibility: good forward visibility of work and confidence to prepare for RIS3.



v) Financial health and investment: a healthy and financially resilient market, ready to invest for the programme ahead.



vi) Resilience and risk management: suppliers are well-prepared and have contingency plans for major disruption.

Procurement and partnership



vii) Contractual and commercial arrangements: financial and contract terms and risk liability provisions that work well for suppliers of all sizes.



viii) Collaboration and communication: Issues and disputes foreseen and resolved effectively – good communication between NH, the supply chain, and competing projects.

Source: CEPA-EAM analysis.

These themes were explored in our engagement with NH and suppliers and are referred to throughout this report.

2.2.2. Description and categorisation of the supply chain

The NH supply chain can be described through a few different lenses, these include:

- **Supply chain category** – a broad grouping of suppliers into their different work types. The categorisation we have utilised is set out in detail below, but includes ‘pavement and road markings’, as one example.
- **Supplier tier and size** – suppliers are sometimes referred to as ‘tier 1’, ‘tier 2’ and ‘tier 3’, though definitions of these tiers tend to vary and so in most cases we prefer to refer to firm size instead.
 - Tier 1 broadly represents primary contractors, tier 2 specialist sub-contractors and tier 3 product suppliers and vendors, though there is no formal definition of each tier.
 - Historically, a supplier may have been considered tier 1 where NH holds a contract with them, but we note NH also holds such relationships with suppliers typically considered lower down the tiers.

- Given these factors, this report generally refers to suppliers by their size, referencing ‘small’, ‘medium’ and ‘large’ firms, and sometimes ‘SMEs’. See ‘Definition of Small and Medium-sized Enterprises (SMEs)’ below for more information on how these descriptors have been defined.
- **Framework** – the procurement mechanism by which a range of activities and work types are delivered. Key frameworks responsible for the delivery of much of NH’s RIS investment include:
 - **Scheme Delivery Framework** ([SDF](#), 2021 to 2027) and its second iteration ([SDF2](#), 2027 to 2035) – covering a broad range of renewal, improvement and small scale road construction works;
 - **Pavement Delivery Framework** ([PDF](#), 2023 to 2027) – covering the supply of materials, plant and labour to carry out surfacing and pavement construction, with future works part of SDF2; and
 - **Maintenance and Response (M&R) contracts**, and their replacement ([M&R2](#)) contracts – covering operation, maintenance and resilience activities, and, in future, roadside technology.

To help synthesise and visualise where strengths, risks and opportunities exist across the RIS3 portfolio, we categorised suppliers into one of six broad supply chain categories.

Table 2:2 summarises each category, its respective sub-categories, and the types of activities associated with them.

Table 2:2: Categorisation of the NH RIS3 supply chain, with emphasis on renewals works

Supply chain category	Examples of skills required	Sub-categories / activities
1) Pavement and road markings	Highway / pavement operatives and engineers for asphalt, concrete and markings delivery.	a) Pavement – flexible b) Pavement – rigid (concrete) c) Road markings
2) Civils, drainage and landscaping	Civil engineering / design and technician skills, with delivery by skilled construction / groundworks operatives, drainage technicians and landscapers.	a) Civils b) Drainage c) Landscaping
3) Traffic management and barriers	Temporary traffic scheme planning / coordination and Vehicle Restraint System (VRS) installation operatives.	a) Traffic management b) Barriers – restraint systems
4) Structures, tunnels, joints and waterproofing	Civil / structural engineering and inspection, with welding, jointing and waterproofing trades, and industrial electrical / Mechanical & Electrical (M&E) installation skills for tunnels.	a) Structures b) Tunnels c) Joints and waterproofing
5) Technology, signs and lighting	Electrical / electronic engineering, installation and commissioning.	a) Roadside technology b) Signs and lighting
6) Professional and design services	Project and programme managers and directors, multi-disciplinary design skills, specialist asset design engineers.	a) Primary contractors b) Design c) Technology design

Source: CEPA-EAM analysis.

We recognise there are distinct sub-categories and activities within each broad category and that some of NH suppliers do not necessarily neatly fall within a single category. The categories are intended to be used as a broad framework for our assessment rather than a definitive or comprehensive categorisation of the supply chain or how NH approaches its procurement. Although condensed by design, these categories sit alongside and are intended to broadly map to the more extensive categorisation (‘lots’) applied by NH in its existing and future frameworks.

We employed a range of evidence collection methods to assess the readiness of NH’s supply chain for the delivery of RIS3.

These include:

- **Web survey of suppliers** – designed with broad coverage in mind, to ensure we captured a wide range of views and perspectives on readiness among suppliers.
- **Interviews with NH functional leaders** – bi-laterals and group workshops capturing the internal NH ('client-side') view of supplier readiness and intended to target areas for further investigation.
- **Interviews with NH suppliers** – bi-laterals providing a more targeted 'deep dive' into specific categories and topics, both filling gaps in and validating web survey responses and NH interviews.
- **Interviews with organisations active in other infrastructure sectors** – bi-laterals with organisations active in other UK infrastructure sectors including other roads, water and energy, to understand their perspective on competition and best practice supply chain development.

Throughout our analysis, where supplier views are referenced, these have either been aggregated or sufficiently anonymised to avoid attribution to individuals or organisations. This approach was intended to elicit candid and honest reflections from suppliers, as opposed to rehearsed responses.

We received positive engagement across our sources of evidence, from suppliers and within NH.

Figure 2:3 provides a breakdown of the various engagement channels that have informed the study and its findings. Further detail on our approach to evidence collection can be found in Appendix B.

Figure 2:3: Breakdown of evidence sources used in our report



Definition of Small and Medium-sized Enterprises (SMEs)

This report refers to SMEs, and 'small', 'medium' and 'large' firms. Much of the evidence underpinning this report was collected on an anonymous basis, with suppliers reporting firm size on a Full-Time Equivalent (FTE)-basis only.

Firms self-reporting as having 250+ FTE staff are considered large, 50-249 FTE medium, 10-49 FTE small, and <10 micro. No information on firm turnover was collected - it is plausible but not certain that some firms who self-reported as micro, small or medium may have revenue turnovers which exceed the £44 million threshold to qualify as an SME, as set in the [UK government definition](#). Where the report refers to 'smaller' firms, this is intended to mean those who self-reported as micro, small or medium – in other words all suppliers who aren't 'large'.

2.3. REPORT STRUCTURE

The remainder of this report is structured as follows:

- **section 3** sets out the strategic context that RIS3 operates within, including what sets it apart from RIS2, and how the wider UK infrastructure picture is evolving;
- **section 4** sets out our findings in detail, first by theme and then a secondary supply chain category-level assessment; and
- **section 5** sets out our overarching view of what this means for RIS3, including the identification of programme level readiness risks, and a range of potential short- and longer-term mitigations for them.

3. STRATEGIC CONTEXT

To support an understanding of supplier readiness to deliver RIS3, it is important to first understand the makeup of RIS3, as well as how it and the wider UK infrastructure context it sits within have evolved since RIS2. This section summarises the available evidence in each of these areas.

3.1. WHAT MAKES RIS3 DIFFERENT FROM RIS2?

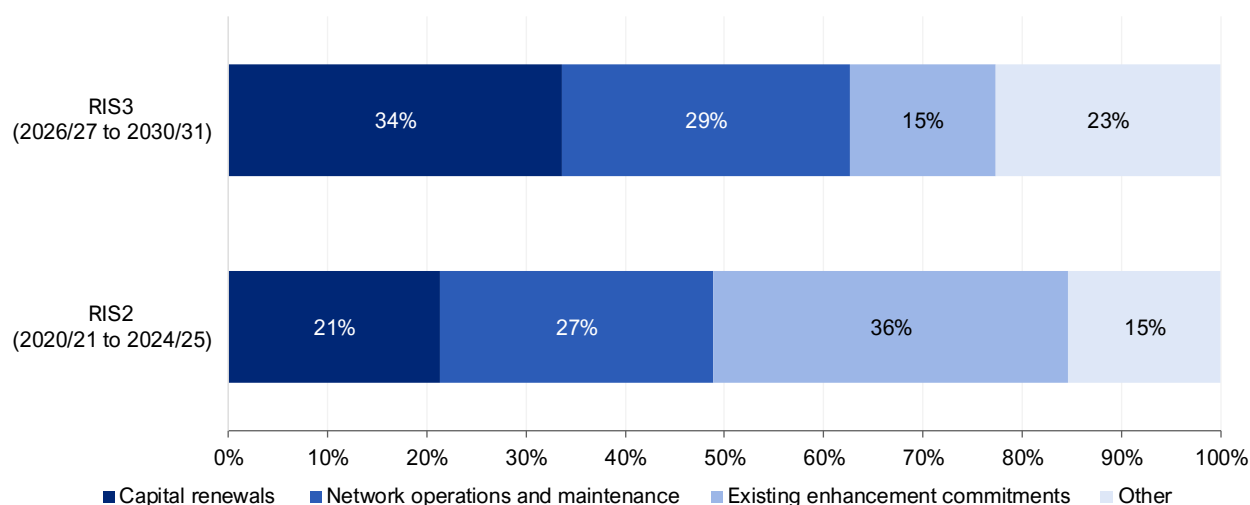
RIS3 represents NH's most ambitious capital renewals programme to date; characterised by growth in the scale and diversity of schemes.

RIS3 is characterised by a 17% increase in nominal expenditure versus RIS2, with the greatest proportions of spend accounted for in the delivery of renewals of and improvements to existing assets. This is in line with the [prioritisation of maintenance and renewals](#) proposed in the draft RIS3 (page 9).

Illustrating this, Figure 3:1 shows that expenditure on capital renewals is forecast to grow from 21% of total expenditure in RIS2 to 34% in RIS3, and spending on operating and maintaining the network from 27% to 29%. While noting that funding for Lower Thames Crossing is not captured within RIS3, expenditure on enhancements is forecast to fall from 36% to just 15%, with spend largely on schemes that were originally part of RIS2.

Figure 3:1: Breakdown of actual spend for RIS2, and forecast spend for RIS3

% of total expenditure



Source: NH RIS3 dSBP financial model. The interim period which bridged the gap between RIS2 and RIS3 is excluded - this covers financial year ending 31 March 2026.

Collectively, these factors set RIS3 apart from RIS2, and imply execution across a portfolio of capital renewals which is growing in both scale and diversity, with less emphasis on large-scale, set-piece infrastructure enhancements. This sits as part of a strategy to improve the condition of England's strategic road network over time. Notably, large-scale renewals (>£50m) only account for approximately 20% of planned total renewals spend.

NH has also implemented a number of commercial and contractual changes for RIS3, which seek to strengthen programme delivery confidence.

Building on its existing frameworks and supply chain, NH has now put in place many of the key procurement levers for RIS3, and is implementing significant changes aimed at strengthening delivery. The expectation is that RIS3 will be delivered through a combination of interim arrangements that make use of a range of legacy agreements with suppliers (including frameworks such as PDF and SDF, and the M&R programme described above), and new procurement programmes deployed from 2027 and 2028, namely SDF2 and M&R2, respectively. Additionally, in some areas, NH is seeking to establish more direct contractual relationships with lower tier suppliers.

- **SDF2 will succeed the existing SDF/PDF frameworks**, covering a broad range of works [across 13 lot types](#) from 2027. NH has progressed beyond market engagement, with the outcome of pre-qualification expected imminently, as of writing.
- **M&R2 contracts will succeed M&R**, and focus on maintenance and response activities, but with broadened coverage to capture roadside technology installations. It remains at the market engagement stage. Indicative timelines suggest a tender notice in 2027, with [commencement from March 2028](#), and a duration extending into the mid-2030s.

These new delivery mechanisms are characterised by multiple major changes. This includes the longer, 8-year duration for SDF2, up from a 6-year duration for the original SDF. Similarly, for SDF2, NH is introducing a strengthened performance-based workshare model, with supplier workshares adjusted 'in-life' (within contract) based on outturn performance. Finally, through M&R2, NH plans to centralise the advance procurement of roadside technology equipment, which should help improve consistency, coordination, and procurement efficiency. Evidence from our own and NH's market engagement implies strong supplier interest in these opportunities.

3.2. WIDER INFRASTRUCTURE INVESTMENT

In parallel with RIS3, unprecedented levels of investment are planned in other UK infrastructure sectors, which will be competing for specialist skills, materials and plant.

This includes the energy and water sectors, both developing their largest ever investment programmes:

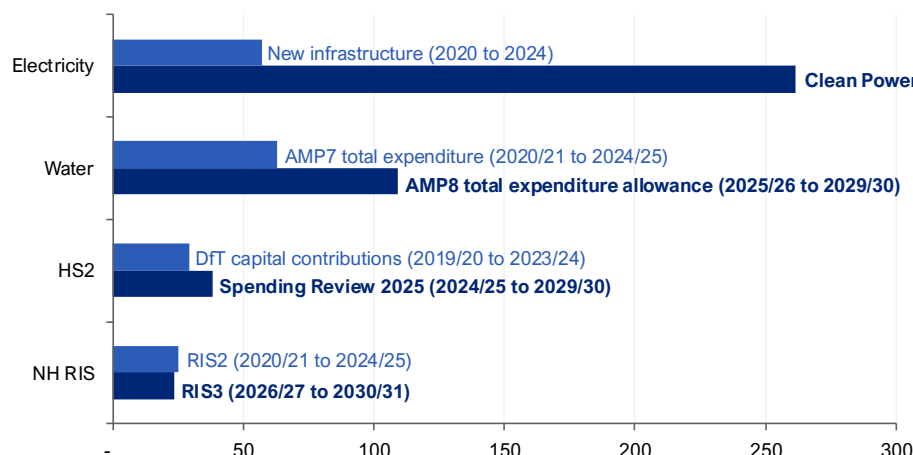
- **The government's [Clean Power 2030 Action Plan](#) sets out unprecedented deployment of renewable electricity and flexible technologies by 2030**, to meet targets including that clean sources should produce as much power as Great Britain consumes, [up from 64% in 2024](#). Subject to full delivery, the plan suggests *annual* capital investment could be four times greater than the 2020-24 average, in real terms.
- **In the water sector, industry is also in the process of implementing its largest ever investment programme out to 2030**, following [Ofwat's determinations for the eighth asset management period](#) (AMP8). Total expenditure allowances are up around 71% on the previous settlement period (AMP7), with funding described as new investment and resourcing expected to 'quadruple' during AMP8.

Across transport, High Speed 2 (HS2) is to remain the largest single project, and [has reached peak construction](#). The Lower Thames Crossing, labelled the most significant road project in a generation, will be developed in parallel.

Figure 3:2 below provides a comparison of historic and planned investment across infrastructure sectors, and illustrates how RIS3 represents a smaller proportion of planned investment over the coming years.

Figure 3:2: Total investment in forecast and most recent historic investment periods, selected UK infrastructure sectors and programmes

£ billion, 2025 prices

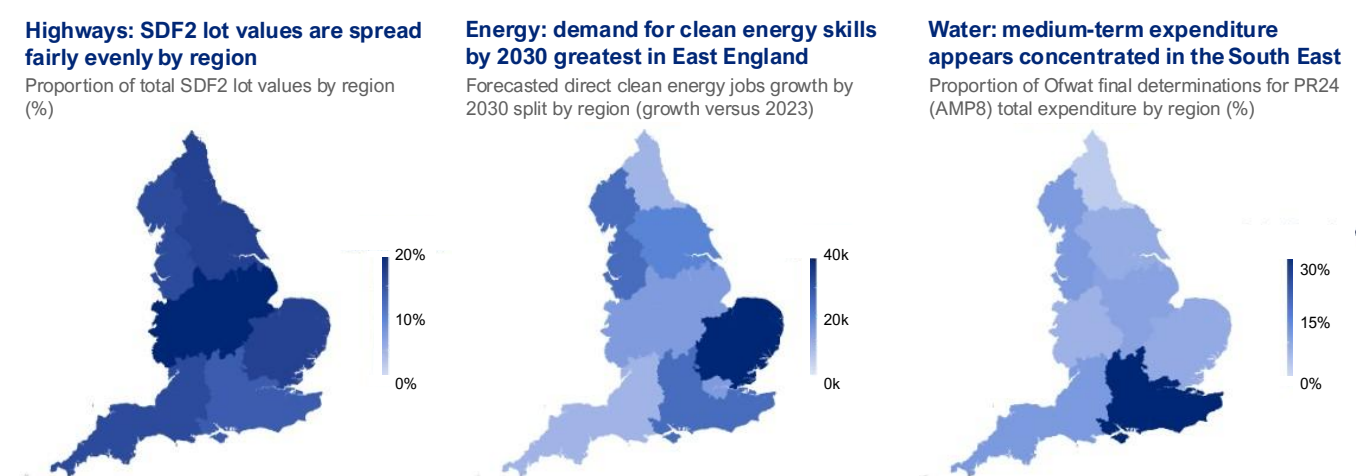


Source: Compiled from a range of official sources, including DESNZ ([Clean Power 2030](#) and historic investment, Ofwat ([PR24 FD Expenditure Allowances](#) and the [Water Company Performance Report 2024-25](#)), HS2 financial accounts and [SR25](#) documents, converted to 2024 prices using UK CPI – historic (ONS) and forecast (OBR) series. In line with DESNZ publications, planned electricity expenditure is over five years, compared to four years for historic investment. However, adjusting these figures to a consistent window would still produce a four-fold increase in investment. Water AMP excludes retail allowances.

RIS3 investments are spread throughout England, with investments in energy and water more concentrated, suggesting greater risk for of supply constraints in the South and East regions.

As illustrated in Figure 3:3 below, many of the investments associated with RIS3 and beyond are expected to be spread throughout England. In contrast, published sources would suggest that investment in energy and water sectors out to 2030 are more focused in the south and east of England. This suggests that competition for skills and plant may be most concentrated in these areas.

Figure 3:3: Comparison of expenditure and/or employment-intensity by sector and region



Source: Compiled from various official sources, including [published SDF2 tender documentation](#), the [DESNZ Clean Energy Jobs Plan](#) (2025), and Ofwat PR24 [expenditure allowances](#). Highways and water investment has been allocated approximately based on area overlap between sector-specific regional categorisations, and NUTS1 regions. For water only, London and South East are considered a single region given the prevalence of a single supplier (Thames Water) in these regions.

3.3. CONCLUSIONS OF PREVIOUS REVIEWS

ORR has previously commissioned three reviews of NH's (then Highways England's) supply chain readiness: the [2016 Credo study](#), the [2017 Atkins study](#), and [2020 CEPA/EAM study](#). Collectively, these reviews assessed both supply chain capability and capacity, and the extent to which NH's supply chain management framework was positioned to support delivery.

Although these reviews focused on readiness for earlier programmes (RIS1 and RIS2), they identify a set of recurring themes and risks, which may be compared to our assessment and findings for RIS3.

- **Pipeline visibility and programme stability:** The studies noted forward visibility and stability of the work programme as a key barrier to suppliers making right-sized investments in labour, plant, and capability. Credo (2016) reported that Tier 2 in particular needed more detail than the outline information in the Procurement Plan issued at the time, to plan effectively. Credo also highlighted mixed signals and perceived cyclicalities, including reported falls in supplier revenues despite 'gearing up' signals, undermining confidence in the future pipeline. CEPA/EAM (2020) echoed that limited programme certainty / variable workflow stability during RIS1 undermined supplier confidence, and noted a risk that this could linger into the next period (RIS2) unless pipeline stability improved. Atkins (2017) found progress on pipeline visibility (via the Procurement Plan) but still highlighted the need for a clearer contract horizon and better visibility for tiers 2 and beyond, alongside delivery risks from the peak workload late in RIS1.

- **Capacity and skills as a binding constraint:** Credo assessed deliverability across ‘people, plant, materials’ and identified people/skills (including experienced project managers and engineers) as the principal capacity risk, exacerbated by competition from adjacent markets and long lead-times to build capability. Atkins similarly flagged uncertainty in securing skilled resources due to the wider/political landscape, despite positive steps on demand understanding. CEPA/EAM reinforced risks from strong infrastructure demand and the need to manage capacity/sustainability impacts across regions.
- **Procurement burden and ease of doing business, particularly for SMEs / lower tiers:** Credo found a consistent view that procurement was appropriately rigorous for large frameworks, but insufficiently scalable for smaller lots, raising bid costs and potentially reducing competition, an issue felt more strongly further down the supply chain tiers. Atkins similarly noted an ongoing need to improve procurement scalability and ‘ease of entry’ for smaller firms. CEPA/EAM reported that Highways England was not yet universally ‘easy to do business with’, with Tier 2/3 reaffirming that direct contracting / framework entry can be onerous with uncertain rewards, and limited awareness of SME-support initiatives.

Importantly, it has been some time since even the most recent of these reviews, and both the strategic context, and information and process conditions suppliers experience have changed, the latter incorporating NH’s active response to these reports. Our findings below highlight where NH has made significant progress in actioning these recommendations since, and where risk continues to exist.

When considering our assessment, it is important to acknowledge that NH operates within various operational and commercial constraints – it does not have full control over every lever to influence supplier readiness. Most notably, it must operate within a funding envelope agreed with the government, and we are now coming to the end of an exceptional one-year interim funding settlement, before returning to the five-year RIS periods and longer-term strategic programme view that the [2015 Roads Reform](#) envisaged. This one-year period of greater uncertainty will naturally have had some impact on the supply chain’s view of programme certainty and stability, and their readiness to deliver the RIS3 portfolio.

4. DETAILED FINDINGS

This section summarises the evidence base underpinning our assessment, and its later conclusions around areas of risk and potential mitigations. This incorporates a summary of suppliers' views, and evidence sorted by each of our themes of interest, as well as a secondary view sorted by supply chain category.

4.1. THE OVERARCHING SUPPLIER VIEW OF RIS3 READINESS

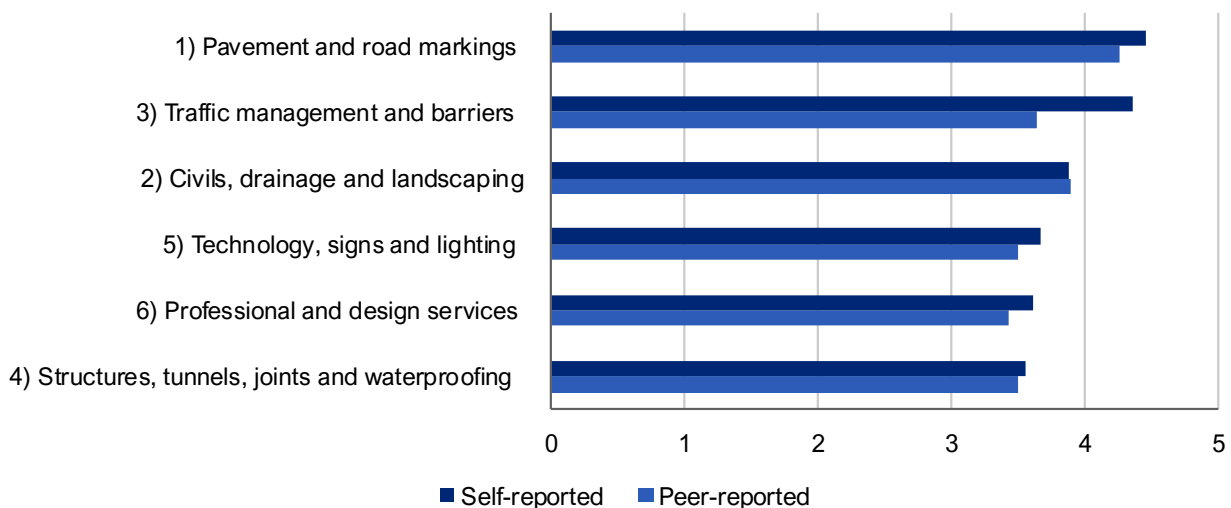
Feedback we have gathered from across suppliers and NH is clear that there is good overarching confidence in the supply chain's readiness to deliver the RIS3 portfolio. Reflecting this, we asked survey participants to rate their own supply chain category (self-reported) and the organisations they work closely with in different supply chain categories (peer-reported) on a scale of one to five for readiness, with five described as 'completely ready'. The results of this are presented in Figure 4:1 below, illustrating medium to high confidence across categories.

Although averages were relatively clustered, we observed greater confidence among suppliers in the pavement and road markings space. Self-reported and peer-reported scores were split on traffic management and barriers, meaning organisations that work alongside traffic management and barriers firms were less confident in that category's readiness than firms active in that category themselves. A lower degree of confidence is observed in technology, design and structures.

Factors driving the variation by category are explored in more detail in section 4.3, and Appendix B provides more detail on the makeup of responses received. Most notably, these conclusions are based on 42 total unique survey responses, with many suppliers active across multiple supply chain categories. Responses included representatives from firms of all sizes, but the majority of responses in each category were from larger firms.

Figure 4:1: Self-and peer-reported readiness scores across supply chain categories

Readiness to deliver RIS3, scored out of 5 (0 being 'not ready', 5 being 'completely ready')



Source: CEPA-EAM analysis of supplier survey responses.

In line with this, our engagement with NH functional leaders validated areas of relatively greater readiness risk, but did not specifically identify any individual themes or supply chain categories as 'high risk'.

The above reflects positively on the progress that been made by NH to date, to engage suppliers and refine procurement mechanisms (SDF2). Suppliers have sent a clear signal of keenness to participate in RIS3 – we understand there has been strong participation in pre-qualification for SDF2, supported by an average score of 4.85 out of 5 among our survey respondents, when asked to rate their organisations' likelihood to bid for RIS3 works.

However, our engagement suggests a gap between the stated readiness of suppliers, and the range and significance of potential risks they have raised – this is explored in more detail below and in section 5.

Where supplier quotes are included in the following sections, these have been anonymised to ensure they are not directly attributable to any individual organisation, and are derived from survey responses.

4.2. OUR FINDINGS BY THEME

Table 4:2 provides a summary of cross-cutting evidence received through our engagement with suppliers and NH, by theme and sub-theme. This ties together engagement across the survey, and bi-lateral interviews.

Table 4:2: Breakdown of survey responses by the themes which suppliers were most and least confident in, with respect to the successful delivery of RIS3 (number of responses selecting each option)

Topic	Theme	Most confident	Least confident
Capacity and capability	i) Resource and skills availability	15	16
	ii) Innovation and technology adoption	10	14
	iii) Pressure from other supply chains	1	10
Market dynamics and outlook	iv) Market confidence and pipeline visibility	5	24
	v) Financial health and investment	7	6
	vi) Resilience and risk management	10	6
Procurement and partnership	vii) Collaboration and communication	31	3
	viii) Contractual and commercial arrangements	10	12

Source: CEPA-EAM analysis of supplier survey responses. Suppliers selected which themes they were most and least confident in, and were asked for evidence to support this view, and the impact on RIS3. The colour scale reflects frequency, with darker meaning more frequent.

Alongside Table 4:2, the theme-level evidence suggests suppliers are **broadly confident** that RIS3 is deliverable, but that readiness is **uneven across themes**. The strongest signals across survey responses and our engagement are that **vii) Collaboration and communication is a clear strength**, while **iv) Market confidence and pipeline visibility** remains the most consistently cited constraint on mobilisation.

Capacity and capability (section 4.2.1) is best understood through category-specific risk – we did not identify universal or systemic delivery constraints. Many suppliers report they can resource RIS3, and the supply of input materials was rarely presented as a binding issue. Where risks emerge, they concentrate in transferable specialist roles (e.g. design/engineering/technology and niche trades), driven by competition for scarce skills, an ageing workforce, and the interaction between pipeline visibility and recruitment (see below), particularly for smaller firms. This implies category-specific mobilisation and cost / rate pressure rather than a programme-wide capacity shortfall. Innovation is seen as an opportunity, with tangible examples of it taking place over RIS2, but suppliers were split on its near-term impact, with a view among some that approval and assurance ‘frictions’ can slow adoption and make benefits harder to realise at scale. Cross-sector competition is likely to become more material over the next three to five years - if competing infrastructure programmes scale as expected, and capacity remains tight, it may increasingly show up as competition over commercial terms and pricing, as well as in labour markets.

Market dynamics and outlook (4.2.2) is where suppliers raised readiness concerns most consistently. Throughout our engagement, suppliers linked their ability to prepare - especially to recruit and retain people - to the strength and stability of the pipeline of works. NH’s efforts to improve near-term visibility are recognised, but many suppliers

seek longer-term, scheme-level certainty, and there are some indications that smaller firms do not always have the same clarity as larger suppliers. We identified no specific concerns around the financial health of the market, but confidence appears sensitive to pipeline certainty and to how commercial competition plays out in upcoming tenders. On resilience, suppliers are generally confident in their own controls, but we recognise an apparent gap between firm-level confidence and programme-level risks identified by suppliers such as to cost and schedule. Cyber exposure was rarely recognised in our engagement with suppliers, and we consider this warrants greater focus, particularly for legacy contracts and lower-tier suppliers (who NH may not have a direct contract with).

Procurement and partnership (4.2.3) is a core delivery enabler. Suppliers consistently report strong relationships and constructive engagement with NH, and evidence we observed illustrates how structured collaboration can support planning, coordination and problem-solving. Forward risks are relatively narrow and focus on maintaining that strength while ensuring SME and specialist engagement routes remain effective as RIS3 becomes more interdependent. Views on contractual and commercial arrangements among suppliers were more mixed - a notable minority raised concerns about upfront budget-setting, risk allocation, price competition and administrative burdens on smaller suppliers - issues that could translate into delivery quality at the margins. Equally, we note that NH is already progressing practical evolutions in these areas (fit-for-purpose contracting and process streamlining), which should support the mitigation of delivery risk.

4.2.1. Capacity and capability

i) Resource and skills availability

As with any major infrastructure programme, skilled people and an adequate supply of materials are two of the most critical inputs to the successful delivery of RIS3. As such, this theme can be considered one of the most significant in terms of its potential impact on supply chain readiness.

Table 4:2 highlights a broad split among suppliers as to their confidence in the 'Capacity and capability' theme – it represented both the second most confident and the second least confident theme overall. As with prior studies, where concerns were raised in engagement, they were much more frequently in the context of access to skilled people than they were availability of materials or construction plant.

Reasons for the split appear multi-faceted, but our engagement suggests they can be broadly summarised as:

- **Perceived competition for skills is focused in specialist areas:** both survey responses and bi-lateral engagement imply that risk to RIS3 skills availability is focused in specialist skills that are typically more transferrable to other sectors (see 'iii) Pressure from other sectors / supply chains' below). Some of the most common skills types mentioned were in the design, engineering and technology / electrical areas. Specifically for design, greater concern was expressed among non-design firms than design firms.
- **Larger firms can flex and continue to recruit and train even in the 'troughs':** larger firms – for whom NH tends to represent a small share of their overall portfolio – tended to be more confident than medium sized firms in recruiting and training staff to meet demand. Although not discussed by all, we infer contributing factors as being an ability for larger firms to flex resource across NH and non-NH projects, and – for some major consultants – access global resource pools.

Some small and several medium-sized firms reported a perception of limited visibility and/or certainty of the forward-look pipeline of work, which then impacted their ability to recruit and train staff. Additional factors cited included a recent lull in workload for some firms. This suggests some risk that portions of the supply chain are slower to respond to the RIS3 work programme, which could then drive schedule delay in the early years of the programme. This is notable given the reliance on smaller firms in some areas of the programme (such as roadside technology).

'Ramping up resource is already in motion with training and development and succession planning to provide resilience and adaptability for increased workload.'

Large supplier

‘...there is no incentive to train and recruit more staff, as we would not be viable as a business if we employed them and then had no work for them.’

Medium supplier

- **Delivery model matters:** interviews suggest that firms confident in resource and skills availability often had at least one of the following characteristics – a strong self-delivery model, multi-skilled operatives able to work across different task types, and/or structured training or apprenticeship routes. Greater concern was expressed in our broad engagement where there tended to be more reliance on sub-contractors.

An additional theme was some concern about the increasing age profile of the workforce, and the relative attractiveness of the highways sector to young people, particularly given the prevalence of night working for operational roles. Reflecting this, concerns tended to be expressed in categories such as pavement and road markings, traffic management, and lighting/technology. We note this has been picked up in previous assessments (e.g. [Credo 2016](#)), and an ageing workforce is a commonly identified issue across construction sectors. However, suppliers also shared examples of mitigations with us, including creative recruitment approaches (ex-armed forces and ex-offenders), apprenticeships, and scheduling that paired older staff with younger, to build expertise.

Finally, engagement suggests availability of materials is not a systemic issue for RIS3 – it was raised infrequently in both survey responses and interviews, and we found no evidence of a perception of imminent shortages in any specific area. Where confidence and concern were expressed, it tended to be in relation to active risk management from suppliers and/or NH, for example where there have been recent market developments (e.g. steel), or where supply is dependent on global supply chains – more detail is provided in ‘vi) Resilience and risk management’.

ii) Innovation and technology adoption

While their impact on RIS3 readiness is less certain and direct, innovation and technology adoption have the potential to improve productive efficiency, and so delivery over the RIS3 period.

NH continues to provide funded support for innovation and technology adoption, including through its [Innovation and Research Designated Fund](#), and trials facilitated through its [Accelerating Low Carbon Innovation programme](#) (delivered by Connected Places Catapult). Indeed, in November, NH opened a call for proposals from suppliers to resolve [five key highways challenges](#), though these are mostly safety as opposed to delivery-related. The following box summarises a number of recent examples of innovation that have the potential to improve environmental outcomes and efficiency more broadly, that we identified through our research.

Recent examples of innovation and technology adoption

Through our stakeholder engagement and research, we identified examples where NH and suppliers have recently delivered innovation that has the potential to improve delivery of the forward programme, including:

- [A47 recycled road project](#) – delivering a road surface constituted of 90% recycled materials, supplied by a mobile facility that demonstrates the potential to reduce road haulage distances, particularly impactful in regions where there are few nearby asphalt facilities, such as in the East and South West regions.
- Process innovations, with examples such as the standardisation of roadside technology delivery through a desired move towards ‘product-based designs’, and the separation of equipment procurement from installation delivery, as well as use of project bank accounts by default to support small firms.

Through the survey and interviews, suppliers also made reference to more innovative risk mitigations they are delivering themselves, including business diversification, multi-skilling of operatives, investing in new plant and infrastructure (even in absence of certainty of SDF2 success), and also more niche NH-supported examples in the VRS and Design Manual for Roads and Bridges (DMRB) spaces.

These examples and evidence demonstrate that innovation is happening, though supplier engagement suggests they are split on its significance in terms of its ability (as it stands) to improve RIS3 delivery. Among survey

respondents, more suppliers saw innovation and technology adoption as a least confident theme than a most confident theme, in the context of the supply chain readiness and deliverability of the RIS3 portfolio.

While there was recognition of NH's efforts to support innovation, a more significant narrative was around friction, with a feeling among some suppliers that approval processes and risk-aversion can make it difficult to progress innovative ideas beyond trial stage. Some suppliers acknowledged challenges in evidencing the broader value of innovation, and so making the investment case to NH and, more broadly, Government, and proposed a greater role for themselves in supporting this. Similarly, interviews suggested greater potential for standards-based innovation adoption, if the supply chain was given sufficient time to adapt. For example, setting out an expectation of moving to a new standard for recycled asphalt content in several years' time, with a clear timeframe for the shift to occur.

'Innovation is always pushed by NH as a desire, however in reality, there are too many blockers and lack of investment in most cases to achieve the innovation proposals.'

Medium supplier

iii) Pressure from other sectors / supply chains

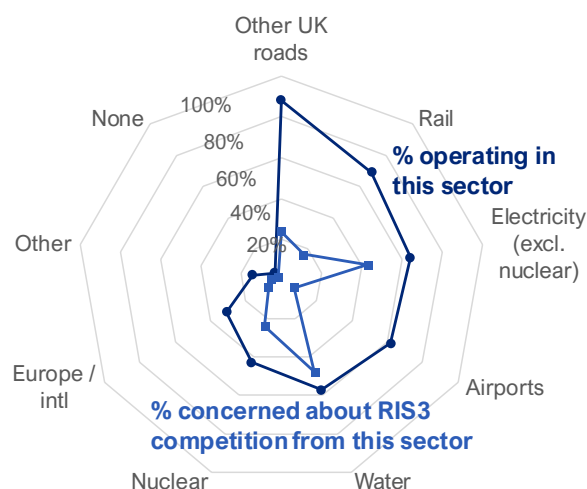
As set out in section 3.2, RIS3 will be delivered alongside other sectors that are ramping up investment significantly, increasing competition for skilled labour, specialist plant, and key materials. This can amplify portfolio risks, including skills availability and workforce retention, firm delivery confidence and financial resilience, and the long-term competitiveness of the supply chain.

When asked explicitly, suppliers tended to see cross-sector competition as a secondary risk for RIS3. Reflecting this, 14% of survey respondents ranked it in their top two portfolio risks, and 24% selected it as a theme they were least confident about. However, when scoring the readiness of individual supply chain categories for the RIS3 portfolio of works, suppliers often raised cross-sector competition as a justification for being less confident. Bi-lateral engagement with representatives from other sectors indicated that those organisations were generally alert to cross-sector dynamics, but often viewed their own within-sector competition as equally, or more, significant.

Figure 4:3 below illustrates that NH suppliers surveyed most frequently highlighted the water and electricity sectors as areas of greatest competition over the RIS3 period, followed by nuclear.

Figure 4:3: Radar diagram of NH supplier survey responses, illustrating which other sectors respondents operate within, and where they perceive the greatest competition for resources and skills

% of survey responses operating in each sector versus where they are most concerned about competition



Source: CEPA-EAM analysis of supplier survey responses. Responses that mentioned electricity networks, energy transition, and renewables have been combined as 'Electricity (excl. nuclear)', due to overlapping sentiment.

A consistent theme in engagement was the recognition that infrastructure sectors are increasingly competing for specialist skills, with different sectors offering varying terms, rates and pipeline visibility.

A related, and immediate, pressure is NH's parallel enhancements programme. Most suppliers considered this manageable, although around a third of survey responses viewed it as a significant RIS3 risk. Suppliers highlighted potential crowding-out of design capacity and upward pressure on labour costs as experienced staff move between projects. Even with strong supplier participation in RIS3, this could still create delivery risk in affected areas, as appointed suppliers may struggle to staff up at the required pace and quality, face rate inflation for design and specialist trades, and experience longer lead times for mobilisation and design delivery.

In the short term, the most credible channel for cross-sector pressure is skills competition in transferable specialist roles. As illustrated in Table 4:4 our evidence gathering indicates that exposure is most apparent in 2) Civils, drainage and landscaping, 5) Technology, signs and lighting, and 6) Professional and design services, consistent with overlap with water, energy and rail demand for civil, electrical/technology and design capability. By contrast, more highways-specific roles (e.g. traffic management and pavement) are relatively less exposed.

Table 4:4: Summary of supplier reported RIS3 skills exposure by supply chain category

Broad supply chain category	Relative skills exposure to other sectors
1) Pavement and road markings	 Low-Medium – local roads, and more broadly for heavy goods vehicle (HGV) drivers and plant roles.
2) Civils, drainage and landscaping	 High – transferrable skills, such as civil engineers in the energy (including nuclear) and water sectors.
3) Traffic management and barriers	 Low – local roads, with some issues around retaining operatives given night working conditions.
4) Structures, tunnels, joints and waterproofing	 Medium-High – transferrable engineering and technical skills (including structural and waterproofing specialists).
5) Technology, signs and lighting	 High – electrical and technology engineers are transferrable to sectors such as energy and rail.
6) Professional and design services	 High – transferrable design, digital and project management skills across infrastructure sectors.

Source: CEPA-EAM analysis of supplier survey responses and wider engagement.

In practice, for RIS3, this overlap is more likely to manifest as recruitment and retention constraints for appointed suppliers than as limited market participation.

'We are seeing designers move from Highways to this sector [both water and electricity] because of the increased investment and the job security and career advancement opportunities.'

Large supplier

Over the longer term (post-RIS3), we consider cross-sector competition has the potential to become a material strategic risk, as other sectors reinforce their 'client offer' to secure their supply chain in the context of an increasingly competitive UK infrastructure investment context.

Case studies of the terms offered in a selection of other sectors are explored in more detail in Appendix A, but interview evidence points to pipeline commitment, favourable commercial terms including alliance-style models and skills initiatives in some other sectors as being drivers of risk for highways, alongside higher rates in some cases (notably nuclear). The implication for NH is a higher risk that large-scale programmes become harder and more expensive to deliver in RIS4 and beyond, if suppliers prioritise other markets on the basis of these factors, and price tighter resourcing and commercial risk into bids.

We judge these factors should be kept under review, noting NH does not have full control over the commercial terms it can offer, given the wider government and public procurement constraints it operates within.

‘Companies will allocate capital to most attractive markets with best visibility and commitment.’

Large supplier

4.2.2. Market dynamics and outlook

iv) Market confidence and pipeline visibility

Throughout our engagement, visibility and confidence in the forward look pipeline of work was consistently raised as the most important readiness gap among suppliers, with suggested mitigations to improve RIS3 readiness in this space referenced over 100 times by survey respondents.

Good visibility of work is a core principle of the 2015 Roads Reform, critical to ensuring that suppliers have sufficient notice and confidence to invest in their own preparedness, and to maintain the attractiveness of the sector over the long-term.

Looking across engagement, this sub-theme can broadly be divided into three topics, which we have used to structure the discussion below:

- **Visibility** of the forward programme of work – both near and longer-term
- **Certainty** that promised works will come to fruition
- **Impact** on suppliers’ ability to invest and prepare for RIS3

Visibility of the forward programme of work – larger firms were more positive than smaller firms, though remained largely split down the middle.

Figure 4:5 provides a breakdown of the web survey responses (by firm size) of their stated visibility of the forward-looking pipeline for NH renewal works.

Figure 4:5: Breakdown of survey responses by firm size and stated visibility of the forward-look pipeline of works
Number of responses



Source: CEPA-EAM analysis of survey responses.

As Figure 4:5 shows, in the round, suppliers felt there was work to do on the part of NH and the government to improve access to information on the granular forward-look pipeline of works.

There was some recognition of the significant efforts NH has recently made (or is making) to improve access to this information, which we note include:

- **Twice yearly sessions with suppliers** where the detailed works plan for the following year is shared. This includes the 12-18 month development programme (shared in May) and the 6-12 month delivery programme (shared in November).

- **Reforms to ‘Stage Gate 3’ (the preliminary design phase of scheme development) processes**, which seek to increase the proportion of works where preliminary design is firmed up in the prior year, to enable a move to detailed design work and a firmer view of next year’s programme.
- **Publication of UK1 Pipeline notices**, as required by the Procurement Act 2023. These provide up to 18-months advance visibility of NH’s intention to procure a contract of significant value (more than £2 million), and include information on value, start and end dates and the broad scope of works.
- **Publication of an Information Memorandum for SDF2**, providing a longer-term outlook of potential values by lot and region, in addition to the substantial pre-market engagement for the framework. These documents are publicly available as part of the [SDF2 tender documentation](#).
- **A move towards annual purchase orders for roadside technology equipment**, issued in the prior year.

However, recognition of these changes was not uniform, which may reflect their recency. It should be noted that some feedback may have been reflective of the circumstances around NH’s one-year interim funding settlement between RIS2 and RIS3. It seems plausible that this has created a natural degree of uncertainty, as suppliers ‘tread water’ with a one-year settlement prior to the firming up of the full, RIS3 portfolio of works out to 2031.

Beyond the above changes, which mostly relate to the near-term pipeline, the most notable theme from suppliers was a desire for longer-term scheme-level (as opposed to lot or region level) granularity of works, including an annual profile of spend at this level for the following three to five years, rather than a total or an annual average.

Recognising that NH may not always have this longer-term certainty itself, some suppliers expressed an interest in an earlier ‘RAG-rated’ forward view of scheme-level works, that both accounted for uncertainty, but also supported them in planning.

‘We are mature enough to know not all schemes get approved or continue but early visibility and open sharing of chances of progressing would be welcome.’

Large supplier

Our engagement also suggests a potentially uneven distribution of information about the programme among suppliers - larger suppliers tended to be more positive about their visibility of the pipeline than smaller ones. Although uncertain, this could be reflective of a range of factors, including information dissemination processes within firms themselves, but also if larger firms have had greater access to informal engagement with NH, noting that smaller suppliers are also invited to and present at the same formal engagement channels as larger ones.

Certainty that promised works will come to fruition – past experiences appear to have made some suppliers reticent to invest.

A similarly frequent theme, many suppliers reported a feeling that past experience has shown that framework awards and headline lot values don’t always translate into guaranteed volumes. In some cases, suppliers pointed to preparation for historic spend that didn’t materialise having a significant financial impact on their business, which has made them more cautious going forward, until they have certainty that spend is committed.

‘We have been here before, we have ‘geared for growth’ in the past but the work hasn’t come.’

Medium supplier

Wider evidence-gathering suggests this may reflect a combination of a perceived slow start to the existing SDF framework, changes to major schemes that had previously been viewed as committed (e.g. Stonehenge tunnels), and/or historic experience with forecasted lot values not being fully utilised in the outturn. This suggests a tension between suppliers’ desire for a more granular forward look programme, and certainty.

Relatedly, we also received evidence that some suppliers have found the historic variability in works from year to year difficult to manage – this was raised by firms of different sizes, with some firms describing current examples of

laying off staff to manage troughs in workload, with resulting impacts on supplier readiness, and others discussing freezing recruitment and not replacing leavers.

Impact on suppliers' ability to invest and prepare for RIS3 – feedback suggests firms' perception of limited pipeline visibility may be impacting their confidence to recruit and focus on highways.

As part of the survey, we asked those suppliers who reported either good or limited pipeline visibility to self-report on the impacts of this for their organisation, from a list of options.

Figure 4:6 summarises the net results from this self-reporting, and suggests any negative impact may be more pronounced in terms of its effect on recruitment and suppliers' commitment to the highways sector, than on capital investments and training, where there was greater positivity among respondents about their investments made. Notably, around 10 respondents selected 'other' and four selected 'no significant impacts'.

Figure 4:6: Net sentiment from survey responses regarding the impact of good or limited visibility on their organisation's investments and focus

-5 Recruitment -5 Focus on highways +1 Capital investment +7 Training investment

Example: A score of -5 for recruitment means five more survey respondents saw limited pipeline visibility as negatively impacting their ability to recruit, than those who saw good pipeline visibility as positively impacting their ability to recruit.

Source: CEPA-EAM analysis of supplier survey responses.

v) Financial health and investment

A less commonly referenced theme, a financially healthy market is important to ensure resilience and investment that secures delivery. Across survey responses, there was slightly greater confidence in this theme than not, and we have not identified any evidence of systemic risk in this space.

Positive sentiment appears to link to historic changes NH has made to support suppliers, including the move to project bank accounts by default, a longer SDF2 framework, and indexation of key contracts to changes in input prices. Changes such as these were referenced in bi-lateral interviews as supporting factors behind major capital investments in new plant and equipment by large, multi-category suppliers. Where negative sentiment was expressed, it primarily stemmed from pipeline visibility and certainty, discussed in more detail above, with references to the significance of price competition and margin erosion as secondary concerns.

We have seen evidence of robust processes in place within NH to monitor supplier fragility, which provides confidence in the ability for NH to intervene to shore up the work programme, should any major issue arise. Supporting this, changes made to SDF2 include the introduction of a strengthened performance-related workshare – the framework therefore has a degree of flexibility built-in against underperformance in-life from some suppliers, which may result in alternative suppliers receiving a greater allocation of work going forwards.

vi) Resilience and risk management

In an increasingly volatile global context, good risk management and contingency planning is important to ensure the supply chain can respond to disruption and continue to deliver on the RIS3 portfolio. This includes disruption related to a broad range of risks, including but not limited to the macroeconomic environment and its impacts on inflation, inclusive of both input prices and wages, as well as access to resources and financial resilience during uncertain shocks (where we would expect cost increases, such as those following Covid-19), and more targeted risks including cyber attacks. All of these have the potential to drive cost risk or schedule delay.

We considered resilience and risk management processes on the part of both **suppliers**, and **NH** – the following sets out our key findings for each.

Supplier processes – larger suppliers raised more frequent examples of their own risk management practices.

Engagement suggests suppliers are confident about their own resilience and risk management processes, with more survey respondents seeing this as a strength than a weakness. It is important to note that suppliers are somewhat shielded from the implications of macroeconomic risk by inflation-linked indices present in many contracts – these were referenced multiple times in our engagement – see ‘viii) Contractual and commercial arrangements’.

While we did not receive evidence of specific contingency plans in place on the part of suppliers, should another Covid-style crisis occur, there was a feeling among some that Covid-19 had left the supply chain better prepared.

‘We dealt with Covid and therefore, we believe our organisation and the industry at large has sufficient resilience.’

Large supplier

Our evidence gathering provided examples of ‘self-help’ risk management on the part of suppliers, though these tended to be more anecdotal, rather than systematic or widespread across engagement. They included:

- **Vertical integration and diversification of critical minerals supply in the bitumen and aggregates space**, including a large pavement suppliers’ investment in an expanded bitumen import terminal, long-term bitumen supply agreements, diversified aggregate imports (e.g. hardstone from Northern Ireland, limestone from Norway), and high-recycling asphalt plants to reduce reliance on virgin inputs.
- **Workforce resilience initiatives**, including a large firm active across multiple categories’ extensive use of multi-skilled operatives with sustained training budgets, allowing rapid redeployment across a range of traffic management tasks, and focus on self-delivery as opposed to sub-contracting. We received many references through survey responses and interviews to supplier-led apprenticeship and training schemes, including some within ‘in-demand’ technical areas like technology / electrical engineering.
- **Some evidence of proactive stockholding and cyber resilience processes in places**. This included descriptions of proactive stockholding approaches based on run-rates in the M&R space, and larger suppliers providing sub-contractors with company IT to try and reduce cyber maturity related-risk.

Smaller suppliers did not report lower confidence in their resilience than larger firms, however, their ability to maintain resilience appears more vulnerable to pipeline and procurement conditions. In line with this, larger suppliers were more likely to mention their own ‘self-help’ risk management, such as investment in new plant, advance purchasing, and skills development, whereas smaller suppliers were more likely to mention pausing investments in the context of workload uncertainty. Smaller suppliers also tended to report poorer pipeline visibility and highlight concerns about administrative burdens and price competition. We infer some risk these factors are eroding smaller suppliers’ organisational resilience at present. Where unresolved, these factors could pose RIS3 delivery risk in areas where NH is more dependent on smaller suppliers, such as in the renewal of roadside technology (and plausibly other areas pending live tender outcomes).

NH risk management – we observed meaningful changes and process development to monitor and respond to supply chain risk.

In the round, we observed significant evidence of NH’s processes to monitor and respond to risks to successful supplier delivery within contract. This included NH mapping risk (both supplier financial risk, and that stemming from other transport sector demands) across its supply chain, particularly with respect to Tier 1 (primary contractors), and with an intention to increase this to Tiers 2 and 3 (specialist sub-contractors and vendors) where possible. NH actively participates in a Department for Transport-led working group with rail infrastructure bodies to consider cross-cutting supply chain risks.

For SDF2, as noted previously, NH has implemented a performance-related workshare for the first time, which should help to protect against underperformance of specific suppliers if and where they are unprepared and so costs and schedule exceed expectations.

For roadside technology, we note NH has already moved towards a national, centralised approach to procurement with multi-sourcing and annual purchase orders, and there are historic examples of it hedging materials purchases in areas such as steel and concrete.

NH functional leaders highlighted a track-record of category-level interventions on critical inputs, including historic examples for salt, steel, IT and vehicle fleet, and noted supply chain intelligence on supplier-led bulk purchasing. We note that NH interventions tend to be on an ad-hoc basis, driven by category manager expertise.

While contractual indexation and risk-sharing mechanisms in place were often referenced by suppliers, those same suppliers still tended to rate cost inflation as a significant portfolio-level risk elsewhere, suggesting these provisions may not fully neutralise programme exposure. See 'viii) Contractual and commercial arrangements'.

Cyber – our engagement suggests some outstanding risk in this area

Cyber is an increasingly critical delivery risk across infrastructure sectors, with the potential to drive both schedule delay and cost inflation, among other risks. However, our engagement suggests that the supply chain does not necessarily perceive cyber as a primary issue. The box below discusses cyber related risks in more detail.

Spotlight on cyber risk

NH has highlighted that it has implemented processes and requirements in line with government standards for all new and renewed contracts for cyber related risks. However, longer-standing contracts still in place for RIS3 may not be subject to the same standards, and reviewing those, and the maturity of suppliers where NH does not hold a direct contractual relationship, could be a significant undertaking.

Recent examples including the [September 2025 Jaguar Land Rover](#) and [November 2025 London borough councils](#) cyber-attacks highlight the significant programme implications of cyber maturity.

Throughout our engagement with NH suppliers, cyber risk came up infrequently. There was no mention among survey responses, and some discussion in interviews, following direct probing. One larger supplier made reference to mitigations they had in place to protect against reduced cyber maturity among smaller suppliers.

Taken together, this suggests one of the following:

1. Suppliers feel well prepared, with strong cyber mitigations in place already.
2. They do not perceive cyber risk as being among their top readiness risks for RIS3.
3. Supplier representatives who responded to the survey tended to not be familiar with cyber risk.

We have insufficient information to determine which of these is most likely – if either 2 or 3, this would raise concerns about the level of cyber maturity and understanding of the risk among suppliers.

We undertook further engagement with NH, to better understand its own processes for monitoring and improving cyber maturity within the supply chain. For new and renewed contracts, NH asks suppliers to demonstrate competence in line with government standards, including the National Cyber Security Centre's Cyber Security Essentials certification, and adherence to Cyber Assessment Framework (CAF) principles.

Ahead of RIS3, NH is also trialling the introduction of Risk Ledger, a third-party risk management and supply chain security solution, with the objective of connecting suppliers to better understand risk interdependency and monitor and ensure compliance. Success will rely on both good engagement from the supply chain, and a clear set of processes that enable effective response to and mitigation of emerging risks.

As with any large infrastructure client, NH is likely to have stronger visibility of cyber resilience where it holds direct contractual relationships with suppliers.

While we have not reviewed contractual requirements in detail, we consider these factors imply greater delivery risk towards the front-end of the RIS3 period, and where delivery is dependent on a greater volume of sub-contracting.

4.2.3. Procurement and partnership

vii) Collaboration and communication

By some margin, survey respondents saw this as the most confident theme throughout our engagement. This reflects positively on both suppliers own working relationships, and NH's approach to and processes for engaging with the supply chain at all levels – suppliers large and small had many positive things to say about engagement.

'We have maintained [a] good working relationship with both National Highways and our supply chain through the delivery of our projects.'

Large supplier

'The company have worked on previous schemes with very good collaboration and success.'

Medium supplier

From our wider engagement with suppliers, the broad positivity around NH's approach to engaging the supply chain appears to stem from two main areas:

- **The legacy of strong communities from existing frameworks (PDF and SDF)**, which appear to have created mature, predictable working relationships between suppliers and NH, often with direct engagement routes, including through regional communities, the Engagement Council, and supplier days.
- **Changes NH has made**, including the introduction of regular forums, and pre-market engagement on frameworks, referenced elsewhere in this report.

The box below provides a further case study of NH and supply chain engagement.

Spotlight on Asset Community East (ACE)

One example of best practice that stood out in our engagement was the ACE community, originating between suppliers and NH in the East region.

ACE has brought together NH, M&R providers and framework contractors (PDF, SDF) to plan and share road-space collaboratively, reducing disruption and improving efficiency. This has incorporated:

- Joint planning of closures between M&R and framework contractors, so maintenance could be integrated with capital works during the same road-space occupation.
- Institutionalisation of co-ordination principles and processes, ensuring continuity even as frameworks and their suppliers changed.
- A platform for knowledge-sharing and problem-solving, driving [innovative solutions to complex design challenges](#), and providing an exemplar that could be further adapted and strengthened in RIS3, given the scale of interdependent programmes such as renewals and technology rollouts.

In the limited areas where concern around collaboration was raised by suppliers, it tended to be narrow and future-facing. Examples provided by suppliers included the move of technology to the M&R2 framework and the risk that this could reduce the directness of the relationship between NH and technology SMEs, as technology becomes one M&R workstream among many, and plausibly implies greater use of sub-contracting.

Similarly, one supplier referenced a perception of reduced emphasis on the ISO44001 standard in NH's RIS3 frameworks as being of concern, if it means NH stepping back in future from its structured, standardised collaboration approach at a time of interdependency between suppliers.

A sub-set of smaller suppliers sought more frequent and direct engagement with NH to improve scheme readiness, including in one case through greater paid engagement via Early Contractor Involvement.

viii) Contractual and commercial arrangements

Our engagement suggests suppliers are broadly split on the suitability of existing commercial arrangements and the impact on their readiness.

Where suppliers expressed confidence in contractual terms, it tended to be related to experiences on existing frameworks such as PDF and SDF, and changes NH has made to support smaller suppliers, such as moving to project bank accounts by default.

'NH adopt open and fair contractual arrangements that incentivise and recognise good performance; our supply chain are happy with the payment arrangements through project bank accounts.'

Large supplier

Where concern was expressed, it tended to be around one of the following themes:

- **Extent of price competition:** a sub-set of suppliers feel that the weighting on price in allocation is sometimes too high, which can create a 'race to the bottom' based on lowest cost rather than best value, with resulting risks for delivery further down the line.

'Risk of poor performance resulting from increased focus on price competition...whilst we understand the need to demonstrate value for money to taxpayers, this drive towards 'lowest cost' is resulting in awards going to organisations less capable of delivering the service'

Large supplier

- Relatedly, processes for up-front budget setting were referenced by a sub-set of suppliers, who felt NH hadn't always been able to accurately forecast costs in advance, which then impacted relationships, behaviours and scheme delivery in the outturn. It's plausible that some of this feedback may be reflective of the unique circumstances post-Covid, rather than business-as-usual.
- **Risk allocation and indexation:** A significant minority raised concerns around the sustainability of risk sharing with the supply chain in NH contracts, including whether the metrics used to index contracts to real price effects were sufficiently targeted to actual inflation experienced by the supply chain. However, other suppliers also praised the risk-sharing present in 'target cost' contracts (NEC Option C) used by NH, and the indexation mechanisms already in place.
- **Complexity and administrative burdens:** smaller organisations highlighted non-fee-earning activities such as tendering and reporting overheads as being difficult to manage and (in their view) disproportionate.

'Tier 1 and SME organisations are expected to manage contracts the same way with the same constraints in reporting...We didn't know the impact until we were in contract, now we employ more people that weren't priced in our fee or rates.'

Medium supplier

We understand NH is already looking at some changes in these spaces. With respect to risk allocation, NH has not finalised its approach to contracting for RIS3, and they are exploring the most appropriate contract for different work types, with an emphasis on 'evolution rather than revolution'. Supplier feedback suggests NEC Option B (bill of quantities) would be welcomed by some suppliers, for less complex renewals.

On the administration side, NH is looking at faster, online setup for project bank accounts to reduce onboarding friction, reviewing end-to-end payment processes with the aim to automate application checks and speed up supplier certification, and simplifying self-billing processes by removing the need for suppliers to raise separate invoices once a payment certificate is issued. For contract reporting, NH acknowledges the process may be burdensome for smaller organisations but need to maintain a minimum standard across all suppliers.

4.3. OUR FINDINGS BY SUPPLY CHAIN CATEGORY

Supplementing our theme level assessment, our secondary assessment of supplier readiness applies the supply chain categories defined in section 2.2.2, considering both self and peer-reported scores and comments from web survey respondents, as well as factoring in evidence from bi-lateral engagement with suppliers and NH, and evidence from NH's draft RIS3 Strategic Business Plan (dSBP).

Importantly, our assessment considers relative as opposed to absolute risk. The intention is to highlight which categories may be relatively more exposed to RIS3 delivery risk than others, and therefore warrant greater attention, rather than imply specific categories have 'low' or 'high' delivery risk in absolute terms.

Table 4:7: Summary of relative readiness risk identified across the six supply chain categories

Supply chain category	Relative risk	Summary of drivers underpinning relative risk rating
1) Pavement and road markings	Lower	Mature, flexible supply base; suppliers and their peers express confidence the market can flex across contracts to deliver RIS3 volumes. Some risk exposure exists in specialist sub-categories and global markets, but overall resilience appears relatively strong.
2) Civils, drainage and landscaping	Middling	A mature supply base with self-delivery, but there is competition for skills, and to a lesser extent plant, across infrastructure sectors. Regional pressure from nuclear may be particularly acute in the East, driven by Sizewell C works. Lesser risks exist within sub-categories, largely relating to changes to procurement design and requirements, including biodiversity and carbon requirements in the tree space.
3) Traffic management and barriers	Middling	Experienced supply chain focused on roads, operating across authorities and with some demand from other sectors. Risk is driven by concerns around total demand, workforce age and retention, and execution if road-space access slips.
4) Structures, tunnels, joints and waterproofing	Higher	Identified risk in this area is driven by increased volume of RIS3 works interacting with constraints on available skills, with long lead-in times for development, and cross-sector competition for engineers, installers and trades.
5) Technology, signs and lighting	Higher	Whilst the sector has expressed confidence it can scale to deliver what is asked of it, and the move to centralised procurement and M&R2 should help drive standardisation of design and support reactive works at pace, RIS3 implies an order of magnitude increase in spend over RIS2, with little ramp-up over the period. This, combined with supplier concerns around forward visibility of works, and competition for electrical skills - which can demand higher salaries - implies greater execution risk.
6) Professional and design services	Higher	Significant level of cross-sector competition for specialist design and professional services skills in the context of set-piece major infrastructure investments, compared with the potentially high volume, lower value nature of highways renewals work creates risk. Some of this risk may be offset by the typically large firm size and their ability to benefit from off-shore skills.

Source: CEPA-EAM analysis.

Table 4:7 summarises our relative view across categories, and the following sections provide more detail on each individual category. Where higher relative risk is identified, this is typically driven by competition for skills with other infrastructure sectors, and in some cases the interaction between that and increased demand in RIS3. Categories are ordered from lower relative risk to higher relative risk but are in no particular order within each scoring.

Survey responses tended to provide fewer insights into category specific risks, meaning the below evidence is more dependent on a smaller sample of responses, supplemented by bi-lateral interviews. In validating this assessment, we note that it is broadly in line with the aggregated view of suppliers, presented in section 4.1.

1) Pavement and road markings

Relative RIS3 readiness risk: **lower**

Flexible (asphalt) pavements functions as a mature market, with a group of proven suppliers, and strong self-delivery capability. Some RIS3 delivery risk arises from workload volumes, with planned flexible pavement totalling circa £1.7 billion over RIS3, averaging almost £350 million a year (dSBP, nominal prices). Supplier engagement suggests some competition for asphalt, aggregates and haulage with other sectors.

However, survey responses and interviews suggest these risks are largely mitigated by the track record of suppliers in delivering high volumes, supported by the ability of the established market players to flex resource across the relatively small volumes of NH work, and their works supporting the larger, cross-sector local highway authority market. These sectors predominately use the same asphalt production, delivery and installation suppliers.

On the materials side, we note oil prices, bitumen production and storage capacity could impact cost certainty, including because of recent refinery closures at Grangemouth and Lindsey, even if there is little sign of this having an impact right now. As noted elsewhere, our engagement identified evidence of larger asphalt producers investing in significant new recycled material and import infrastructure, which should help mitigate these risks.

Rigid (concrete) pavement is a relatively specialist market, and so is likely more dependent on a confident view of the RIS3 pipeline than flexible pavement. Aggregate spend in this sub-category is smaller (averaging c.£100m per annum in the RIS3 dSBP), with a steady ramp up in expected works over the period, and the potential to draw on a credible alliance of designers and installation partners established during RIS2. Although we received limited evidence of regional constraints, we note RIS3 works are concentrated in the South, East and East Midlands regions.

Road markings are also delivered by a relatively small (though established) supply chain, which creates some resilience risk. Although RIS3 demand is planned steady at c.£30m per year (dSBP), NH's SDF2 Procurement Strategy suggests total SDF2 spend (including beyond RIS3) could be more than three times higher than that procured through SDF1. As with the broader category, these suppliers remain largely dedicated to the roads sector, with local authority roads also providing a significant workload. Other competition for resource comes from rail, aviation and commercial.

Highlighted through engagement, peers who operate alongside this category have good confidence in its track-record and ability to deliver the scale of works implied by RIS3.

'National Highways have a mature supply chain with a strong capability in all these areas'

'Proven capability and capacity dedicated to the highway sector'

Peer quotes from suppliers, when asked to assess the readiness for RIS3 of pavement and road markings suppliers they operate alongside

2) Civils, drainage and landscaping

Relative RIS3 readiness risk: **middling**

The civils and drainage element in SDF2 consists of a national Tier 1 component, with significant regional lots; this category also contains a prevalence of smaller (largely medium-sized) regional suppliers. While smaller suppliers typically expressed less confidence in readiness across categories, the supply chain is mature, and for less specialist skills, supplier engagement highlighted the use of multi-skilled operatives to improve resilience.

More meaningful risk exists in specialist skills, where there is likely to be significant competitive pressure for civil engineering skills over the RIS3 horizon, in addition to plant. These risks have the potential to impact both schedule and cost. Our engagement both within the NH supply chain and with other sectors highlighted pressure from energy and water. As further evidence of this, the government's [Clean Energy Jobs Plan](#) highlights a need for civil engineering roles in the energy sector to more than double by 2030. This is in the context of a constrained UK

employment market, with [recent data demonstrating](#) a significant increase in the proportion of civil engineering roles unfilled due to skills shortages. In terms of regional competition, construction at Sizewell C has now begun in earnest – civils works have the potential to drive pressure in the East for the foreseeable future.

‘Proven capability and capacity but could be distracted into a broad market.’

‘This category will go where the work is and there is a risk there will be insufficient availability to NH...’

Peer quotes from suppliers, when asked to assess the readiness for RIS3 of civils, drainage and landscaping suppliers they operate alongside

For **drainage**, the loss of a specialist lot in SDF2 places greater emphasis on these works being managed by contractors operating across work types, and could have some impact on SME-maturity over the duration of RIS3. Although not commonly highlighted as a risk by suppliers, we also received some feedback that biodiversity and carbon requirements could present some risk in **landscaping**, if they drive future shortages of trees for planting.

For less specialist skills, supplier engagement highlighted the use of multi-skilled operatives to improve resilience.

3) Traffic management and barriers

Relative RIS3 readiness risk: [middling](#)

Traffic management is undertaken by a small group of experienced suppliers. Although focused on roads, as with pavement and road markings, these suppliers also serve a larger local authority market, and other infrastructure sectors also draw on traffic management firms when undertaking works.

Firms themselves were confident in their ability to deliver RIS3 works, broadly considering works as stable and manageable. In our engagement, the impact of an ageing operative workforce was identified, including the challenges in attracting young people given the heavy emphasis on nighttime working. However, we observed some evidence of creative recruitment approaches, including targeting of former military personnel and convicts, and the application of multi-skilled operatives, to support the mitigation of risk.

We recognise that traffic management sits at the core of almost all schemes, and survey respondents who operated alongside traffic management firms reported some concern about the ability of the sector to meet competing demands for traffic management from other programmes, with a potential need to rely further on agency staff to plug resourcing gaps. This is observable in the meaningful deviation between self-reported and peer-reported readiness scores in section 4.1. This, coupled with the continually high level of training and accreditation required to work on high-speed roads leads us to conclude there is some relative risk to RIS3 delivery.

‘Volume of potential works across sectors will stretch availability’

Peer quote, when asked to assess the readiness for RIS3 of traffic management and barriers suppliers they operate alongside

Barriers (Road Restraint and Vehicle Restraint Systems, VRS) has a mature supply chain consisting of designers, general civils contractors, installers and subcontractors/material suppliers, with resources also working across local road authorities. Barrier suppliers appear confident in their ability to deliver, but specifically sought greater granularity over the pipeline of VRS works to support this assessment. One supplier noted a perception of little change in RIS3 in terms of the total volume of works. Some risk plausibly stems from the potential exposure of this sub-category to global steel prices (including low carbon steel). We received limited feedback from peer suppliers on barriers specifically. Although uncertain, this could support a view that there is lower delivery risk in this sub-category than the wider category.

‘Known VRS pipeline is manageable with the current level of resources in the UK. It is not a significant increase from RIS2’

Traffic management and barriers supplier

Across both sub-categories, confident access to the road-space will be important to ensure delivery to schedule and cost. We received supplier feedback on this as being a past issue, though understand that NH are conscious of this, and working to resolve.

4) Structures, tunnels, joints and waterproofing

Relative RIS3 readiness risk: **higher**

For structures, RIS3 incorporates a sharper increase in works than other categories, particularly in the North West and North East. Within the dSBP, significant structures renewals total £793 million across the period, and structures renewals as a whole amount to the largest renewals spend category, at £2,954 million, with high delivery expectations from year 1 (all nominal prices). Risk is therefore driven by the interaction between high demand, and the competition from other sectors drawing on the same specialist engineering and technical skills. Engagement suggests that there is awareness of the challenge among structures suppliers, with some evidence of suppliers ramping up recruitment, given sufficient confidence in the forward pipeline of works.

Should supply shortages emerge, this category is exposed to global steel prices, and demand for heavy structural steel / rebar from other sectors (such as nuclear). Some suppliers reported efforts to advance purchase steel, and others noted that further standardisation of designs, or earlier firming up of designs, could support advance contracting and purchasing, and support the mitigation of risk.

'We are at the whims of the markets. Standardisation of design could allow for initial bulk buying of steel, but the move to renewal is less likely to be applicable than standardised designs on enhancements as each solution is likely to be bespoke.'

'Design information needs to be available earlier to increase time to find alternative steel suppliers.'

Quotes from structures, joints and waterproofing suppliers

Further, our engagement suggested a prevalence of proprietary components among certain existing structures, which then rely on a limited original equipment manufacturer (OEM) installer pool, causing delivery risk.

The RIS3 pipeline includes multiple significant structures renewals that are planned to run beyond RIS3 – in these cases, the impact of any delays and cost increases may therefore be felt in RIS4.

The total quantum of **tunnels**-related works is smaller, and delivery risk should be viewed in that light. However, tunnels are characterised as being complex integration challenges. Our engagement suggests there is some concern about the interaction between a more limited specialist supply chain, long mobilisation periods, and challenges offering firm visibility of the pipeline of works to suppliers in advance.

Recent tunnels cancellations (Stonehenge, HS2) could plausibly mean more capacity is available than planned, but bottlenecks may still be driven by competition for installation labour, including qualified industrial electricians and mechanical & electrical (M&E) and technology fitters. In these areas, there is concern that other sectors may be able to offer more attractive pay and conditions - examples include nuclear and HS2. In the latter case, tunnel boring works are now complete and we can expect significant tunnel installation works overlapping with the RIS3 period. We understand NH is alive to and managing this risk, learning lessons from the live Saltash tunnel works.

Joints and waterproofing, as part of the broader engineering construction workforce, are also exposed to competition for skills, with reports of a national shortage in welders, and recent government estimates that welding roles supporting clean energy are critical, and [need to more than triple](#). Supplier engagement also flagged competition with rail and airport sectors as being of concern.

5) Technology, signs and lighting

Relative RIS3 readiness risk: **higher**

RIS3 is characterised by a very significant increase in roadside **technology** renewals and installations. In response to the associated delivery risk, NH has implemented or is implementing significant changes that directly impact this category, ahead of RIS3. These include:

- Planned advance and centralised procurement, with equipment procured annually, ahead of works, and tenders now live for the supply of this equipment. This should support a reduction in integration risk and enable some forward visibility for the installation supply chain.
- The migration of technology renewal installation and maintenance activities to the M&R2 programme, which is designed to support reactive works at pace.
- The separation of technology design into its own specialist category, apart from wider design.

While suppliers broadly expressed confidence in their ability to scale and deliver the installation challenge, subject to sufficient forward visibility of the pipeline of works, RIS3 implies a significant execution challenge. The dSBP illustrates a very significant increase in deployment versus RIS2, with high delivery expectations from year 1, and no ramping up over the period. For renewals, total roadside technology expenditure is estimated at circa £1 billion, with annual expenditure consistently around £200 million, as illustrated in Table 4:8.

Table 4:8: Profile of planned RIS3 roadside technology expenditure by financial year
 £ million, nominal prices

	2026/27	2027/28	2028/29	2029/30	2030/31	Total
Annual forecast	202	202	199	208	209	1,019

Source: NH dSBP financial model.

This deployment challenge, interacting with some historic precedent of equipment delays, and competing demands for specialist engineering and electrical skills from other sectors (discussed in more detail above), suggests the potential for relatively higher execution risks for technology compared to some other categories of RIS3, noting the mitigations NH has developed which seek to mitigate this.

We note the greater prevalence of smaller firms in this category, who typically expressed lower RIS3 delivery confidence elsewhere.

‘Our key risks are lack of skilled technology engineers and electricians and business sustainability...’

‘We have been told of headline figures of spend but we have no actual indicators of spend per asset group by region by delivery year’

‘If we are notified and instructed to do the work we will deliver and I believe the supply chain would all have the same answer’

Quotes from technology, signs and lighting suppliers

As with other categories, effective road-space management and availability of access will be critical to support on-track delivery for schedule and cost.

Signs and lighting represent materially smaller spend categories for RIS3. Our engagement highlighted limited specific risk associated with these sub-categories, aside from some acknowledgement of the complexity associated with the renewal of ageing lighting assets in the North West region.

6) Professional and design services

Relative RIS3 readiness risk: higher

A dozen or so large, tier 1 contractors make up the primary supplier base for this category. Somewhat uniquely, this category operates significantly across sectors and also internationally, meaning it is exposed to competing demands from UK and international infrastructure projects.

In line with this, our engagement highlighted specific concern around the competition for specialist **design** and supporting engineering skills from energy (and particularly nuclear), with some feedback noting the relative attractiveness of other major infrastructure enhancements, and international projects, that may offer higher margins and better rates compared to relatively high volume, lower value work offered in RIS3. We received no evidence that this was likely to impact supplier participation in RIS3 but it could significantly impact the availability of skilled people in the context of a rapid scaling up of infrastructure investment elsewhere.

Follow-on risk stems from design's role on the critical path of many schemes, and the need for it to conclude before other works can begin. Integration risk was also noted, where design is handed over 'mid-flight' between different design firms as part of the transition to RIS3, though learning from past experience, NH is alive to this risk, and we understand are putting in place mitigations. Finally, some concern was expressed around a perceived watering down of highways-specific design specialism recently.

'...they will move to other sectors to ensure financial security (or the best people within the organisations will)'

'The specialism in the industry has been watered down over the years...'

Peer quotes from suppliers, when asked to assess the readiness for RIS3 of professional and design services suppliers they operate alongside

It should be noted that design and professional services suppliers themselves expressed significant confidence in their ability to flex resource across their large organisations, and benefit from offshore skills to support delivery, which should support delivery risk mitigation. The prevalence of larger organisations in this category is notable given our engagement broadly suggested those organisations were more willing and able to invest in RIS3 preparedness and had greater visibility of the forward pipeline of works.

'We have set our organisation up to deliver work in RIS3 building on our capability and capacity developed through RIS1 and RIS2...this includes design...'

Supplier active across multiple categories, including professional and design services

Changes NH has made in SDF2 also have the potential to mitigate broader RIS3 delivery risk; these include the introduction of a specialist technology design lot, and the re-introduction of the national, main contractor role ('Lot 1'). The latter is intended to support effective project management and co-ordination across the supply chain for complex works, learning lessons from RIS2.

5. OUR VIEW - RIS3 READINESS RISK AND RECOMMENDATIONS

Drawing together the evidence we have collected, it is clear that suppliers and their peers express broad confidence in their willingness to participate in and readiness to deliver the RIS3 portfolio. This confidence was echoed in our engagement with NH and reflects positively on the meaningful changes they have implemented to support delivery, and particularly in the refinement of RIS3 procurement mechanisms. Many of these levers have now been designed.

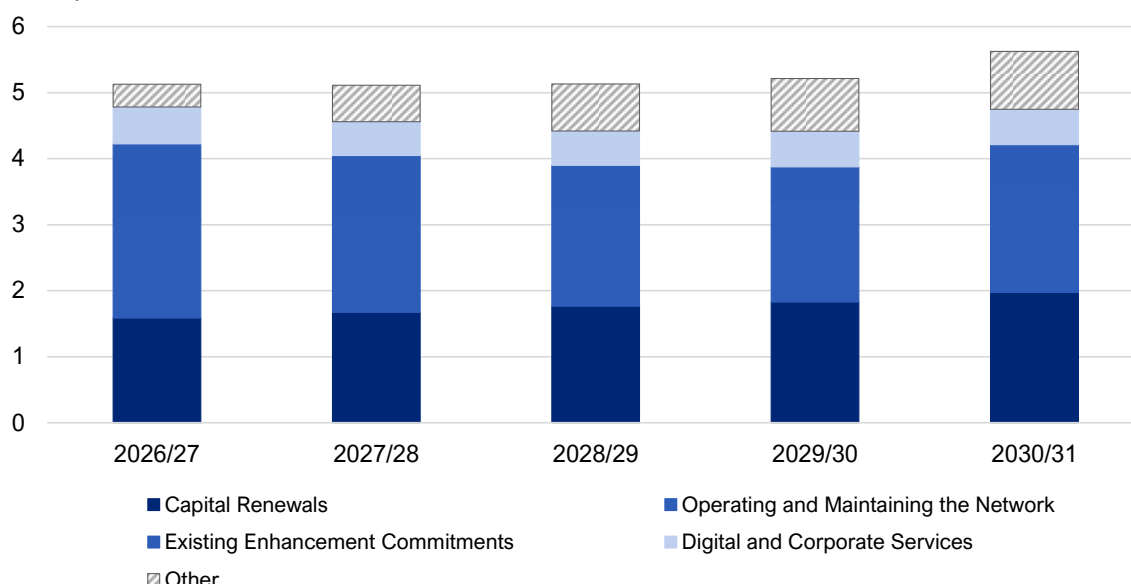
Within this context, through our evidence gathering we have identified a range of outstanding risks, which have the potential to impact supplier readiness and the deliverability of RIS3 and its objectives.

These risks appear now to be primarily in programme execution, as opposed to procurement. Specifically, the challenge now lies in the mobilisation of a broad pool of suppliers to deliver a portfolio of capital renewals which has grown in scale and diversity, maintaining high delivery levels from the first year onwards.

Successful delivery of RIS3 also requires the programme to ‘hit the ground running’, with the dSBP illustrating plans for fairly constant annual expenditure of £5bn a year, starting in year 1, as shown in Figure 5:1.

Figure 5:1: Annual profile of total RIS3 expenditure, broken down by the largest spend categories

£ billion, nominal prices



Source: Total of individual spend categories in the NH dSBP financial model.

Given increasing competition for skills across sectors and greater reliance on SMEs in growth areas such as technology, NH is likely to need to take a more active role than in the past in managing suppliers and delivery risks, both before contracts start and during delivery, to ensure RIS3 can be delivered as planned.

In support of this view, we have identified three primary cross-cutting programme execution risks, supported by a range of secondary risks, which we have framed our recommendations around (as set out in section 5.2 below).

5.1. PRIMARY CROSS-CUTTING PORTFOLIO RISKS

a) Perceptions of limited visibility and certainty over the three-to-five year pipeline of works appear to be impacting some suppliers' decisions on how they prepare and invest for RIS3.

Theme: iv) Market confidence and pipeline visibility.

The two interdependent risks of pipeline visibility and certainty were those most frequently raised by suppliers. Where suppliers have a perception of meaningful uncertainty over the programme of works, this can limit their ability and/or willingness to justify investments that prepare them for delivery.

When studying mitigations proposed by suppliers, they imply a ‘deal’ between NH and its supply chain. If NH provides certainty, suppliers will commit to invest – this view is consistent across categories. In line with this, suppliers expressed challenges justifying the prioritisation of the highways sector, and investing in resources, skills, and their own risk management, without greater granularity and certainty over the three-to-five-year programme.

- For pipeline **visibility**, NH has implemented significant new initiatives set out in more detail in section 4.2.2. These should work to improve particularly pipeline visibility, and it is plausible they have not yet been fully recognised by all suppliers, who may be placing greater weight on recent uncertainty stemming from the interim, one-year funding settlement.
- However, NH’s initiatives primarily focus on the following 12 to 18 months - our evidence suggests that suppliers are now placing significant weight on having scheme level granularity over a three-to-five-year horizon. This is particularly important for investments that may have longer lead-in times, e.g. recruitment.
- For pipeline **certainty**, we observed evidence that historic experience where budgets were not fully utilised, spend fluctuated unexpectedly, and/or schemes were withdrawn has led to some erosion of trust among some suppliers, which may be inhibiting their willingness to invest and prepare for RIS3, and which could risk impacting deliverability of the portfolio.

Taken together, these risks may be particularly challenging for SMEs, who may find unexpected peaks and troughs in workload difficult to manage, with lesser ability to flex resources across the business. For these organisations, this could plausibly act as a driver of other risks such as maintaining an appropriate level of skills with the ability to react to increases in scheme delivery, as well as maintaining a sustainable business model. We note the particular reliance on SMEs in some supply chain categories, including but not limited to civils, drainage and landscaping, and technology, signs and lighting.

The above, in our view, frames the **main execution challenge for RIS3. Specifically, in mobilising the supply chain to deliver consistently and from day one**, mitigating risks of schedule delay and cost escalation that may arise from a supplier base which is not fully prepared for the programme of works.

In the context of a constrained construction workforce and high ambition for delivery across infrastructure sectors over the next five years, we judge this to be a primary readiness risk for RIS3 delivery. Our findings align broadly with those identified by the CMA in their [interim report](#) on the civil engineering market for UK road and rail. In this report, the CMA identify longer-term visibility and granularity over the pipeline of works, as well as certainty of funding as important drivers of supplier preparedness, in planning for future bidding and resource allocation.

We recognise a tension between pipeline visibility and certainty – the risk that providing greater visibility before NH has certainty could then lead suppliers to prepare for ‘false dawns’, and so later undermine supplier confidence. Further, NH may not always hold the information that suppliers are requesting themselves yet and may not always have control over decisions around when certainty is provided, for example if that is dependent on funding decisions yet to be taken by government. The potential mitigations that follow are cognisant of those factors. Nevertheless, we recognise from our engagement that this is the key issue from a supplier perspective, in terms of their readiness to invest and prepare for RIS3, and in supporting its successful execution.

b) Increasing competition for specialist skills and workforce retention issues have the potential to constrain suppliers’ ability to deliver in practice, once they’ve been appointed.

Themes: i) Resource and skills availability; iii) Pressure from other sectors / supply chains.

We observed evidence of strong supplier interest in participating in RIS3 – at the supplier level, it is clear that highways remains an attractive sector for supply chain participation and investment.

Where we observe risk, it is more in delivery and execution than procurement. Highways is competing for access to skilled people in several areas with other infrastructure sectors, most notably with water, energy, rail and nuclear. This is not a new risk for the sector, but is particularly important as a number of these other sectors significantly scale their investments to deliver over the RIS3 window – as demonstrated in section 3.2.

In practice, the risk is that suppliers signed up to deliver RIS3 find it challenging in practice to supply the resources to execute delivery, particularly if and where skilled people are attracted to the appeal of higher rates and/or preferable conditions in some sectors, noting the prevalence of night working in highways.

Areas of greater concern we have identified include the following:

- Specialist engineering skills.
- Industrial electrical and mechanical and electrical installation skills.
- Trades (e.g. welders).
- Designers.

Some suppliers are taking more interventionist approaches to workforce development, and can offer more flexible rates and terms, but many linked pipeline certainty to the justification of further recruitment. Examples we received from suppliers included area-specific interventions such as tailored company programmes that regional pipeline resource specific to NH category work, as well as more general strategic workforce planning to anticipate future skill needs and actively restructure their recruitment and training programmes.

A common feature and risk reported by all supply chain tiers is an ageing workforce. Particularly for operational activities such as traffic management, suppliers are experiencing difficulty attracting younger staff for night work and coupled with the high accreditation and training requirements of working on high-speed roads, this could lead to a general capacity risk across all renewals that require operational support. However, we did receive evidence of creative recruitment approaches that suppliers are taking in these areas, in an attempt to attract those from a range of different backgrounds, and younger people, into the workforce.

Finally, it is important to note the impact of changes NH has made for RIS3. The most significant of these in this area is the introduction of performance-related workshare in SDF2. This should enable greater flexibility over delivery in-life, if and where specific suppliers are unable to maintain strong delivery performance.

c) Smaller suppliers appear to be less confident in their readiness for RIS3; this implies programme risk in areas where they are more prevalent, such as civils and technology.

Theme: cross-cutting.

While noting a smaller sample size, our engagement with the supply chain suggests there is a lower relative RIS3 readiness confidence across a broad range of areas among smaller suppliers – we judge this has the potential to drive delivery risk in categories where there is a particular reliance on SMEs, such as civils, drainage and landscaping and technology, signs and lighting.

The reasons behind this appear multi-faceted, but some common themes we identified among feedback from smaller suppliers included:

- A perception among these suppliers of more limited access to information on the forward pipeline of works.
- Difficulty managing the administrative reporting burden within contracts (in addition to tender stage).
- That some have found it difficult to manage unexpected peaks and troughs in workload, including in this year's interim settlement period.
- A reticence to invest given past experience of changes to works; we infer they may have less ability to flex resources across clients and sectors than larger firms.

Through initiatives including its Engagement Council, framework engagement, and twice-yearly pipeline updates, NH has taken specific action to share more information with SMEs, and from what we have observed, firms of all sizes have access to information NH provides on the near and long-term pipeline of works. In some areas, more direct contractual relationships with SMEs are a feature of RIS3 contracts. If and where there are differences in access to information, it is plausible this could be partly driven by larger firms having more informal NH contact.

5.2. WIDER SUPPLIER RISKS TO RIS3 DELIVERY

In addition to the primary, programme-wide risks above, we identified a range of secondary supply chain readiness risks for RIS3, which evidence suggests may be less certain in their impact, but which also warrant consideration. These are:

- **Cyber risk management:** as explored in ‘vi) Resilience and risk management’, we noted limited recognition of the potential impact of cyber risk on RIS3 delivery in our engagement with suppliers. This is important in the context of increasing prevalence of high impact cyber incidents across the UK economy. NH has implemented robust cyber security standards for new and renewed contracts, in line with government guidance. As with any large infrastructure client, visibility of cyber resilience is naturally stronger where NH holds direct contractual relationships. NH is actively considering how to strengthen assurance across the wider supply chain, including through initiatives such as its Risk Ledger trial, and we have made some further suggestions in section 5.3.
- **Input price sensitivity and volatility:** suppliers in all tiers highlighted the impact that key events such as post- Covid-19 inflation have had on their costs and their ability to factor these into their business models and the contractual mechanisms to seek financial redress. Looking ahead, while we did not identify evidence of any particular input or sector facing imminent or critical risk, we note risk exposure in the steel, bitumen, cement, aggregates, and energy spaces, as identified by suppliers. Ongoing issues surrounding tariffs and other macro-economic volatility could plausibly have broader impacts on affordability and rates. Within these areas, NH provided us with examples where they have intervened historically, including bulk purchasing and coordination with other transport sectors, led by the expertise of their category managers.
- **Road-space access:** although not a supply chain risk per-se, we note that ensuring good road-space management and enabling of access was frequently flagged as being critical to maintain delivery schedules. Risk can rise if scheme planning is inconsistent or disrupted, if there are long mobilisation periods and multiple scheme integration partners, or be driven by a large volume of external events (be that entertainment, sport, weather or safety incidents), which make access challenging to ensure. Engagement suggests this risk is particularly important in pavement, structures and technology, and is also pertinent given the scale up in technology installations on the network over RIS3.
- **Other factors:** we note some evidence of regional workforce pressures, particularly given wider investment programmes, notably energy (renewables, electricity networks and nuclear) and water, where evidence suggests investment over the RIS3 period may be concentrated in the South and East regions. Separately, while suppliers remain committed to developing their digital skills and bringing innovation to NH, barriers to take-up were also identified, which could have longer-term implications.

Given strong supplier appetite for RIS3, NH can be confident that the supplier base is available, and highways remains an attractive sector to participate in and invest. This reflects positively on the changes NH has implemented for RIS3. However, further changes to terms and simplified contractual processes were frequent supplier asks in our engagement. There is some evidence that other sectors are looking to increase appeal through development of longer frameworks, securing of alliancing and their respective risk-share models, and the increasing application of advance purchasing.

5.3. RECOMMENDED MITIGATIONS

This section outlines the key recommendations we have identified to address the supply chain risks identified for RIS3 delivery and their supporting actions.

Considering the current status of RIS3 delivery preparations, such as inflight SDF2 procurement, and the level and priority of identified risks, we recognise the proportionality of what NH can reasonably be tasked with and have proposed evolutionary mitigations for RIS3, to support the supply chain in delivering the level of ambition within the RIS3 portfolio of works. Where accepted, we propose ORR should monitor progress against them, to quickly

identify issues and work with NH and the government on solutions, helping ensure the envisioned benefits of RIS3 are delivered efficiently.

The following sets out the actions that underlie the following recommendations in detail:

- **R1:** Build on recent efforts to improve transparency over the pipeline of works by focusing on the granularity of the three-to-five year outlook, thereby supporting supplier mobilisation and investment.
- **R2:** Explore opportunities to strengthen confidence in early cost and funding assumptions, helping translate the settlement into clearer signals of scheme and programme commitment for suppliers, and supporting their longer-term investment planning.
- **R3:** Continue to refine commercial and contractual arrangements to support delivery confidence and SME participation.
- **R4:** Reinforce resilience to systemic risks and manage cross-sector pressures.
- **R5:** Use RIS3 experience to inform decisions on skills, delivery models and market structure for RIS4 onwards, to maintain long-term investment attractiveness versus other sectors.

As noted above, elements of the CMA's recently published [interim report](#) for its rail and roads civil engineering market study align closely with our findings. Specific areas of commonality with our own, and the underlying actions below include:

- improving the availability of longer-term and more detailed information on the pipeline of works (R1);
- consideration of how greater funding certainty might be provided and commercial terms might evolve to provide the supply chain with confidence to invest, and ensure proportionate risk allocation (R2, R3, R5);
- simplification and standardisation of administrative requirements for procurement processes (R3); and
- strengthening co-ordination between different infrastructure sectors on the pipeline (R4).

R1: Build on recent efforts to improve transparency over the pipeline of works by focusing on the granularity of the three-to-five year outlook, thereby supporting supplier mobilisation and investment.

We consider further progress in this area to be in-line with the principles of the [2015 Roads Reform](#), namely to set-out a ‘stable, long-term plan’, building on findings from historic evaluations ([pages 18-20](#)), as well as the CMA’s interim findings for the civil engineering market in the rail and roads sectors (referenced above).

#	Action	Owner	Indicative timescale	Theme(s) addressed
1	Three-to-five year pipeline visibility: Review how suppliers’ view of the longer-term pipeline of work can be strengthened, as far as possible at scheme-level. Where certainty is challenging to provide, a RAG or confidence-rated forward plan could be published, to assist early supplier mobilisation and recruitment.	NH	Short-term (less than 12 months)	i) Resource and skills availability, iv) Market confidence and pipeline visibility, v) Financial health and investment.
2	SME pipeline access and engagement: Review SME access to formal and informal information channels on the forward pipeline of work. Identify any gaps versus Tier 1s in shared information, and face-to-face access. Consider additional, targeted SME engagement and to equalise any access issues identified.	NH	Short-term (less than 12 months)	i) Resource and skills availability, iv) Market confidence and pipeline visibility, v) Financial health and investment.
3	Stage Gate 3 reforms: Continue to prioritise reforms that increase the proportion of schemes where preliminary design is completed in the prior year, so schemes progress to detailed design earlier, and have a firm forward view, providing more certainty to suppliers.	NH	Short-term (less than 12 months)	iv) Market confidence and pipeline visibility.
4	M&R2: Using lessons learned from SDF2, and building on the publication of pipeline notices, actively consider how pipeline visibility within M&R2 might be improved and maintained where scheme design might otherwise limit it. For example, sharing data on when assets are approaching end-of-life to determine likely renewals portfolio.	NH	Short-term (less than 12 months)	iv) Market confidence and pipeline visibility, vii) Contractual and commercial arrangements.
5	Workload smoothing: As certainty over the delivery plan increases over time, review the detailed profile of works – especially but not exclusively SME-heavy scopes – and see if any peaks and troughs in workload that develop could be adjusted to meet SME capacity, maintain steady delivery and potentially aid efficiency.	NH	Short-term (less than 12 months)	iv) Market confidence and pipeline visibility, vi) Resilience and risk management.

R2: Explore opportunities to strengthen confidence in early cost and funding assumptions, helping translate the settlement into clearer signals of scheme and programme commitment for suppliers, and supporting their longer-term investment planning.

#	Action	Owner	Indicative timescale	Theme(s) addressed
6	Scheme funding certainty: NH (working with government) should consider what further assurances can be provided that scheme funding is committed, in the context of NH’s nominal funding envelope and based on NH’s priorities, noting lessons from the potential impacts of historic uncertainty on supplier preparedness. The nominal funding envelope provided by the 2025 Spending Review helps, but still needs to be translated into advance certainty over funding for individual RIS3 schemes and works.	NH, working with government	Short-term (less than 12 months)	i) Resource and skills availability, iv) Market confidence and pipeline visibility, v) Financial health and investment.

7	Budget-setting: Where scheme budgets are not final, review upfront cost-setting methodology and contingency levels to manage the risk that insufficient budget allocation leads to cost overruns later that could erode supply chain confidence. Specifically, this could incorporate: - Consideration of whether Early Contractor Involvement could play a greater role in upfront budget-setting, noting the challenges natural commercial incentives create. - Consideration of whether cost forecasting for renewals works incorporates sufficient flexibility to accommodate uncertainty around final costs, which may exist until after exploratory works have been completed.	NH, working with government	Medium-term (12 to 24 months)	iii) Pressure from other sectors / supply chains, vi) Resilience and risk management, vii) Contractual and commercial arrangements.
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R3: Continue to refine commercial and contractual arrangements to support delivery confidence and SME participation.

#	Action	Owner	Indicative timescale	Theme(s) addressed
8	Indexation: Where new RIS3 contracts are not yet final (SDF2, M&R2), review methodology and consider if further changes to lagged cost / price indices or additional supplier engagement on input metrics could deliver supplier protection which more closely reflects actual inflation experienced. This was raised frequently by suppliers, though we recognise that NH already has bespoke indexation methodologies in place - some feedback may still be reflective of exceptional Covid-driven inflation. We note there may be limits on what is feasible and desirable within NH's nominal funding settlement.	NH	Short-term (less than 12 months)	v) Financial health and investment, vi) Resilience and risk management, vii) Contractual and commercial arrangements.
9	Tender and reporting requirements: Review whether NH can further flex its tender qualifications and reporting requirements for SMEs to be more proportionate, and/or if there is a case for further simplification and differentiation on the basis of supplier size ('SME-lite' reporting requirements), to reduce the burden on smaller organisations.	NH	Short-term (less than 12 months)	vii) Contractual and commercial arrangements, viii) Collaboration and communication.

R4: Reinforce resilience to systemic risks and manage cross-sector pressures.

#	Action	Owner	Indicative timescale	Theme(s) addressed
10	Increased coordination across infrastructure sectors: Now that the UK infrastructure pipeline has been mapped to 2030, there is a clear need for greater co-ordination across infrastructure sectors to identify where collaboration and/or phasing can reduce pressure on suppliers, skills and materials, and improve delivery confidence. In the first instance, NH could work with the Department for Transport to explore how further 'bottom-up' coordination with other (non-transport sectors) can be achieved. This likely also requires input from a strong central, co-ordinating function, plausibly the National Infrastructure and Service Transformation Authority, and would build on the example NH has shared with us of their existing work with other DfT arms-length bodies, including the historic Transport Infrastructure Efficiencies Strategy.	NH, working with government	Medium-term (12 to 24 months)	i) Resource and skills availability, ii) Innovation and technology adoption, iii) Pressure from other sectors / supply chains, vi) Resilience and risk management.

11	Supplier cyber risk: Recognising the changes NH has implemented for new and renewed contracts, develop further actions to mitigate risk, including: - Identifying and prioritising contracts for a deeper review of cyber risk exposure (including legacy contracts), focusing on those with high impact on RIS3 delivery. - Supporting the institutionalisation of a wider business approach to risk and resilience through further cyber capability-building among operations and contract managers, to support the central digital teams in monitoring and ensuring compliance. - Considering the value of reaffirming cyber expectations aligned with government guidance (and the new Cyber Action Plan), for example through a supplier charter, and making further use of existing supplier engagement fora.	NH	Short-term (less than 12 months)	ii) Innovation and technology adoption, vi) Resilience and risk management.
12	Consider development of a top-down intervention strategy for critical inputs: NH has a track-record of intervening historically to shore up supply of critical inputs, including salt, steel, and technology components. In an increasingly volatile global market context, this action would take this further by developing a 'top-down' strategy and consistent set of criteria to justify escalation and intervention, institutionalising principles that may already be applied by individual category managers and enabling rapid response to unexpected changes in global market conditions.	NH, working with government	Short-term (less than 12 months)	vi) Resilience and risk management.

R5: Use RIS3 experience to inform decisions on skills, delivery models and market structure for RIS4 onwards, to maintain long-term investment attractiveness versus other sectors.

#	Action	Owner	Indicative timescale	Most relevant theme(s)
13	Longer-term skills development: Outside of major enhancement schemes like Lower Thames Crossing, NH typically takes a market-led approach to skills development. Suppliers undertake their own active skills development, including apprenticeships, training, and creative recruitment approaches. Beyond RIS3, NH should review whether a more interventionist approach to developing skills base is necessary to support delivery, in the context of heavy competition for specialist skills. This could be via an improvement to the existing Roads Academy L&D programmes, and/or an expansion of the mechanisms being put in place for the Lower Thames Crossing.	NH	Long-term (as part of RIS4 development)	i) Resource and skills availability, iii) Pressure from other sectors / supply chains.
14	Commercial model evolution for RIS4: Noting strong anticipated supplier participation for RIS3, ahead of RIS4 / 'SDF3', NH should undertake a review of its commercial model to consider its on-going attractiveness, as competition for capability increases across sectors. This includes consideration of whether alliancing, or alliancing principles for selected programmes or schemes could strengthen risk share attractiveness and so delivery confidence. In addition, the review should also consider whether wider commercial terms remain attractive at that time, including contract duration / tenor, risk allocation, indexation and administrative expectations. Any evolution should be assessed against trade-offs around cost control, competitive tension, and maintaining effective SME access and relationships.	NH, working with government	Long-term (as part of RIS4 development)	iii) Pressure from other sectors / supply chains, vii) Contractual and commercial arrangements.

Source: CEPA-EAM.

Appendix A CASE STUDIES FROM OTHER SECTORS

To inform our assessment of RIS3 supply chain readiness, we have developed cross-sector case studies on water, electricity, and nuclear. These sectors face similar delivery challenges and compete for the same scarce inputs, including skilled labour, specialist plant, and key materials. As a result, studying these sectors is intended to highlight practical mitigations that could help address RIS3 risks, particularly sector attractiveness, materials and plant availability, and skills development. While NH has already trialled elements of several approaches, cross-sector evidence helps to clarify what enabling conditions are required for mitigations to work in practice, and where a more targeted, refreshed application could reduce portfolio risk.

Importantly, lessons from these case studies may not be directly transferable in all cases. NH operates under public procurement rules and therefore may be more constrained than some private sector comparators. For example, this may limit its ability to pre-commit to suppliers or establish long-term commercial relationships.

Key takeaways from our case studies

The strategies other sectors are using to strengthen their attractiveness as infrastructure programmes scale up highlight areas where NH could consider change over the longer term.

- **Alliancing (water):** Mature, programme-level alliancing can strengthen delivery performance and supply-chain resilience by creating longer-term relationships and a clearer sharing of risk and reward. NH could consider whether more targeted use of alliancing would improve supplier confidence, recognising potential trade-offs with cost control and the need for strong governance.
- **Early procurement (electricity networks):** Early procurement can secure constrained capacity and reduce delay risk but is most effective when underpinned by credible long-term pipeline visibility and coordinated system planning.
- **Skills development (nuclear):** Sizewell C illustrates an active, long-horizon approach to building and retaining skills, rather than relying solely on the market. NH could consider expanding more proactive skills initiatives across the wider programme to reduce peak-period shortages.
- **Indexation and cost risk transfer:** Broad indexation approaches appear similar across sectors, but performance depends on the relevance of baskets and pass-through to suppliers. More generally, supply-chain sustainability is shaped by how target costs are set and whether risk-sharing mechanisms (including alliancing) are used where appropriate.

A.1. ALLIANCING IN THE WATER SECTOR

The water sector is a relevant comparator for RIS3 because it is entering a major investment increase under Asset Management Plan 8, the investment period linked to Ofwat's five-year price control cycle. [Total AMP8 expenditure has been set at £104bn](#), representing a 75% increase on AMP7. This programme also draws on many of the same constrained inputs as highways, including civil and structural engineering capability, tunnelling and major civils supply chains, and professional design and project management, creating direct competition for specialist labour, plant, and key materials.

A key insight from the water sector is the use of alliancing, particularly long-term alliances spanning multiple investment periods, to strengthen sector competitiveness, share delivery and cost risk, and support supply chain sustainability. NH has already trialled alliance-style approaches in specific contexts, including through [smart motorways delivery](#). This experience highlights an important constraint on transferability: compared to many water utilities, NH faces greater funding and policy volatility, with periodic reprioritisation and some examples of historic short-notice changes to schemes.

However, the water sector can still provide us with evidence on what makes programme-level alliancing work in practice and which design features improve collaboration, supplier confidence and delivery resilience. This case

study highlights which alliance mechanisms are likely to be most valuable for NH, and what governance and commercial adaptations may be needed to apply them under greater uncertainty.

A.1.1. What is alliancing?

Alliancing is a collaborative delivery approach in which the client and key delivery partners form an integrated team under a single, shared governance and commercial framework. The model is designed to align objectives through common performance targets and transparent decision-making, with risk and reward shared across the parties. In practice, this aims to foster trust, open communication, and mutual accountability, enabling the team to manage uncertainty and improve outcomes collectively.

Alliancing differs from traditional contracting, where the client appoints a supplier to deliver a defined scope and engagement is often more arms-length. In those models, incentives can encourage parties to pass risk down the chain and manage changes through contractual claims, rather than solving problems jointly.

Alliancing has a long track record in the water sector, although approaches vary materially between companies and programmes. Some of the longest-running models have been in place for around two decades. For example, Anglian Water's [@one Alliance](#) was established in 2005 (AMP4) as a strategic delivery vehicle for its Integrated Main Works programme and has continued across subsequent AMPs, making it a well-established example of mature alliancing practice. For AMP8, the alliance is set to deliver capital infrastructure projects worth £2.6 billion, its largest allocation to date and more than double its record £1.2 billion during AMP7.

Anglian also operates multiple alliances with different purposes and time horizons: some designed as enduring delivery vehicles (e.g. [@one](#)), and others established around specific strategic programmes with a defined lifecycle (e.g. the Strategic Pipeline Alliance).

At the same time, alliancing is not universal across the sector. Some companies are only now trialling more integrated partnership models (e.g., [Scottish Water](#)), while others have moved away from alliancing towards more traditional contracting approaches (e.g. [Thames Water](#)). This suggests that while alliancing can be effective in certain contexts, it is not a one-size-fits-all solution and requires careful design and context-specific implementation.

A.1.2. Features of a successful alliance

Drawing on desk-based review of publicly available material and interview insights from our study, evidence from mature water alliances (including [Anglian's](#)) suggests alliancing is most effective when it operates as a long-term, integrated 'enterprise' incorporating aligned incentives, strong joint governance, and disciplined mobilisation. Key features of a successful alliance include:

- **Long-term consistency:** Alliances that run AMP-after-AMP (with stable, integrated teams and embedded client capability) create continuity and pipeline credibility. This gives suppliers greater confidence to invest in skills, capability and delivery improvements, supporting more consistent performance over time.
- **Pre-planning:** Successful alliances invest heavily in AMP mobilisation, planning workload, capability and resourcing in advance; aligning incentives and performance measures to regulatory commitments; and ensuring partners are prepared for changes in volume and complexity.
- **Collaborative mechanisms:** Alliancing is as much cultural as contractual. Embedded client staff, open information sharing and long-term relationships help teams operate as 'one', reducing friction at interfaces and supporting faster, more practical resolution of delivery issues.
- **Industry support:** Water alliancing is underpinned by strong industry learning and guidance (for example, through [Project 13](#)), which codifies what 'good' looks like in integrated, enterprise-style delivery. This helps clients adopt proven practices rather than designing alliance models in isolation, reducing implementation risk and supporting more consistent outcomes across programmes.

A.1.3. How alliancing can mitigate portfolio risks

Alliancing is most relevant to mitigating risks around sector attractiveness and supply chain sustainability, with knock-on impacts for skills and capacity. By establishing longer-horizon, portfolio-based relationships with shared incentives, alliancing has supported the attractiveness of the water sector for suppliers competing across sectors.

- **Pipeline credibility and supplier investment:** Long-horizon, portfolio-based alliances can strengthen pipeline credibility by providing greater continuity and reducing uncertainty about delivery arrangements across a programme of work. This can lower perceived delivery risk for suppliers and support investment in skills, plant and systems, rather than treating delivery as a series of one-off contracts.
- **Workforce retention and skills availability:** Alliancing can support retention of scarce roles by aligning incentives and ways of working across partners and reducing churn associated with repeated re-tendering and adversarial contract management. Over time, this can improve the attractiveness of the work for key disciplines and help suppliers sustain specialist capability.
- **Supply-chain sustainability and resilience:** Risk-sharing and collaborative behaviours can reduce adversarial pricing and incentives to exit the market, supporting a more sustainable supply chain and improving NH's attractiveness as a client of choice.

However, alliancing has potential drawbacks that require careful consideration in the NH context. NH is keen to engage SMEs and non-Tier 1 partners; however, if an alliance channels most work through a small number of Tier 1 suppliers, subcontracted SMEs may see limited benefit from collaboration and risk-sharing and may continue to face tight margins and disproportionate risk. Where alliancing is pursued, a key consideration is designing the model to involve SME's more directly where feasible and ensuring that payment terms and risk allocation cascade fairly through the supply chain.

Alliancing also depends on a credible, funded and reasonably stable programme of work. As noted above, NH operates within a funding and policy environment that can require periodic reprioritisation, reflecting changing government priorities and evolving evidence on delivery approaches. This can undermine the predictability that supports long-term alliance behaviours and supplier investment, meaning an alliancing approach may require stronger governance and commercial provisions to remain viable under uncertainty.

A.1.4. Overall learnings from the water sector

There is clear precedent in the water sector for using alliancing at programme level to sustain long-term supplier relationships and support more consistent delivery, including for high-volume renewals. While this approach is not universal across infrastructure sectors, evidence from mature water alliances indicates that alliancing can support sector attractiveness and supply chain sustainability when it is implemented over the long term, underpinned by a credible programme of work and aligned incentives.

In this context, NH could consider whether a renewed focus on alliancing, in targeted areas, could improve supplier confidence and delivery outcomes over the longer term. Supplier feedback indicates that at least some parts of the market would welcome a greater sharing of risk and reward. Alliancing is not the only way to rebalance commercial incentives, but when implemented well it can also deliver wider benefits, including improved collaboration, reduced friction and claims, stronger supply-chain confidence, and lower overall delivery costs.

A.2. EARLY PROCUREMENT IN THE ELECTRICITY SECTOR

NH faces cross-sector competition for certain constrained inputs, particularly specialist plant and long-lead materials and components. One potential mitigation is early procurement, where high-risk items are secured in advance, so they are available when construction starts, reducing the risk of delays caused by limited supplier capacity or unavailable stock.

NH already uses advance purchase arrangements on a case-by-case basis where the supply risk is judged to be material, and business plan evidence (for example, the [A417 Missing Link business case](#)) recognises the potential

benefits of bulk buying and early procurement across Regional Delivery Partnerships. The implication is not that early procurement is new to NH, but that it remains an important lever to apply selectively and with clear governance, focusing on the inputs where it most reduces delivery risk and strengthens supply chain confidence.

Evidence from the survey, bi-lateral discussions and desk-based research identified the electricity sector as a relevant comparator where early procurement is used extensively, often applied at system level and supported by strong forward visibility of future investment. This case study examines how early procurement has been implemented in the electricity transmission sector, in both Great Britain (GB) and Europe, and the potential lessons and benefits for NH.

A.2.1. Electricity transmission case studies

Electricity networks are facing a major step up in investment to expand capacity, connect more renewables, and reduce network congestion. There is increasing recognition that this scale-up will intensify pressure on constrained materials, manufacturing slots, and specialist plant. Early procurement has therefore become a prominent mitigation strategy to reduce the risk of delays driven by unavailable inputs and offers important lessons for RIS3.

For example, in GB distribution, the regulatory framework (RIIO-ED2) delivery planning supports earlier engagement with the supply chain, for example by sharing forward-looking plans with approved suppliers and securing key items such as transformers and switchgear where appropriate.

Electricity transmission offers a particularly useful case study because, in GB, regulatory support for advanced procurement has been introduced only recently, providing insight into why it was implemented and how it is being operationalised. Internationally, transmission also provides relevant comparators, with Transmission System Operators (TSOs) such as TenneT (Germany and the Netherlands), [cited as best practice](#), including through standardisation and purchasing approaches that help secure a significant share of constrained supply. We focus this case study on Great Britain, Netherlands/Germany, and France as well evidenced illustrations of system level early procurement and forward pipeline visibility.

Great Britain

In Great Britain, early procurement is credible at scale because it is supported by both (i) a funding mechanism that enables early commitments and (ii) forward planning that improves confidence in the future pipeline. Together, these reduce supply chain bottlenecks and sequencing delays for nationally critical projects.

- **The recent introduction of a formal mechanism for early purchase reflects recognition that escalating long-lead supply constraints have become a material portfolio risk that cannot be managed through standard, just-in-time procurement.**
 - Early procurement in electricity transmission has been formalised through Ofgem’s Advanced Procurement Mechanism ([APM](#)), introduced in 2025 as a ‘step change’ in funding to bring forward around £4bn of allowances. Its recent introduction reflects recognition that supply constraints have become a material risk to programme delivery.
 - By bringing forward funding allowances and providing regulatory approval to commit spend earlier than under standard arrangements, the mechanism enables transmission owners to reserve constrained supply chain capacity for equipment and services years ahead of need, reducing the risk that long-lead items delay delivery.
 - Standardisation is central to making early procurement scalable. The APM focuses on standardised items that are either transferable across projects or can be procured flexibly before final specifications are confirmed, which reduces administrative burden and supports faster, more repeatable delivery. This aligns with government’s [Transmission Acceleration Action Plan](#), which signals a wider push for industry-led standardisation and supply chain coordination through a new UK supply chain council.

- **System-level forward planning supports early procurement by improving visibility of high-risk inputs and timings.**
 - NESO's Strategic Spatial Energy Plan ([SSEP](#)) to 2050 and the Centralised Strategic Network Plan ([CSNP](#)) improve visibility over what infrastructure is required and when, helping companies and suppliers identify long-lead items, plan capacity, and target early procurement where risks are most material.

Netherlands/Germany

TenneT, the transmission system operator and owner (TSO) for Netherlands and large parts of Germany, provides a mature example of early procurement, demonstrating how demand aggregation and early works can secure constrained capacity.

- **Demand aggregation through portfolio-based procurement can secure constrained capacity more effectively than project-by-project buying by giving suppliers scale, certainty, and longer planning horizons.**
 - TenneT has shifted from individual project awards to mega-tenders and multi-year frameworks, recognising that aggregating demand is a lever that can materially improve outcomes in capacity-constrained markets. By contracting at portfolio scale, TenneT can secure manufacturing slots earlier, give suppliers clearer volume signals, and reduce the risk that individual projects are delayed by scarce HVDC cable capacity. For example, TenneT launched a large [2 GW HVDC cable tender](#) covering at least ten offshore grid connections in the Dutch and German North Seas, explicitly to improve supply chain planning certainty.
- **Early works agreements can reduce schedule risk by bringing forward design and supplier mobilisation so long-lead constraints are addressed before they delay delivery.**
 - Programmes do not have to wait for full project readiness to start securing scarce capability and resolving technical and interface risks. For example, in January 2023, TenneT used [early works agreements](#) for IJmuiden Ver Alpha (planned 2029) and Nederwiek 1 (planned 2030) to start engineering and preparatory activity well ahead of commissioning, helping to lock in critical capability and reduce downstream delivery risk.

France

- **Engaging suppliers well ahead of delivery helps uncover constraints and shape tender design, reducing the risk of unrealistic programme assumptions and late procurement surprises.**
 - The French TSO, RTE, engages early with suppliers for critical projects, sometimes around a decade before the planned operation date. For example, it consulted the market ahead of [cable tenders for offshore wind grid connections](#) expected to enter service from 2034. This is reinforced through large framework agreements that reserve capacity, such as [Nexans' framework](#) valued above EUR 1 billion for HVDC cable systems, and through long-term [network development planning](#) that improves the credibility of forward demand signals.

A.2.2. Overall learnings from the electricity sector

Early procurement in electricity transmission offers several insights that NH could apply to help mitigate risks associated with constrained materials and plant availability. Key features of successful early procurement include:

- **Forward planning support:** long horizon system plans and, where applicable, regulatory mechanisms to fund early commitments make early procurement credible and coordinated.
- **Demand aggregation:** bundling demand across programmes and regions smooths peaks and troughs and strengthens purchasing power, making it easier to reserve scarce capacity and improving supply chain confidence.

- **Early market engagement:** engaging suppliers well ahead of delivery helps uncover constraints and shape tender design, reducing the risk of unrealistic programme assumptions and late procurement surprises.

A.3. SKILLS DEVELOPMENT IN THE NUCLEAR INDUSTRY

Skills development and retention is identified as a material delivery risk for NH, as several critical roles (for example, designers, engineers and specialist trades) are in high demand across major infrastructure programmes. This is also recognised in other sectors, such as energy, where the government's [Clean Energy Jobs Plan](#) identifies priority occupations needed to meet clean energy targets and sets out funded interventions to address skills gaps, including an Engineering Skills Package and a Construction Skills Package.

The nuclear sector places particular emphasis on active skills development because delivery depends on safety-critical, specialist capability, with additional qualifications and nuclear-specific competence required for many roles. NH can draw lessons from where these approaches have been successful in developing and retaining skills in a competitive landscape over long delivery horizons.

A.3.1. Sizewell C case study

Sizewell C is a new nuclear power station in Suffolk (East of England) that reached [Final Investment Decision](#) in July 2025, securing full funding and moving the project into its main construction phase. The scale of the skills challenge is significant: the UK government's '[Assessment of the clean energy skills challenge](#)' reports that the civil and defence nuclear workforce supported around 83,000 jobs in 2023, but could need around 120,000 employees by the early 2030s (roughly a 45% increase). According to the [Annual Skills Implementation Plan](#), Sizewell C aims to build on lessons learned from the Hinkley Point C project, the earlier UK nuclear new-build project whose construction began in late 2018, including the value of taking an active role in securing the required skills pipeline.

Ahead of construction and operations, Sizewell C is taking an active role in building the local skills pipeline with local partners to ensure workforce demand can be met. For example, it is funding a permanent [post-16 college](#) in Leiston with Suffolk New College, alongside an Apprenticeship and Trainee Hub and dedicated skills centre, to deliver post-16 technical and vocational pathways aligned to Sizewell C and wider energy and infrastructure roles. This enables Sizewell C to shape training to meet nuclear-specific requirements and strengthen retention through local entry and community benefits, increasing the likelihood that skills are developed and remain in the region.

Alongside this, Sizewell C is using apprenticeships as a primary mechanism to grow the workforce. Its skills plan targets around [1,500 apprenticeship](#) placements during construction, with a minimum commitment that at least 540 apprenticeship opportunities will be sourced from Suffolk (equivalent to around 7% of apprenticeship starts in Suffolk in 2024/25; [ONS](#)). These apprenticeships are expected to be delivered either through Sizewell C directly or via its preferred suppliers. A key advantage is that the planned volumes are set out early and explicitly, giving training providers and prospective apprentices clearer visibility of opportunities.

Skills development and retention are also supported through coordinated local and national planning. Local plans, developed with authorities and delivery partners, provide the practical framework for delivery. The [Sizewell C Annual Skills Implementation Plan](#) (ASIP) sets out the strategic and practical actions needed to build and sustain the project workforce, linking near-term resourcing requirements to wider socio-economic objectives for the East of England. Its core purpose is delivery-focused: it translates high-level workforce objectives into actionable initiatives to ensure the right skills are in place for each construction phase. To support this, the ASIP incorporates detailed workforce projections and role-based breakdowns, and it uses regional skills needs assessments to set annual priorities, targeting gaps in areas such as engineering, construction, digital skills and green technologies. It is aligned with Sizewell C's wider internal workforce strategies, helping to coordinate delivery activity with local partners and maximise local benefits. Collectively, this supports delivery by highlighting emerging constraints early, so skills risks can be addressed before peak construction.

At the national level, the government-backed [National Nuclear Strategic Plan for Skills](#) targets around 40,000 new nuclear jobs by 2030 and doubling apprenticeships by 2026, using sector-wide coordination to reduce project delivery risk, retain people in nuclear careers and support regional economies. Alongside project-level

commitments from Sizewell C on apprenticeship volumes, this national direction adds credibility and helps attract entrants by giving young people, education providers and training bodies clearer confidence that nuclear offers sustained career opportunities. There appears to be less equivalent, sector-wide support in the roads context.

A.4. INDEXATION / RISK TRANSFER

A cross-cutting theme raised by suppliers as part of the web survey and bilateral interviews is how NH allocates cost risk and manages inflation indexation in its contracts, with concerns that current arrangements may leave suppliers too exposed to cost pressures. Our cross-sector review suggests that NH's overall approach is broadly consistent with comparable sectors, as indexation and contracting approaches are often similar. However, there are still important lessons. In particular, performance depends less on whether indexation exists in principle and more on whether the chosen baskets track actual cost movements for the relevant inputs, and whether target costs are set at levels that balance efficiency incentives with supply-chain sustainability.

A.4.1. Indexation

Major NH frameworks already include inflation indexation through sector-specific indices. For example, the Pavement Delivery Framework ([PDF](#)) and Scheme Delivery Framework ([SDF](#)) use sector-specific indices for certain cost items, including BCIS highways maintenance measures and bitumen-weighted baskets, so a share of input inflation is indexed rather than sitting entirely with contractors. The practical questions are therefore not whether indexation exists, but how well the chosen baskets track suppliers' actual cost movements, and what proportion of spend they cover. Another issue, particularly during periods of high input price inflation, is index lag. Even where indexation is in place, indices are published with a delay, so sharp cost movements may not be reflected immediately. In practice, this lag has the potential to crystallise as a cashflow and timing issue between payment assessments or inflation adjustment dates. This provides a concrete set of issues for NH to test with suppliers when designing the commercial detail of new frameworks, including SDF2 and M&R2.

Comparable published evidence on indexation at individual contract level is more limited. Water and electricity companies also use sector-specific indices, and indexation funded at the regulatory level typically shapes what can be passed through to the supply chain. For example, regulators use input-specific indices to set real price effects assumptions, such as COPI New Infrastructure for some allowances in [water](#). In practice, regulated companies often align contract indexation with that funded by the regulator to avoid taking on unfunded inflation exposure.

A sensible question, therefore, is how well NH's own allowances are protected against input price inflation relative to other sectors, and how much of that protection is passed through to the supply chain.

A.4.2. Cost risk transfer

NH primarily uses standard NEC forms, often with target cost and pain/gain mechanisms, which is typical across major infrastructure sectors. The key risk sits less in the contract form itself and more in how target costs are set. Supplier feedback suggests some target costs may be fixed too early and set at highly stretching levels, so even with indexation and compensation events contracts can become commercially unsustainable if outturn costs diverge materially from those early estimates.

Cross-sector evidence suggests this is not unique to roads. In water, a recent [KPMG report](#) highlights concerns about the balance of risk and reward, citing growing evidence from industry bodies such as the Water Industry Forum and the British Water Supply Chain Task Force that suppliers are becoming more selective about who they work with, or leaving the sector altogether. Suppliers have linked this to limited early transparency and two-way engagement from some water companies, alongside perceptions of disproportionate risk transfer down the supply chain. At the same time, many companies continue to competitively tender capital projects on fixed-price terms.

The clearest lessons, therefore, come from the better-performing risk-sharing models that have been applied at scale. In particular, programme-level alliancing can provide a more resilient approach where it aligns incentives and supports supplier sustainability, but only where the model is designed so that fair risk allocation and timely payment practices cascade beyond Tier 1 suppliers to subcontractors and SMEs.

Appendix B OUR EVIDENCE-GATHERING APPROACH

B.1. WEB SURVEY

Objective

The web survey was used as a core method to understand supply chain readiness for the RIS3 portfolio of works, complementing qualitative engagement with NH, targeted stakeholder interviews (bi-laterals) and desk-based research. It enabled us to reach a broader cross-section of organisations which could not be achieved through interviews or desk-based research alone. The survey was designed to collect structured evidence on the suppliers' perceived readiness, delivery risks and potential mitigations across different supply chain categories. Therefore, findings should be interpreted as one component of a wider evidence base alongside desk-based research and qualitative insights from bi-lateral engagement with suppliers, NH and other sectors.

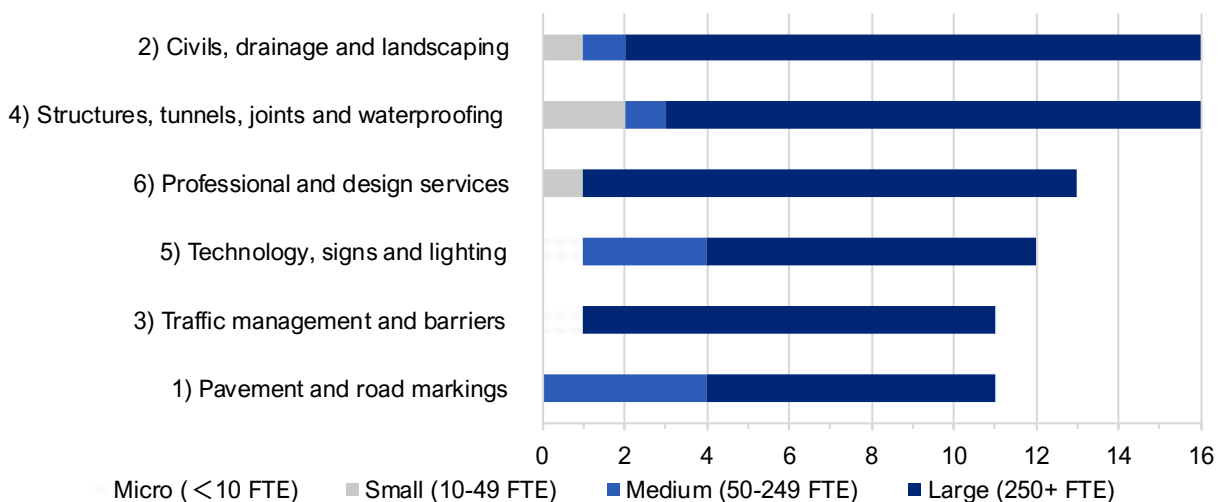
Response overview

The survey was open from 3 November 2025, and closed on 25 November 2025. In total, we received 42 unique responses, reflecting a response rate of approximately 30 percent, from a surveyed list of about 120 firms.

Overall, the survey achieved a broad representation of suppliers across the different supply chain categories. Many respondents selected more than one category to reflect their range of services. The respondent profile was weighted towards large firms (250+ FTE) which made up the majority of the responses across most categories. However, representation was seen at all firm size levels, including medium (50-249 FTE), small (10-49 FTE) and micro (<10 FTE) firms.

Figure B.1: Responses to the web survey mapped against supply chain categories and firm size

Number of responses



Source: CEPA-EAM analysis of survey responses.

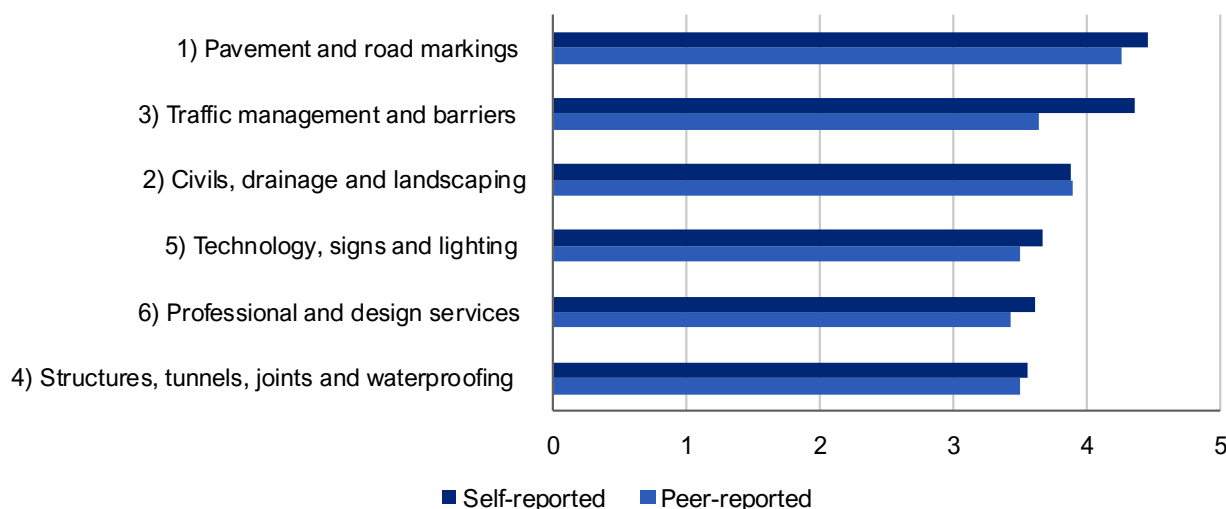
Analysing responses highlights a number of additional insights into respondent profile:

- **Regions** – Most organisations operated nationwide, with smaller clusters of activity concentrated in specific areas, particularly the Midlands.
- **Supplier tier** – Self-described 'principal contractors' comprised 70% of the responses followed by specialist contractors.
- **Existing NH supplier** – Almost all suppliers have previously worked with NH primarily on SDF and M&R.
- **Participation in RIS3** – All respondents plan to participate in RIS3, with high confidence scores for likelihood of bidding for RIS3 work.

The survey was designed to capture variation in readiness and risk across both supply chain categories and a set of cross-cutting themes. Figure B:2 depicts the self-and peer-reported readiness scores for RIS3 (scale of 1 to 5) mapped against the supply chain categories. The self-reported score is based on self-evaluation of the readiness of each respondent's own supply chain category for RIS3 delivery. The peer-reported score is based on suppliers' rating of the readiness of other supply chain categories that they work closely with. The latter scores were rescaled ex-post, from a 1 to 3 range to a 1 to 5 range, to align more closely with the self-reported score.

Figure B:2: Self-and peer-reported readiness scores across supply chain categories

Readiness to deliver RIS3, scored out of 5 (0 being 'not ready', 5 being 'completely ready')



Source: CEPA-EAM analysis of survey responses.

In most categories, the two scores are broadly similar, which suggests there is a shared view of current capability. The biggest gap is in traffic management and barriers, where self-ratings are higher than peer ratings. Given the inherently subjective nature of perception-based scoring, this variation should be interpreted as an indicative signal rather than a significant finding.

Implications for how survey results should be interpreted

The strategies other sectors are using to strengthen their attractiveness as infrastructure programmes scale up highlight areas where National Highways could consider change over the longer term.

- **The 'typical response' represents the views of a larger firm:** The mix was weighted towards larger organisations and principal contractors. This means the results are likely to lean toward the experience of suppliers with more established teams and systems. SME perspectives are still represented, but their specific pressures may be less strongly reflected in the overall picture. Most suppliers are also active nationally so this may have reduced the prevalence of any region-specific risks and issues in responses.
- **A 'likely participants' view of the market:** Almost all respondents were existing NH suppliers and most indicated an intention to participate in RIS3. This is helpful for understanding readiness among the supply chain that is already engaged but it means survey responses do not capture the views of those who have actively chosen not to participate in the NH supply chain.
- **Responses measure sentiments:** At more granular levels of interpretation (for example for specific supply chain categories), sample sizes become relatively small - these results are best treated as an indication of current sentiment and perceived risks rather than a basis for statistical inference. In these cases, wherever possible we have sought to supplement available evidence with information from bi-lateral interviews with NH and suppliers.

Survey design

The survey tested views on readiness and delivery risk through the lens of the three core themes and across the six supply chain categories. This was used to provide a consistent framework for interpreting responses.

In terms of the types of questions, the survey combined structured response formats with open prompts, to balance breadth and depth:

- Structured questions (for example, scaled and selection-based formats) were used to generate consistent, comparable outputs across respondents. This supports segmentation and trend analysis (for example, comparing responses by broad supplier type, size or area of activity), and provides an efficient way to quantify confidence and perceived readiness at a programme level.
- Open-text questions were used to capture practical examples and implementation detail that cannot be reliably inferred from scaled questions alone. Additionally, it provided qualitative context to sit alongside the quantitative results, particularly around why respondents held a view, how something affected their organisation, and what mitigations were already in place or required.

Survey structure

The questionnaire was structured in a staged manner, moving from contextual questions (to understand the respondent and where they sit in the market) through to RIS3 perceptions (readiness, confidence, risks) and then into more diagnostic prompts (drivers, impacts, and mitigations). This 'funnel' approach helped ensure that views on readiness and risk could be interpreted in light of the respondent's operating context.

The survey was broken into five sections:

1. **Categorising your organisation** – The objective of this section was to understand the segmentation of the respondents. To achieve this, participants were asked to categorise their organisation. This included the primary supply chain they operate within, firm size, supplier tier, whether they are an existing NH supplier (and relevant frameworks) and regions of England in which they are active.
2. **Your participation in RIS3** – The objective of this section was to understand likelihood of RIS3 participation and any risks to delivery including potential mitigations. This was done through the following subsections:
 - **Readiness for RIS3** – Participants were asked about their expected involvement in RIS3 and the factors shaping their position. This included whether they intended to participate, preferred procurement routes, extent of RIS3 work to support highway assets renewals, likelihood of bidding for RIS3 work and factors influencing this decision.
 - **Market confidence** – This section also explored market confidence and pipeline visibility, including how this has influenced organisational decision-making and potential measures to improve confidence and visibility.
 - **Risk mitigation** – It also asked respondents questions on resilience and risk management. This involved the suppliers' view of the major risks to RIS3 along with potential mitigations.
3. **Questions specific to your supply chain category** – The section aimed to understand supplier readiness for RIS3. This was achieved by asking questions to respondents tailored to their area(s) of activity in supply chains to capture category-level readiness. The survey also tested supplier confidence across a set of cross-cutting themes including what measures can be undertaken to strengthen supply chain readiness. Some questions were geared towards SMEs to understand their readiness for RIS3 work.
4. **Competition from other infrastructure** – The purpose of this section was to examine possible external competition for resources necessary for RIS3 delivery and identify any pressure points. Participants were asked about exposure to other infrastructure sectors, views on scale of competition during RIS3, sectors which pose the greatest risk and what mitigations may be needed to reduce the impact. The survey also

included targeted prompts on known potential pressure points such as skills and capacity shortages in specific supply chain categories such as tunnels and design services.

5. **Other categories you work with** – The objective of this section was to understand peer-reported readiness of supply chain categories. To achieve this, respondents were asked about the readiness of other supply chain categories including the factors influencing the view and possible measures to improve readiness.

B.2. INTERVIEWS

B.2.1. Approach

Our approach to interviews was based on obtaining additional context and understanding of National Highways' supply chain readiness for delivering renewals within RIS3 as well as understanding the broader competing interests for suppliers in other UK infrastructure sectors during the RIS3 timeline. We set out to conduct an introductory workshop with National Highways to understand the relative risk to RIS3 readiness based on their RIS3 planning and procurement experience to date, followed by a proportionate series of bi-lateral discussions with a representative sample of National Highways supply chain tiers that completed the web survey, as well as a smaller series of bi-laterals with targeted external infrastructure organisations that engage in or procure similar works.

National Highways interviews

An overview workshop was held early in the review with representatives from ORR, National Highways commercial, procurement and operations and from CEPA/EAM.

- The aim of the workshop was to gain an overview of RIS3 supplier readiness from National Highways' perspective as well as perceived market challenges.
- The first session focussed on the status and timing of the procurement of RIS3 renewals and individual renewal schemes. This included an assessment of the relative risk and certainty of each renewals category and the levers still open to National Highways and its suppliers to influence RIS3 delivery costs and schedule.
- The second session explored contractual and commercial arrangements, resilience and risk management and market confidence and pipeline visibility. This included the changes that have been made for RIS3 in contracting, supplier incentives and capability development, how effective does National Highways view these have been at improving supplier confidence and participation, and are there any more changes that could still be made.
- We also explored whether the supply chain have sufficient processes to self-manage cost escalation and delay risks, evidence to support this, where the residual risks are in each category and how could they be mitigated.
- Finally we explored National Highways' views on where market participation (and so competition and resilience) is likely to be strongest and weakest, and given the stage RIS3 is at, could any further policy changes be made to improve participation and readiness, including for smaller suppliers and in certain regions.

Following the workshop, and to focus on National Highways' operational views of supplier readiness we followed up with additional bi-laterals with regional operations directors and central teams involved in the RIS3 supply chain to validate the above workshop conclusions. As well as regional operational readiness, these discussed areas such as category management, supply chain intelligence and supplier readiness in specific asset renewals categories including operational technology and tunnels.

Supplier and wider infrastructure interviews

The bi-laterals with National Highways suppliers were structured around the three study themes of capacity and capability, market dynamics, and procurement and partnership. We asked for their understanding of the drivers behind suppliers' desire and readiness to deliver for RIS3 as well as their positive and negative experiences of RIS2. We also asked them for their suggested mitigations to improve National Highways' delivery and cost certainty as well as suppliers' own business sustainability. Each bi-lateral was recorded with the proviso that notes and findings would be anonymised.

The bi-laterals with wider infrastructure sectors covered non-RIS3 strategic highways suppliers, water, nuclear and other energy. These were run along similar lines to the bi-laterals with National Highways suppliers with the aim of understanding how each organisation has structured its renewals programmes / frameworks, how confident they feel about their readiness to deliver their respective renewals frameworks, their views on the mix of supply chain partners needed and how they view competition for suppliers and materials with RIS3. In addition, we asked about measures they had taken or were proposing in future renewals programme, specifically regarding contracts and incentives. Each bi-lateral was recorded with the proviso that notes and findings would be anonymised.

B.2.2. Anonymised breakdown of interviewees

National Highways existing suppliers

- A large (250 FTE+) principal contractor / consultant, active nationally, in all six supply chain categories.
- A large (250 FTE+) principal contractor / consultant, active nationally, in all six supply chain categories.
- A large (250 FTE+) principal contractor / consultant, active nationally, in all six supply chain categories.
- A large (250 FTE+) principal contractor / consultant, active regionally, across multiple categories in works related to highway maintenance.
- A large (250 FTE+) principal contractor / consultant and/or specialist works contractor, active regionally, in the pavement and road markings category.
- A medium (50-249 FTE) principal contractor / consultant, active nationally, in the technology, signs and lighting category.

Organisations active within other sectors

- A representative from another UK roads authority
- A representative from a UK water company
- Multiple representatives from another UK water company
- A representative from a UK energy project developer
- An individual with previous experience working on the development of Sizewell C (nuclear).

National Highways functional leaders

- Operational Control Director and Head of Operational Technology
- Supply Chain Intelligence Team
- Head of Category Management
- Procurement Director
- Head of Commercial Operations
- National Tunnel Manager

- Roadside Technology Team
- Regional Operations Director – SE
- Regional Operations Director - NW
- Workshop with various senior attendees, including many of those listed above.

B.3. DESK-BASED RESEARCH

To address evidence gaps from our other engagement channels, a desk-based review was undertaken of documentation provided by both internal (NH) and external channels. This included materials from NH on their own evidence and processes, supplier submissions to the CMA Civil Engineering in Rail and Road Market Study, and evidence on other sectors to develop the case studies set out in Appendix A.

This review helped situate the web survey results against the wider market view. It also allowed us to identify broader concerns and potential mitigation measures across the supply chain and within NH.

We developed cross-sector case studies in Appendix A based on a combination of materials from desk-based research and bi-lateral interviews. The objective was to identify practical lessons from comparable infrastructure programmes. Based on the desk review and survey findings, we selected the water, electricity, and nuclear sectors as the most relevant comparators and key sources of competition for RIS3. These sectors face similar delivery challenges to RIS3 and tend to compete for the same scarce inputs, including skilled labour, specialist plant, and key materials. They, therefore, offer useful insight into how organisations manage the portfolio risks identified in this study.

Appendix C **BIBLIOGRAPHY**

In addition to evidence gathered through our engagement with suppliers and NH, this report also references a number of external sources. This appendix provides a full list of sources used, presented in order of appearance by section.

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