

Efficiency Report

Year 2

2020-22



“ National Highways continues to be committed to connecting the country and driving social value through our focus on safety, customer and delivery. ”



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“ We are working to deliver the target efficiency by 2025, and at this stage we have met the cumulative year two efficiency milestone of £471 million. ”



Foreword

National Highways continues to be committed to connecting the country and driving social value through our focus on safety, customer and delivery. This includes owning the benefit, outputs and outcomes enshrined within our key performance indicator (KPI) targets for the second road period (RP2).

I am the Executive lead on delivering the efficiency KPI, set initially at £2.23 billion but adjusted to £2.11 billion following the spending review, which results in a five-year funding reduction of £3.5 billion, and the Transport Select Committee report recommending a pause of some all-lane running schemes.

We are working to deliver the target efficiency by 2025, and at this stage we have met the cumulative year two efficiency milestone of £471 million. We have done this by working collaboratively with our supply chain to identify and implement innovation in every aspect of what we do and deliver, and this will continue throughout and beyond RP2.

We are already working on the plan for the third road period starting in April 2025. This will recognise increasing environmental and stakeholder expectations, including aspirations on safety, reductions in carbon and noise pollution and improved customer experience and increasing taxpayer value.

Working closely with our monitor, the Office of Rail and Road (ORR), this report summarises the primary and secondary evidence which the ORR has used to assure and validate the value of our achievement to date.

We are proud of what we have delivered to date but recognise that there is still a long way to go, and there are substantial hurdles that we must work to mitigate so that we can continue on our trajectory toward the five-year efficiency target.



Malcolm Dare
Executive Director, Commercial and Procurement

Executive summary

The government's second Road Investment Strategy (RIS2) sets out the delivery and performance expectations for the second road period (RP2). Our revised funding of £24.04 billion, agreed as part of the government's *Spending Review 2021* (SR21) settlement, enables us to continue to operate, maintain and improve England's strategic road network (SRN) between 2020 and 2025. Our work will make a significant positive contribution to the millions of people using the SRN and provide benefits to the communities and businesses who live and work alongside it.

One of our KPIs is efficiency and our target was first agreed at £2.23 billion following a comprehensive review of our *Strategic Business Plan* (SBP), which has been revised to £2.11 billion following SR21 and the Transport Select Committee (TSC) report scrutinising all-lane running (ALR) motorways. This will result in an overall funding reduction reflecting delays to major schemes such as Lower Thames Crossing, the impact of which is covered in the main body of the report under *Section 3*.

The target is intended to be stretching but achievable, without compromising either the safety and welfare of people working or travelling on the network, or the long-term sustainability of our supply chain. The measure is to achieve the KPI target by March 2025, the end of RP2.

In the first two years of RP2 we have spent within the available funding for both capital expenditure (capex) and operational expenditure (opex). By delivering our agreed outputs, we have successfully achieved the second-year efficiency milestone (actual £502 million, milestone £471 million), which covers the period 2020-22. We are working toward the five-year efficiency KPI target.

Additional challenges identified last year have materialised in 2021-22. These include increasing inflation, funding reduction, subsequent revision to the efficiency target through SR21 and taxation changes which will be implemented next year. These are covered in the main body of the report.

We have developed a learning culture and have ensured that this is built into our plans to deliver current and future efficiency targets. This has required the development of new processes and controls to deliver both the increased target and to be able to provide the evidence required with appropriate governance.

Delivering the KPI requires a comprehensive forecast of costs and outputs through to 2025. This inevitably carries a degree of uncertainty which will reduce as we approach the end of RP2. Our 2020-22 milestone performance and five-year trajectory is summarised in Fig.1 below.

Efficiency category	RP2 post-efficient baseline	2020/22		RP2
		Milestone	Actual	Efficiency planning assumptions
Embedded	£20,908m		£243m	£1,594m
Measured – RP2 generated	£6,451m		£68m	£273m
Measured – carryover	£0		£191m	£362m
Total	£27,359m*	£471m	£502m	£2,229m

Figure 1: Overall milestone performance and five-year trajectory (pre-SR21 and TSC)

The body of this report summarises the primary evidence that demonstrates the successful delivery of the 2020-22 efficiency milestone and the trajectory towards the five-year target. We are reporting against the original KPI target despite ministerial approval of the reduction, but the year 2 milestone is not materially affected by the adjustment. This report also summarises key factors such as change control, central risk reserve (CRR) and inflation, which informs the Office of Rail and Roads' (ORR) assessment of our performance. A high-level overview of our performance is shown in Fig.2.



*This includes funding of £146m additional to the £27,358m that was set out in the RIS, for acceleration of the A66 as part of Project Speed. The additional funding does not have an efficiency value.

Efficiency performance summary - 2020-22

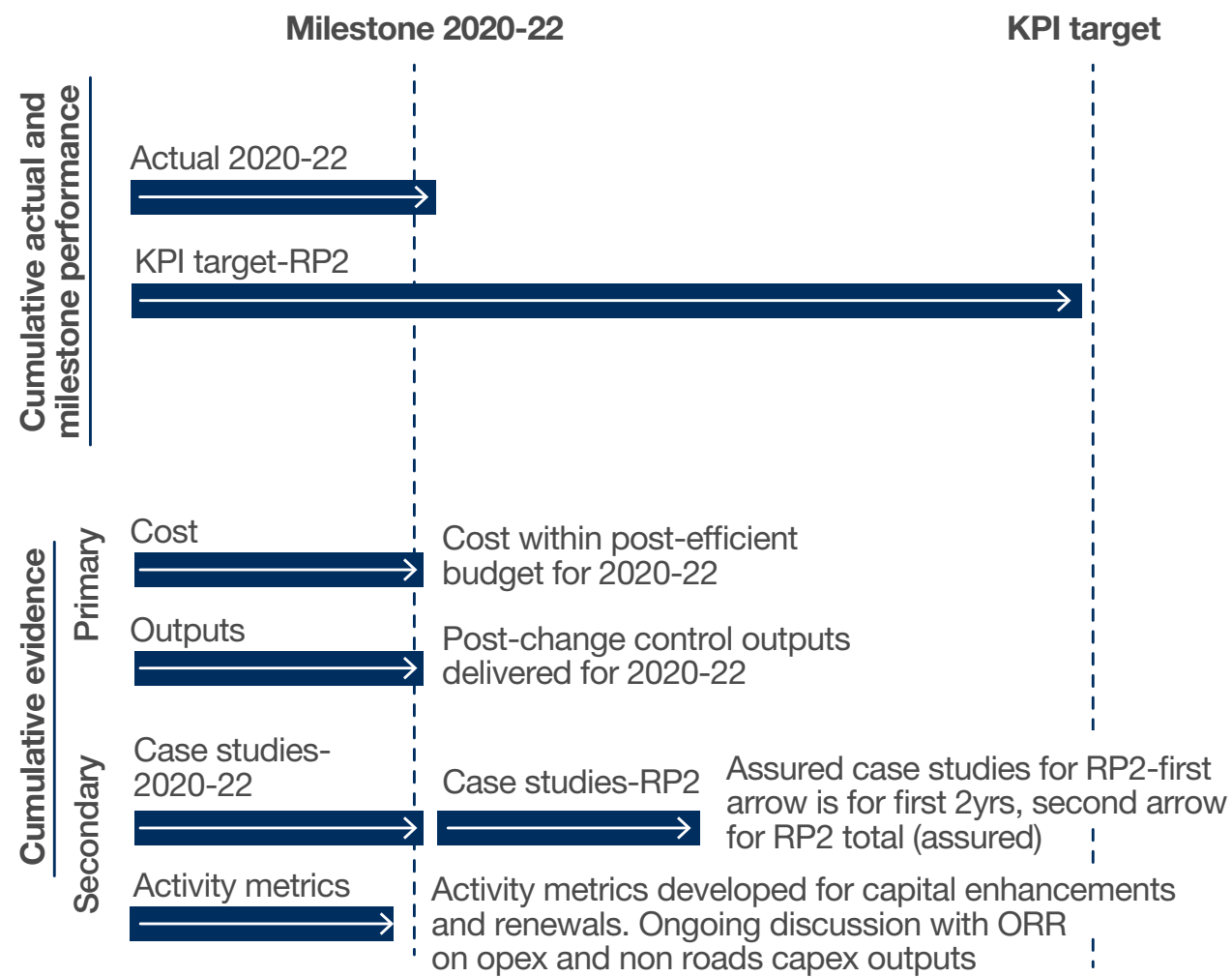
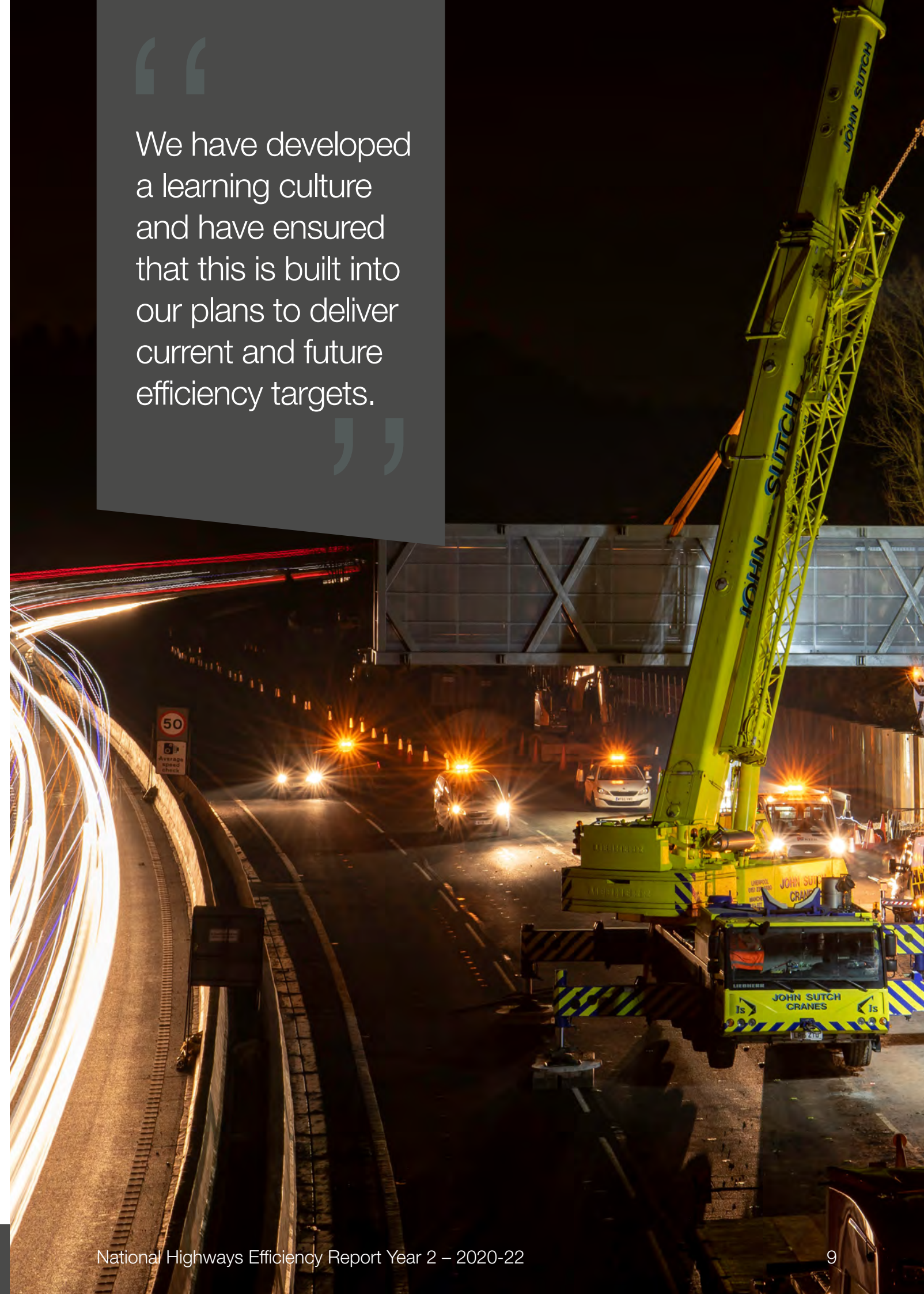


Figure 2: Summary performance for 2020-22

Secondary evidence is covered in appendices, alongside other supplementary information relevant to support the primary evidence. Secondary evidence includes case studies which explain how we are delivering innovation and improvements, showing a cumulative assured value meeting the primary efficiency value. It also includes activity metric analysis, which provide an insight into key unit cost movements and trajectory.

“ We have developed a learning culture and have ensured that this is built into our plans to deliver current and future efficiency targets. ”



Introduction

The challenge

Since our formation as a government-owned company in 2015 we have pushed to become a world-leading road operator and an efficient, modern strategic highways company. We manage, operate and maintain the 4,300 miles of England's SRN, a key national asset that connects the country and carries 34% of all road journeys and 68% of freight journeys in England.

We aim to ensure that these journeys are safe and smooth. We play a critical role in supporting national productivity, competitiveness and reliable connections between businesses, labour markets and international gateways. As a publicly-owned company we have a responsibility to provide value for money for customers and taxpayers. Alongside safety and customer service, our core driver is efficient delivery.

We deliver new road capacity whilst maintaining the network and ensuring full service provision, with an ongoing commitment to giving tax payers value for money. Our funding means that we can deliver this through strategic investment that drives continuous improvements and innovation.

The coming years will see changes in transportation, road travel and personal and commercial mobility. We are already planning for future road periods where technology, whole life cost (WLC) investment, carbon reduction and a long-term view of efficiency will be more important than ever.

Following the success in RP1 where we exceeded the efficiency target of £1.2 billion, and the increase to our funding from RIS1 (£15.2 billion) to RIS2 (£27.4 billion), the government increased our efficiency target for RP2 to £2.23 billion. In the year we agreed to a £3.5 billion funding reduction which will lead to a revised efficiency target of £2.11 billion. This is further explained in *Section 3 – Change control*.

RP2 efficiency categories

In RP1 we measured efficiency against capital enhancements, covering large individual schemes which upgrade the SRN. This included schemes such as network widening, bypass and junction improvements. Alongside this we measured efficiency against capital renewals which are smaller schemes needed to keep our roads and infrastructure in good condition.

In RP2 we must continue to deliver efficiency against these, but also against an extended scope including;

- Opex, which covers our operations, maintenance and business costs, such as our control centres and provision of traffic officers.
- Non-roads capex which includes investment in new vehicles, IT projects and buildings.

The principles of how efficiency is defined and evidenced was published in the *Efficiency and Inflation Monitoring Manual (EIMM)*. These principles were agreed with the Department for Transport (DfT) and the ORR, which acts as the independent monitor and undertakes assurance of our performance. In the EIMM we committed to publish an annual report which sets out progress and evidence in meeting the agreed annual milestones and trajectory towards achieving the five-year KPI target. This is the second such report for RP2 and covers performance for 2020-22.

The RP2 target is broken down into two main categories:

Embedded efficiency – activities with a defined scope or output, which are funded with post-efficient costs. To agree post-efficient costs, we challenged historic costs and delivery approaches and then built efficiency expectations into the SBP. Further detail on this can be found in the EIMM.

Measured efficiency – initiatives that benefit later road periods or reduce risk within RP2 but do not reduce funding for RP2. This includes WLC efficiency and carryover from RP1. It also ensures that efficiencies generated at the design stage for early stage schemes are identified and recorded.



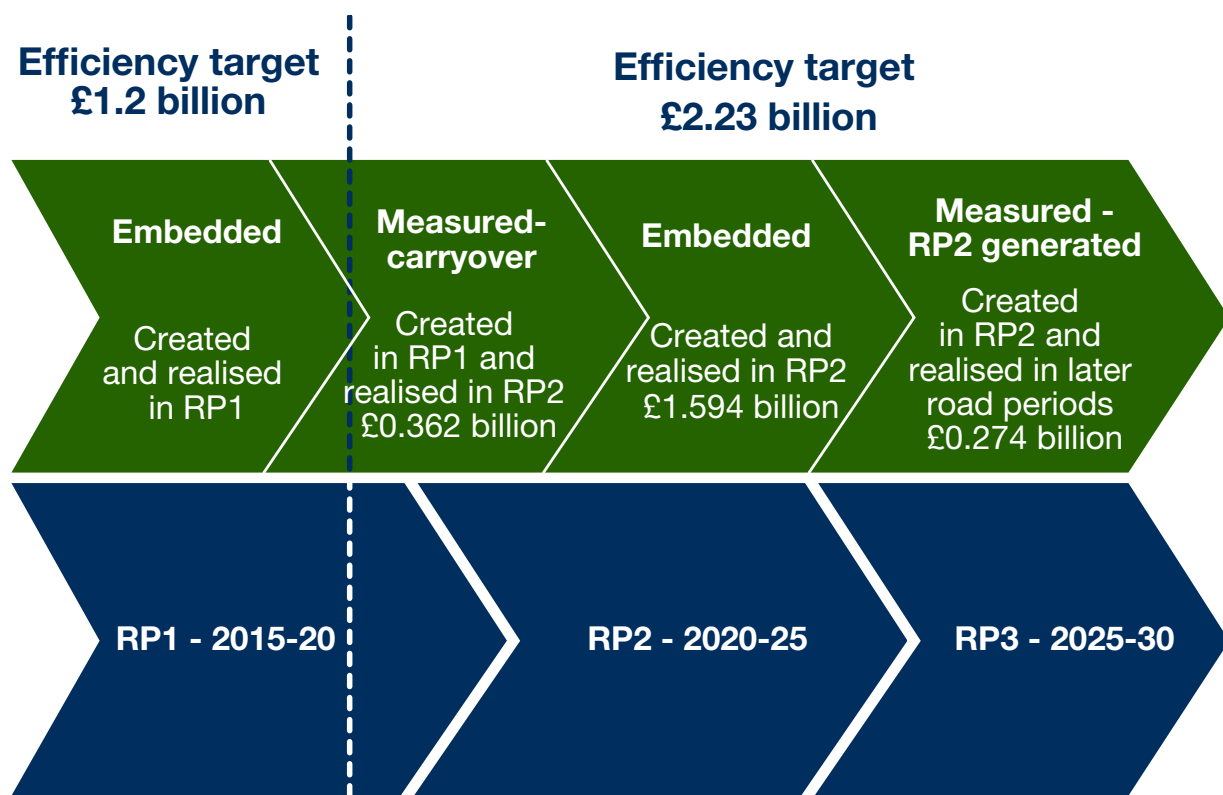


Figure 3: RP1 and RP2 Efficiency target breakdown

Efficiency evidence

For embedded efficiency the evidence required is a combination of;

Primary evidence – delivery of agreed outputs/outcomes within the post-efficient funding envelope (moderated by the impact of agreed changes) and;

Secondary evidence – a combination of case studies, explaining the approach to delivering efficiency, and quantitative evidence using activity metrics. Secondary evidence will cover the key elements but not the total value of efficiency.

For measured efficiency the primary evidence is achieved through the production of assured case studies. There is no requirement for secondary evidence under measured efficiency.

The breakdown of efficiency evidence is presented in Fig.4:

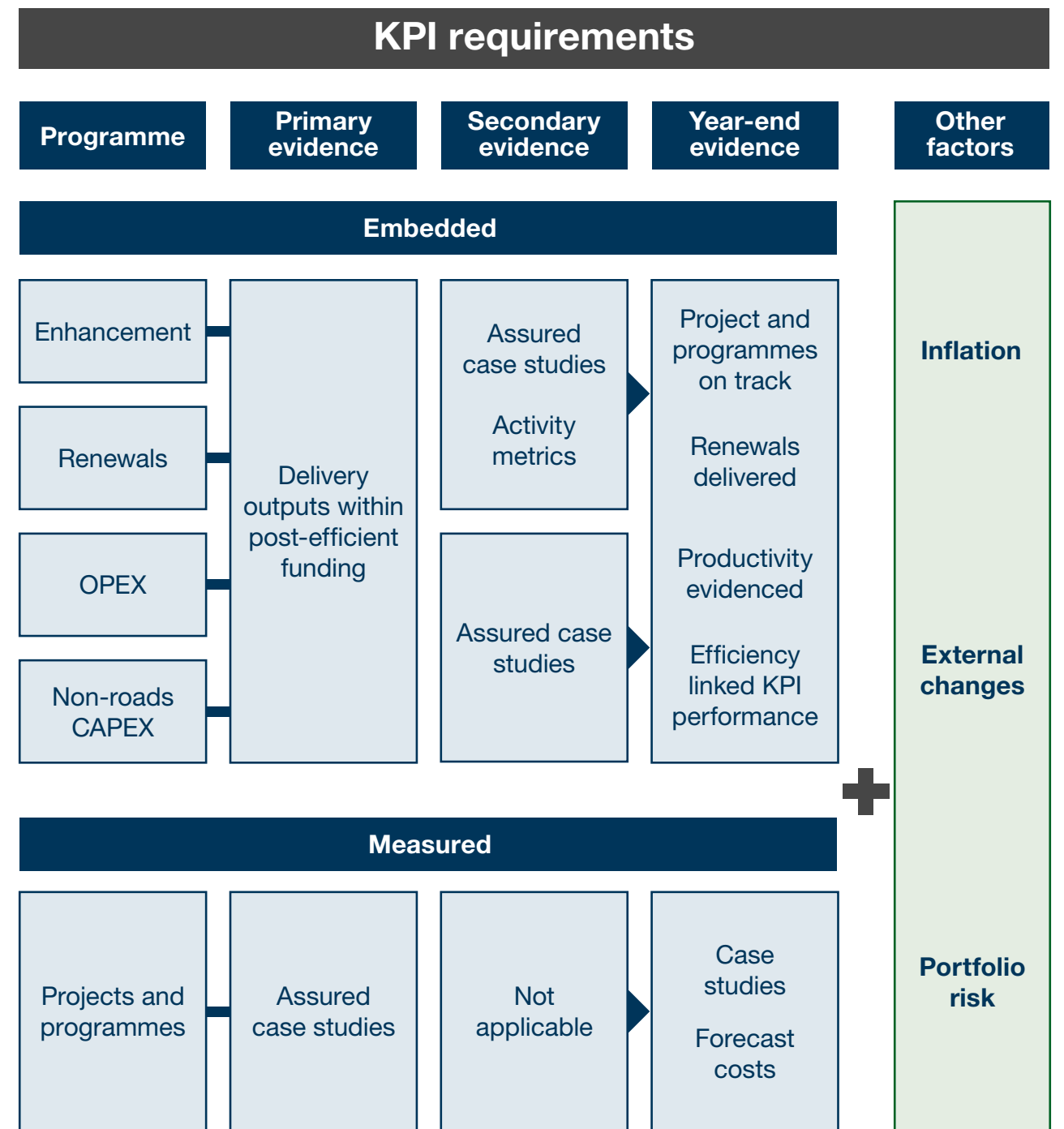


Figure 4: Efficiency KPI requirements

How we will deliver the KPI

We have developed our plan which sets out the end-to-end approach for efficiency creation, governance, assurance and controls. It is based on the creation of an integrated suite of change programmes. These have been designed to generate a pipeline of efficiency ideas that collectively exceed the KPI target. Having a pipeline that exceeds the KPI increases confidence in achieving the target. The pipeline has four enabling themes:

- Procurement – improvements developed through the Routes to Market programme. These include the use of Regional Delivery Partnerships (RDP) (six-year design and build contracts aligning all parties’ interests) and Alliancing models for use predominantly on the Smart Motorways Programme (SMP).
- Effective operations – improving our operational performance, including the use of renewals efficiency levers which are initiatives that are repeatable across schemes, and the Operational Excellence (OE) programme.
- Improved capability – including our people, senior leadership team, supply chain and our internal plan for RP2, *National Highways Transformation Programme* (NHTP).
- Effective processes – improving the processes we use, including the use of Lean techniques, the introduction of the SMP rapid engineering model and the Major Projects transformation programme.

The cross-company improvements under each of the enabling themes are summarised in Fig.5. We regularly review the value of these by working collaboratively across the business. The governance for this programme has been developed and is now controlled through our Transformation Programme.

We operate in a dynamic environment which must reflect changes in stakeholder expectations. This means that the above core levers will increasingly be supplemented by other strategies and changes which are being developed in RP2 and will inform RP3 planning, which has already started.

	Major Projects	Commercial & Procurement	Operations	Safety, Engineering & Standards	Corporate
Procurement		AD contract model roll-out Category management Strategic procurement Alliance and RDP models		Manual of Contract Documents for Highway Works (MCHW) review	
Effective Operations	Transformation programme	3yr rolling improvement programme Integrated estimating system procurement	Operations Excellence programme	Standards review Lean programme	Commercialising the business Data management strategy Benchmarking programme Make not buy policy
Effective Processes	Capital programme management development PPM upskilling System changes to cost, risk & schedule management	Specialist skill development IT, commercial modelling, utility engagement, improvement mgmt., dispute resolution	Asset management strategy	Innovation and modernisation research programme Concrete barrier cost reduction programme	People engagement Specialist skills development People upskilling programme HE 2025/2050 programmes
Improved Capability	Transformation programme	Contract control framework CIPS Advanced Award	Delivering excellence programme	Departures review Fit for the future programme	Quality management system development (Way we work)

Figure 5: Cross-company improvements under each enabling theme

“ We have developed our plan which sets out the end-to-end approach for efficiency creation, governance, assurance, and controls ”



Change control

In preparing a five-year delivery programme it is normal for there to be some portfolio re-balancing. This is governed by a formal process of change control where significant funding impacts, and any resulting change to the efficiency target, are agreed with DfT.

In 2021-22 several of the externally generated issues already identified in 2020-21 started to materialise:

- Delays in completing the statutory planning – development consent order process and legal intervention for a number of major enhancement schemes (including Lower Thames Crossing and A303 Stonehenge) led to schedule movement.
- The Transport Select Committee (TSC) recommended a pause on starting new scheme construction for the smart motorway ALR programme.
- Two schemes were delivered in 2021-22 ahead of their 2022-23 commitment:
 - A19 Downhill Lane junction improvement
 - A47 Guyhirn junction

During the year we worked closely with the DfT and agreed an additional stretch target of £110 million to be realised in RP2, of which £65 million is opex and £45 million is non-roads capex.

The impact of schedule changes and the stretch target has resulted in an agreed funding reduction of £3.5 billion over RP2, mostly relating to the period 2022-25. This is alongside the TSC report examining the safety of smart motorway ALR, our response to which includes the launch of a programme to install more than 150 additional emergency areas on existing stretches of ALR at a cost of £390 million. This has been reviewed through the formal change control process and has led to a revision to the efficiency target, which will now be £2.11 billion as shown in Fig.6. This has been agreed by the DfT and advised upon by the ORR.

	Efficiency target (original)	SR21 Impact	Eff. target post SR21	TSC Impact	Eff. target post TSC
Embedded					
Embedded - Enhancements	£559m	-£109m	£450m	-£33m	£417m
Embedded - Renewals	£592m	£0m	£592m	£0m	£592m
Embedded - Non roads CAPEX	£146m	£45m	£191m	£0m	£191m
Embedded - OPEX	£297m	£65m	£362m	£0m	£362m
Subtotal	£1,594m	£1m	£1,595m	-£33m	£1,562m
Measured					
RP2 Generated	£273m	-£94m	£179m	£8m	£187m
Carry Over	£362m	£0m	£362m	£0m	£362m
Subtotal	£635m	-£94m	£541m	£8m	£549m
Total	£2,229m	-£93m	£2,136m	-£25m	£2,111m

Figure 6: Post-SR21 & TSC expected change to efficiency target – expenditure specific

Our proposed revised annual milestone planning assumption is as follows;

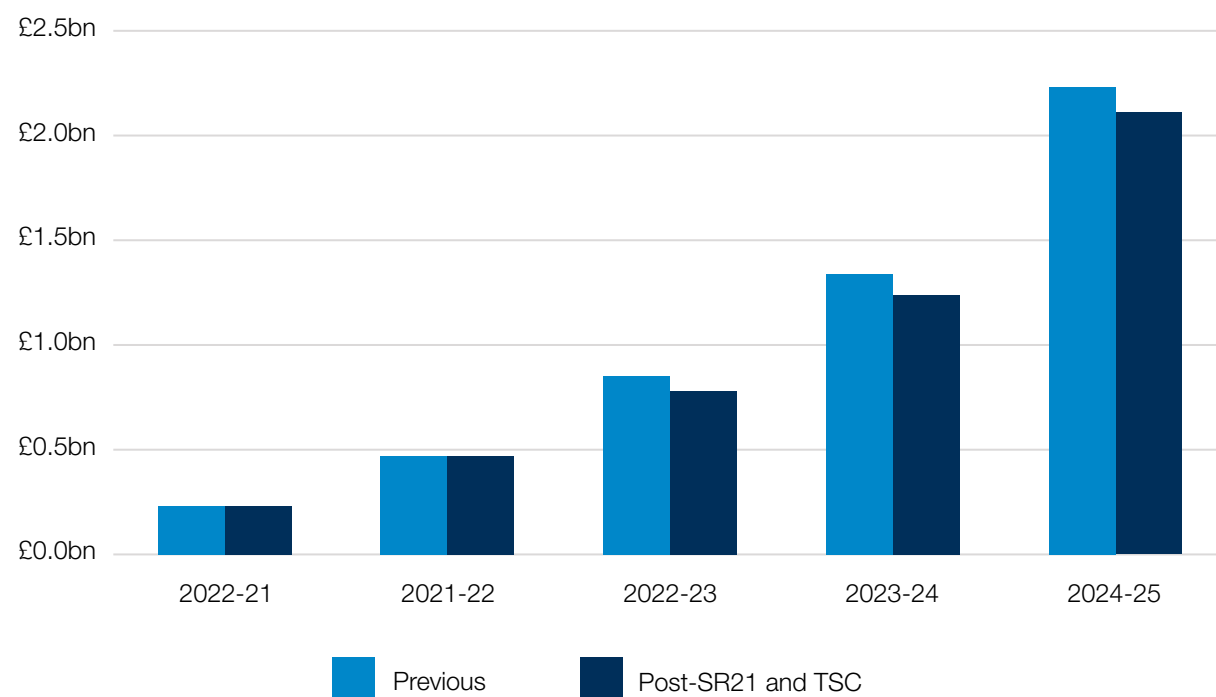


Figure 7: Proposed revised annual milestone post-SR21 and TSC



Central risk reserve

Overview

The cost of delivering the portfolio was based on scheme estimates produced in 2018 when the scope had not reached the required level of maturity. RP2 post-efficient funding agreed in 2020 included a CRR of £1.716 billion to cover:

- The additional cost associated with greater clarity of the scope required.
- Risk within our control which was not included in scheme baseline funding.

In line with the EIMM unused CRR at the end of the road period can be claimed as an efficiency, which is designed to incentivise effective risk mitigation. There is a formal governance and control process in place, based on three stages:

- Project managers identify and evaluate the issues leading to being unable to deliver within their post efficient budget and the reasons why the risk cannot be mitigated effectively. This is normally to recognise scope which was not mature when the initial post efficient funding baseline was set.
- We internally review the scheme case, make provision for CRR draw down where appropriate and assess the potential future portfolio requirement for drawdown.
- Executive Directors review the case and decide whether to approve CRR drawdown.

The balance of CRR available may reduce or increase dependent on approved changes to projects' RP2 cost forecast. Drawdown approval increases the post-efficient baseline of relevant schemes and reduces the CRR balance available to manage future portfolio risk. Conversely, baseline funding of individual schemes that are forecasting an underspend may be reduced in order to top up CRR and increase the balance available for the remainder of RP2.

Current position

The value of the CRR has been reduced to £1.365 billion as part of the SR21 funding settlement described under *Section 3 – Change control*.

As of March 2022, £1.071 billion of the remaining CRR funding of £1.365 billion has been allocated as follows:

- Approved and drawn down (post-formal governance) £352 million
- Provisioned but draw down not yet reviewed and approved (pre-formal governance) £719 million
- Available for potential future draw down £294 million

The value of CRR pre-SR21 and TSC is £1.716 billion.

This position is consistent with the drawdown planning assumptions set at the beginning of the road period post-change control. We anticipated that there would be a significant draw-down before efficiency generating changes were introduced, enabling CRR to be topped up. The impact of CRR continues to be assessed as RP2 progresses.

There have been taxation changes and other issues which were not visible when the value of CRR funding was agreed. This includes the National Insurance surcharge and red diesel taxation which take effect from 2022-23. These will increase our cost base and put further pressure on CRR.

We are evaluating the impact of such changes and will discuss with the ORR how this will be treated when assessing our performance against the efficiency target.



Inflation

Inflation is part of the overall funding risk that we carry. This means that there is an absorbed upward cost pressure where actual is greater than funded, and a downward pressure where actual is less than funded. We have a commitment to evaluate the impact of inflation, both annually and cumulatively, and demonstrate that we are taking reasonable steps within our control to minimise the impact. We discuss with the ORR the level of impact that this has on our reported performance.

There is no single publicly available model that enables inflation to be forecast and evaluated for the type of infrastructure work that we undertake. We have therefore developed and agreed with the ORR a method of calculation that uses a bespoke model, sourced by the Building Cost Information Service (BCIS), which is part of the Royal Institution of Chartered Surveyors (RICS). This draws upon several data and information sources.

This model was used to agree with the DfT, ORR and Treasury a funded value of inflation for RP2 based on the following:

	2020-21	2021-22	2022-23	2023-24	2024-25
Capital works	3.41%	3.75%	4.57%	4.25%	3.53%
Operating costs inc. electricity	2.00%	2.00%	2.00%	2.00%	2.00%
Maintenance contracts	2.76%	2.76%	2.76%	2.76%	2.76%

Figure 8: Agreed funded value of inflation

The latest data available indicates that actual inflation for 2020-21 was slightly below the value funded, but this trend has reversed in 2021-22 leading to a broadly cost-neutral position for the cumulative period.

In the current economic climate, the difficulty of forecasting future inflation has been exacerbated by the uncertainty created by the Ukraine conflict and we are in discussion with the ORR over the treatment of inflation funding surplus or deficit on efficiency performance.

In RP1 actual inflation created a small funding surplus at the end of the road period which the ORR considered in their performance assessment. We have agreed with the ORR that the principles applied in RP2 will be consistent with RP1:

- The principle that inflation will be considered when assessing our efficiency performance applies whether inflation is lower than or higher than forecast.
- The net difference will be calculated having considered the impact on our supply chain through commercial risk sharing models based on accepted good practice.
- The net difference will lead to either a commensurate increase in efficiency and/or outputs (surplus), or an acknowledgement of unfunded cost pressure (deficit).
- This will be monitored throughout RP2 but will not impact performance reported until the outturn is more certain.

Managing risk and opportunity

A key aspect of efficiency delivery is risk and opportunity management. We closely monitor potential and realised risks to ensure that effective plans are in place to minimise negative impact on performance. There is an equivalent process to ensure that opportunities maximise positive impact on our performance.

Through this process the following four risks have the greatest governance scrutiny:

- Further schedule movement for the capital enhancement portfolio – recognising the number of schemes requiring future external Development Consent Order (DCO) approval to proceed.
- Delivering capital enhancement outputs within post efficient funding – including the future potential draw down on the CRR.
- Unfunded additional cost outside of our control and not within the scope of CRR. These include the impact of the pandemic and taxation changes implemented by the Government since the start of RP2.
- Actual inflation exceeding the value included in post-efficient funding and the resultant impact on cost growth.

The greatest opportunity is our structured transformation programme, mainly within the Major Projects and Operations Directorates. This is designed to support efficiency delivery by creating process and operational change which reduces the cost of programme delivery and enables the CRR value to be topped up.



Embedded efficiency

When the budget of a project, programme or activity has already been reduced to account for an efficiency saving, we refer to this budget as post-efficient funding with an inbuilt 'embedded efficiency'. The programmes of work detailed within this section have post-efficient funding which is included in the efficiency target, and they have pre- and post-efficient baselines that we use to assess efficiency performance.

We achieved £242.9 million of embedded efficiency value for the period 2020-22 by delivering our agreed outputs within budget. In line with the EIMM, capital enhancement efficiency is reported when relevant schemes achieve open for traffic (OfT) status. There were seven capital enhancement schemes OfT in 2021-22 resulting in a cumulative ten schemes OfT to date.

The primary evidence for demonstrating embedded efficiency is the delivery of the output or outcomes for the baseline funding provided. For example;

- Capital enhancement programme – a scheme reaching Start of Works (SoW) or OfT status.
- Capital renewals programme – replacement of the target volumes of carriageway surface or other projects required to keep our network safe and serviceable.
- Business or operational costs – improving and maintaining business effectiveness, for now and in the future.

Both NHTP and our OE programme, discussed previously under section 2, are continuing successfully and have contributed to achieving embedded efficiency. We have progressed well against NHTP as outlined in our published *Delivery Plan Update 2021-2022* and expect to continue this trajectory. Initiatives under our OE programme include 'Intelligent Contracting', which improves how we work on our contracts with suppliers, and 'Fix Now', which provides our highways inspectors the ability to complete small jobs on the SRN.

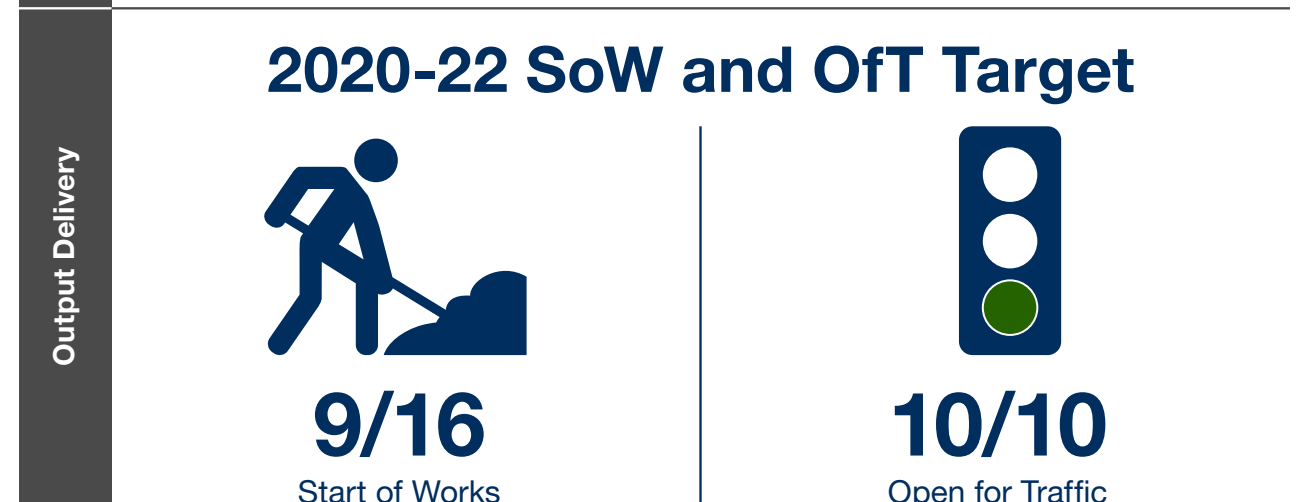
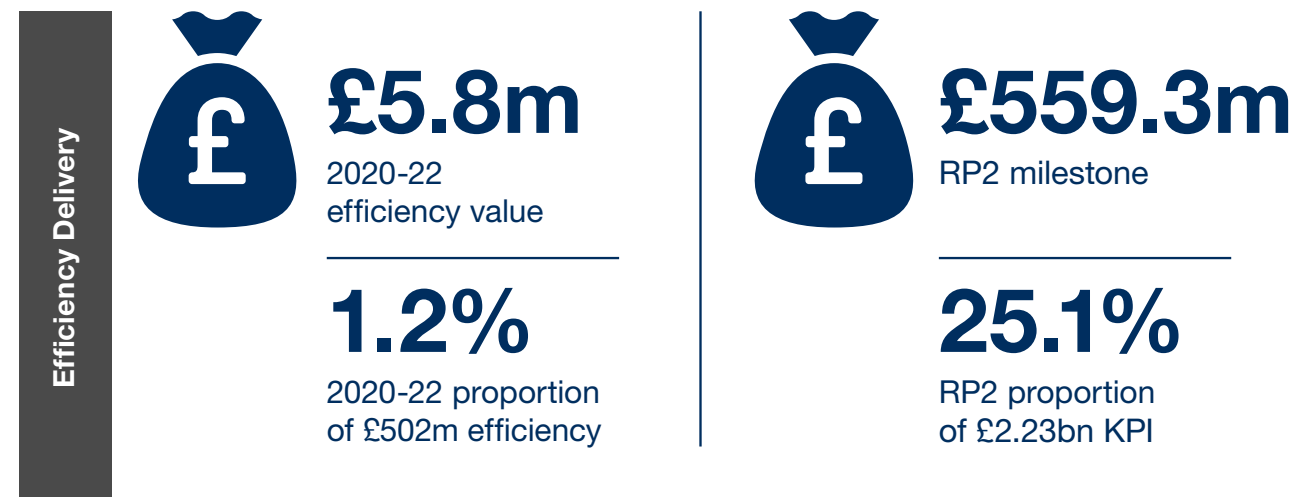


Capital enhancement programme

The capital enhancement programme is made up of large individual schemes which upgrade the SRN. They range from junction improvements through to the construction of new bypasses and expressways. They are designed to improve network resilience and journey time reliability, improve safety and facilitate future economic growth.

The capital enhancements programme consists of schemes within the Regional Investment Programme (RIP), SMP, Complex Investment Programme (CIP) and the RIS3 pipeline. Embedded efficiency covers schemes which are scheduled to progress to SoW or OfT within the second road period. It also covers the costs associated with delivery of enhancement schemes, such as the stocktake investigating the safety of smart motorways, and costs associated with HS2.

Outturn vs. baseline cost (primary evidence)



Seven schemes opened for traffic in 2021-22, bringing the RP2 total for the period 2020-22 to ten. Three of these schemes had an embedded efficiency milestone to achieve, and we have spent within the post-efficient funding to realise £5.8 million of efficiency value for the period 2020-22. For RP2 our target is to deliver £559 million of efficiency on capital enhancements. Our secondary evidence for capital enhancements, under appendix A, offers strong supporting evidence for this position covering >100% of primary efficiency.

Four schemes started in 2021-22, bringing the RP2 total for the period 2020-22 to nine. We have agreed changes to the start dates for the remaining seven schemes with the DfT. Two schemes were paused as part of the response to the TSC report and five schemes were deferred due to DCO / public inquiry delays.

Capital renewals

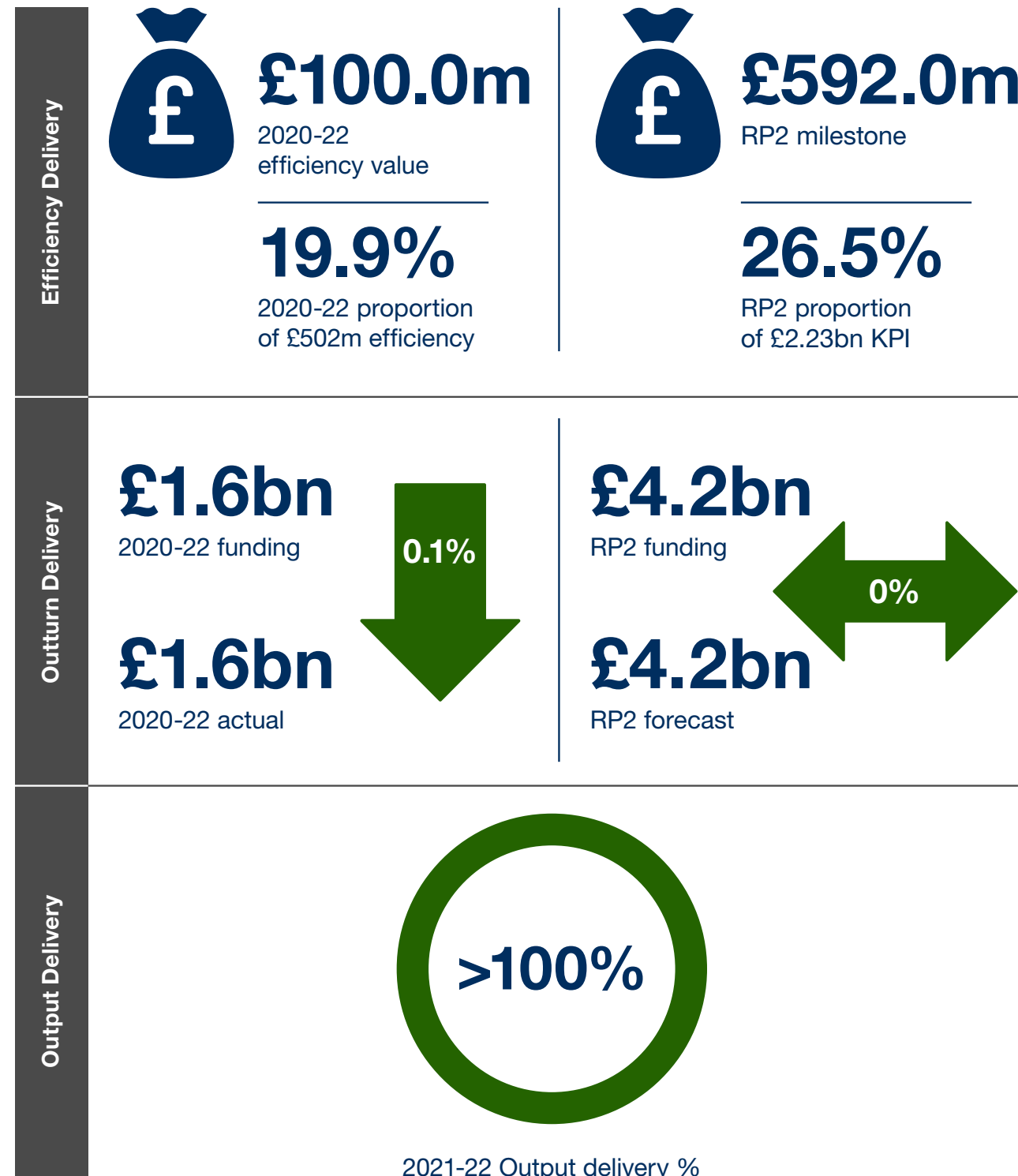
To keep traffic flowing safely and without delay on our roads we carry out around 2,000 capital renewal schemes each year as well as planned maintenance. This ensures that every part of the network is safe, serviceable, fulfils its intended purpose effectively and minimises the impact on the environment.

Our key deliverables under capital renewals are road resurfacing, the renewal of safety barriers and the renewal of significant structures, which range from bridges to viaducts. Additional assurance deliverables include white lining and the installation of boundary fencing. It is the key deliverables which contribute most to ensuring that we continue to keep traffic flowing safely. They also account for most of our renewals spend, so are therefore where most of the efficiency is delivered on capital renewals.

We are working to deliver strategically planned interventions at the right time, using risk-based forecasts and improving procurement, capability and processes. These actions help to ensure that we meet our commitment to deliver the agreed outputs within budget.



Outturn vs. baseline cost (Primary Evidence)



For the period 2020-22 our spending on capital renewals was lower than the post-efficient funding of £1.583 billion. As the efficiency value is built-in to the post-efficient funding, by meeting the agreed funding an efficiency is realised (£100.0m). This was achieved against a backdrop of current and emerging threats, such as COVID-19 and increasing inflation. Our secondary evidence for capital renewals, under appendix B, offers strong supporting evidence for this position covering >100% of primary efficiency.

Outputs are split into key measures, as described in our *Delivery plan*, and assurance measures. Key measures are those which constitute the greatest proportion of our renewals spend and are therefore expected to contribute most to efficiency. They are supplemented by assurance measures. Both types are shown in Fig.9 below, outlining our actual outputs cumulatively achieved during the period 2020-22.

% Actual delivery vs. delivery plan targets (2020-22)

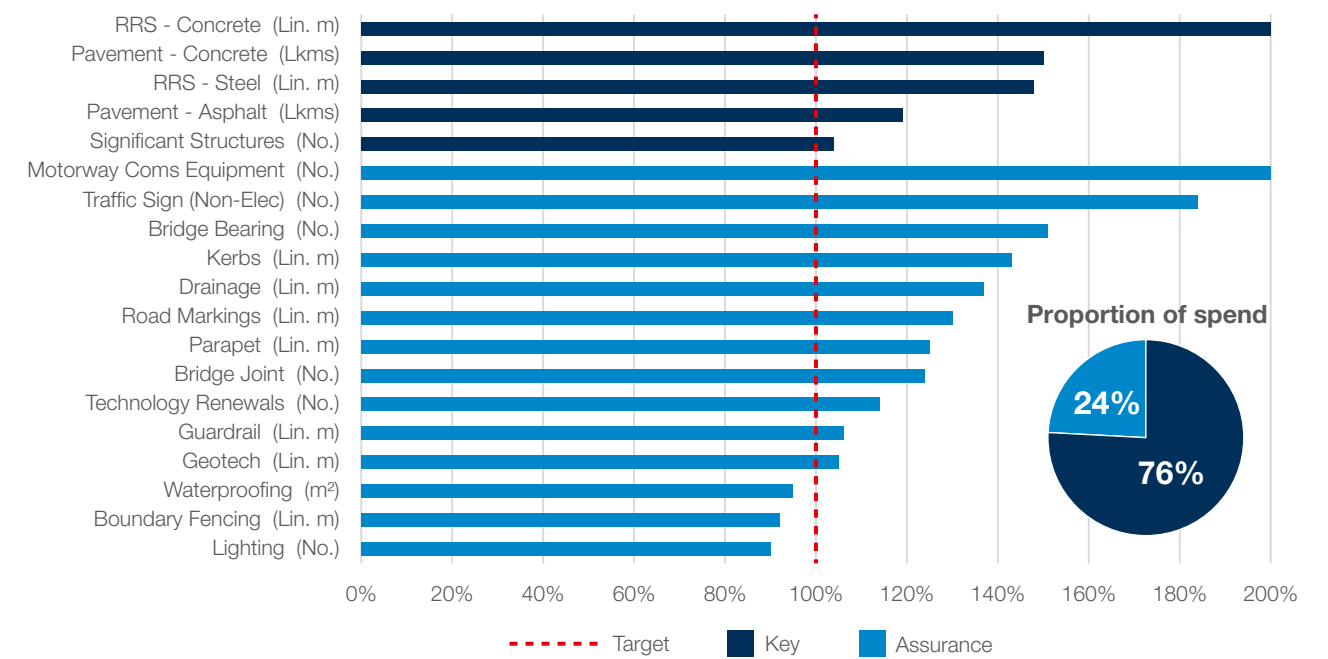


Figure 9: Asset renewal deliverables for 2020-22

Continuing from 2020-21, in 2021-22 we have again exceeded all five key measures including asphalt and concrete pavement, and steel and concrete road restraint systems (RRS). The cumulative 2020-22 position reflects this. Key asset classes account for the majority (76%) of our capital renewals spend. Exceeding the target outputs for key asset classes therefore offers good supporting evidence for achievement of the capital renewals 2020-22 efficiency milestone.

Three of the 14 assurance measures did not meet their delivery targets during the period 2020-22. The reasons for this are known and include delays transitioning to new contract types, and generally there is a corresponding reduction in spend against these asset classes. These three measures remain of low concern as we have exceeded the target on all of the other asset classes whilst remaining within the post-efficient funding, plus they account for a low proportion of spend, but we continue to monitor them.

Operational, business and maintenance expenditure (opex) and non-roads capital expenditure (capex)

Opex costs are incurred through delivery of our operations and maintenance activity. They include the cost of our workforce, including the provision of our traffic officers who patrol the network managing incidents safely and quickly, our control centres which undertake real-time traffic management across the country, our information systems which provide customers with traffic data and alternative routes and our weather stations and winter fleet which enable safe journeys in adverse weather.

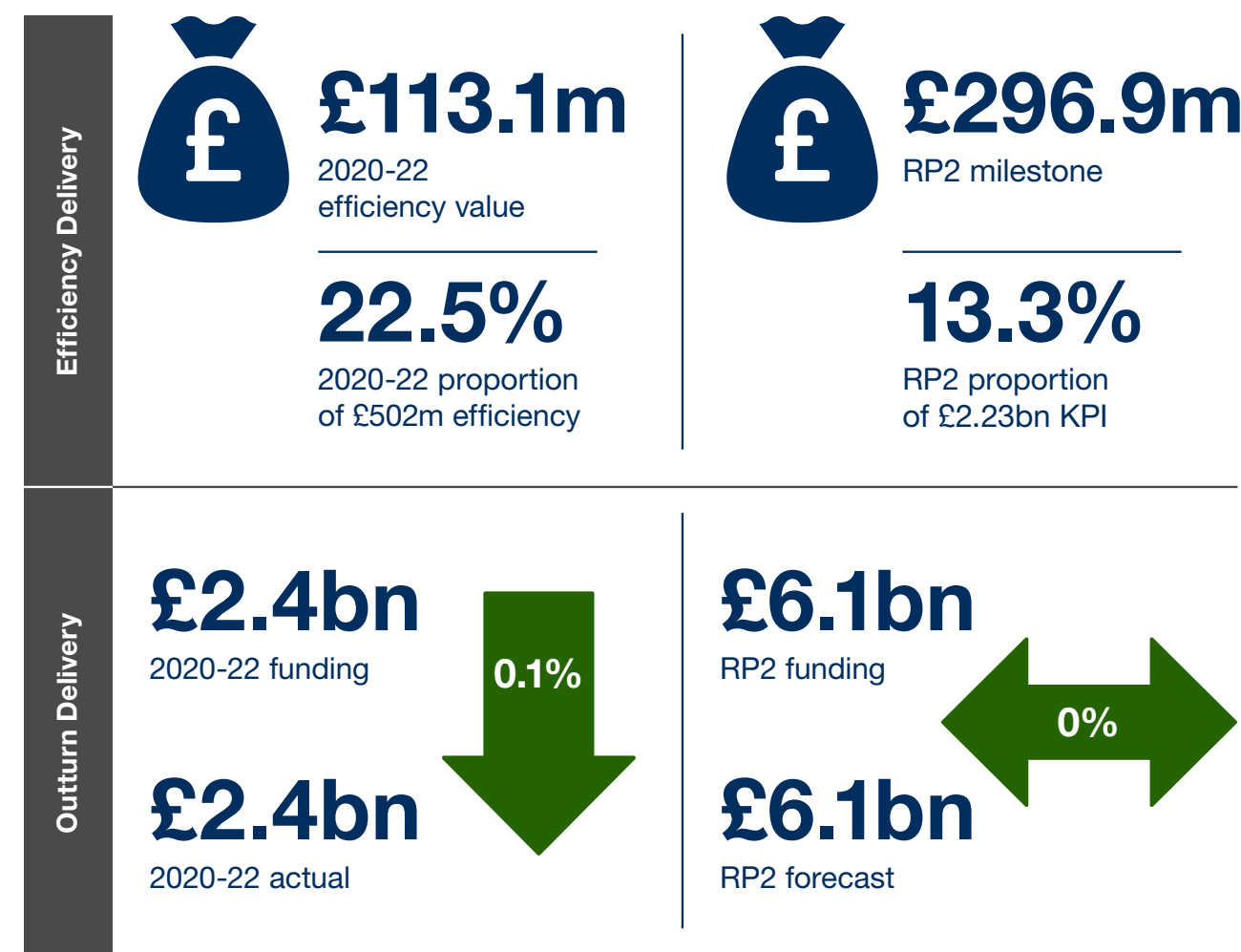
It also includes outsourced routine and non-routine maintenance work to support and maintain our network assets, such as bridges, footpaths, embankments and safety barriers, helping reduce the need for major interventions and potentially extending the life of these assets. Routine maintenance includes safety barrier maintenance, grass cutting and emptying gullies. Non-routine maintenance refers to any unexpected work, such as emergency repairs from spillages or road traffic collisions.

In addition, existing private finance initiative (PFI) contracts includes efficiencies which have been built into them through the funding model underlying the contract. Over RP2 there may be occasional opportunities to revisit these. Where such opportunities exist, such as refinancing, we take full advantage to ensure value for money and develop an efficiency case as evidence.

Non-roads capex includes all work of a capital nature not relating directly to extending and repairing the road network, such as spend on vehicles, offices and IT.

In RP2 both opex and non-roads capex has post-efficient funding. In business planning, we set out the high levels of customer service and capabilities we intend to provide. Achieving, developing and sustaining these business functions within the funding provided is the primary evidence of efficiency.

Operations, maintenance & business expenditure (opex) –
outturn vs. baseline cost



We have delivered £113.1 million of efficiency on opex and have continued to ensure that we are fully operational and have delivered our commitments within the agreed post-efficient funding. Strong delivery of outputs has meant that the anticipated underspend was not as large as planned, helping to improve the position for future years' delivery.

As the efficiency value is built-in to the post-efficient funding, by meeting the agreed funding the efficiency is realised. This was delivered against the opex directorates shown under Fig. 10. Our secondary evidence for opex, under appendix C, offers strong supporting evidence for this position covering 99% of primary efficiency.

There have been some benefits to the opex efficiency position during the road period to date. These include lower traffic volumes due to COVID-19, which initially resulted in savings through the shadow tolling mechanism on our PFI contracts. This has allowed for more money to be spent on maintaining our SRN. Other benefits to opex spend have included a slightly reduced headcount due to recruitment challenges.

Conversely, there have been unfunded costs associated with the Operation Brock contraflow system designed to keep traffic on the M20 and other roads in Kent moving when there is disruption to travel across the English Channel, which has challenged the opex budget due to being unfunded.

Previously mentioned headwinds such as the National Insurance surcharge are emerging alongside the upward-trajectory on inflation which will affect future PFI payments. As the recovery from COVID-19 continues traffic volumes are expected to recover to pre-pandemic levels seeing PFI costs increasing and therefore diminished opportunity to use these savings elsewhere. Naturally this means that there are challenges ahead for the opex efficiency target as we enter year 3 of the road period.

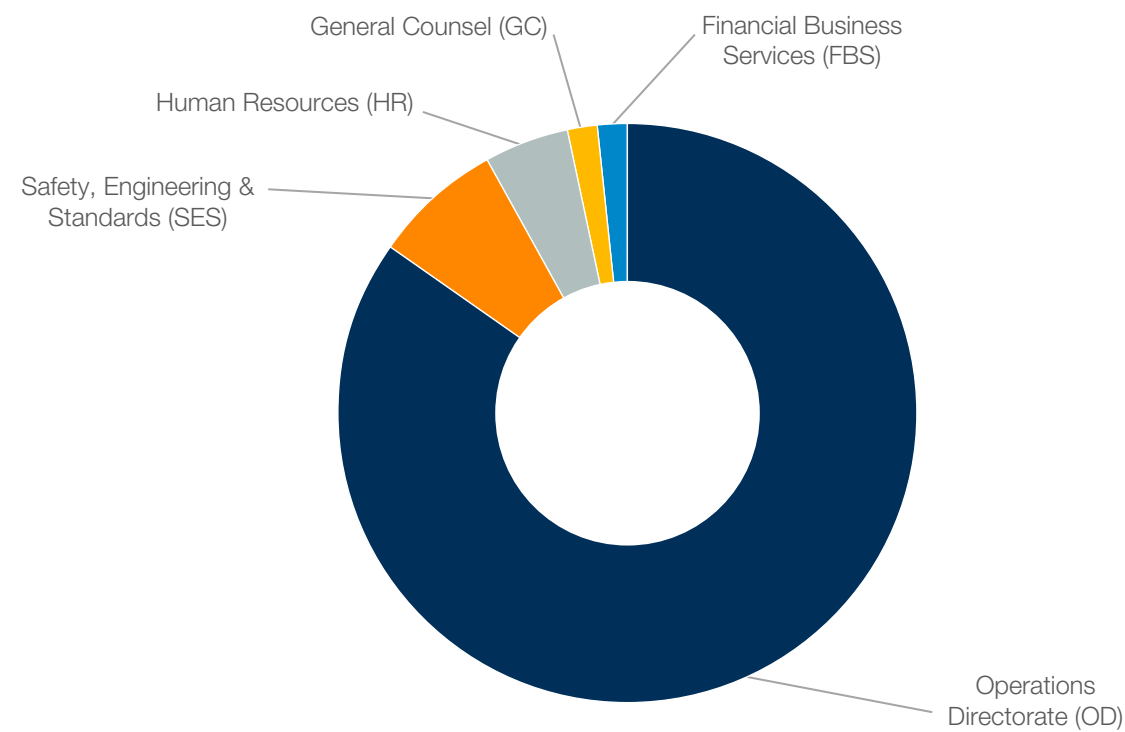


Figure 10: Proportional split by directorate of 2020-22 opex efficiency

In addition, we have shared an example of the outputs achieved within operations and maintenance in Fig. 11 below. We have shown these as an annual average for RP2 as compared to the final year of RP1, 2019-20. It is not practical to summarise all opex outputs and not all opex outputs are measurable, so this is presented as an illustrative account of how we have delivered our operational and maintenance commitments. It shows that on key deliverables we have improved performance within budget and therefore efficiently.

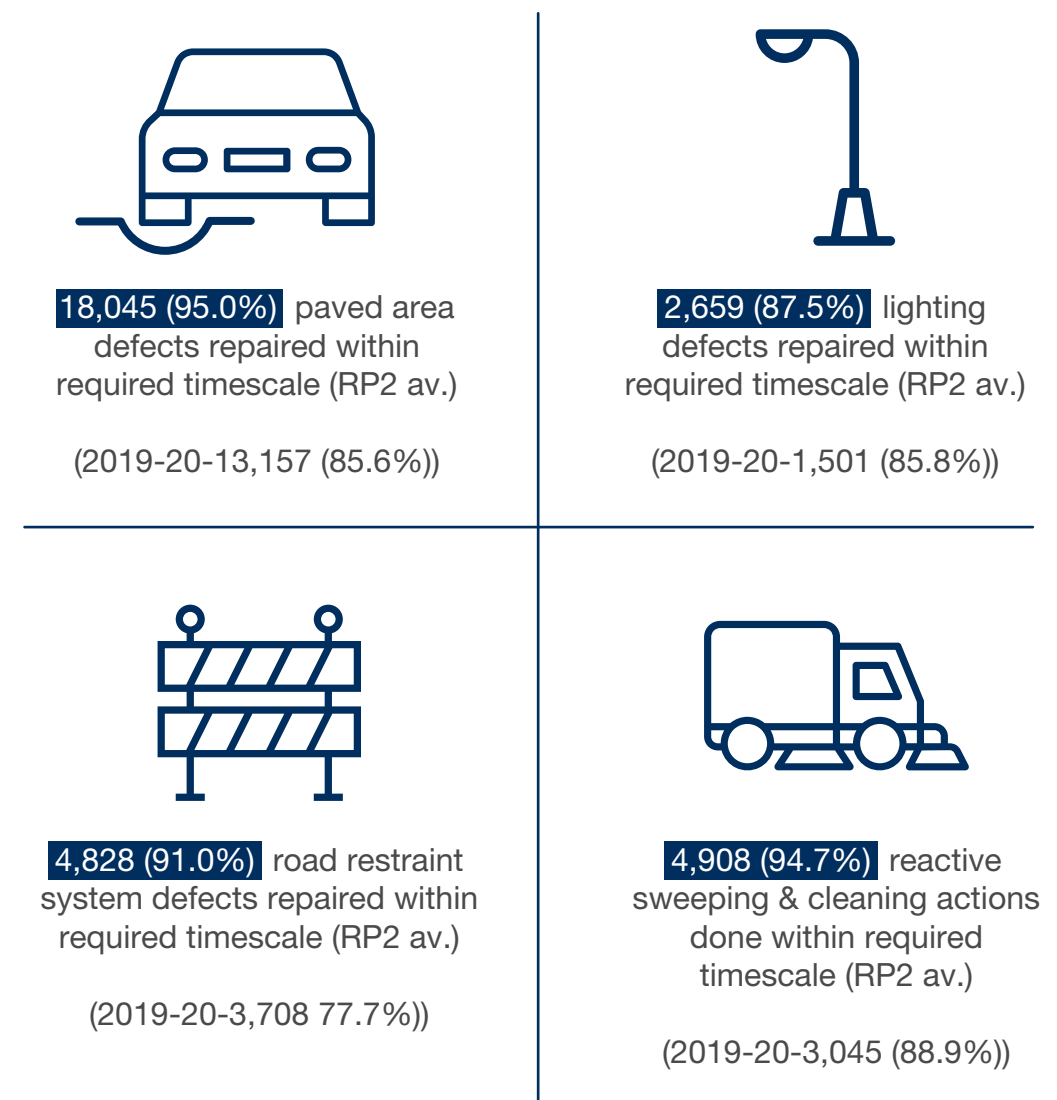
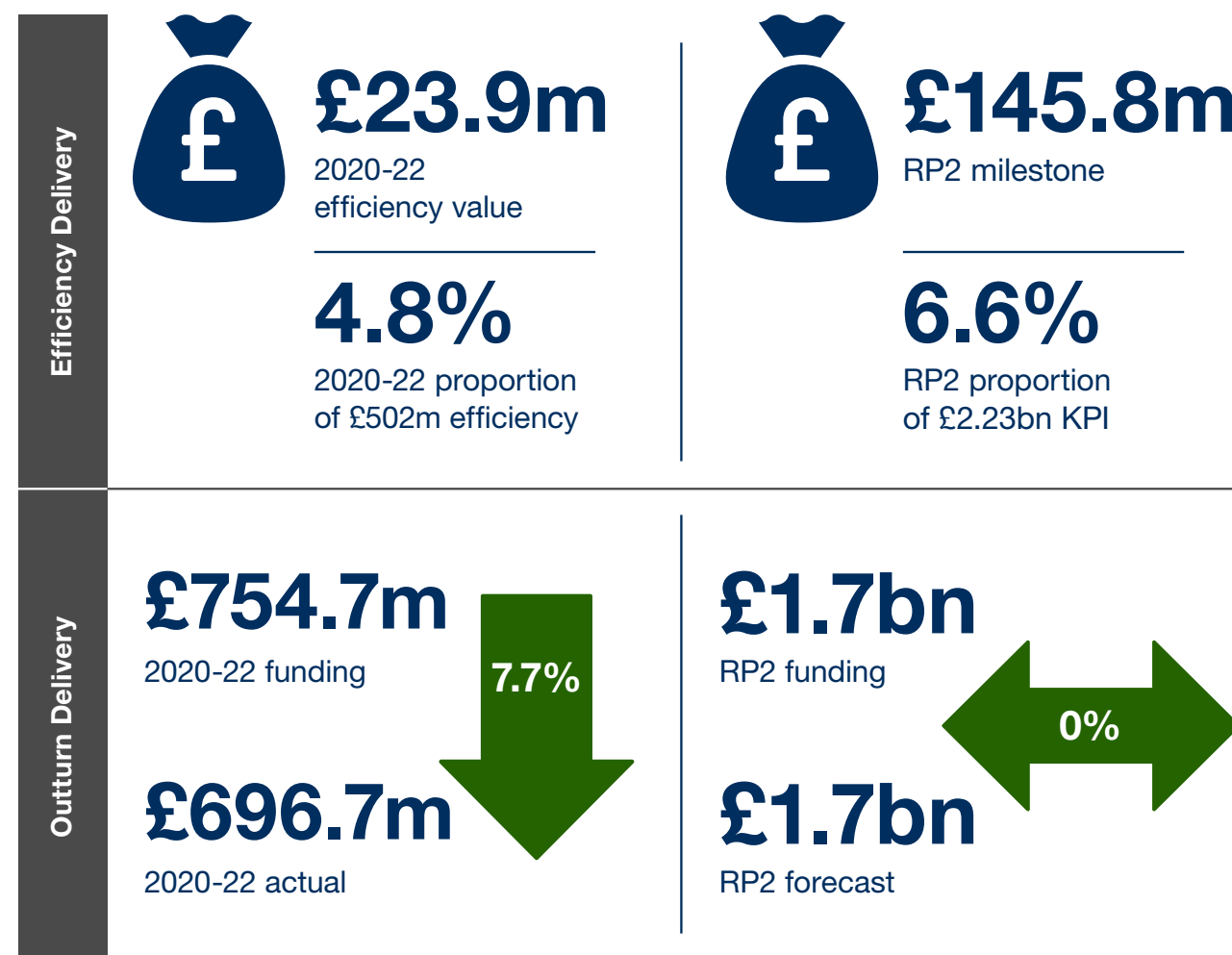


Figure 11: Illustrative opex operations and maintenance outputs

Non-roads capex – outturn vs. baseline cost



Around 50% of non-roads capex is capitalised salaries, with the remainder being capital schemes which do not fall under the enhancement or renewal programmes. This covers any capital spend ranging from IT systems and building leases to replacing our vehicle fleet.

We have delivered £23.9 million of efficiency on non-roads capex and have delivered our commitments within the agreed post-efficient funding. In reporting efficiency, we have considered schemes which have been re-programmed to be delivered later than anticipated. Our secondary evidence for non-roads capex, under appendix D, offers some supporting evidence for this position covering 50% of primary efficiency. All of the initiatives outlined in our secondary evidence is drawn from the OE programme.

It is not practical to summarise the planned and actual outputs of every directorate under non-roads capex. We are in dialogue with the ORR on the nature of these outputs and how these can be used to inform their assessment of our performance.

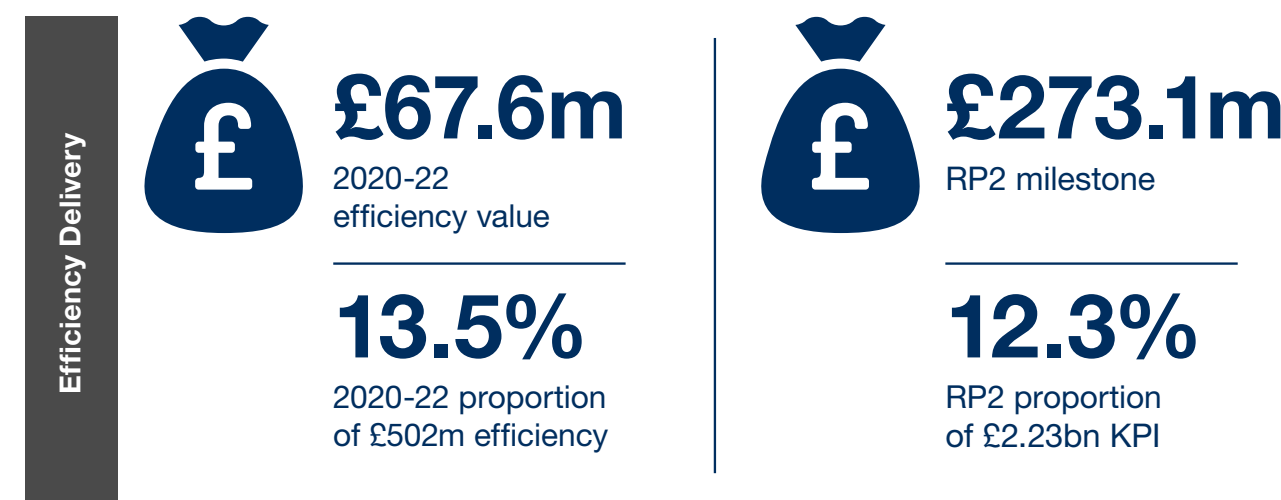
Measured efficiency

Measured efficiency is evidenced by efficiency registers and assured case studies. It has two categories:

RP2 generated efficiency – this does not reduce the funding required for RP2 but will generally benefit later road periods or reduce risk within RP2. This type of efficiency applies to areas which did not include an efficiency challenge in the SBP and were therefore left as pre-efficient costs. In practice this mainly applies to new RIS2 capital enhancement schemes that are at early stages of development, but also includes Designated Funds and the RIS3 development programmes. Other efficiencies generated in RP2 which have most of their effect outside of the road period may include WLC benefits or maturity improvements. We primarily evidence RP2 generated efficiency through efficiency registers. We will validate larger value efficiencies (over £1 million) by completing case studies to provide further detail on benefits and support knowledge sharing.

Carryover efficiency – this is efficiency which has been identified and secured in RP1 but is also realised in RP2. Carryover efficiency applies to efficiencies from all RIS1 projects and programmes with expenditure profiles which span the road periods. These have been captured, audited and reported using the RP1 detailed register approach and assurance process. These efficiencies have already influenced future expenditure but are distinct from RP2 embedded efficiencies and are included in the pre-efficient position. To determine the carryover value of RP1 efficiencies, we split the efficiency claims by road period using earned value principles.

RP2 generated efficiency



We have delivered £67.6 million of RP2 generated efficiency during 2020-22 and by the end of RP2 have a forecast efficiency value of £273 million.

RP2 generated efficiency primarily applies to six Tier 1 capital enhancement schemes that are in development. Tier 1 schemes are enhancement schemes that are above £500 million in estimated cost and are Nationally Significant Infrastructure Projects. They are subject to staged approvals by DfT, and we work closely with government in their development and delivery. The six schemes are as follows:

- A303 Amesbury to Berwick Down
- A417 Air Balloon
- A46 Newark Bypass
- A66 Northern Trans-Pennine
- Lower Thames Crossing
- M60/M62/M66 Simister Island Interchange

Also included are:

- Designated Funds
- RIS3 development programmes
- Other efficiencies generated in RP2 which have most of their effect outside of the road period
- Any new schemes added to RIS2 through the agreed change control process
- WLC or maturity improvements

Evidence

We provide evidence to achieve the 2020-22 efficiency value of £67.6 million through case studies for claims over £1 million, and small claims that are less than £1 million. The chart in Fig.12 provides the 2020-22 breakdown of RP2 generated efficiency delivered by programme and title.

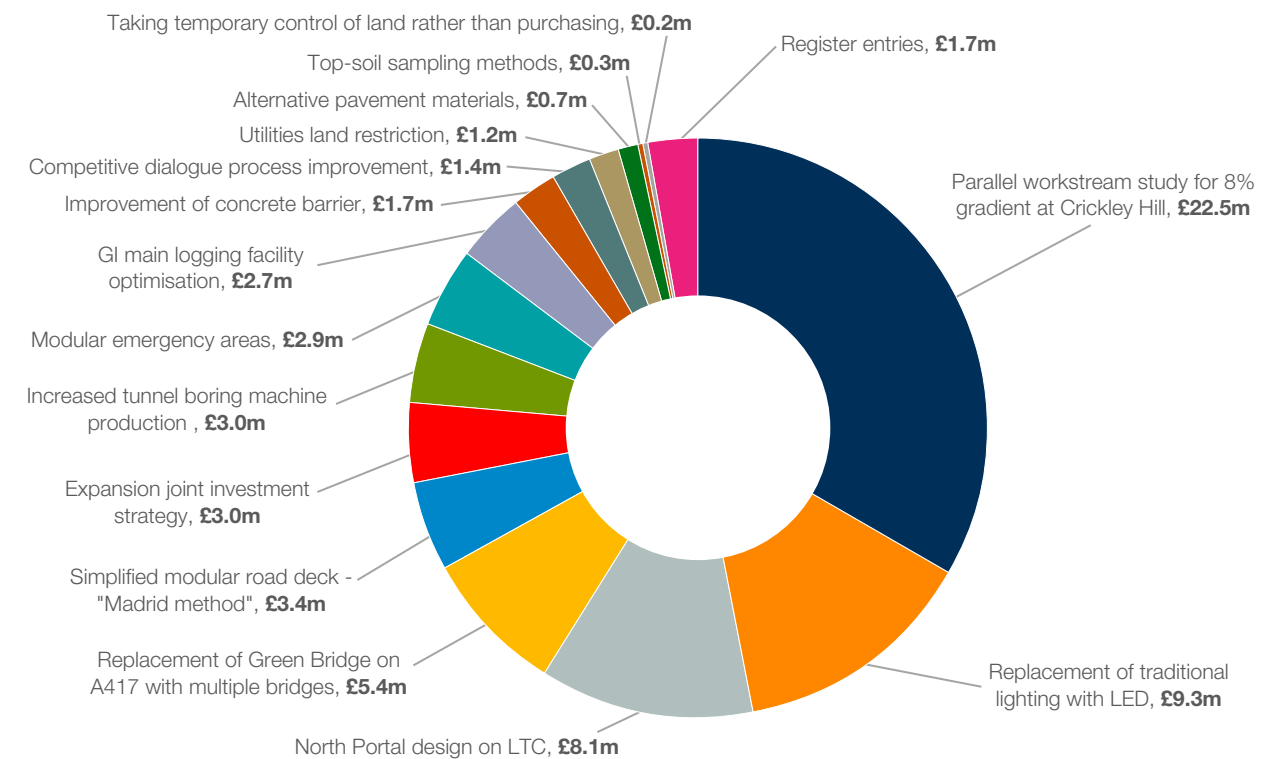


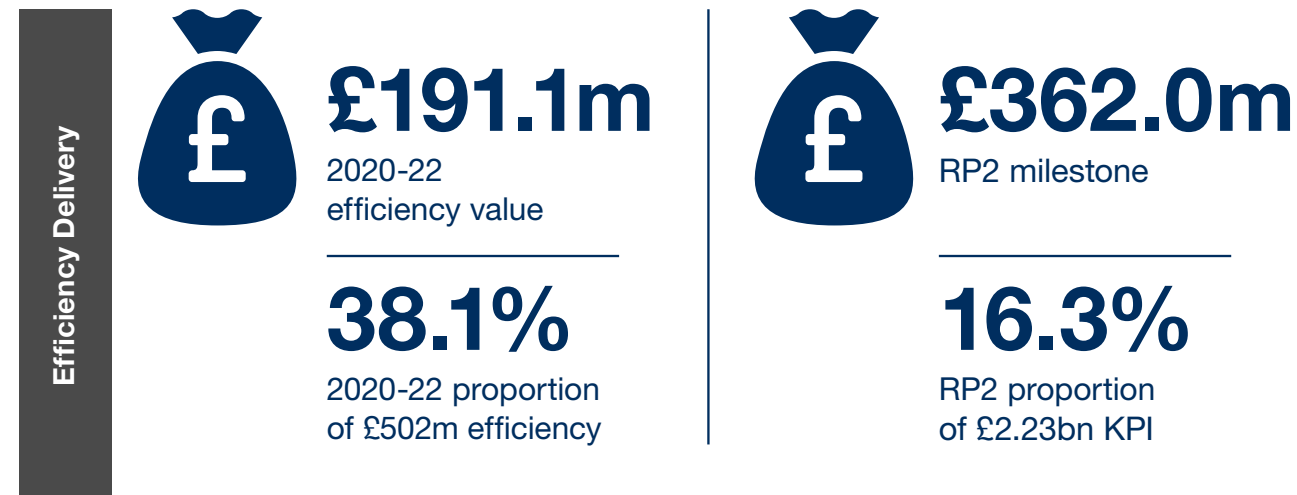
Figure 12: 2020-22 RP2 Generated primary evidence by case study title and value

Whole life cost (WLC) savings

We have a License requirement to adopt a WLC approach to managing our assets, which means considering the cost over the asset life to increase taxpayer value for money. Where appropriate, we evidence this by case studies we share with the ORR and report it against measured efficiency.

Of the £67.6 million RP2 generated efficiency, £14.8 million was delivered against WLC initiatives. Such initiatives include the replacement of traditional filament lighting with new LED lighting, which offers a longer lifespan, reduced maintenance, and lower energy costs over time.

Carryover efficiency



Carryover efficiency is efficiency created in RP1 that is realised in RP2. A schedule of relevant carryover projects and changes was agreed with the ORR at the end of RP1 to be reported in RP2.

The 2020-22 planning assumption was to report £170.7 million of carryover efficiency. We have exceeded this amount by evidencing and reporting £191.1 million for the period 2020-22 and are on track to deliver the five-year efficiency milestone of £362.0 million.

Evidence

We deliver primary evidence through case studies and efficiency registers which are independently assured internally and reviewed by the ORR. The chart in Fig. 13 provides the 2020-22 breakdown of carryover efficiency delivered by programme or directorate.

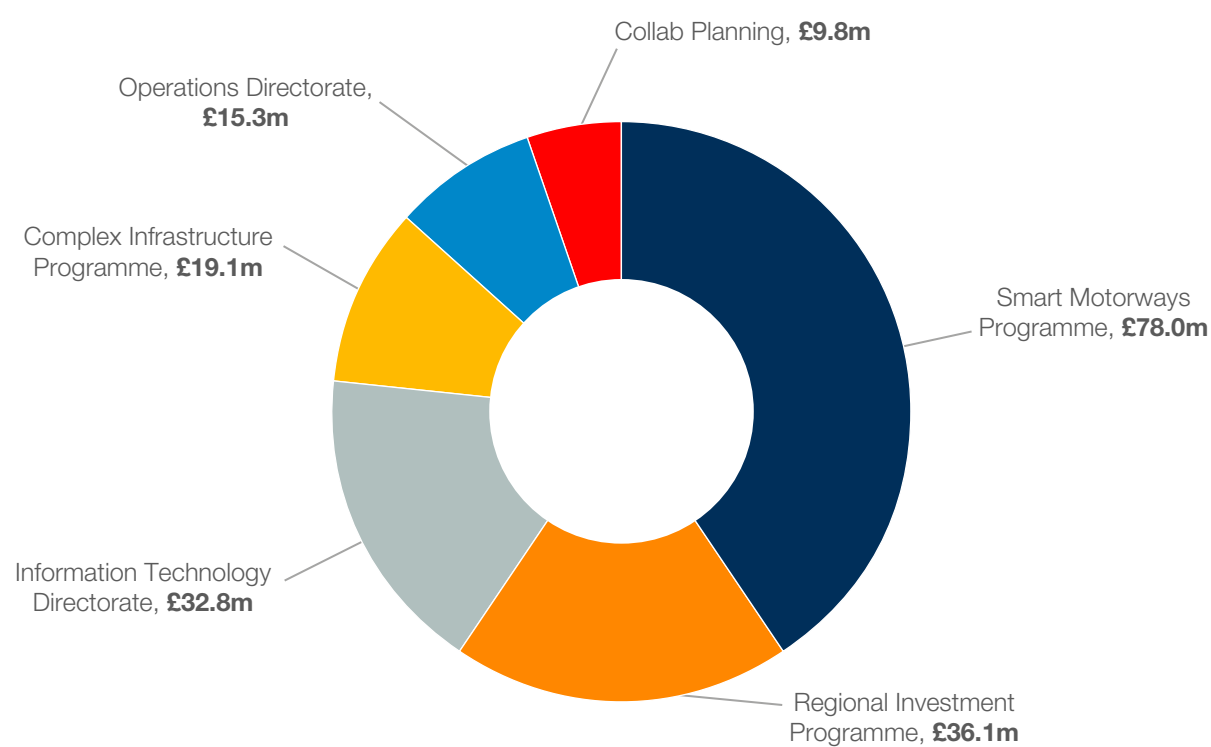


Figure 13: Breakdown of 2020-22 carryover efficiency by programme or directorate

Conclusion

We have generated and realised efficiency to successfully achieve the year 2 milestone of the five-year KPI by delivering £502 million of efficiency against the cumulative milestone of £471 million. Supporting this, we have provided robust secondary evidence strengthening the narrative about how we have successfully delivered against the in-year milestone. We have also met our commitment to deliver our agreed outputs for the funding provided.

While this puts us in a reasonable position as we enter the third year of RP2, several challenges remain including the continuing impact of COVID-19, further schedule movement resulting in change control, the continuing impact of SR21, and inflationary pressures. These are substantial hurdles that we must work to mitigate in order to continue on our trajectory toward the five-year efficiency target. We must also work to address other issues outlined in this report such as accounting for over- and under- delivery of outputs.

As RP2 progresses we will be adding to our secondary evidence provision, including the delivery of further activity metrics on capital renewals and capital enhancements, dialogue with the ORR on the introduction of opex activity metrics and maturation of our efficiency registers and case studies.





Appendices

Appendix A – Capital enhancements secondary evidence

The secondary evidence for Capital Enhancements is a combination of:

- Case studies detailing major programme level initiatives – over £5 million.
- Metrics that capture the difference between the forecast and actual cost of construction activities – known as activity metrics.

Capital enhancements – case studies

We use efficiency registers to record changes that drive efficiency and create case studies for changes exceeding £5 million. They are subject to review by the project, Commercial, Strategy and Planning and Audit and Assurance teams and this ensures that the case study is robust. The efficiency registers are also used to record efficiencies with an RP2 value below £5 million, which are still subject to assurance but where a case study is not required.

The baseline for this evidence is August 2018 on the assumption that initiatives carried out before this date have become business as usual (BAU) in RP2. This applies unless it is demonstrated that the change was either being piloted in RP1 with the intention to roll-out fully in RP2 or was not comprehensively deployed in RP1.

Seven schemes opened for traffic in 2021-22. Cumulatively ten schemes have opened for traffic in RP2 to date, three of which had an efficiency milestone attached. As a result, efficiencies for these three schemes have been entered onto our efficiency registers to a value of £10.8 million for the period 2020-22. This is summarised by scheme under Fig. 14.

Appendix B – Capital renewals secondary evidence

Secondary evidence for renewals is split into two elements;

- Case studies for efficiencies exceeding £5 million.
- Activity metrics.

Capital renewals – case studies

Efficiency registers are used to record efficiency at scheme or programme level which leads to the creation of case studies exceeding £5 million. They are subject to review by the Project, Commercial, Strategy and Planning & Audit and Assurance teams to ensure that case studies are robust. We also use the efficiency registers to record efficiencies with an RP2 value below £5 million, which are still subject to assurance but where a case study is not required.

The baseline for this evidence is August 2018 on the assumption that initiatives carried out before this date have become BAU in RP2. This applies unless it is demonstrated that the change was either being piloted in RP1 with the intention to fully roll-out in RP2 or was not comprehensively deployed in RP1.

Registers can also be populated with initiatives that fall below the £5 million threshold. In such instances a case study does not need to be produced but the principle and calculation of the initiative is still subject to internal assurance.

There was £124.9 million of efficiency reported against 2020-22 through efficiency registers. We have worked to ensure that the case studies cover a high proportion of reported primary efficiency (>100%), offering strong supporting evidence for the in-year milestone. This is summarised by value, type and title under Fig. 15.

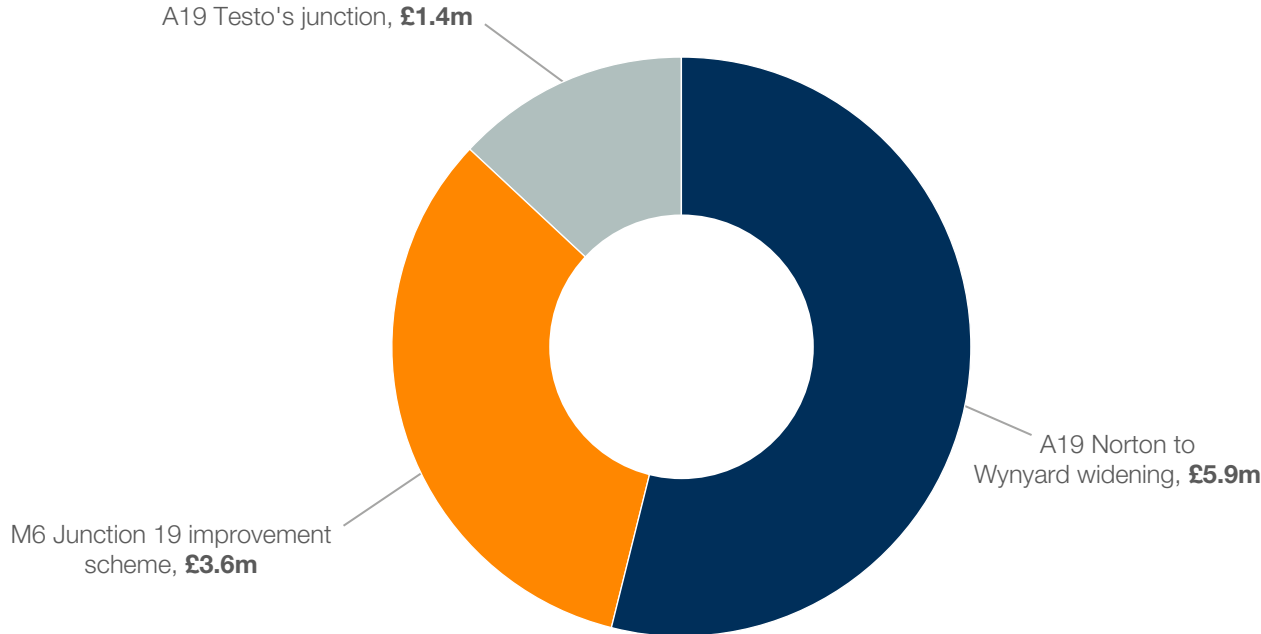


Figure 14: 2020-22 capital enhancements secondary evidence through efficiency registers by scheme

Capital enhancements – activity metrics

We are developing capital enhancement activity metrics based on the unit cost movement of our key scheme types. We have shared our approach with the ORR.

The approach has been to analyse the unit cost movement from the RP1 agreed pre-efficient baseline to the RP2 pre-efficient baseline. We examined the scope and cost profile of each scheme to assess the impact of scope movement, abnormal cost, inflation and RP1 efficiency.

The difference between the derived RP2 pre-efficient and forecast outturn unit costs has then been applied to the equivalent number of additional lane kilometres (ALkm) to be delivered in RP2 based on earned value principles.

We have shown this as the difference between the baseline £ million per ALkm (£m/ALkm) and the RP2 £m/ALkm. For 2020-22 we have developed this for SMP ALR schemes, with metrics for RIP widening and RIP bypass schemes in development and to be shared later in RP2. The results for SMP ALR are subject to the response to the TSC findings on ALR schemes; this position will be sufficiently mature for the 2022-23 report.

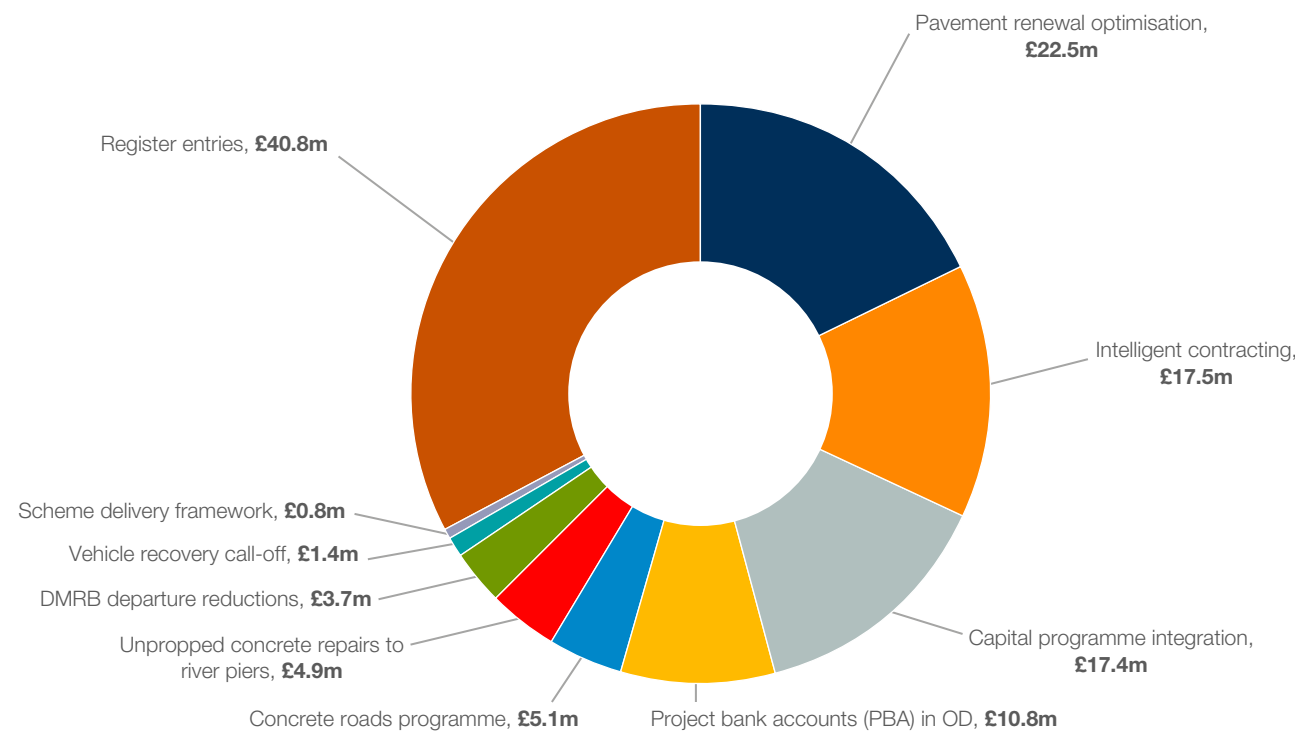


Figure 15: 2020-22 summarisation of capital renewals case studies by title and value

Capital renewals – activity metrics

We are developing capital renewals activity metrics based on the unit cost movement of our key asset deliverables and have shared our approach with the ORR. We have retained the principles of our analysis from 2020-21, and as our RP2 data continues to mature some movement in the numbers is to be expected.

We have developed these by categorising schemes into the relevant asset class using an analytically-assured set of rules. We set a baseline £/unit – for instance, £ per lane km – using the available RP1 data, and then analyse RP2 data to derive the RP2 £/unit. The baseline £/unit and RP2 £/unit are then compared and this gives us an idea of how each asset class is performing. To ensure a like-for-like comparison between the baseline and RP2, the output quantities – or activity – are normalised for both the baseline and RP2.

For 2020-22 our activity metrics cover the asset classes of asphalt resurfacing and steel VRS, alongside newly introduced metrics in 2021-22 for concrete VRS and structures (bridge joints). As RP2 progresses and more data emerges we will be adding other asset classes to our analysis.

The activity metrics support the 2020-22 capital renewals efficiency position. The breakdown of this in Fig.16 shows a 10.7% reduction in the unit cost of asphalt resurfacing schemes (2020-21 – 13.8%), an 8.4% reduction for steel VRS schemes (2020-21 – 4.6%), an 11.5% reduction for concrete VRS schemes and a 1.2% reduction for structures (bridge joints).

Fig.16 also shows the effect that these movements have on our overall spend by using the proportion of spend each asset class constitutes. The metrics therefore show that we were more efficient during 2020-22 compared to the RP1 baseline.

Asset class & unit cost movement	Asset class % of capital renewals spend	Overall effect
10.7% Asphalt resurfacing 	38% 	4.0%
8.4% Steel VRS 	7% 	0.6%
11.5% Concrete VRS 	1% 	0.1%
1.2% Structures (Bridge Joints) 	4% 	0.0%

Figure 16: RP2 activity metric results, cumulative position end 2020-22

Appendix C – Opex secondary evidence

We provide secondary evidence for opex through efficiency registers, mainly comprising case studies with an RP2 value higher than £5 million. We supplement these by assured efficiencies with a value below £5 million which do not have an accompanying case study.

There was £112.3 million of efficiency reported against 2020-22 through efficiency registers. We have worked to ensure that the case studies cover a high proportion of reported primary efficiency (99.3%), offering strong supporting evidence for the in-year milestone. The value and title of the case studies used as evidence is detailed in Fig.17.

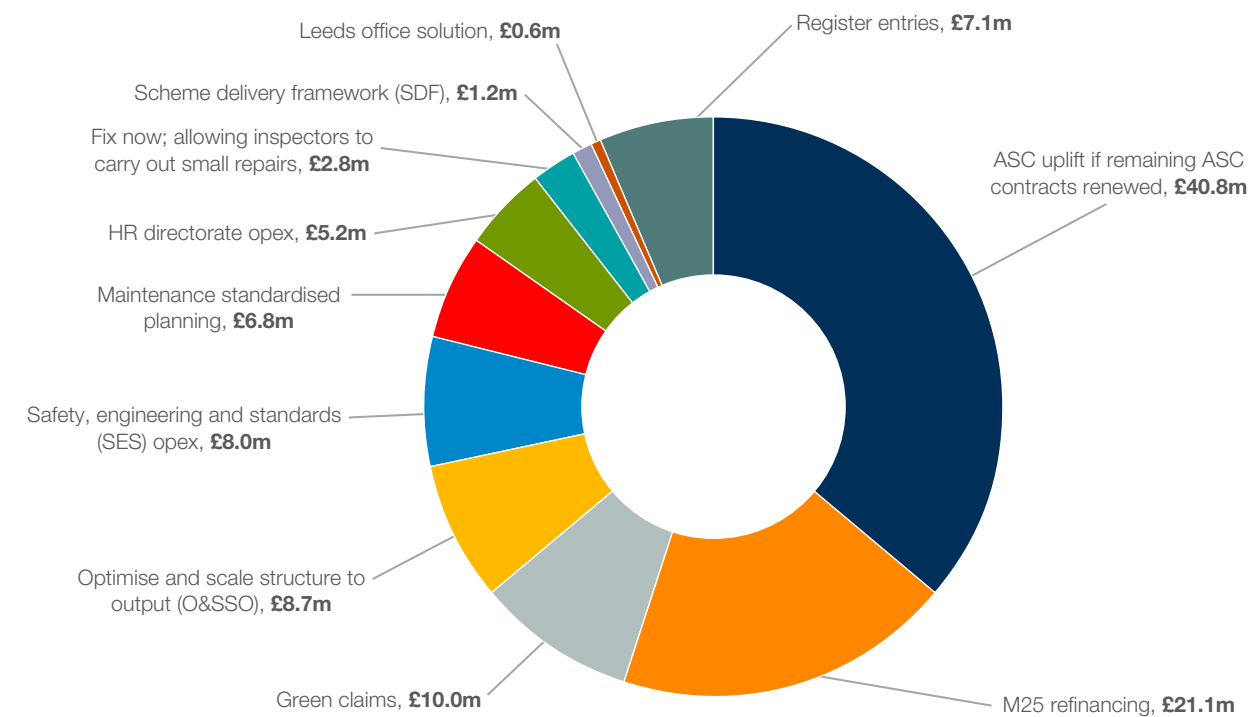


Figure 17: 2020-22 summarisation of opex case studies by title and value

Regarding activity metrics on opex we continue to have discussions with the ORR on the most suitable approach to help in their assessment of our performance.

Appendix D – Non-roads capex secondary evidence

We provide secondary evidence for non-roads capex through efficiency registers, mainly comprising case studies with an RP2 value higher than £5 million. We supplement these by assured efficiencies with a value below £5 million which do not have an accompanying case study.

There was £11.9 million of efficiency reported against 2020-22 through efficiency registers. We have worked to ensure that the case studies cover a proportion of reported primary efficiency (49.8%), offering some supporting evidence for the in-year milestone. The value and title of the case studies used as evidence is detailed in Fig.18.

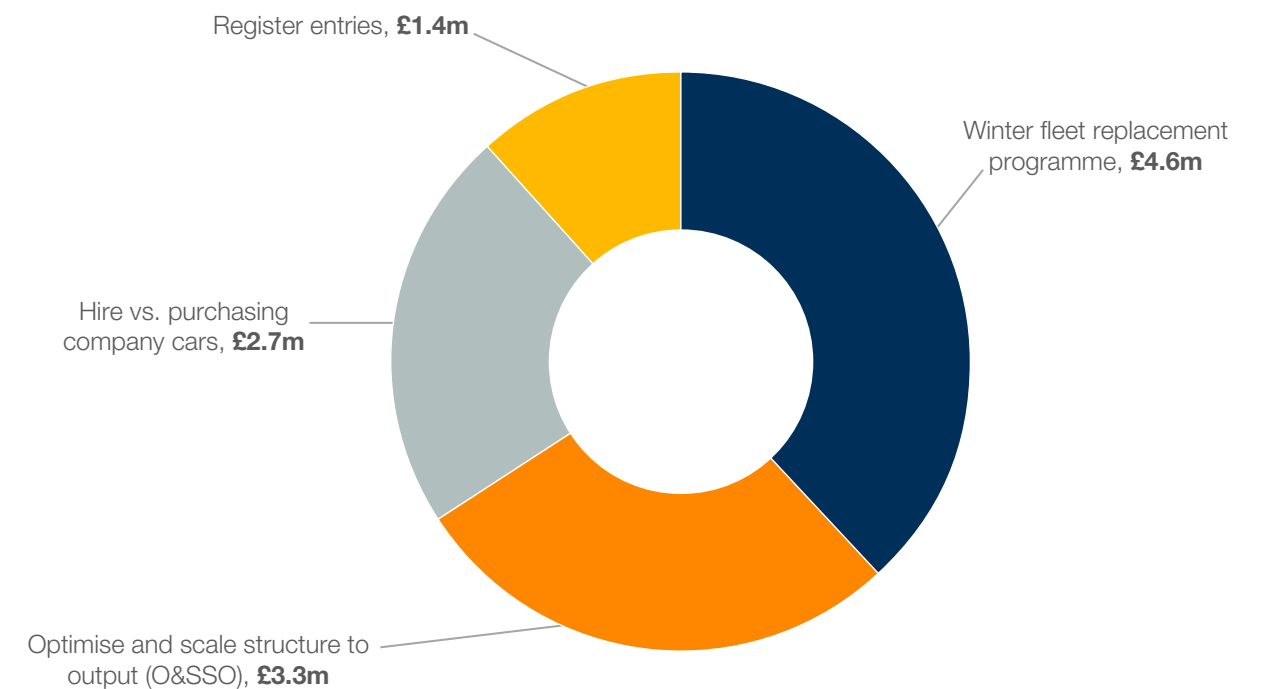


Figure 18: 2020-22 summarisation of opex case studies by title and value

Appendix E – Capability

Capability is the interaction of resources to deliver our safety, customer and delivery objectives. We have recognised the need to work collaboratively with our supply chain, increasing our individual and combined capability, to meet the challenges of current and future road periods. The change programmes initiated to date are summarised earlier in the main body of the report under Fig.5 of Section 2.

This comprehensive programme has been ongoing since the start of RP1 and covers every part of the business. It is summarised in Fig.19 below.

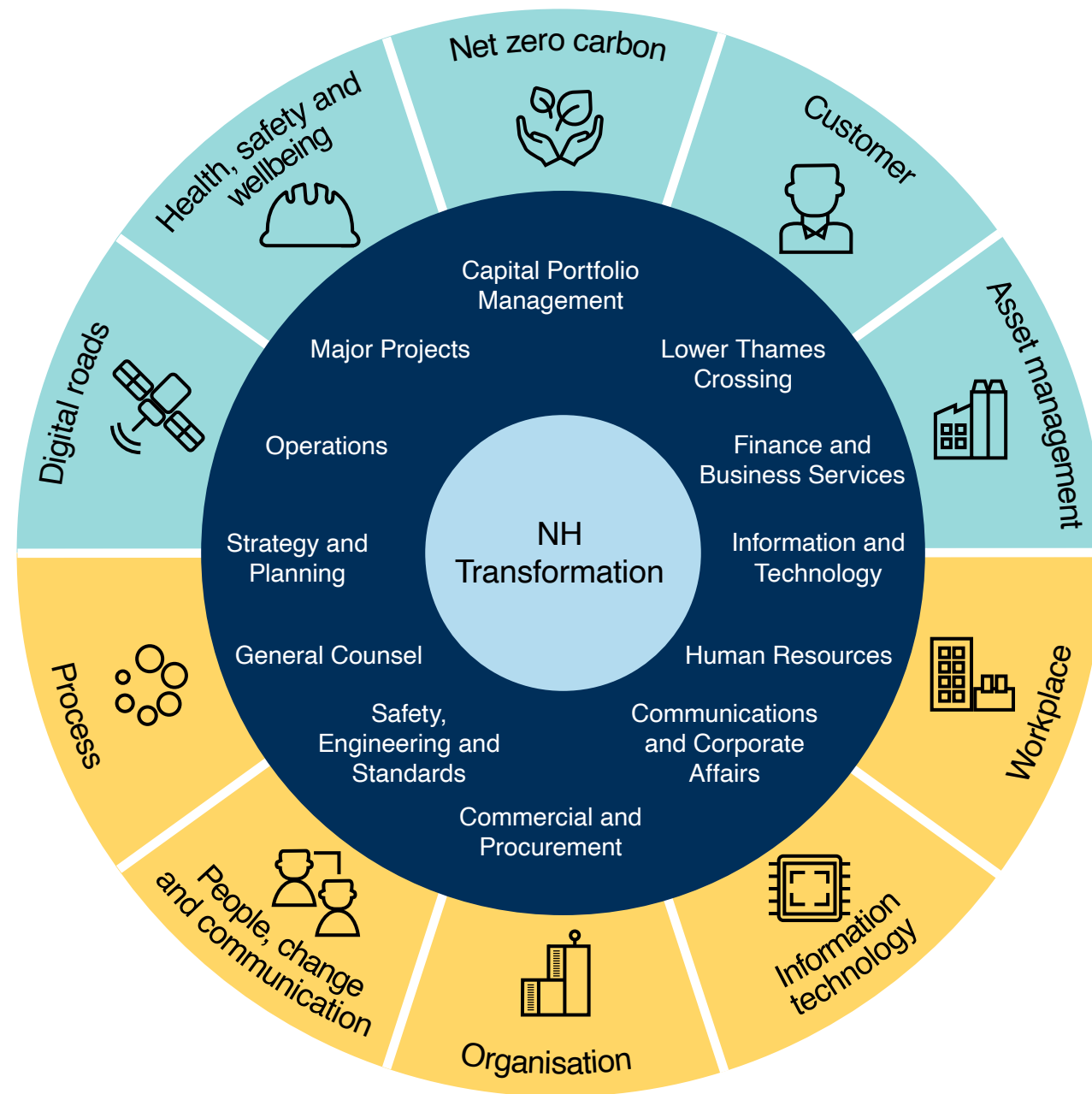


Figure 19: NH Transformation Programme initiatives

It is coordinated through the National Highways Transformation Programme and is designed to cover current and future corporate objectives in every part of NH:

- People development (our most important resource):
 - Externally benchmark to compare functional headcount against other relevant bodies.
 - Reduce reliance on external resource.
 - Upskill our people and our supply chain.
 - Measure and increase levels of engagement.
- Process development:
 - Apply lean techniques to all activities.
 - Remove processes which do not add value.
 - Increase collaboration and remove silos.
- Digital Technology and data management:
 - Increase commercial intelligence, financial control and asset stewardship maturity.
 - Utilise technology innovation in everything we do.
 - Make timely decisions based on robust information.

At the same time, we are investing in research and development to identify, validate and implement technological innovation which will enable us to become more effective in the future. Opportunities are shared with our supply chain and other publicly funded organisations to ensure that the benefit to the economy is maximised.

Appendix F – Glossary of terms

Carryover	Efficiency which has been identified and secured in RP1, but is also realised in RP2.
Central Risk Reserve (CRR)	A contingency within our funding for unexpected risks.
Change Control	A formal process where significant funding impacts, and any resultant effect on efficiency, are agreed with DfT and ORR.
Designated Funds (Des Funds)	During the first road period, the government created a series of designated funds, to address a range of issues over and above the traditional focus of road investment, including: growth and housing, innovation, environment, air quality, and cycling, safety and integration.
Efficiency and Inflation Monitoring Manual (EIMM)	Document that sets out the approach National Highways uses to define, demonstrate and provide evidence of its delivery of efficiency in RP2. It also sets out how the comparison between forecast (assumed) inflation and actual inflation will be evaluated during the RP.
Efficiency Register	This is a standard document that captures efficiencies, as well as associated reporting information, value, evidence and approval information. Each entry in the register is supported by a justification as to the reason why the entry is considered to be an efficiency claim.
Embedded efficiency	Efficiency that reduces the funding required at project level and is already built into the post-efficient business plan. Applies to projects and programmes of work that had a defined scope and schedule when the SBP was drafted, or outputs against which efficiency can be measured and against which post-efficient cost baselines have been set.
Lever	Repeatable efficiency initiatives that can be utilised across multiple schemes and programmes of work.
License	Sets out the Secretary of State's aims, objectives and conditions for National Highways.
Measured efficiency	Efficiency that is split into two types, RP2 Generated and Carryover. Measured efficiency will not reduce the funding for RP2 but will, in general, benefit later road periods or reduce risk within RP2. This includes whole life cost efficiency cases.
Nationally Significant Infrastructure Project	Major infrastructure projects which require a type of consent known as 'development consent' under procedures governed by the Planning Act 2008.

Open for Traffic (OfT)	The date at which a scheme has completed and opened to receive traffic.
Post-efficient	Where we challenged historic costs and delivery approaches and then built efficiency expectations into the SBP; further detail on this can be found in the EIMM.
Pre-efficient	Costs prior to implementing the principle of post-efficient costs.
Primary evidence	For embedded efficiency, this is the delivery of the output or outcomes for the funding provided. For measured evidence, this is the use of efficiency registers, case studies and efficiency guides for demonstrating efficiency.
Regional Delivery Partnerships (RDP)	An initiative to incentivise suppliers to improve safety and deliver increased value. This approach contains incentives for results including: shorter and more accurate roadworks; more efficient, local buying; innovation; and increased environmental benefits.
Renewals Risk Reserve (RRR)	A contingency within our funding for unexpected risks.
Road Investment Strategy (RIS)	Government's long-term strategy for the strategic road network.
RP2 Generated	Efficiency that does not reduce the funding required for RP2, but will, in general, benefit later road periods or reduce risk within RP2. This type of efficiency will apply to the areas of the plan which did not include an efficiency challenge in the SBP and were therefore left as pre-efficient costs.
Secondary evidence	Supplementary evidence used to support primary evidence, which is provided through efficiency registers, case studies, and activity metrics
Smart Motorways Project (SMP)	Motorways that use technology to manage the flow of traffic, controlled from National Highways control centres. They monitor traffic and set variable speed limits and signs to help keep the traffic flowing safely and freely.
Start of Works (SoW)	The date at which construction formally starts on a scheme.
Strategic Business Plan (SBP)	National Highways response to government's second Road Investment Strategy (RIS2). It presents the balancing between maintaining and operating the SRN safely, and providing new capacity where it is needed.
Strategic Road Network (SRN)	The network of roads managed by National Highways, comprising motorways and some A-roads.

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